

# WG20

Gear Units and Geared Motors up to 159,000 lb-in

TECHNICAL CATALOG



Motors | Automation | Energy | Transmission & Distribution | Coatings



## WEG Group - Transforming energy into solutions.

WEG is a leading global manufacturer and solutions provider of drive technology, automation devices and energy production and distribution.

Founded in Brazil in 1961 by three entrepreneurs, WEG has grown to become one of the most important global manufacturers of electric motors. The WEG Group has more than 33,000 employees around the world. An annual turnover of over 3 billion dollars reflects its increasing success. The company's global presence is supported by branches in 36 countries, production facilities, and a network of authorized dealers on all five continents.

# Your requirements - our expertise

As one of the leading global manufacturers and solutions providers of drive technology, WEG's aim was to expand its extensive range of products with the addition of gear units produced in its own facilities. Perfect coordination of products throughout the drive train has put WEG in a position to offer customers even more superior and efficient solutions.

Under the leadership of Watt Drive, the challenge was to develop a program which not only meets the current demands of the market, but also satisfied WEG's high quality requirements. The Group's own center of excellence for geared motors in Austria, part of the WEG Group since 2011, can draw on more than 40 years of experience in development, production and sales of gear units and geared motors.

In order to satisfy the requirements of state-of-the-art geared motors the following market requirements were taken into account during the development phase:

## Standard mounting dimensions

For users, the aim was to make the new range of geared motors as easy and effortless to use as possible. To ensure installation in an existing system or production line worked effortlessly without incurring unnecessary costs for

conversions, the developers decided to adapt the mounting dimensions of the new gear units to products already established on the market. The objective: worldwide, easy and cost-effective interchangeability.

## Torque transmission

The gear units needed to be compact, efficient, robust and reliable. In order to achieve this goal a transmission had to be designed which allows large ratio ranges in a two-stage model while being able to integrate easily into the newly designed gear housing.

## Efficiency

Energy efficiency has always been of paramount importance to WEG. The aim here was to live up to this demand when designing the new WG20 geared motors. This requires the perfect interaction of sophisticated technology and exclusive use of high quality components.

## Worldwide use

To meet the requirements of global mechanical and plant engineering, it was vital that the new geared motors can be used worldwide, whilst maintaining a high level of flexibility for applications.

The solution is **WG20**.





[www.cat4cad.com](http://www.cat4cad.com)

## Easy product selection

The “cat4CAD®” product configuration tool makes it easy to interactively select products. Comprehensive wizards, user-friendly navigation and many other extra features allow quick configuration of the required drive.

### Advantages

- Extensive product library
- Fast configuration of motors and geared motors
- Creation of project files with comprehensive technical documentation
- Easy modification of generated product data by means of the project file
- Quick request times

### Features

- The entire menu is available in many languages.
- To-scale 2D/3D drawings and PDF and DXF dimension sheet drawings of the previously selected drive.
- The 2D/3D data can be exported for use in standard CAD programs.
- Comprehensive technical data sheets of the configured gear unit and motor at the click of a button.
- The project file allows complete management of previously selected drives on one screen.  
At the click of a button one can save or print this project file, create PDF and DXF dimension drawings, and send enquiries directly to our sales team.

**Online version available at [www.cat4cad.com](http://www.cat4cad.com)**

**Offline version for download at [www.wattdrive.com](http://www.wattdrive.com)**

# WG20 - Geared motors up to 159,000 lb-in

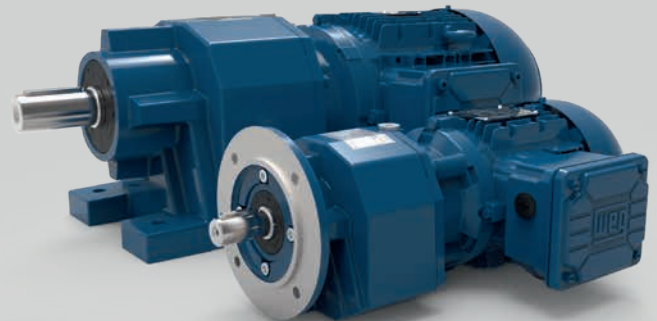
WG20 is the first geared motor range to be completely developed in-house at WEG. It comprises helical, parallel shaft and helical bevel gear units with torques between 440 and 159,000 lb-in. Already the two-stage units excel with their large ratio range, as well as being exceptionally efficient thanks to the sophisticated design. The light aluminium housings of the gear units up to 5,310 lb-in and the robust cast iron housings from 7,260 lb-in provide a highly versatile and reliable product, with a wide range of possible applications.

## Helical geared motors C

Nominal torque: 440 - 159,000 lb-in

Power range: 0.16 - 100 hp

Ratio range: 2.44 - 22,405.25

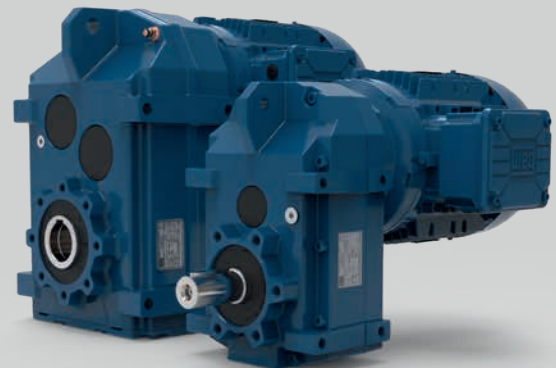


## Parallel shaft geared motors F

Nominal torque: 1150 - 159,000 lb-in

Power range: 0.16 - 100 hp

Ratio range: 3.85 - 24,805.81

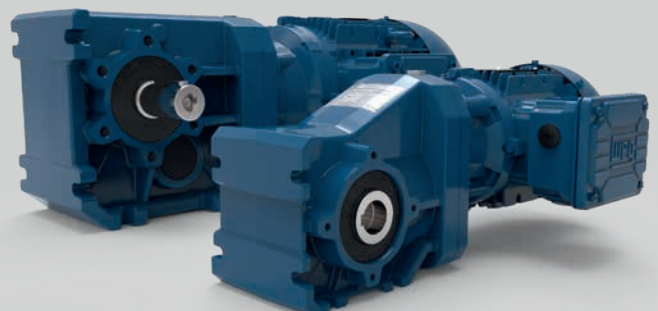


## Helical bevel geared motors K

Nominal torque: 970 - 159,000 lb-in

Power range: 0.16 - 100 hp

Ratio range: 3.82 - 14,005.40





# Table of Contents

Drive calculation .....	8
1. Drive power .....	8
2. Load types .....	10
3. Service factor.....	10
Thermal power limit .....	11
Input types .....	12
1. IEC Adapter I .....	12
2. NEMA Adapter N.....	13
3. SERVO Adapter S.....	13
4. Input Unit U .....	13
Explosion-proof gear units and geared motors.....	15
Table of lubricants.....	17
Lubricant expansion unit.....	17
Painting .....	18
Degrees of protection .....	18
Helical geared motors C .....	19
Technical Data .....	20
General information .....	20
1. Nameplate.....	20
2. Type code.....	21
3. Range.....	22
4. Design .....	22
5. Venting the gear unit.....	22
6. Overhung and axial loads.....	22
7. Mounting positions, Position of the terminal box and Cable entry.....	24
Selection tables - Geared motors .....	29
Selection tables - Gear units.....	99
Dimension sheets - Geared motors .....	135
Dimension sheets - Input types.....	173
Parallel shaft geared motors F .....	179
Technical Data .....	180
General information .....	180
1. Nameplate.....	180
2. Type code.....	181
3. Range.....	182
4. Design .....	182
5. Venting the gear unit.....	182
6. Overhung and axial loads.....	182
7. Mounting positions, Position of the terminal box and Cable entry.....	184
Selection tables - Geared motors .....	187
Selection tables - Gear units.....	253
Dimension sheets - Geared motors .....	287
Dimension sheets - Input types.....	323
Helical bevel geared motors K .....	329
Technical data .....	330
General information .....	330
1. Nameplate.....	330
2. Type code.....	331
3. Range.....	332
4. Design .....	332
5. Venting the gear unit.....	332

6. Overhung and axial loads.....	332
7. Mounting positions, Position of the terminal box and Cable entry.....	334
Selection tables - Geared motors .....	337
Selection tables - Gear units.....	393
Dimension sheets - Geared motors .....	429
Dimension sheets - Input types.....	465

## Modular System Motor ..... 471

The modular motor system.....	473
The modular system motor.....	474
Type code.....	475
Options .....	476
1. Basic execution .....	476
2. Electrical options .....	476
3. Mechanical options.....	476
4. Options - motor modules.....	477
5. Additional options.....	477
General information .....	478
1. Nameplate.....	479
2. Voltage and frequency fluctuations.....	479
3. Modes of operation.....	480
4. Rated power according to VDE 0530-1 .....	480
5. Power correction factors.....	481
6. Torque .....	481
7. Efficiency class .....	481
8. Motor protection.....	481
9. Overload protection (protection relay).....	481
10. Speed and rotation direction.....	481
11. Cable entry .....	481
12. Motors for the Ex area according to Directive 2014/34/EU.....	482
13. Cooling.....	482
14. Insulation .....	482
15. Noise levels .....	482
16. Balancing of rotors.....	482
17. Shaft ends.....	482
18. Voltage, current and frequency .....	482
19. Electrical connection.....	483
20. Variable speed drive application .....	484
Electrical basic data.....	485
Dimension sheets .....	488
Motor modules.....	493
High / Low temperature execution.....	493
Temperature control .....	493
Anti-condensation heater .....	493
Climatic protection .....	494
Drain .....	494
Terminal box designs.....	494
Brake systems and Backstop.....	497
Encoder systems .....	508
Ventilation systems.....	511
Additional modules.....	513
Standards.....	514

## Disclaimer

This catalog contains information (descriptions and characteristics), which do not always apply as described in case of actual use. Data can also change due to product development. Characteristics are only binding if explicitly agreed to in the contract. Delivery opportunities and technical modifications subject to change without notice.

# Drive calculation

## 1. Drive power

The required total power is divided into static and dynamic components. The static power is the component at constant speed (friction and lifting force). The dynamic component is the power for accelerating and decelerating of masses.

The selected rated motor power ( $P_N$ ) must be bigger than the required static drive power. The required total power can be bigger than the rated motor power but it must be smaller than the maximum motor power.

	Formula	Unit
Output speed of the gear unit	$n_2 = \frac{v}{2 \cdot \pi \cdot r}$	[rpm]

Static drive power		
Linear movement Horizontal movement (conveyor, travel drive)	$P_{\text{stat}} = \frac{m \cdot g \cdot \mu \cdot v}{1062000 \cdot \eta}$	[hp]
Inclined movement (inclined conveyor, travel drive with inclination)	$P_{\text{stat}} = \frac{m \cdot g \cdot v \cdot (\sin \alpha + \mu \cdot \cos \alpha)}{1062000 \cdot \eta}$	[hp]
Vertical movement (lifting drive, hoist, bucket elevator)	$P_{\text{stat}} = \frac{m \cdot g \cdot v}{1062000 \cdot \eta}$	[hp]
Static output torque	$T_{2\text{stat}} = \frac{P_{\text{stat}} \cdot 63025}{n_2}$	[lb-in]

Dynamic drive power (acceleration/deceleration power)		
Horizontal movement	$P_{\text{dyn,A,(B)}} = \frac{m \cdot v^2}{63690000 \cdot t_{A,(B)} \cdot \eta}$	[hp]
Rotary motion	$P_{\text{dyn,A,(B)}} = \frac{\sum J_{\text{red.}} \cdot n_1^2}{1614000 \cdot t_{A,(B)} \cdot \eta}$	[hp]
Starting respectively braking time	$t_{A,(B)} = \frac{\sum J_{\text{red.}} \cdot n_1}{102.8 \cdot (T_{A,(B)} \pm T_L)}$	[s]
Minimum starting time against slipping	$t_{A\text{min}} = \frac{v}{60 \cdot \mu_0 \cdot g}$	[s]
Load torque of motor	$T_L = \frac{T_{2\text{stat}}}{3 \cdot i}$	[lb-in]
Starting power	$P_A = P_{\text{dyn,A}} + P_{\text{stat}}$	[hp]
Braking power	$P_B = P_{\text{dyn,B}} \pm P_{\text{stat}}$	[hp]
Starting / braking torque	$T_{2,A,(B)} = \frac{P_{A,(B)} \cdot 63025}{n_2}$	[lb-in]

+ $T_L$  for braking when the load acts in a braking manner (e.g. lifts when going up)  
 - $T_L$  for starting or for braking when the load acts accelerative (e.g. lifts when going down)



## Mass moments of inertia

External load moments of inertia have to be reduced onto the motor shaft by squared ratios.

Reduced mass moment of inertia	$J_{ex.red.} = \frac{J_{ex}}{i^2}$	[lb-ft <sup>2</sup> ]
<p style="text-align: center;">Solid cylinder</p>	$J_{ex.red.} = 0.0982 \cdot \rho \cdot l \cdot d_a^4 \cdot \left(\frac{n_x}{n_1}\right)^2$	[lb-ft <sup>2</sup> ]
<p style="text-align: center;">Hollow cylinder</p>	$J_{ex.red.} = 0.0982 \cdot \rho \cdot l \cdot (d_a^4 - d_i^4) \cdot \left(\frac{n_x}{n_1}\right)^2$	[lb-ft <sup>2</sup> ]
<p style="text-align: center;">Linear movement</p>	$J_{ex.red.} = 0.02534 \cdot m \cdot \left(\frac{v}{n_1}\right)^2$	[lb-ft <sup>2</sup> ]

### Approximate values for friction coefficients:

Rolling friction:  $\mu_r = 0.005 - 0.02$  steel/steel  
 $\mu_r = 0.02 - 0.06$  plastic/steel  
 $\mu_r = 0.06 - 0.2$  rubber/steel

Static friction:  $\mu_0 = 0.15$  steel/steel

Friction coefficient for conveyors:

$\mu_r = 0.13$  33 foot conveyor length  
 $\mu_r = 0.08$  82 foot conveyor length  
 $\mu_r = 0.06$  164 foot conveyor length  
 $\mu_r = 0.05$  328 foot conveyor length

Designation	Unit	Description
$d_a$	[ft]	Outside diameter
$d_i$	[ft]	Inside diameter
$f_B$		Service factor
$F_I$		Inertial factor
$g$	[ft/s <sup>2</sup> ]	Acceleration due to gravity
$i$		Gear ratio
$J_{ex.red.}$	[lb-ft <sup>2</sup> ]	All external mass moments of inertia corrected to motor input
$J_{ex}$	[lb-ft <sup>2</sup> ]	All external mass moments of inertia
$J_{mot}$	[lb-ft <sup>2</sup> ]	Mass moment of inertia of the motor
$\Sigma J_{red.}$	[lb-ft <sup>2</sup> ]	Sum of all $J_{red.}$ values
$l$	[ft]	Length
$m$	[lb]	Mass
$T_{2,A}$	[lb-in]	Output torque of gear unit for starting
$T_{2,B}$	[lb-in]	Output torque of gear unit for braking
$T_{2Nenn}$	[lb-in]	Permissible output torque
$T_{2stat}$	[lb-in]	Static output torque
$T_A$	[lb-in]	Starting torque of the motor (see motor electric data sheets from page 485)
$T_B$	[lb-in]	Brake torque

Designation	Unit	Description
$T_L$	[lb-in]	Load torque of motor
$n_1$	[rpm]	Input speed (motor speed)
$n_2$	[rpm]	Output speed (gear unit)
$n_x$	[rpm]	Speed of calculated components
$P_A$	[hp]	Power of gear unit at start
$P_B$	[hp]	Power of gear unit at stop
$P_{stat}$	[hp]	Static power
$P_{dyn,A}$	[hp]	Dynamic acceleration power
$P_{dyn,B}$	[hp]	Dynamic deceleration power
$r$	[ft]	Sprocket / roller radius
$t_{Amin}$	[s]	Minimum starting time with risk of slip
$t_A$	[s]	Starting time
$t_B$	[s]	Braking time
$v$	[fpm]	Linear velocity
$\alpha$	[°]	Angle of inclination
$\eta$		Efficiency of the gear unit, system
$\mu$		Coefficient of friction
$\mu_0$		Coefficient of static friction
$\mu_r$		Coefficient of rolling friction
$\rho$	[lb/ft <sup>3</sup> ]	Density (steel = 490 lb/ft <sup>3</sup> )

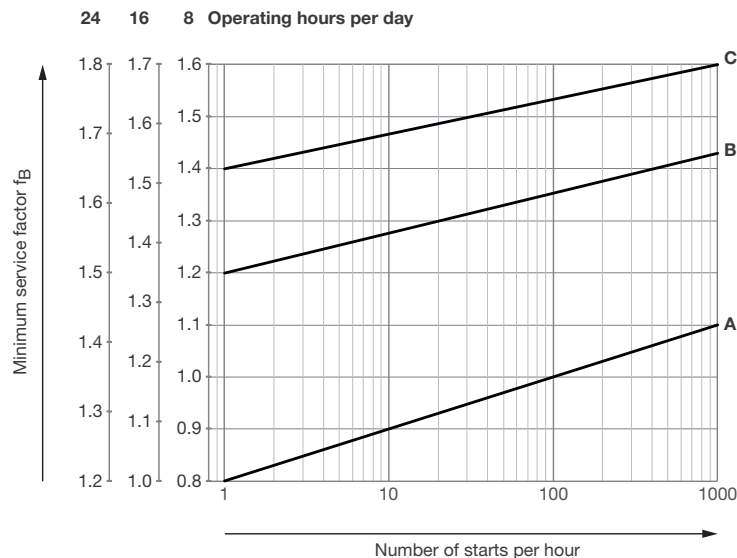
## 2. Load types

Load type A	Load type B	Load type C
Uniform load, small masses to be accelerated, no shocks	Non-uniform load, medium masses to be accelerated, medium shocks	Extremely rough conditions, high masses to be accelerated, heavy shocks and alternating load
Examples: Continuous conveyor for bulk goods, light conveyors, blowers, centrifugal pumps, light elevators, screw conveyors, fluid agitators	Examples: Bucket conveyors, rotary furnaces, printing and dyeing machines, conveyor drums, centrifugal pumps and semi fluid good agitators, wood working machines, elevators, screw conveyors, concrete mixers	Examples: Ramming machines, calenders, duty rolling mills, presses, heavy mixer, stone crushers, shredders, heavy winches and lifts

## 3. Service factor

The gear unit required can be selected from the following tables showing the power, torque and output speed options. All our gear units are adequately sized for long-life industrial applications and are designed for continuous loading under uniform operating conditions with small masses to be accelerated. Operating times of 8-10 hours a day are considered standard. No drive can be built to withstand all possible conditions, therefore the load conditions at the site have to be determined accurately and the proper load type identified. After determining the daily operating hours, selecting the type and establishing the number of starts (c/h), see the following diagram to find out the necessary service factor  $f_B$ . The inertial factor  $F_I$  assists in evaluating and attributing the masses to be accelerated. The service factor given in the tables indicates the reserve load in the rated torque for the specific gear unit.

In the tables you can usually choose between two types of gear units with the same or similar speeds, but different service factors. When you select the correct gear unit, the  $f_B$  from the diagram below should always be less than or equal to the available  $f_B$  (from the selection tables) for the chosen type. For short time operation, you can sometimes select a smaller gear unit, while for peak operation, a large number of starts or 24-hour continuous operation, a larger type is necessary. The output speed figures shown in the selection tables have been rounded up or rounded off. They may however vary due to the motor size and are valid for nominal load. Deviations of +/- 3 % are permissible.



	Formula	Unit
Service factor	$f_B = \frac{T_{2Nenn}}{T_{2stat}}$	
Inertial factor	$F_I = \frac{\sum J_{ex,red} + J_{mot}}{J_{mot}}$	[rpm]

Modes of operation DIN EN 60034-1 see page 480

Legend see page 9.

# Thermal power limit

The thermal power limit  $P_t$  must always be taken into account when designing a drive. It represents the maximum input power which can be transmitted by the gear unit at the given ambient temperature in a continuous operation mode (S1).

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +68 °F. Thermal power limits for other temperatures can be seen in the table below.

Parameters to be considered:

- Higher / lower temperatures
- Vertical mounting positions (M2 or M4)
- Higher input speed (> 1800 rpm) due to e.g. use of frequency inverter
- Small ratios
- Confined mounting space

For such conditions we recommend consulting WEG. The geared motors can be adapted according to customer requirements by using e.g. lubricant expansion, optimized oil quantities, synthetic oils or Viton seal rings.

Gear size	Ambient temperature								
	-4 °F	+14 °F	+32 °F	+50 °F	+68 °F	+86 °F	+104 °F	+122 °F	+140 °F
C002	3.4	2.8	2.4	2.0	1.6	1.3	0.9	0.7	0.4
C012	6.7	5.8	4.8	4.0	3.4	2.7	2.0	1.5	0.9
C032	13.4	11.7	9.9	8.3	6.7	5.4	4.0	2.8	1.7
C033	8.2	7.0	6.0	5.0	4.0	3.2	2.4	1.7	1.1
C052	25.5	21.5	18.8	16.1	12.7	10.1	7.6	5.4	3.4
C053	14.8	13.1	11.3	9.4	7.6	6.0	4.6	3.2	2.0
C062	34.9	29.5	25.5	21.5	17.4	13.4	10.5	7.4	4.7
C063	21.5	18.8	14.8	12.9	10.5	8.3	6.3	4.4	2.8
C072	45.6	38.9	33.5	28.2	22.8	17.4	13.4	9.7	6.0
C073	26.8	22.8	20.1	16.1	13.4	10.9	8.2	5.8	3.6
C082	77.8	67.1	56.3	46.9	38.9	30.8	22.8	16.1	10.3
C083	46.9	40.2	34.9	28.2	22.8	18.8	14.8	9.9	6.3
C092	110.0	95.2	80.5	67.1	55.0	42.9	33.5	22.8	14.8
C093	65.7	57.7	48.3	40.2	33.5	26.8	20.1	14.8	8.9
C094	45.6	38.9	33.5	28.2	22.8	17.4	13.4	9.7	6.0
C102	138.1	119.4	100.6	84.5	68.4	55.0	41.6	29.5	18.8
C103	83.1	72.4	61.7	51.0	41.6	33.5	25.5	17.4	11.1
C104	56.3	48.3	41.6	34.9	28.2	22.8	17.4	12.1	7.5
C132	190.4	164.9	140.8	116.7	95.2	76.4	57.7	40.2	25.5
C133	115.3	99.2	84.5	71.1	57.7	45.6	34.9	24.1	16.1
C134	77.8	67.1	57.7	48.3	38.9	30.8	24.1	16.1	10.5
C142	256.1	221.3	187.7	156.9	128.7	101.9	76.4	55.0	34.9
C143	154.2	132.8	114.0	95.2	77.8	61.7	46.9	33.5	20.1
C144	104.6	91.2	76.4	64.4	52.3	41.6	32.2	22.8	14.8
C162	363.4	313.8	266.9	224.0	182.4	144.8	110.0	77.8	48.3
C163	219.9	189.1	160.9	135.4	110.0	87.2	65.7	46.9	29.5
C164	148.9	128.7	110.0	91.2	75.1	59.0	45.6	32.2	20.1
C165	108.6	93.9	79.1	67.1	55.0	42.9	32.2	22.8	14.8
F022	11.3	9.7	8.2	6.8	5.6	4.4	3.4	2.4	1.5
F032	14.8	13.0	11.1	9.3	7.6	6.0	4.6	3.2	2.0
F042	24.1	20.1	17.4	14.8	11.9	9.5	7.2	5.1	3.2
F043	14.8	12.5	10.6	8.9	7.2	5.8	4.3	3.1	1.9
F052	32.2	28.2	24.1	20.1	16.1	13.0	9.8	7.0	4.4
F053	20.1	17.4	14.8	12.1	9.9	7.8	5.9	4.2	2.7
F062	41.6	36.2	30.8	25.5	20.1	16.1	12.5	8.9	5.5
F063	25.5	21.5	18.8	14.8	12.5	9.9	7.5	5.4	3.4
F072	68.4	59.0	49.6	41.6	33.5	26.8	20.1	14.8	9.1
F073	41.6	34.9	30.8	25.5	20.1	16.1	12.3	8.9	5.5

Thermal power limit  $P_t$  [hp]

F082	97.9	84.5	72.4	60.3	49.6	38.9	29.5	21.5	13.1
F083	59.0	51.0	42.9	36.2	29.5	24.1	17.4	12.6	7.9
F084	40.2	34.9	29.5	24.1	20.1	16.1	12.1	8.6	5.4
F092	143.5	123.4	104.6	87.2	71.1	56.3	42.9	30.8	18.8
F093	85.8	75.1	63.0	53.6	42.9	34.9	25.5	18.8	11.5
F094	59.0	51.0	42.9	36.2	29.5	22.8	17.4	12.1	7.9
F102	210.5	182.4	154.2	128.7	105.9	83.1	63.0	45.6	28.2
F103	127.4	110.0	93.9	77.8	64.4	51.0	38.9	26.8	17.4
F104	85.8	75.1	63.0	53.6	42.9	34.9	25.5	18.8	12.1
F122	295.0	254.8	217.2	181.0	147.5	116.7	88.5	63.0	40.2
F123	178.4	154.2	131.4	110.0	89.8	71.1	53.6	37.5	24.1
F124	120.7	104.6	88.5	73.8	60.3	48.3	36.2	25.5	16.1
F152	451.9	390.2	331.2	277.6	226.6	179.7	135.4	96.6	60.3
F153	272.2	236.0	199.8	167.6	136.8	108.6	81.8	57.7	36.2
F154	185.1	159.6	135.4	114.0	92.5	73.8	56.3	40.2	25.5
F155	134.1	116.7	99.2	83.1	67.1	53.6	40.2	28.2	17.4
K022	13.4	11.8	9.9	8.3	6.8	5.4	4.2	3.0	1.9
K033	13.4	11.5	9.8	8.2	6.7	5.4	4.0	2.8	1.7
K043	21.5	18.8	16.1	13.1	10.7	8.4	6.4	4.6	2.8
K053	28.2	24.1	20.1	17.4	13.4	11.1	8.4	6.0	3.8
K063	30.8	26.8	22.8	18.8	16.1	12.5	9.4	6.7	4.2
K073	49.6	42.9	36.2	30.8	25.5	20.1	14.8	10.7	6.7
K083	59.0	51.0	42.9	36.2	29.5	22.8	17.4	12.6	7.9
K084	40.2	34.9	29.5	24.1	20.1	16.1	12.1	8.6	5.4
K093	83.1	72.4	61.7	51.0	41.6	33.5	25.5	17.4	11.1
K094	56.3	48.3	41.6	34.9	28.2	22.8	17.4	12.1	7.6
K103	127.4	110.0	92.5	77.8	63.0	51.0	38.9	26.8	17.4
K104	85.8	73.8	63.0	52.3	42.9	34.9	25.5	18.8	11.5
K123	175.7	151.5	128.7	107.3	88.5	69.7	52.3	37.5	24.1
K124	119.4	103.3	87.2	73.8	60.3	46.9	36.2	25.5	16.1
K153	248.1	214.6	182.4	152.9	124.7	99.2	75.1	53.6	33.5
K154	169.0	146.2	123.4	103.3	84.5	67.1	51.0	36.2	22.8
K155	122.0	105.9	89.8	75.1	61.7	48.3	37.5	26.8	16.1

Thermal power limit  $P_t$  [hp]

## Input types

### 1. IEC Adapter I

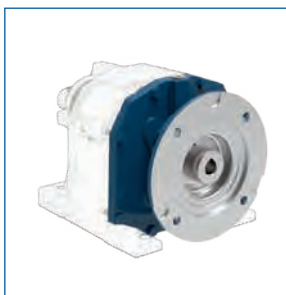
Standard motors complying with DIN EN 50347 IM B5 can be mounted on WG20 gear units with IEC adapters. The adapters are oil-tight. The motors are attached using different couplings, depending on the adapter size:

- **I63 to I100: Plug-in adapter**

The connecting coupling is one part; the motor shaft is inserted directly into the coupling shaft. Before mounting, the motor shaft is to be cleaned and coated with lubricating paste (e.g. Klüberpaste 46 MR 401). This makes it easier to disassemble the shaft when servicing is required and protects the connection against frictional corrosion.

- **I112 to I132: Curved teeth coupling**

The connecting coupling comprises two parts; a coupling hub is mounted on the motor shaft and fixed using a threaded pin. Power is transmitted by means of the internally toothed coupling sleeve.



Plug-in adapter



Adapter with coupling

- **I160 to I280: Claw coupling**

The connecting coupling comprises two parts; a coupling hub is mounted on the motor shaft and fixed using a threaded pin. Power is transmitted by means of a flexible coupling star.

**Complete drive systems with WEG IEC motors:**

By mounting, for example, WEG W22 IEC motors or WEG roller table motors, complete packages can be supplied for a wide range of applications.

## 2. NEMA Adapter N

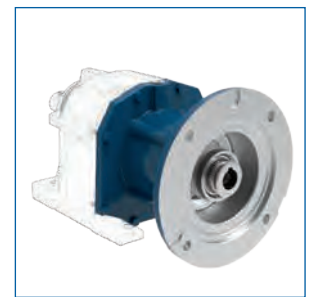
Standard motors complying with NEMA C-face standard can be mounted on WG20 gear units with NEMA adapters. The adapters are oil-tight. The motors are attached using different couplings, depending on the adapter size:

- **N56 to N182: Plug-in adapter**

The connecting coupling is one part; the motor shaft is inserted directly into the coupling shaft. Before mounting, the motor shaft is to be cleaned and coated with lubricating paste (e.g. Klüberpaste 46 MR 401). This makes it easier to disassemble the shaft when servicing is required and protects the connection against frictional corrosion.



*Plug-in adapter*



*Adapter with coupling*

- **N184 to N215: Curved teeth coupling**

The connecting coupling comprises two parts; a coupling hub is mounted on the motor shaft and fixed using a threaded pin. Power is transmitted by means of the internally toothed coupling sleeve.

- **N254 to N364: Claw coupling**

The connecting coupling comprises two parts; a coupling hub is mounted on the motor shaft and fixed using a threaded pin. Power is transmitted by means of a flexible coupling star.

**Complete drive systems with WEG NEMA motors:**

By mounting, for example, WEG W22 NEMA motors, complete packages can be supplied for a wide range of applications.

It is recommended that the motors are sealed with a sealant (e.g. Loctite 510) when IEC and NEMA adapters are mounted to the flange to prevent water or dust ingress. Use screws of strength class 8.8 (or higher) to fasten the motors to the flanges. Observe the corresponding tightening torques according to the mounting Instruction.

## 3. SERVO Adapter S

WG20 gear units with SERVO adapters can be fitted with servo motors from different manufacturers. The adapters are oil-tight, and the motors are mounted using flexible servo couplings. The backlash-free connection between the motor shaft and the adapter shaft is made by means of a clamp connection.

Both servo motors with smooth shaft and servo motors with feather key can be mounted. The mounting clearance between the motor shaft and coupling is reduced to 0 by means of a clamp ring.



*Servo coupling*

- **S92 to S190: Servo coupling**

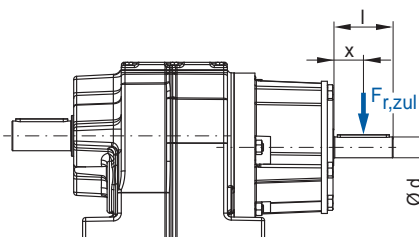
## 4. Input Unit U

Gear unit versions with input unit enable the WG20 gear units to be operated by attaching drive elements such as couplings or belt drives. Permissible shear forces or thermal power limits must be checked accordingly.

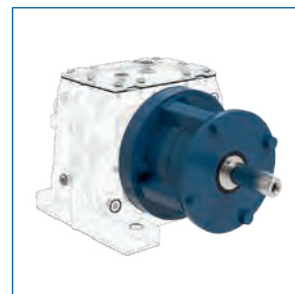
▪ **Input unit sizes: U2, U3, U5, U6, U7**

Size	U2	U3	U5			U6	U7
Input shaft [mm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110

The shear forces given in the following table (Permissible shear forces - Input unit) apply to input units with force applied to the shaft center  $x = l/2$ . When determining the permissible shear forces, the unfavorable rotating direction and the most unfavorable force direction is assumed, as well as an input speed  $n_1 = 1400$  rpm at a given rated power  $P_N$ . The calculation was made with a standard shaft and standard bearing. For exact determination of the permissible shear force  $F_{r,zul}$ , the direction of force and the rotating direction must be specified.



Input unit U2 and U3



Input unit U5 to U7

Input shaft unit [mm]			$T_{max}$ [lb-in] at $F_r = 0$	Nominal power $P_N$ [hp]											
				0.16	0.25	0.33	0.50	0.75	1.0	1.5	2.0	3.0	4.0	5.5	7.5
	$\varnothing d$	l	Permissible shear force $F_{r,zul}$ [lb]												
U2	19	40	159	585	562	540	517	450	405	360	292	157	-	-	-
U3	24	50	885	1124	1124	1124	1124	1124	1124	1034	944	764	562	495	382
U5	28	60	885	1461	1461	1461	1461	1461	1461	1461	1439	1439	1439	1416	1416
	38	80	1505	2473	2473	2473	2473	2473	2473	2473	2473	2360	2360	2248	2136
	42	110	2124	2473	2473	2473	2473	2473	2473	2473	2473	2360	2360	2248	2136
U6	48	110	4337	3372	3372	3372	3372	3372	3372	3372	3372	3372	3372	3260	3260
U7	55	110	8585	5620	5620	5620	5620	5620	5620	5620	5620	5620	5620	5620	5620

Input shaft unit [mm]			$T_{max}$ [lb-in] at $F_r = 0$	Nominal power $P_N$ [hp]											
				10	12.5	15	20	25	30	40	50	60	75	100	
	$\varnothing d$	l	Permissible shear force $F_{r,zul}$ [lb]												
U2	19	40	159	-	-	-	-	-	-	-	-	-	-	-	-
U3	24	50	885	225	112	-	-	-	-	-	-	-	-	-	-
U5	28	60	885	1394	1371	1349	-	-	-	-	-	-	-	-	-
	38	80	1505	2023	1798	1686	1349	1012	-	-	-	-	-	-	-
	42	110	2124	2023	1798	1686	1349	1012	674	-	-	-	-	-	-
U6	48	110	4337	3147	3035	2923	2585	2360	2136	1686	1236	674	-	-	-
U7	55	110	8585	5620	5620	5620	5620	5620	5620	5620	5620	5395	5171	4721	-

Permissible shear force - Input unit  $F_{r,zul}$  at  $x = l/2$

# Explosion-proof gear units and geared motors

WG20 type series gear units meet the requirements of Directive 2014/34/EU on equipment for use in potentially hazardous areas. Both gear units and geared motors can be used.



WG20 geared motor for application in zones 2 + 22



WG20 geared motor for application in zones 1 + 21

## General information

The operation of systems requires special measures in areas with explosive air/gas mixtures or air/dust mixtures. The Directive governs the possible uses of equipment within the existing danger zones, whereby both electrical and mechanical equipment, such as gear units, must meet the minimum requirements specified in the standard.

## Zoning

Zoning takes into account whether the Ex atmosphere is a mixture of air with gas or with dust.

## Relevant areas

- **Category 2G/2D and EPL Gb/Db units**

are intended for use in areas in which there is *occasionally* an explosive atmosphere. They are permitted for use in zone 1 (category 2G) and zone 21 (category 2D), and zone 2 (3G) and 22 (3D).

- **Category 3G/3D and EPL Gc/Dc units**

are intended for use in areas in which an explosive atmosphere caused by gases, vapours, mists or suspended dust is unlikely to occur. However, if this does occur, it will occur *only rarely or for a short period of time*. These units are permitted for use in zone 2 (category 3G) or zone 22 (category 3D).

## Marking according to standards

Category	Equipment group I		Equipment group II					
	Mines		Other areas with dust or gas explosive atmosphere					
	M1	M2	1		2		3	
Presence of explosive atmospheres			continuous, frequent or for long periods		likely in normal operation		not likely in normal operation, only for short period of time	
Surrounding atmosphere			G	D	G	D	G	D
Zone			0	20	1	21	2	22
Equipment Protection Level	Ma	Mb	Ga	Da	Gb	Db	Gc	Dc
Type of protection (not electric)					h (c, k)	h (c, k)	h (c, k)	h (c, k)
Type of protection (electric)					d, eb	tb	ec	tc
Ex-marking gear unit					II 2G Ex h IIC T4 Gb	II 2D Ex h IIIC T125°C Db	II 3G Ex h IIC T4 Gc	II 3D Ex h IIIC T125°C Dc
Ex-marking motor					II 2G Ex d IIC T4 Gb	II 2D Ex tb IIIC T125 °C Db	II 3G Ex ec IIC T3 Gc	II 3D Ex tc IIIC T125°C Dc

Possible range of application for WG20 products

## Types of ignition protection used

The ignition of an explosive mixture in the classified zones is to be prevented by the various types of ignition protection used for the equipment.

- **Types of ignition protection for non-electrical equipment: according to EN ISO 80079-36 and -37**

„c“: Protection by means of structural safety

„k“: Protection by means of fluid coupling

▪ **Types of ignition protection for electrical equipment: according to EN ISO 60079-07 and -31**

- „ec“ and „eb“: Protection by means of increased safety
- „tc“ and „tb“: Protection by means of housing
- „d“: flameproof enclosure

**Applicable explosive atmospheres**

For the types of ignition protection used, parts which can be exposed to an explosive atmosphere without restriction must not reach excessively high temperatures.

▪ **Temperature classes for gas explosion protection (G)**

Flammable gases and vapors are divided into temperature classes according to their flammability. The influence of ambient temperature and self-heating of the equipment must also be taken into account.

The maximum surface temperature of the equipment may only assume values that correspond to the temperature class for gases. In fact, the ignition temperature represents the lowest temperature value at which a hot surface can ignite the corresponding explosive atmosphere.

In addition, gases and vapors are classified in explosion groups IIA, IIB and IIC. The hazardousness of gases increases from explosion group IIA to IIC.

**WG20 geared motors can be used in temperature class T3 (max. surface temperature 200 °C / 392 °F).**

**WG20 gear units with input types can be used in temperature class T4 (max. surface temperature 135 °C / 275 °F).**

Temperature class	T1	T2	T3	T4	T5	T6
Max. permissible surface temperature	450 °C / 842 °F	300 °C / 572 °F	200 °C / 392 °F	135 °C / 275 °F	100 °C / 212 °F	85 °C / 185 °F

■ Possible range of application for WG20 products

▪ **Surface temperature for dust explosion protection (D)**

Dusts are not divided into temperature classes, but the value of the minimum ignition temperature is specified.

**WG20 gear units and geared motors are classified with a max. surface temperature of 125 °C / 257 °F.**

Dust group	Description	Degree of protection	
		tb	tc
IIIA	Combustible flyings	IP5X	IP5X
IIIB	Non-conductive dust	IP6X	IP5X
IIIC	Conductive dust	IP6X	IP6X

Necessary degree of protection for dust explosive atmospheres



## Table of lubricants

Recommended ambient temperatures	+14 °F ... +140 °F	-4 °F ... +176 °F	-13 °F ... +140 °F	-40 °F ... +176 °F	-4 °F ... +104 °F
DIN (ISO)	CLP (mineral oil) <sup>1)</sup>	CLP PG (polyglycol oil)	CLP PG (polyglycol oil)	CLP-HC (polyalphaolefin oil) <sup>2)</sup>	food grade
ISO VG	220	460	220	220	220
ARAL	Degol BG 220	Degol GS 460	Degol GS 220	Degol PAS 220	-
BP	Energol GR-XP 220	Energol SG-XP 460	Energol SG-XP 220	Energol HTX 220	-
Castrol	Alpha SP 220	Alphasyn PG 460	Alphasyn PG 220	Alphasyn HTX 220	Optileb GT 220
Klüber KLÜBER LUBRICATION	Klüberoil GEM 1-220 N	Klübersynth GH 6-460	Klübersynth GH 6-220	Klübersynth GEM 4-220 N	Klüberoil 4UH1 220 N
Mobil	Mobilgear 600 XP 220	Glygoyle 460	Glygoyle 220	SHC 630	SHC Cibus 220
Shell	Omala S2 G 220	Omala S4 WE 460	Omala S4 WE 220	Omala S4 GX 220	-
Addinol	Gear Oil 220 F	Poly Gear PG 460	Poly Gear PG 220	Eco Gear 220 S	Ecoleb 220 FG

1) standard lubricant acc. to DIN 51517 part 3 - CLP ISO VG 220

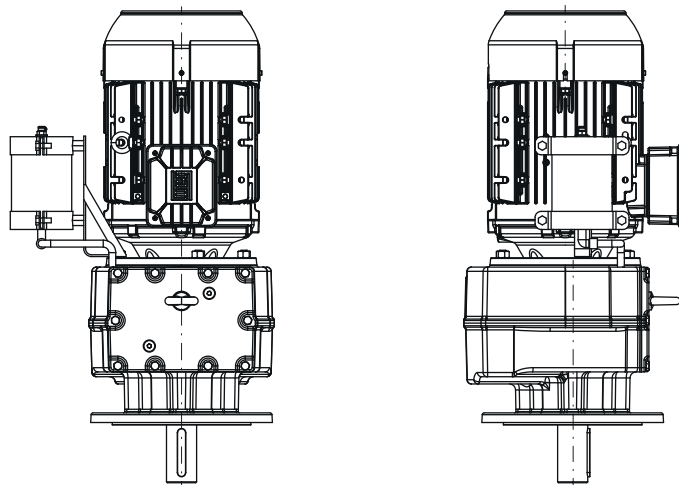
2) note critical starting behaviour at low temperatures

## Lubricant expansion unit

For gear units and geared motors in M4 design, high oil levels are required for lubrication of the first gear stage. To prevent oil leaking from the gear unit during operation, expansion units are to be used at reductions  $i < 20$  or at higher motor speeds (e.g. frequency drives operation  $> 2000$  rpm).

The use of lubricant expansion units is recommended for gear unit sizes from C07 (helical gear unit), F06 (parallel shaft gear unit) and K06 (helical bevel gear unit) and for the conditions described above.

Example: CF082-11P-132S-04E-TH-TF



# Painting

Standard color geared motors: RAL 5009 (RAL 7011, RAL 9005 without additional costs)

In addition to the standard high-grade polyurethane-based surface finish, other special finishes for applications that are subject to specific environmental conditions are offered. Paintwork is basically categorized according to the composition of the applied surface finish. The standard program contains 6 painting systems categorized from LA0 to LC5. Special colors are possible.

Painting system	Application	Layering	NDFT Nominal dry film thickness	Temperature range	Corrosion category DIN EN ISO 12944-5
not painted					
LA0	Primer	Dip primer Base coat (2 pack PUR)		-40 °F ... +248 °F	
<b>LC1 (Standard)</b>	<b>Indoor installation, neutral atmosphere</b>	<b>Dip primer Varnish (1K-AY-PUR*) or (2 pack PUR**)</b>	<b>40 µm</b>	<b>-40 °F ... +248 °F</b>	<b>C1</b>
LC2	Protected outdoor installation, neutral atmosphere	Dip primer 2x Varnish (2 pack PUR)	140 µm	-40 °F ... +248 °F	C2
LC3	Outdoor installation, industrial atmosphere	Dip primer Base coat (2 pack PUR) Varnish (2 pack PUR)	160 µm	-40 °F ... +248 °F	C3
LC4	Outdoor installation, aggressive atmosphere	Dip primer Base coat (2 pack PUR) Intermediate base coat (2 pack PUR) Varnish (2 pack PUR)	240 µm	-40 °F ... +248 °F	C4
LC5	Coast or offshore, very aggressive atmosphere, under water	Dip primer Base coat (2 pack PUR) Intermediate base coat (2 pack PUR) 2x Varnish (2 pack PUR)	320 µm	-40 °F ... +248 °F	C5

\*) Colors RAL 7011, RAL 5009, RAL 9005, RAL 9007

\*\*) All other colors

## Degrees of protection

Degree of protection according to DIN EN 60034-5.

The designation to indicate the degrees of protection consists of the characteristic letters IP followed by two numerals.

**Code figure 1:** degree of protection against contact with live or moving parts and against ingress of solid foreign objects

**Code figure 2:** degree of protection against harm for ingress of water

Code figure 1	
	Description
0	No protection
1	Protected against solid foreign objects of 50 mm (1.97 in) diameter and larger: the probe may not fully penetrate.
2	Protected against solid foreign objects of 12.5 mm (0.49 in) diameter and larger: the probe shall not fully penetrate.
3	Protected against solid foreign objects of 2.5 mm (0.1 in) diameter: the probe must not penetrate at all.
4	Protected against solid foreign objects of 1 mm (0.04 in) and larger: the probe must not penetrate at all.
5	Dust protected: ingress of dust is not totally prevented, but dust shall not penetrate in a quantity that the operation of the device is affected or to impair safety.
6	Dustproof: no ingress of dust at negative pressure of 20 mbar (0.3 psi) in the housing

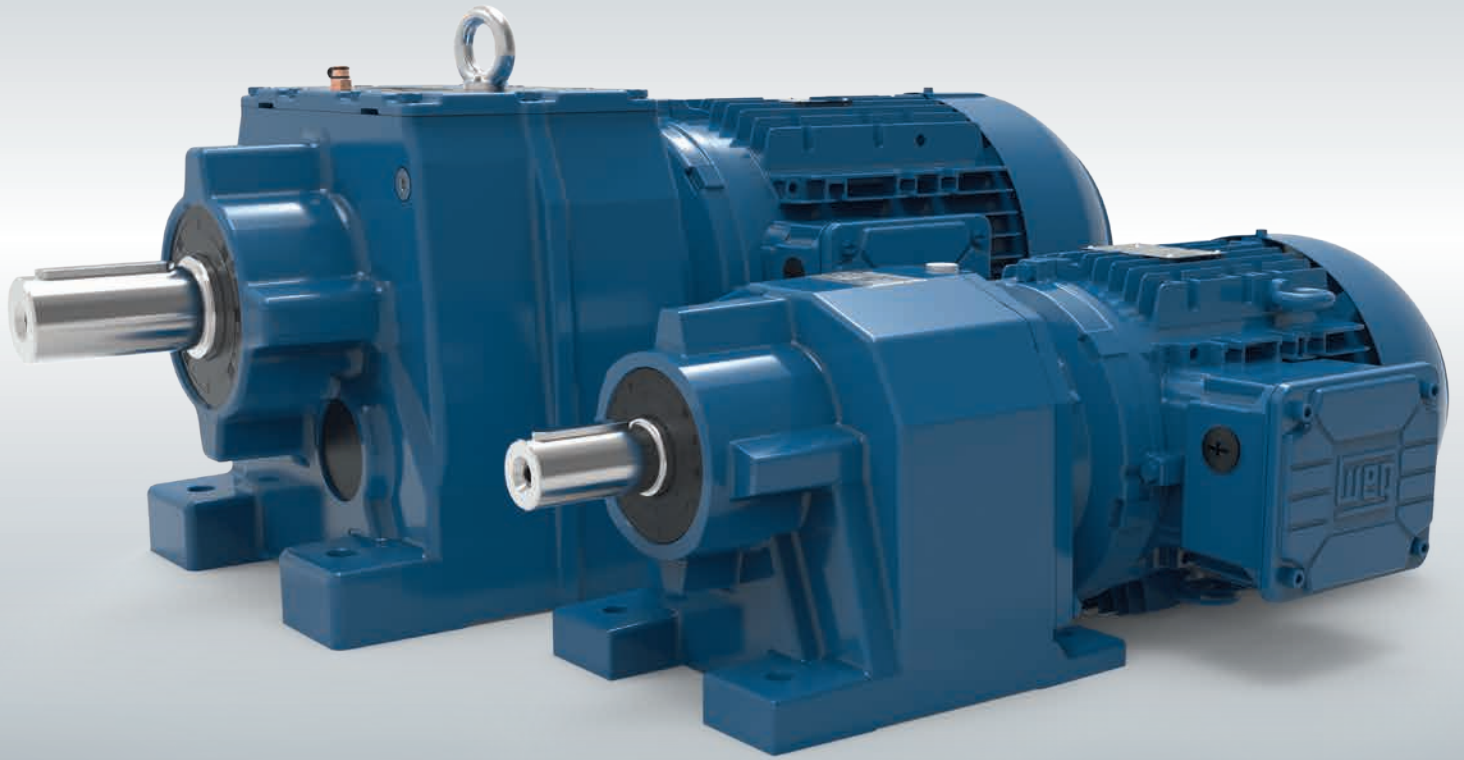
Code figure 2	
	Description
0	No protection
1	Protected against dripping water: vertically falling drops may not have any harmful effects.
2	Protected against dripping water when the housing is inclined up to 15°: vertically falling drops may not have any harmful effects when the housing is inclined up to 15° from the vertical.
3	Protected against water spray: water sprayed at an angle up to 60° on both sides of the vertical may not have any harmful effects.
4	Protected against splash water: water splashed against the housing from any direction may not have any harmful effects.
5	Protected against water jets: water that is from any direction in jets against the housing may not have any harmful effects.
6	Protected against strong water jets: water that is from any direction in powerful jets against the housing may not have any harmful effects.
7	Protected against the effects of temporary (1 m / 3 ft for 30 min) immersion in water: water must not enter in quantities causing harmful effects, if the housing is under standardized conditions of pressure and time temporarily submerged in water.
8	Protected against the effects of continuous immersion in water: water must not enter in quantities causing harmful effects when the enclosure is permanently submerged in water under conditions to be agreed between manufacturer and user. The conditions must be more stringent than for index 7.

### Degree of protection:

Modular system motor: IP55 (standard) to IP67

Brake: IP55 (standard) to IP66

Gear unit: IP65 (standard) to IP68



## Helical geared motors C

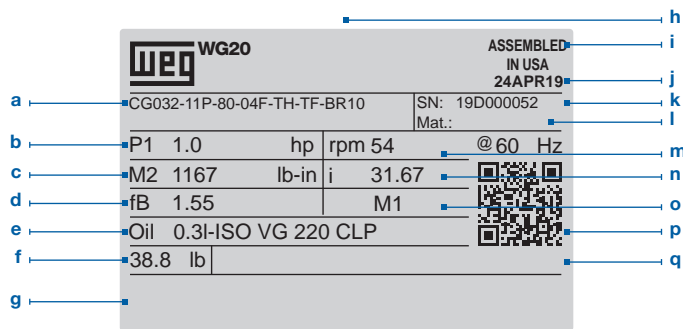


# Technical Data

Size		C00	C01	C03	C05	C06	C07	C08	C09	C10	C13	C14	C16
Power	[hp]	0.16 - 1.0	0.16 - 2.0	0.16 - 4.0	0.16 - 10.0	0.16 - 12.5	0.16 - 20	0.16 - 30	0.16 - 40	0.16 - 50	0.16 - 75	0.16 - 75	0.16 - 100
Torque	[lb-in]	440	750	1770	3540	5310	7260	13700	26600	39800	70800	115000	159000
Ratio		2.44 47.44	3.09 66.5	3.34 286.32	3.69 328.43	3.73 375.71	5.30 351.33	5.12 368.94	4.22 3282.02	4.19 2636.78	4.00 1891.77	5.17 2162.84	5.96 22405.25
Number of stages		2	2	2 / 3	2 / 3	2 / 3	2 / 3	2 / 3	2 / 3 / 4	2 / 3 / 4	2 / 3 / 4	2 / 3 / 4	2 / 3 / 4 / 5
Housing material		aluminium						cast iron					
Solid shaft	Type	with key acc. to DIN 6885.1 and threaded hole acc. to DIN 332 sheet 2											
	Tolerance	< Ø 55 mm (2.165 in): k6 / ≥ Ø 55 mm (2.165 in): m6											
	Material	standard: C45E (1.1191) / stainless steel on request											
Flanges	Tolerance	centering ≤ 250 mm (9.842 in): j6 / > 250 mm (9.842 in): h6 acc. to DIN EN 50347											
	Material	cast iron											
Gear wheels	Type	honed											
	Material	16MnCr5 (1.7131) case hardened – minimum 58HRC											
Shaft seals	Type	type AS acc. to DIN 3760											
	Material	standard NBR / special FKM											
Bearing		standard / reinforced											
Lubricants	Type	standard CLP 220 / special CLP HC 220											
	Quantity	depending on mounting position											
Shaft height		acc. to DIN 747: ≤ 50 mm (1.968 in): -0.4 mm (-0.016 in) > 50 mm (1.968 in) to ≤ 250 mm (9.842 in): -0.5 mm (0.020 in) > 250 mm (9.842 in): -1 mm (0.040 in) for foot-mounted gear motors, the motor may extend below the mounting surface											

## General information

### 1. Nameplate



a	Type code	j	Production date
b	Motor power	k	Serial number
c	Output torque	l	Material number
d	Service factor	m	Output speed and Frequency
e	Type and quantity of lubricant	n	Total gear ratio
f	Weight	o	Mounting position
g	Space for ATEX code (if applicable)	p	QR-Code linked online to additional information
h	Production company	q	Space for additional information
i	Production country		

## 2. Type code

CG083-EX-11P-90S/L-04F ...

1 2 3 4 5 6 7 8 9 10

CG083-EX-I112-HT

1 2 3 4 5 11 12

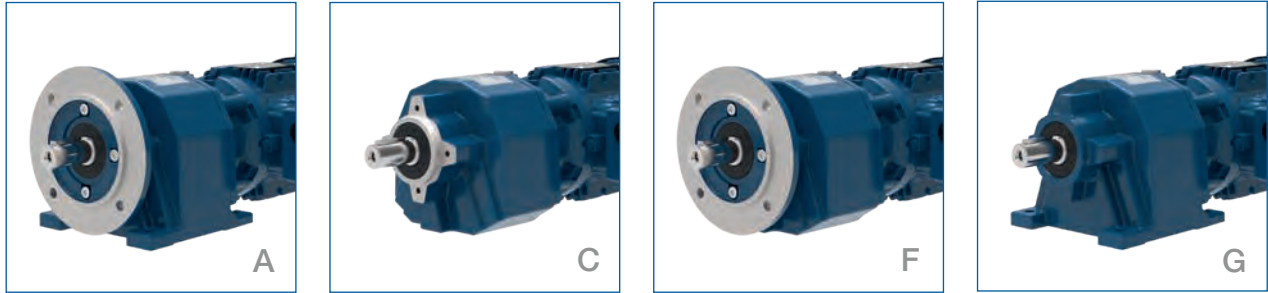
<b>1</b>	Type:	C = Helical gear unit
<b>2</b>	Design:	A = Foot mounted and B5 flange execution with output shaft C = B14 flange execution with output shaft F = Flange execution with output shaft G = Foot mounted with output shaft W = Foot mounted and B14 flange execution with output shaft
<b>3</b>	Size:	00 01 03 05 06 07 08 09 10 13 14 16
<b>4</b>	Number of stages:	2 = 2 gear stages 3 = 3 gear stages 4 = 4 gear stages 5 = 5 gear stages
<b>5</b>	ATEX execution:	when operated in explosive atmospheres, see page 482
<b>6</b>	Motor type:	11N = Integral motor aluminium IE1 11P = Integral motor aluminium IE3 22P = Integral motor cast iron IE3
<b>7</b>	Motor frame size:	63 71 80 L80 90S/L 100L L100L 112M 132S L132M 160M 160L 180M 180L 200L 225S/M 250S/M
<b>8</b>	Number of poles:	04 = 4 poles 06 = 6 poles
<b>9</b>	Power indicator:	E F G
<b>10</b>	Motor modules:	see from page 493
<b>11</b>	Adapters, Input unit:	IEC Adapter I63 I71 I80 I90 I100 I112 I132 I160 I180 I200 I225 I250 I280 NEMA Adapter N56 N143 N182 N184 N213 N254 N284 N324 N364 SERVO Adapter S92 S105 S114 S115 S130 S141 S142 S180 S189 S190 Input unit U2 U3 U5 U6 U7 Direct Mounting (IEC): IEC63 IEC71 IEC80 IEC90 IEC100 IEC112 IEC132 IEC160 IEC180 IEC200 IEC225 IEC250
<b>12</b>	High/Low temperature execution:	HT LT

Type code Motor see page 475

### 3. Range

Size	C00	C01	C03	C05	C06	C07	C08	C09	C10	C13	C14	C16
Housing material	Aluminium					Cast iron						

### 4. Design



<b>A</b>	Foot mounted and B5 flange execution with output shaft
<b>C</b>	B14 flange execution with output shaft
<b>F</b>	Flange execution with output shaft
<b>G</b>	Foot mounted with output shaft
<b>W</b>	Foot mounted and B14 flange execution with output shaft

### 5. Venting the gear unit

The helical gear unit sizes C00 to C06 are neither equipped with a vent plug nor an oil drain plug. They are supplied with lifetime-lubrication.

By default, the helical gear units from C07 are equipped with vent plugs with a safety strap for transportation (see illustration). The rubber strap (a) of the vent plugs must be removed entirely before the initial startup. The vent plug is placed accordingly to the mounting position (see chapter Mounting positions, page 26).



### 6. Overhung and axial loads

The overhung loads ( $F_{rN}$ ) indicated in the respective selection tables apply to gear units with the force acting on the shaft center ( $x=l/2$ ). The permissible overhung loads listed are based on the least favorable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ( $f_z$ ) has to be taken into consideration when determining the overhung load.

Gear wheels	Sprockets		V-belts	Flat belts
$f_z=1.1$ ( $z \leq 17$ )	$f_z=1.2$ ( $z \leq 13$ )	$f_z=1.1$ ( $z > 13$ )	$f_z=1.8$	$f_z=2.5$

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

<b>Q1</b>	$F_{zL} = F_{rN} \cdot a_1$
<b>Q2</b>	$F_{zW} = F_W \cdot a_2$
<b>Q3</b>	$F_{Qvorh} = \frac{0.6691062 \cdot T_2}{d_0} \cdot f_z$
<b>Q4</b>	$F_{Qvorh} \leq F_{zL}$
	$F_{Qvorh} \leq F_{zW}$

Variable	Unit	Description
a1		Load action factor - output shaft bearing from table 1
a2		Load action factor - output shaft from table 1
d0	[in]	Effective diameter of the transmission element
T2	[lb-in]	Geared motor output torque (from selection tables) or required calculated output torque
FzL	[lb]	Permissible overhung load for output shaft bearings
FzW	[lb]	Permissible overhung load for output shaft
FrN	[lb]	Permissible overhung load from selection tables
Fw	[lb]	Permissible overhung load - Output shaft x=l/2 from table 2
FQvorh	[lb]	Existing overhung load at gear shaft
fz		Factor for transmission element
Tmax	[lb-in]	Highest possible output torque for coupling operation (table 2)

Always use both equations Q1 and Q2 for your calculations.

x / l						
0	0.25	0.5	0.75	1	1.5	2
a1 → Equation Q1						
1.39	1.18	1.00	0.85	0.73	0.52	0.38
a2 → Equation Q2						
2.00	2.00	1.00	0.55	0.38	0.23	0.17

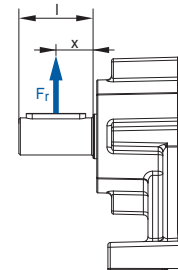


Table 1: Load action factors a1, a2

Intermediate values can be interpolated linearly. Combined load ( $F_r \neq 0$ ;  $F_a = 0$ ) on request.

	Tmax at Fr = 0	Output torque T2 [lb-in]												
		440	890	1770	2660	3540	5310	7260	13700	26600	39800	70800	115000	159000
		Fw [lb] at x/l = 0.5 → Equation Q2												
Ø 0.750x1.57	1220	650	490											
Ø 1.000x1.97	2820	1380	1350	1150										
Ø 1.250x2.36	5300		2020	1960	1800	1570								
Ø 1.375x2.76	7040			2470	2470	2250	1840							
Ø 1.625x3.15	11400				3370	3370	3150	2810						
Ø 2.000x3.94	20900					5620	5620	5620	4950					
Ø 2.125x3.94	24100						6070	6070	5400					
Ø 2.375x4.72	33600							7190	6740	5400				
Ø 2.875x5.51	58800								11470	10790	8090			
Ø 3.625x6.69	111000									17310	16860	15060		
Ø 4.375x8.27	189000										17760	16640	13490	
Ø 4.750x8.27	240000											29450	27880	25180

Table 2: Permissible overhung load - output shaft x = l/2

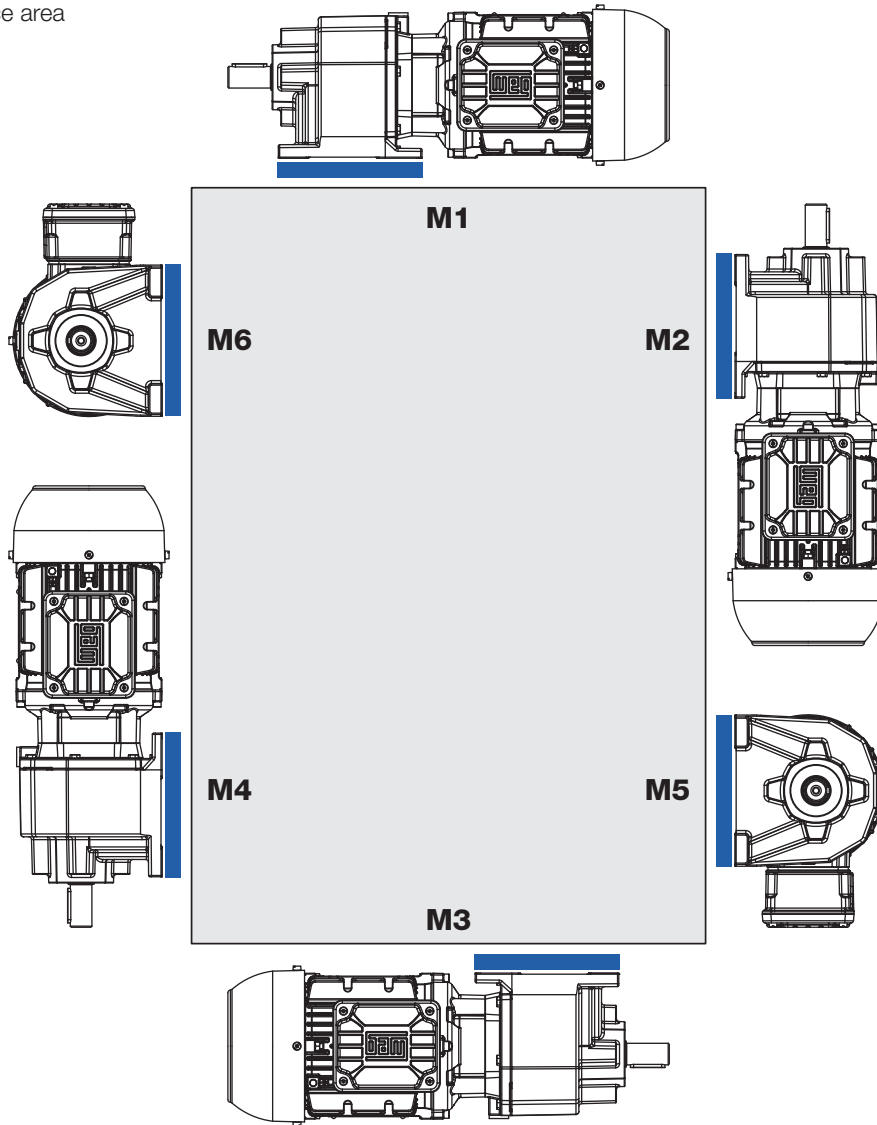
The axial loads ( $F_{aN}$ ) for execution with output shaft, given in the following selection tables, are valid at radial force  $F_{rN} = 0$ . If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions foot type - Sizes C00 to C06

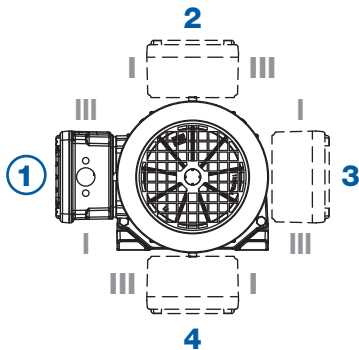
Gear units C00 to C06 are not vented and supplied with lifetime lubrication.

■ Reference area



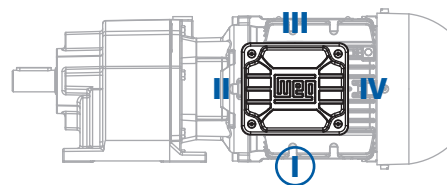
### Position of the terminal box

Standard: Position 1



### Cable entry

Standard: Position I

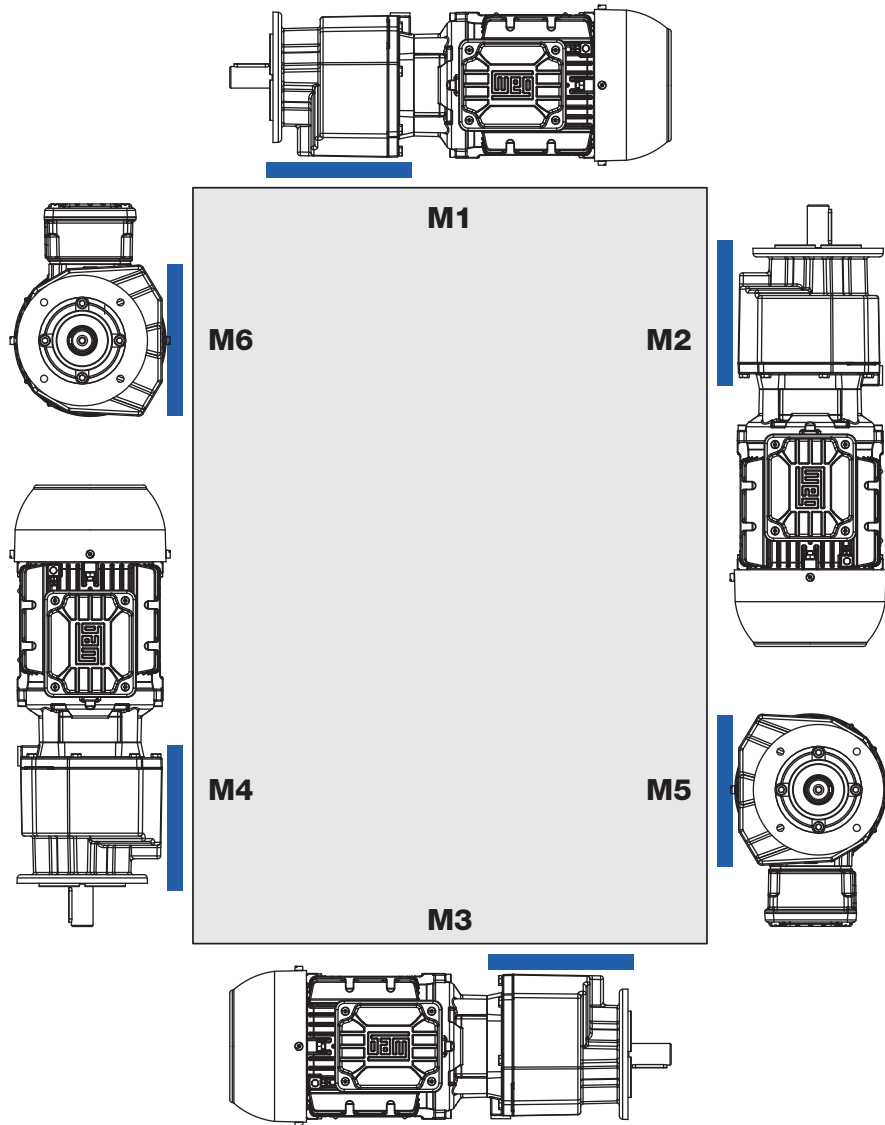




### Mounting positions flange type - Sizes C00 to C06

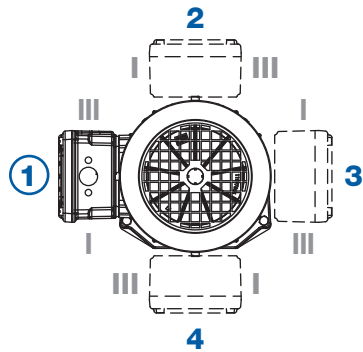
Gear units C00 to C06 are not vented and supplied with lifetime lubrication.

Reference area



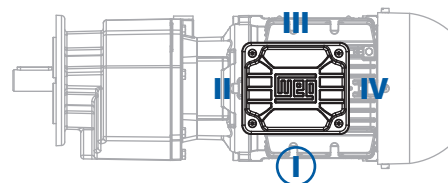
### Position of the terminal box

Standard: Position 1








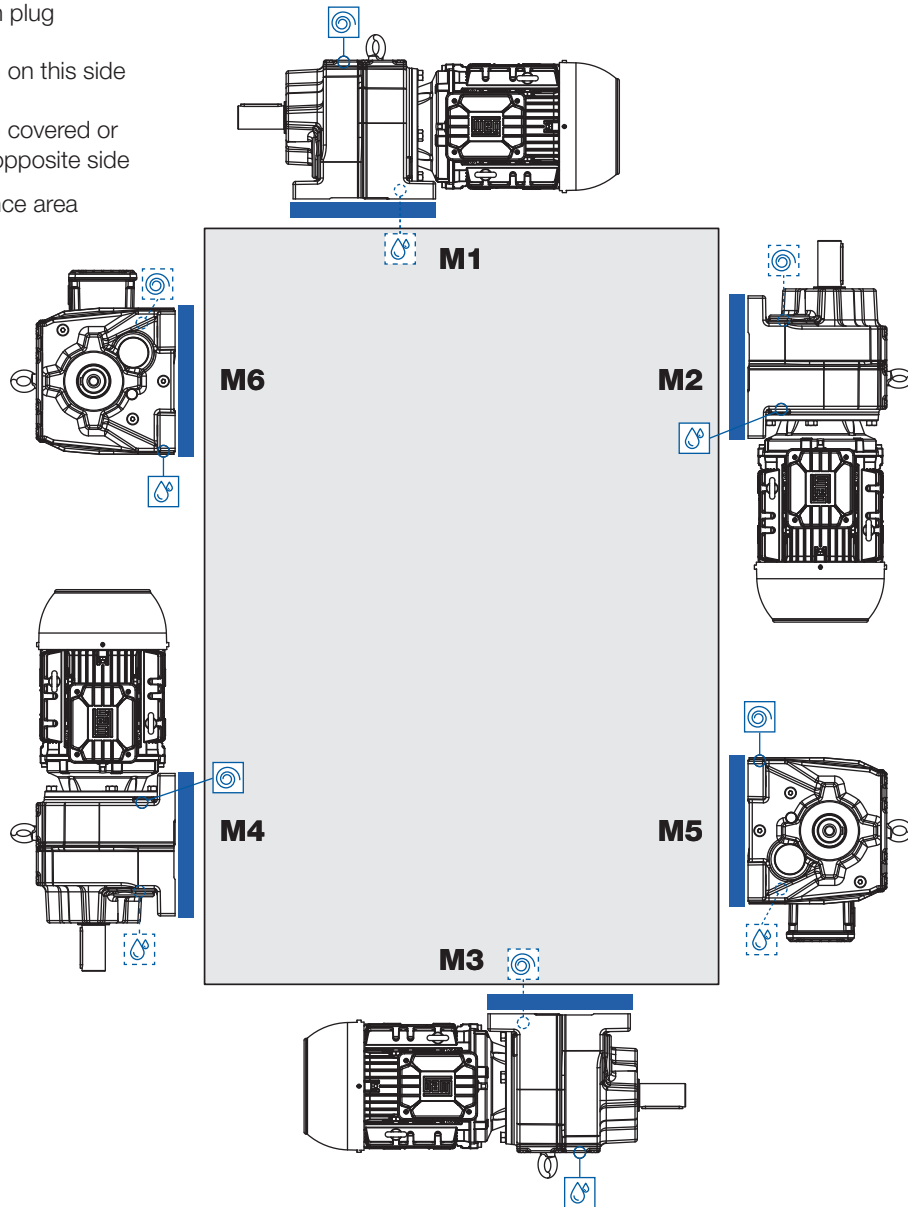
### Cable entry

Standard: Position I



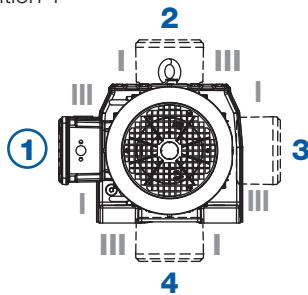
## Mounting positions foot type - Sizes C07 to C16

-  Vent plug
-  Oil drain plug
-  Position on this side
-  Position covered or on the opposite side
-  Reference area



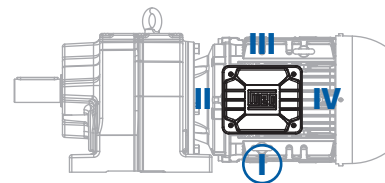
### Position of the terminal box

Standard: Position 1



### Cable entry

Standard: Position I



## Mounting positions flange type - Sizes C07 to C16

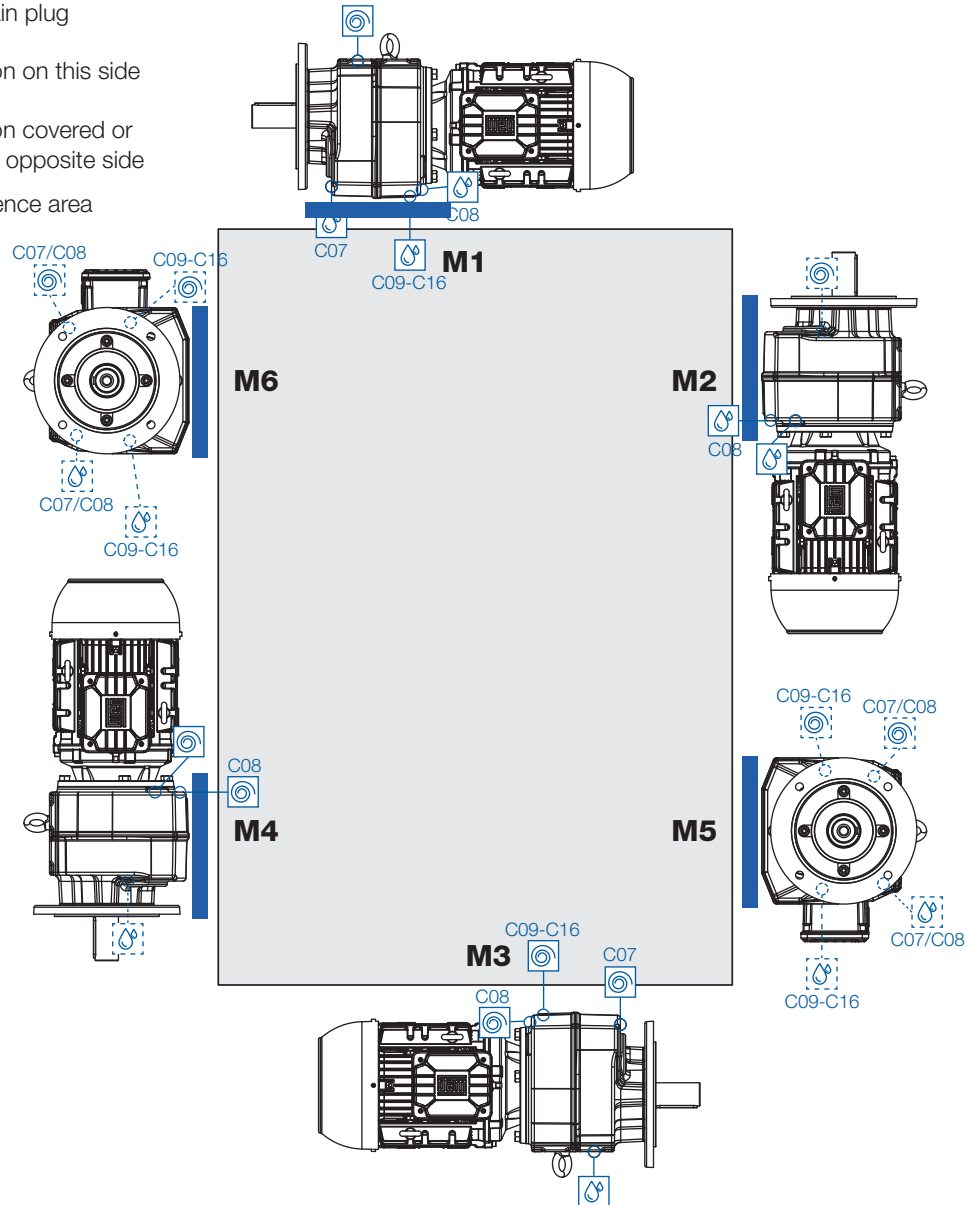
Vent plug

Oil drain plug

Position on this side

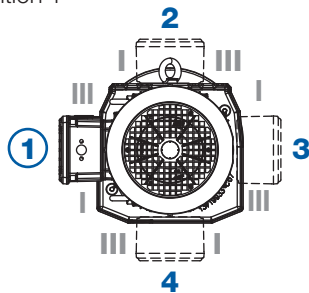
Position covered or on the opposite side

Reference area



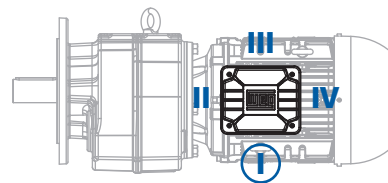
### Position of the terminal box

Standard: Position 1



### Cable entry

Standard: Position I





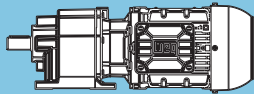
## Selection tables - Geared motors

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +68 °F.

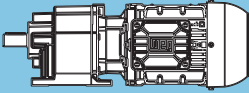
The selection tables are calculated with following motor data:

Power (IEC frame size)	Motor series (IE class)
up to 0.75 hp (63 - 80)	11N (IE1) - aluminium
1.0 - 12.5 hp (80 - 132)	11P (IE3) - aluminium
15.0 - 100 hp (160 - 250)	22P (IE3) - cast iron

### Structure of the selection tables

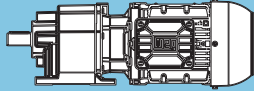
1									
P <sub>N</sub> = 0.16 hp									
60 Hz									
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>	i	F <sub>rN</sub>	F <sub>aN</sub>		m	Dimension sheet see page	
rpm	lb-in			lb	lb		lb		
2	3	4	5	6	7	8	9	10	

- 1 Rated power of the motor
- 2 Output speed at 60 Hz
- 3 Output torque
- 4 Service factor
- 5 Total ratio
- 6 Permissible radial load at midpoint of the output shaft extension (standard bearing) at axial load=0
- 7 Permissible axial load (standard bearing) at radial load=0
- 8 Geared motor type
- 9 Weight
- 10 Dimension sheet see page

<b>P<sub>N</sub> = 0.16 hp</b>								
<b>60 Hz</b>							<b>m</b> lb	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>	<b>i</b>	<b>F<sub>rN</sub></b> lb	<b>F<sub>aN</sub></b> lb			
<b>0.05</b>	184012	0.90	22405.25	22890	4720	<b>CG165-11N-63-06F</b> <b>CF165-11N-63-06F</b>	1530 1581	170
<b>0.06</b>	148945	1.10	18322.05	25830	5550			
<b>0.07</b>	124910	1.30	15484.09	27360	6110			
<b>0.08</b>	116110	1.40	14467.28	27830	6340			
<b>0.09</b>	100842	1.60	12662.22	28550	6700			
<b>0.10</b>	88650	1.80	11217.58	29050	6990			
<b>0.11</b>	78203	2.05	9998.22	29430	7240			
<b>0.12</b>	71074	2.25	9181.16	29630	7420			
<b>0.14</b>	58934	2.75	7752.38	29970	7690			
<b>0.08</b>	117527	1.40	22405.25	27810	6320	<b>CG165-11N-63-04E</b> <b>CF165-11N-63-04E</b>	1530 1581	170
<b>0.09</b>	94638	1.70	18322.05	28840	6860			
<b>0.11</b>	78955	2.05	15484.09	29410	7240			
<b>0.12</b>	73201	2.20	14467.28	29580	7370			
<b>0.13</b>	63243	2.55	12662.22	29880	7600			
<b>0.15</b>	55162	2.90	11217.58	30060	7800			
<b>0.42</b>	21427	1.90	2636.78	9600	5400	<b>CG104-11N-63-06F</b> <b>CF104-11N-63-06F</b>	373 381	156
<b>0.50</b>	17892	2.25	2229.16	9800	5510			
<b>0.51</b>	17235	2.35	2156.24	9820	5530			
<b>0.61</b>	14361	2.80	1822.91	9960	5640			
<b>0.65</b>	13302	3.00	1702.59	10000	5670	<b>CG104-11N-63-04E</b> <b>CF104-11N-63-04E</b>	373 381	156
<b>0.64</b>	13429	3.00	2636.78	10000	5670			
<b>0.34</b>	27449	1.00	3282.02	4790	5690	<b>CG094-11N-63-06F</b> <b>CF094-11N-63-06F</b>	280 276	152
<b>0.41</b>	22263	1.20	2683.89	5710	5890			
<b>0.43</b>	21548	1.25	2597.68	5820	5910			
<b>0.49</b>	18699	1.45	2268.18	6180	6020			
<b>0.52</b>	17441	1.55	2124.27	6320	6070			
<b>0.60</b>	15104	1.80	1854.82	6540	6160			
<b>0.66</b>	13574	2.00	1677.34	6650	6230			
<b>0.67</b>	13271	2.05	1643.20	6680	6230			
<b>0.75</b>	11731	2.30	1464.58	6790	6290			
<b>0.82</b>	10705	2.50	1344.90	6860	6340			
<b>0.85</b>	10310	2.60	1300.57	6880	6340			
<b>0.97</b>	8872	3.00	1135.60	6950	6410			
<b>0.52</b>	17567	1.55	3282.02	6320	6070	<b>CG094-11N-63-04E</b> <b>CF094-11N-63-04E</b>	280 276	152
<b>0.63</b>	14189	1.90	2683.89	6630	6200			
<b>0.65</b>	13705	1.95	2597.68	6650	6230			
<b>0.75</b>	11843	2.25	2268.18	6790	6290			
<b>0.80</b>	11046	2.45	2124.27	6830	6320			
<b>0.91</b>	9506	2.80	1854.82	6920	6380			
<b>3.1</b>	3225	2.30	351.33	3010	3240	<b>CG073-11N-63-06F</b> <b>CF073-11N-63-06F</b>	82 90	146
<b>3.5</b>	2934	2.50	319.60	3030	3240			
<b>4.0</b>	2556	2.85	278.44	3060	3280			
<b>2.9</b>	3449	1.55	375.71	2250	1550	<b>CG063-11N-63-06F</b> <b>CF063-11N-63-06F</b>	46 57	144
<b>3.2</b>	3162	1.70	344.51	2290	1570			
<b>3.6</b>	2820	1.90	307.24	2340	1600			
<b>3.9</b>	2586	2.10	281.73	2380	1620			
<b>4.6</b>	2227	2.40	242.60	2430	1640			
<b>5.0</b>	2042	2.65	222.46	2430	1660			
<b>4.5</b>	2248	2.40	375.71	2410	1640	<b>CG063-11N-63-04E</b> <b>CF063-11N-63-04E</b>	46 57	144
<b>4.9</b>	2062	2.60	344.51	2430	1660			
<b>5.5</b>	1839	2.90	307.24	2450	1690			

Legend see page 29

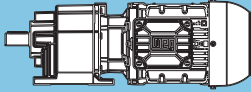
**P<sub>N</sub> = 0.16 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub> lb	F <sub>aN</sub> lb		m lb	Dimension sheet see page
n <sub>60</sub> rpm									
3.4	3015	1.20	328.43	1280	1460	CG053-11N-63-06F CF053-11N-63-06F	35 46	142	
3.7	2741	1.30	298.57	1370	1480				
4.1	2459	1.45	267.93	1440	1530				
4.5	2236	1.60	243.57	1510	1550				
5.2	1962	1.85	213.71	1550	1600				
5.7	1783	2.00	194.29	1600	1600				
6.7	1519	2.35	165.45	1640	1640				
7.3	1381	2.60	150.41	1640	1660				
8.3	1221	2.95	132.97	1660	1690				
5.2	1965	1.85	328.43	1550	1600	CG053-11N-63-04E CF053-11N-63-04E	35 46	142	
5.7	1787	2.00	298.57	1600	1600				
6.3	1603	2.25	267.93	1620	1640				
7.0	1458	2.45	243.57	1640	1640				
7.9	1279	2.80	213.71	1660	1660				
5.0	2047	0.90	223.03	920	700	CG033-11N-63-06F CF033-11N-63-06F	26 31	140	
5.5	1859	1.00	202.55	1010	720				
6.1	1660	1.10	180.83	1080	760				
6.7	1507	1.20	164.23	1120	790				
7.8	1308	1.40	142.47	1190	810				
8.5	1188	1.50	129.39	1210	830				
10	1008	1.80	109.79	1240	880				
11	915	1.95	99.71	1260	880				
13	787	2.25	85.78	1280	900				
14	715	2.50	77.90	1280	920				
5.9	1713	1.05	286.32	1080	760	CG033-11N-63-04E CF033-11N-63-04E	24 29	140	
6.5	1556	1.15	260.03	1120	790				
7.6	1335	1.35	223.03	1190	810				
8.4	1212	1.50	202.55	1210	830				
9.4	1082	1.65	180.83	1240	850				
10	983	1.85	164.23	1260	880				
12	853	2.10	142.47	1280	900				
13	774	2.30	129.39	1280	900				
15	657	2.70	109.79	1300	920				
17	597	3.00	99.71	1300	940				
17	610	1.25	66.50	720	270	CG012-11N-63-06F CF012-11N-63-06F	20 22	138	
19	547	1.40	59.59	740	270				
21	475	1.60	51.80	760	290				
24	426	1.80	46.42	760	290				
26	386	2.00	42.00	790	290				
29	345	2.20	37.64	790	310				
33	304	2.50	33.09	790	310				
37	272	2.80	29.65	790	310				
44	230	1.60	25.05	790	310				
25	398	1.90	66.50	760	290				CG012-11N-63-04E CF012-11N-63-04E
28	357	2.15	59.59	790	310				
33	310	2.45	51.80	790	310				
37	278	2.75	46.42	790	310				
40	251	3.00	42.00	790	310				
68	150	2.45	25.05	810	340				
23	435	1.05	47.44	810	270	CG002-11N-63-06F CF002-11N-63-06F	18 21	136	
26	389	1.15	42.34	830	270				
30	338	1.35	36.85	830	290				
34	302	1.50	32.89	830	290				
38	269	1.65	29.33	850	310				
42	240	1.85	26.18	850	310				
48	211	2.10	23.00	850	310				
54	188	2.35	20.53	830	310				
64	159	2.80	17.29	790	340				
66	155	1.80	16.86	790	310				

Legend see page 29



$P_N = 0.16 \text{ hp}$

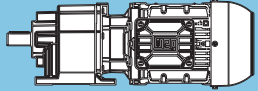
60 Hz		$f_B$	$i$	$F_{rN}$			$m$	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in			lb	lb			
36	284	1.60	47.44	830	310	17 20	136	
40	253	1.75	42.34	850	310			
46	221	2.05	36.85	850	310			
52	197	2.25	32.89	850	310			
58	176	2.55	29.33	810	340			
65	157	2.85	26.18	790	340			
74	138	3.25	23.00	760	340			
83	123	3.65	20.53	740	340			
98	103	4.30	17.29	700	340			
101	101	2.75	16.86	670	340			
110	92	4.80	15.43	670	340			
125	81	5.50	13.54	650	340			
129	78	4.90	13.10	630	340			
140	72	6.15	12.08	630	360			
163	62	6.40	10.42	580	340			
170	60	7.45	9.97	580	360			
190	53	8.35	8.90	560	360			
207	49	8.15	8.17	540	360			
247	41	10.55	6.88	520	360			
276	37	10.15	6.14	490	360			
352	29	12.00	4.81	450	360			
478	21	14.65	3.54	430	360			

CG002-11N-63-04E  
CF002-11N-63-04E

Legend see page 29

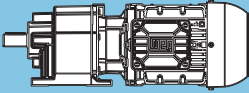


$P_N = 0.25 \text{ hp}$

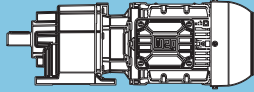
60 Hz		$f_B$	$i$	$F_{TN}$			$m$ lb	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in			lb	lb			
<b>0.07</b>	190754	0.85	15484.09	22300	4590	<b>CG165-11N-71-06E</b> <b>CF165-11N-71-06E</b>	1534 1585	170
<b>0.08</b>	177772	0.90	14467.28	23580	4880			
<b>0.09</b>	154798	1.05	12662.22	25470	5440			
<b>0.10</b>	136436	1.20	11217.58	26730	5870			
<b>0.11</b>	120673	1.35	9998.22	27630	6250			
<b>0.12</b>	110244	1.45	9181.16	28150	6500			
<b>0.14</b>	91898	1.75	7752.38	28960	6920			
<b>0.16</b>	83344	1.95	7067.08	29270	7130			
<b>0.17</b>	74060	2.20	6345.03	29560	7350			
<b>0.21</b>	61046	2.65	5339.57	29920	7670			
<b>0.23</b>	55261	2.90	4884.00	30060	7800			
<b>0.08</b>	178954	0.90	22405.25	23380	4830	<b>CG165-11N-63-04F</b> <b>CF165-11N-63-04F</b>	1530 1581	170
<b>0.09</b>	145221	1.10	18322.05	26100	5640			
<b>0.11</b>	121475	1.35	15484.09	27560	6200			
<b>0.12</b>	113207	1.45	14467.28	27990	6410			
<b>0.13</b>	98069	1.65	12662.22	28690	6770			
<b>0.15</b>	86211	1.85	11217.58	29140	7040			
<b>0.17</b>	76051	2.10	9998.22	29490	7280			
<b>0.19</b>	69118	2.35	9181.16	29700	7460			
<b>0.22</b>	57312	2.80	7752.38	30010	7730			
<b>0.42</b>	32808	1.25	2636.78	8680	5040	<b>CG104-11N-71-06E</b> <b>CF104-11N-71-06E</b>	377 386	156
<b>0.50</b>	27510	1.45	2229.16	9170	5190			
<b>0.51</b>	26555	1.50	2156.24	9240	5240			
<b>0.61</b>	22266	1.80	1822.91	9550	5370			
<b>0.65</b>	20668	1.95	1702.59	9640	5420			
<b>0.77</b>	17258	2.35	1439.39	9820	5530			
<b>0.84</b>	15697	2.55	1320.15	9910	5600			
<b>0.64</b>	20848	1.95	2636.78	9620	5420	<b>CG104-11N-63-04F</b> <b>CF104-11N-63-04F</b>	373 381	156
<b>0.76</b>	17408	2.30	2229.16	9820	5530			
<b>0.79</b>	16769	2.40	2156.24	9850	5550			
<b>0.93</b>	13972	2.90	1822.91	9980	5640			
<b>0.41</b>	33877	0.80	2683.89	**	5440	<b>CG094-11N-71-06E</b> <b>CF094-11N-71-06E</b>	284 280	152
<b>0.43</b>	32722	0.85	2597.68	3370	5490			
<b>0.49</b>	28454	0.95	2268.18	4590	5640			
<b>0.52</b>	26594	1.00	2124.27	4990	5710			
<b>0.60</b>	23126	1.15	1854.82	5600	5850			
<b>0.66</b>	20828	1.30	1677.34	5930	5930			
<b>0.67</b>	20362	1.35	1643.20	5980	5960			
<b>0.75</b>	18074	1.50	1464.58	6250	6050			
<b>0.82</b>	16495	1.65	1344.90	6410	6110			
<b>0.85</b>	15951	1.70	1300.57	6470	6140			
<b>0.97</b>	13785	1.95	1135.60	6650	6200			
<b>1.0</b>	12868	2.10	1064.47	6720	6250			
<b>1.1</b>	12489	2.15	1035.22	6740	6270			
<b>1.2</b>	11121	2.40	929.45	6830	6320			
<b>1.3</b>	9682	2.75	819.36	6920	6360			
<b>1.4</b>	9204	2.90	782.16	6950	6380			
<b>0.52</b>	26762	1.00	3282.02	4920	5710	<b>CG094-11N-63-04F</b> <b>CF094-11N-63-04F</b>	280 276	152
<b>0.63</b>	21707	1.25	2683.89	5800	5910			
<b>0.65</b>	20966	1.30	2597.68	5890	5930			
<b>0.75</b>	18194	1.50	2268.18	6230	6050			
<b>0.80</b>	16970	1.60	2124.27	6360	6090			
<b>0.92</b>	14696	1.85	1854.82	6560	6180			
<b>1.0</b>	13208	2.05	1677.34	6700	6230			
<b>1.2</b>	11414	2.35	1464.58	6810	6290			
<b>1.3</b>	10395	2.60	1344.90	6880	6340			

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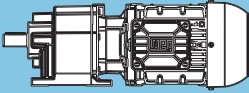
<b>P<sub>N</sub> = 0.25 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	<b>Dimension sheet see page</b>
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
3.0	5080	2.75	368.94	5400	4790	<b>CG083-11N-71-06E</b> <b>CF083-11N-71-06E</b>	139 148	148
3.1	4837	1.55	351.33	2830	3100	<b>CG073-11N-71-06E</b> <b>CF073-11N-71-06E</b>	86 95	146
3.5	4400	1.65	319.60	2880	3100			
4.0	3834	1.90	278.44	2940	3190			
4.4	3488	2.10	253.30	2990	3190			
5.1	2977	2.45	216.20	3030	3240			
5.6	2708	2.70	196.68	3060	3240			
6.2	2442	3.00	177.39	3080	3280			
4.8	3144	2.35	351.33	3010	3240	<b>CG073-11N-63-04F</b> <b>CF073-11N-63-04F</b>	82 90	146
5.3	2860	2.55	319.60	3030	3240			
6.1	2492	2.95	278.44	3080	3280			
2.9	5173	1.05	375.71	1870	1440	<b>CG063-11N-71-06E</b> <b>CF063-11N-71-06E</b>	51 62	144
3.2	4744	1.15	344.51	1980	1460			
3.6	4230	1.30	307.24	2110	1510			
3.9	3879	1.40	281.73	2180	1530			
4.6	3340	1.60	242.60	2270	1570			
5.0	3063	1.75	222.46	2320	1600			
5.9	2590	2.10	188.11	2380	1620			
6.4	2375	2.25	172.49	2410	1640			
7.2	2120	2.55	153.96	2430	1660			
7.8	1944	2.75	141.17	2450	1660			
4.5	3362	1.60	375.71	2270	1570	<b>CG063-11N-63-04F</b> <b>CF063-11N-63-04F</b>	46 57	144
4.9	3083	1.75	344.51	2320	1570			
5.5	2750	1.95	307.24	2360	1620			
6.0	2521	2.15	281.73	2380	1620			
7.0	2171	2.45	242.60	2430	1660			
7.6	1991	2.70	222.46	2450	1660			
3.4	4522	0.80	328.43	**	1280	<b>CG053-11N-71-06E</b> <b>CF053-11N-71-06E</b>	40 51	142
3.7	4111	0.90	298.57	700	1330			
4.1	3689	1.00	267.93	990	1390			
4.5	3354	1.10	243.57	1150	1420			
5.2	2943	1.25	213.71	1300	1460			
5.7	2675	1.35	194.29	1390	1510			
6.7	2278	1.60	165.45	1510	1550			
7.3	2071	1.75	150.41	1530	1570			
8.3	1831	1.95	132.97	1570	1600			
9.1	1664	2.15	120.88	1620	1620			
11	1398	2.55	101.55	1640	1660			
12	1271	2.80	92.32	1660	1660			
5.2	2939	1.25	328.43	1300	1460	<b>CG053-11N-63-04F</b> <b>CF053-11N-63-04F</b>	35 46	142
5.7	2672	1.35	298.57	1390	1510			
6.3	2398	1.50	267.93	1460	1530			
7.0	2180	1.65	243.57	1510	1550			
8.0	1913	1.90	213.71	1570	1600			
8.8	1739	2.05	194.29	1600	1620			
10	1481	2.40	165.45	1640	1640			
11	1346	2.65	150.41	1660	1660			
13	1190	3.00	132.97	1660	1690			
19	810	2.75	58.85	1710	1730	<b>CG052-11N-71-06E</b> <b>CF052-11N-71-06E</b>	37 49	142
21	737	2.75	53.50	1710	1730			
31	491	2.75	35.67	1730	1750			

**P<sub>N</sub> = 0.25 hp**

60 Hz		f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
6.7	2261	0.80	164.23	**	650	CG033-11N-71-06E CF033-11N-71-06E	31 35	140
7.8	1962	0.95	142.47	970	720			
8.5	1782	1.00	129.39	1060	740			
10	1512	1.20	109.79	1120	790			
11	1373	1.30	99.71	1170	810			
13	1181	1.50	85.78	1210	830			
14	1073	1.70	77.90	1240	850			
17	882	2.05	64.05	1260	900			
19	801	2.25	58.17	1280	900			
23	664	2.70	48.22	1300	920			
25	603	2.95	43.79	1300	940			
6.5	2327	0.80	260.03	**	650	CG033-11N-63-04F CF033-11N-63-04F	26 31	140
7.6	1996	0.90	223.03	940	700			
8.4	1813	1.00	202.55	1030	740			
9.4	1618	1.10	180.83	1100	760			
10	1470	1.25	164.23	1150	790			
12	1275	1.40	142.47	1190	830			
13	1158	1.55	129.39	1210	830			
15	983	1.85	109.79	1260	880			
17	892	2.00	99.71	1260	880			
20	768	2.35	85.78	1280	900			
22	697	2.55	77.90	1280	920			
26	590	2.80	42.88	1300	940	CG032-11N-71-06E CF032-11N-71-06E	29 33	140
28	536	2.80	38.95	1300	940			
46	331	2.80	24.03	1300	970			
17	916	0.85	66.50	610	200	CG012-11N-71-06E CF012-11N-71-06E	24 26	138
19	820	0.95	59.59	650	220			
21	713	1.10	51.80	700	250			
24	639	1.20	46.42	720	250			
26	578	1.35	42.00	740	270			
29	518	1.50	37.64	740	270			
33	456	1.70	33.09	760	290			
37	408	1.85	29.65	760	290			
43	351	2.15	25.50	790	310			
44	345	1.10	25.05	790	290			
48	315	2.40	22.85	790	310			
55	274	2.75	19.92	790	310			
57	269	2.20	19.51	790	290			
70	218	2.70	15.82	810	310			
26	595	1.30	66.50	720	270	CG012-11N-63-04F CF012-11N-63-04F	20 22	138
29	533	1.45	59.59	740	270			
33	464	1.65	51.80	760	290			
37	415	1.85	46.42	760	290			
40	376	2.05	42.00	790	290			
45	337	2.25	37.64	790	310			
51	296	2.55	33.09	790	310			
57	265	2.85	29.65	790	310			
68	224	1.65	25.05	790	310			

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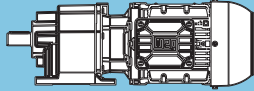
\*\* ... on request

P <sub>N</sub> = 0.25 hp								
60 Hz			i	F <sub>rN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
26	583	0.80	42.34	**	250	<b>CG002-11N-71-06E</b> <b>CF002-11N-71-06E</b>	22 24	136
30	507	0.90	36.85	810	250			
34	453	1.00	32.89	810	270			
38	404	1.10	29.33	830	270			
42	360	1.25	26.18	830	290			
48	317	1.40	23.00	830	290			
54	283	1.60	20.53	810	310			
64	238	1.90	17.29	790	310			
66	232	1.20	16.86	760	290			
72	212	2.10	15.43	740	310			
82	186	2.40	13.54	720	310			
84	180	2.15	13.10	720	310			
91	166	2.70	12.08	700	340			
106	144	2.80	10.42	650	310			
36	425	1.05	47.44	830	270	<b>CG002-11N-63-04F</b> <b>CF002-11N-63-04F</b>	17 20	136
40	379	1.20	42.34	830	290			
46	330	1.35	36.85	830	290			
52	294	1.55	32.89	830	290			
58	263	1.70	29.33	810	310			
65	234	1.90	26.18	790	310			
74	206	2.15	23.00	740	310			
83	184	2.45	20.53	720	310			
98	155	2.90	17.29	700	340			
101	151	1.85	16.86	670	310			
110	138	3.25	15.43	650	340			
126	121	3.70	13.54	630	340			
130	117	3.25	13.10	630	340			
141	108	4.10	12.08	610	340			
163	93	4.30	10.42	580	340			
171	89	5.00	9.97	580	340			
191	80	5.60	8.90	560	340			
208	73	5.45	8.17	540	340			
247	62	7.05	6.88	520	360			
277	55	6.80	6.14	490	340			
353	43	8.05	4.81	450	360			
480	32	9.80	3.54	400	360			

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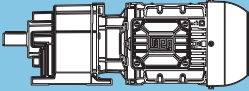
**P<sub>N</sub> = 0.33 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm					lb	lb			
<b>0.10</b>	191071	0.85	11217.58	22300	4560	<b>CG165-11N-71-06F</b> <b>CF165-11N-71-06F</b>	1537 1587	170	
<b>0.11</b>	169432	0.95	9998.22	24320	5080				
<b>0.12</b>	155188	1.05	9181.16	25450	5420				
<b>0.14</b>	130034	1.25	7752.38	27110	6020				
<b>0.16</b>	117933	1.40	7067.08	27790	6320				
<b>0.17</b>	105071	1.55	6345.03	28390	6610				
<b>0.21</b>	87290	1.85	5339.57	29110	7040				
<b>0.23</b>	79227	2.05	4884.00	29410	7220				
<b>0.25</b>	70160	2.30	4369.98	29670	7440				
<b>0.30</b>	58029	2.75	3690.13	29990	7730				
<b>0.09</b>	204293	0.80	18322.05	**	4230	<b>CG165-11N-71-04E</b> <b>CF165-11N-71-04E</b>	1532 1583	170	
<b>0.11</b>	171769	0.95	15484.09	24030	5010				
<b>0.12</b>	159670	1.00	14467.28	25040	5310				
<b>0.13</b>	139034	1.15	12662.22	26500	5780				
<b>0.15</b>	122541	1.35	11217.58	27490	6180				
<b>0.17</b>	108383	1.50	9998.22	28210	6520				
<b>0.19</b>	99016	1.65	9181.16	28640	6740				
<b>0.22</b>	82324	1.95	7752.38	29270	7150				
<b>0.24</b>	74468	2.15	7067.08	29540	7330				
<b>0.27</b>	66171	2.45	6345.03	29790	7530				
<b>0.32</b>	54400	2.95	5339.57	30080	7800				
<b>0.59</b>	31425	2.30	1891.77	16390	5690	<b>CG134-11N-71-06F</b> <b>CF134-11N-71-06F</b>	631 635	160	
<b>0.68</b>	26942	2.65	1642.17	16550	5820				
<b>0.76</b>	23665	3.00	1460.54	16640	5930				
<b>0.42</b>	45829	0.90	2636.78	6880	4590	<b>CG104-11N-71-06F</b> <b>CF104-11N-71-06F</b>	379 388	156	
<b>0.50</b>	38586	1.05	2229.16	8000	4830				
<b>0.51</b>	37248	1.10	2156.24	8180	4880				
<b>0.61</b>	31296	1.30	1822.91	8830	5080				
<b>0.65</b>	29111	1.40	1702.59	9040	5150				
<b>0.77</b>	24409	1.65	1439.39	9420	5310				
<b>0.84</b>	22295	1.80	1320.15	9550	5370				
<b>0.99</b>	18616	2.15	1116.07	9760	5510				
<b>1.0</b>	17986	2.25	1080.49	9800	5510				
<b>1.2</b>	14955	2.70	913.46	9940	5620				
<b>1.3</b>	13504	2.95	831.69	9980	5670				
<b>0.64</b>	29497	1.40	2636.78	8990	5130	<b>CG104-11N-71-04E</b> <b>CF104-11N-71-04E</b>	375 384	156	
<b>0.76</b>	24733	1.65	2229.16	9370	5280				
<b>0.79</b>	23875	1.70	2156.24	9440	5330				
<b>0.93</b>	19936	2.00	1822.91	9690	5440				
<b>1.0</b>	18543	2.15	1702.59	9760	5490				
<b>1.2</b>	15451	2.60	1439.39	9910	5600				
<b>1.3</b>	14054	2.85	1320.15	9960	5640				
<b>0.60</b>	32304	0.85	1854.82	3530	5510	<b>CG094-11N-71-06F</b> <b>CF094-11N-71-06F</b>	287 282	152	
<b>0.66</b>	29153	0.95	1677.34	4430	5620				
<b>0.68</b>	28502	0.95	1643.20	4590	5640				
<b>0.76</b>	25351	1.05	1464.58	5240	5780				
<b>0.83</b>	23185	1.15	1344.90	5600	5850				
<b>0.85</b>	22374	1.20	1300.57	5710	5890				
<b>0.98</b>	19416	1.40	1135.60	6110	6000				
<b>1.0</b>	18163	1.50	1064.47	6250	6050				
<b>1.1</b>	17627	1.55	1035.22	6290	6070				
<b>1.2</b>	15729	1.70	929.45	6500	6140				
<b>1.4</b>	13101	2.05	782.16	6700	6250				
<b>1.4</b>	13752	1.95	819.36	6650	6200				
<b>1.6</b>	11884	2.25	715.43	6790	6290				
<b>1.7</b>	10546	2.55	640.13	6880	6340				
<b>1.8</b>	10157	2.65	619.07	6900	6360				

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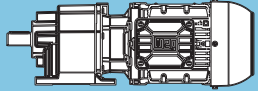
\*\* ... on request

$P_N = 0.33 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{rN}$			$m$ lb	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb			
<b>0.63</b>	30458	0.90	2683.89	4050	5550	<b>CG094-11N-71-04E</b> <b>CF094-11N-71-04E</b>	282 278	152
<b>0.65</b>	29480	0.95	2597.68	4320	5600			
<b>0.75</b>	25635	1.05	2268.18	5150	5760			
<b>0.80</b>	23960	1.15	2124.27	5440	5820			
<b>0.92</b>	20792	1.30	1854.82	5910	5930			
<b>1.0</b>	18726	1.45	1677.34	6180	6020			
<b>1.2</b>	16217	1.65	1464.58	6430	6110			
<b>1.3</b>	14830	1.80	1344.90	6560	6160			
<b>1.5</b>	12368	2.15	1135.60	6740	6270			
<b>1.6</b>	11522	2.35	1064.47	6810	6290			
<b>1.6</b>	11182	2.40	1035.22	6830	6320			
<b>1.8</b>	9956	2.70	929.45	6900	6360			
<b>3.0</b>	7024	2.00	368.94	5260	4680	<b>CG083-11N-71-06F</b> <b>CF083-11N-71-06F</b>	141 150	148
<b>3.9</b>	5423	2.55	284.84	5370	4770			
<b>4.6</b>	4586	3.00	368.94	5420	4810			
						<b>CG083-11N-71-04E</b> <b>CF083-11N-71-04E</b>	137 146	148
<b>3.2</b>	6688	1.10	351.33	2500	2990	<b>CG073-11N-71-06F</b> <b>CF073-11N-71-06F</b>	88 97	146
<b>3.5</b>	6084	1.20	319.60	2630	2970			
<b>4.0</b>	5301	1.40	278.44	2770	3080			
<b>4.4</b>	4822	1.55	253.30	2830	3080			
<b>5.1</b>	4116	1.80	216.20	2920	3170			
<b>5.6</b>	3744	1.95	196.68	2970	3170			
<b>6.3</b>	3377	2.15	177.39	3010	3210			
<b>6.9</b>	3072	2.40	161.38	3030	3210			
<b>8.1</b>	2615	2.80	137.38	3060	3280			
<b>4.8</b>	4367	1.70	351.33	2900	3150	<b>CG073-11N-71-04E</b> <b>CF073-11N-71-04E</b>	84 93	146
<b>5.3</b>	3973	1.85	319.60	2940	3150			
<b>6.1</b>	3461	2.10	278.44	2990	3210			
<b>6.7</b>	3148	2.35	253.30	3010	3210			
<b>7.9</b>	2687	2.75	216.20	3060	3260			
<b>8.6</b>	2445	3.00	196.68	3080	3260			
<b>3.2</b>	6559	0.85	344.51	1300	1330	<b>CG063-11N-71-06F</b> <b>CF063-11N-71-06F</b>	53 64	144
<b>3.6</b>	5849	0.95	307.24	1620	1370			
<b>3.9</b>	5363	1.00	281.73	1800	1420			
<b>4.6</b>	4618	1.15	242.60	2020	1460			
<b>5.0</b>	4235	1.30	222.46	2110	1510			
<b>5.9</b>	3581	1.50	188.11	2230	1550			
<b>6.4</b>	3284	1.65	172.49	2290	1570			
<b>7.2</b>	2931	1.85	153.96	2340	1600			
<b>7.9</b>	2688	2.00	141.17	2360	1620			
<b>9.4</b>	2256	2.40	118.51	2410	1640			
<b>10</b>	2069	2.60	108.67	2430	1660			
<b>4.5</b>	4670	1.15	375.71	2000	1460	<b>CG063-11N-71-04E</b> <b>CF063-11N-71-04E</b>	49 60	144
<b>4.9</b>	4282	1.25	344.51	2090	1480			
<b>5.5</b>	3819	1.40	307.24	2180	1530			
<b>6.0</b>	3502	1.55	281.73	2250	1550			
<b>7.0</b>	3016	1.80	242.60	2320	1600			
<b>7.6</b>	2765	1.95	222.46	2360	1620			
<b>9.0</b>	2338	2.30	188.11	2410	1640			
<b>9.9</b>	2144	2.50	172.49	2430	1660			
<b>11</b>	1914	2.80	153.96	2450	1690			

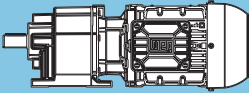
Legend see page 29

$P_N = 0.33 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{rN}$			$m$	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb			
4.6	4637	0.80	243.57	**	1260	CG053-11N-71-06F CF053-11N-71-06F	42 53	142
5.2	4068	0.90	213.71	740	1350			
5.7	3699	1.00	194.29	990	1370			
6.7	3150	1.15	165.45	1240	1440			
7.4	2863	1.25	150.41	1350	1480			
8.3	2531	1.40	132.97	1440	1530			
9.2	2301	1.55	120.88	1480	1550			
11	1933	1.85	101.55	1570	1600			
12	1758	2.05	92.32	1600	1620			
14	1481	2.40	77.79	1640	1640			
16	1346	2.65	70.71	1660	1660			
5.2	4082	0.90	328.43	700	1330	CG053-11N-71-04E CF053-11N-71-04E	37 49	142
5.7	3711	1.00	298.57	970	1370			
6.3	3330	1.10	267.93	1150	1420			
7.0	3028	1.20	243.57	1280	1460			
8.0	2656	1.35	213.71	1390	1510			
8.8	2415	1.50	194.29	1460	1530			
10	2057	1.75	165.45	1550	1570			
11	1870	1.90	150.41	1570	1600			
13	1653	2.15	132.97	1620	1620			
14	1503	2.40	120.88	1640	1640			
17	1262	2.85	101.55	1660	1660			
19	1120	2.00	58.85	1690	1690	CG052-11N-71-06F CF052-11N-71-06F	40 51	142
21	1018	2.00	53.50	1690	1710			
31	679	2.00	35.67	1710	1710			
10	2090	0.85	109.79	920	700	CG033-11N-71-06F CF033-11N-71-06F	31 35	140
11	1898	0.95	99.71	1010	720			
13	1633	1.10	85.78	1100	760			
14	1483	1.20	77.90	1150	790			
17	1219	1.50	64.05	1210	830			
19	1107	1.60	58.17	1240	850			
23	918	1.95	48.22	1260	880			
25	834	2.15	43.79	1280	900			
31	674	2.65	35.38	1300	920			
35	612	2.90	32.13	1300	920			
9.4	2248	0.80	180.83	**	670	CG033-11N-71-04E CF033-11N-71-04E	26 31	140
10	2041	0.90	164.23	940	700			
12	1771	1.00	142.47	1060	740			
13	1608	1.15	129.39	1100	760			
15	1365	1.30	109.79	1170	810			
17	1239	1.45	99.71	1190	830			
20	1066	1.70	85.78	1240	850			
22	968	1.85	77.90	1260	880			
27	796	2.25	64.05	1280	900			
29	723	2.45	58.17	1280	920			
35	599	3.00	48.22	1300	940			
26	816	2.00	42.88	1280	900	CG032-11N-71-06F CF032-11N-71-06F	31 35	140
29	741	2.05	38.95	1280	920			
32	664	2.70	34.88	1300	920			
35	603	2.95	31.67	1300	940			
46	457	2.00	24.03	1280	940			

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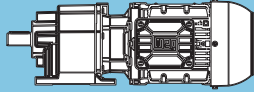
P <sub>N</sub> = 0.33 hp								
60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
21	986	0.80	51.80	**	200	CG012-11N-71-06F CF012-11N-71-06F	26 29	138
24	884	0.90	46.42	630	220			
26	800	0.95	42.00	650	220			
29	716	1.10	37.64	700	250			
34	630	1.20	33.09	720	270			
37	565	1.35	29.65	740	270			
44	485	1.55	25.50	760	290			
49	435	1.75	22.85	760	290			
56	379	2.00	19.92	790	290			
57	371	1.60	19.51	790	270			
62	340	2.25	17.85	790	310			
70	301	1.95	15.82	790	290			
75	283	2.70	14.88	790	310			
83	254	3.00	13.33	760	310			
89	237	2.50	12.46	740	310			
26	827	0.95	66.50	650	220	CG012-11N-71-04E CF012-11N-71-04E	21 24	138
29	741	1.05	59.59	670	250			
33	644	1.20	51.80	720	250			
37	577	1.35	46.42	740	270			
40	522	1.45	42.00	740	270			
45	468	1.65	37.64	760	290			
51	411	1.85	33.09	760	290			
57	369	2.05	29.65	790	290			
67	317	2.40	25.50	790	310			
68	311	1.20	25.05	790	290			
74	284	2.65	22.85	790	310			
87	242	2.45	19.51	740	310			
107	197	3.00	15.82	700	310			
38	558	0.80	29.33	**	250	CG002-11N-71-06F CF002-11N-71-06F	24 26	136
42	498	0.90	26.18	810	250			
48	438	1.05	23.00	810	270			
54	391	1.15	20.53	810	270			
64	329	1.35	17.29	760	290			
66	321	0.90	16.86	740	270			
72	294	1.55	15.43	740	290			
82	258	1.75	13.54	720	310			
85	249	1.55	13.10	700	290			
92	230	1.95	12.08	700	310			
106	198	2.05	10.42	650	290			
111	190	2.35	9.97	650	310			
125	169	2.65	8.90	630	340			
136	156	2.60	8.17	610	310			

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$P_N = 0.33 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{rN}$			$m$	Dimension sheet see page
$n_{60}$	$T_2$							
rpm	lb-in			lb	lb			
36	590	0.80	47.44	**	250	19 22	136	
40	526	0.85	42.34	810	250			
46	458	1.00	36.85	810	270			
52	409	1.10	32.89	810	270			
58	365	1.25	29.33	790	290			
65	325	1.40	26.18	760	290			
74	286	1.55	23.00	740	310			
83	255	1.75	20.53	700	310			
98	215	2.10	17.29	670	310			
101	210	1.35	16.86	650	290			
110	192	2.35	15.43	650	310			
126	168	2.65	13.54	630	340			
130	163	2.35	13.10	610	310			
141	150	2.95	12.08	610	340			
163	130	3.10	10.42	560	310			
171	124	3.60	9.97	560	340			
191	111	4.05	8.90	560	340			
208	102	3.95	8.17	540	340			
247	85	5.10	6.88	520	340			
277	76	4.90	6.14	490	340			
353	60	5.80	4.81	450	340			
480	44	7.05	3.54	400	360			

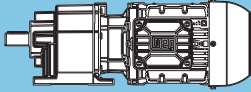
CG002-11N-71-04E  
CF002-11N-71-04E

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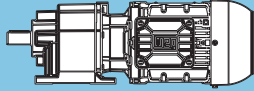
\*\* ... on request

**P<sub>N</sub> = 0.50 hp**

60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m lb	Dimension sheet see page			
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>3N</sub>						
rpm	lb-in			lb	lb						
<b>0.15</b>	191971	0.85	7752.38	22280	4560	<b>CG165-11N-80-06E</b> <b>CF165-11N-80-06E</b>	1541 1592	170			
<b>0.16</b>	174554	0.95	7067.08	23940	4990						
<b>0.18</b>	155920	1.05	6345.03	25450	5420						
<b>0.21</b>	130207	1.25	5339.57	27130	6020						
<b>0.23</b>	118489	1.35	4884.00	27790	6320						
<b>0.26</b>	105204	1.55	4369.98	28420	6610						
<b>0.31</b>	87702	1.85	3690.13	29110	7040						
<b>0.32</b>	84002	1.90	3543.61	29250	7130						
<b>0.37</b>	70491	2.30	3020.06	29670	7440						
<b>0.38</b>	69060	2.35	2966.43	29720	7460						
<b>0.46</b>	55697	2.90	2448.96	30060	7780						
<b>0.47</b>	54537	2.95	2404.16	30080	7820						
<b>0.13</b>	210814	0.80	12662.22	**	4090	<b>CG165-11N-71-04F</b> <b>CF165-11N-71-04F</b>	1534 1585	170			
<b>0.15</b>	186285	0.90	11217.58	22770	4680						
<b>0.17</b>	165189	1.00	9998.22	24660	5190						
<b>0.18</b>	150915	1.10	9181.16	25760	5530						
<b>0.22</b>	126453	1.30	7752.38	27310	6090						
<b>0.24</b>	114684	1.40	7067.08	27940	6380						
<b>0.27</b>	102176	1.60	6345.03	28530	6680						
<b>0.32</b>	84885	1.90	5339.57	29200	7080						
<b>0.35</b>	77044	2.10	4884.00	29470	7280						
<b>0.39</b>	68226	2.35	4369.98	29740	7490						
<b>0.46</b>	56429	2.85	3690.13	30030	7760						
<b>0.52</b>	52340	2.20	2162.84	24370	4810	<b>CG144-11N-80-06E</b> <b>CF144-11N-80-06E</b>	959 999	164			
<b>0.60</b>	45072	2.60	1885.79	24550	5010						
<b>0.68</b>	39416	2.95	1669.82	24660	5150						
<b>0.60</b>	46831	1.55	1891.77	15710	5240	<b>CG134-11N-80-06E</b> <b>CF134-11N-80-06E</b>	635 639	160			
<b>0.69</b>	40319	1.80	1642.17	16030	5440						
<b>0.77</b>	35565	2.00	1460.54	16230	5580						
<b>0.80</b>	34478	2.10	1418.83	16280	5600						
<b>0.89</b>	30555	2.35	1267.83	16430	5730						
<b>0.92</b>	29398	2.45	1224.91	16460	5760						
<b>1.0</b>	26019	2.75	1095.41	16570	5870						
<b>1.1</b>	25203	2.85	1063.29	16590	5890						
<b>0.89</b>	30575	2.35	1891.77	16410	5710				<b>CG134-11N-71-04F</b> <b>CF134-11N-71-04F</b>	628 633	160
<b>1.0</b>	26212	2.75	1642.17	16570	5850						
<b>0.62</b>	46062	0.90	1822.91	6880	4590	<b>CG104-11N-80-06E</b> <b>CF104-11N-80-06E</b>	384 392	156			
<b>0.66</b>	42933	0.95	1702.59	7400	4700						
<b>0.79</b>	36148	1.15	1439.39	8340	4920						
<b>0.86</b>	33018	1.25	1320.15	8680	5010						
<b>1.0</b>	26748	1.50	1080.49	9240	5240						
<b>1.2</b>	22427	1.80	913.46	9550	5370						
<b>1.4</b>	20294	2.00	831.69	9670	5440						
<b>1.6</b>	16910	2.40	703.12	9850	5550						
<b>1.8</b>	14957	2.70	628.39	9940	5620						
<b>0.64</b>	44681	0.90	2636.78	7080	4630	<b>CG104-11N-71-04F</b> <b>CF104-11N-71-04F</b>	377 386	156			
<b>0.76</b>	37543	1.10	2229.16	8140	4880						
<b>0.78</b>	36315	1.10	2156.24	8300	4900						
<b>0.92</b>	30450	1.35	1822.91	8900	5100						
<b>0.99</b>	28382	1.45	1702.59	9100	5170						
<b>1.2</b>	23749	1.70	1439.39	9460	5330						
<b>1.3</b>	21692	1.85	1320.15	9600	5400						
<b>1.5</b>	18113	2.20	1116.07	9780	5510						
<b>1.6</b>	17499	2.30	1080.49	9820	5530						
<b>1.8</b>	14550	2.75	913.46	9960	5620						

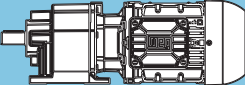
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\*\* ... on request

<b>P<sub>N</sub> = 0.50 hp</b>								
<b>60 Hz</b>			<b>i</b>				<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb			
<b>0.84</b>	34122	0.80	1344.90	**	5440	<b>CG094-11N-80-06E</b> <b>CF094-11N-80-06E</b>	289 284	152
<b>0.87</b>	32930	0.85	1300.57	3350	5490			
<b>1.0</b>	28636	0.95	1135.60	4590	5640			
<b>1.1</b>	26787	1.00	1064.47	4990	5710			
<b>1.2</b>	23294	1.15	929.45	5600	5850			
<b>1.4</b>	20409	1.35	819.36	6000	5960			
<b>1.6</b>	17711	1.50	715.43	6290	6070			
<b>1.8</b>	15749	1.70	640.13	6500	6140			
<b>2.1</b>	13163	2.05	540.55	6700	6250			
<b>2.2</b>	12588	2.15	519.08	6740	6250			
<b>2.6</b>	10596	2.55	442.39	6880	6340			
<b>2.8</b>	9759	2.75	410.85	6920	6360			
<b>0.91</b>	31495	0.85	1854.82	3780	5530	<b>CG094-11N-71-04F</b> <b>CF094-11N-71-04F</b>	282 278	152
<b>1.0</b>	28365	0.95	1677.34	4610	5640			
<b>1.2</b>	24666	1.10	1464.58	5350	5800			
<b>1.3</b>	22558	1.20	1344.90	5690	5870			
<b>1.5</b>	18930	1.45	1135.60	6160	6000			
<b>1.6</b>	17672	1.55	1064.47	6290	6070			
<b>1.8</b>	15304	1.75	929.45	6520	6160			
<b>2.1</b>	13380	2.00	819.36	6680	6230			
<b>2.2</b>	12746	2.10	782.16	6720	6250			
<b>2.4</b>	11563	2.30	715.43	6810	6290			
<b>2.6</b>	10260	2.60	640.13	6880	6340			
<b>2.7</b>	9882	2.70	619.07	6900	6360			
<b>3.1</b>	10211	1.35	368.94	4990	4520	<b>CG083-11N-80-06E</b> <b>CF083-11N-80-06E</b>	146 154	148
<b>4.0</b>	7883	1.75	284.84	5220	4630			
<b>4.7</b>	6611	2.10	238.89	5310	4700			
<b>6.0</b>	5189	2.65	187.48	5370	4790			
<b>4.6</b>	6848	2.05	368.94	5280	4700	<b>CG083-11N-71-04F</b> <b>CF083-11N-71-04F</b>	139 148	148
<b>5.9</b>	5287	2.60	284.84	5370	4770			
<b>3.5</b>	8845	0.85	319.60	1870	2770	<b>CG073-11N-80-06E</b> <b>CF073-11N-80-06E</b>	93 101	146
<b>4.1</b>	7706	0.95	278.44	2250	2900			
<b>4.5</b>	7010	1.05	253.30	2430	2900			
<b>5.2</b>	5984	1.25	216.20	2650	3030			
<b>5.7</b>	5443	1.35	196.68	2740	3030			
<b>6.4</b>	4910	1.50	177.39	2830	3100			
<b>7.0</b>	4466	1.65	161.38	2880	3100			
<b>8.2</b>	3802	1.95	137.38	2970	3190			
<b>9.0</b>	3459	2.10	124.97	2990	3190			
<b>11</b>	2892	2.55	104.50	3030	3260			
<b>12</b>	2631	2.80	95.06	3060	3260			
<b>4.8</b>	6521	1.15	351.33	2540	2990	<b>CG073-11N-71-04F</b> <b>CF073-11N-71-04F</b>	86 95	146
<b>5.3</b>	5932	1.25	319.60	2650	2990			
<b>6.1</b>	5168	1.45	278.44	2790	3080			
<b>6.7</b>	4701	1.55	253.30	2860	3080			
<b>7.8</b>	4013	1.85	216.20	2940	3170			
<b>8.6</b>	3650	2.00	196.68	2970	3170			
<b>9.5</b>	3293	2.25	177.39	3010	3210			
<b>10</b>	2995	2.45	161.38	3030	3210			
<b>12</b>	2550	2.85	137.38	3080	3280			

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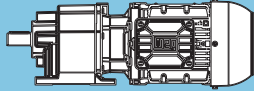
\*\* ... on request

<b>P<sub>N</sub> = 0.50 hp</b>											
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page			
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>r2N</sub></b>						
rpm	lb-in			lb	lb						
4.7	6714	0.80	242.60	**	1330	CG063-11N-80-06E CF063-11N-80-06E	55 66	144			
5.1	6157	0.90	222.46	1510	1350						
6.0	5206	1.05	188.11	1870	1440						
6.6	4774	1.15	172.49	1980	1460						
7.3	4261	1.25	153.96	2110	1510						
8.0	3907	1.40	141.17	2180	1530						
9.5	3280	1.65	118.51	2290	1570						
10	3007	1.80	108.67	2320	1600						
13	2478	2.15	89.54	2380	1640						
14	2272	2.35	82.10	2410	1640						
15	2028	2.65	73.28	2430	1660						
17	1860	2.90	67.19	2450	1690						
4.5	6973	0.80	375.71	**	1300				CG063-11N-71-04F CF063-11N-71-04F	49 60	144
4.9	6394	0.85	344.51	1370	1330						
5.5	5702	0.95	307.24	1690	1390						
6.0	5229	1.05	281.73	1840	1420						
6.9	4503	1.20	242.60	2050	1480						
7.6	4129	1.30	222.46	2140	1510						
9.0	3491	1.55	188.11	2250	1550						
9.8	3201	1.70	172.49	2290	1570						
11	2857	1.90	153.96	2340	1600						
12	2620	2.05	141.17	2380	1620						
14	2200	2.45	118.51	2430	1660						
16	2017	2.65	108.67	2430	1660						
19	1661	2.25	60.00	2470	1690	CG062-11N-80-06E CF062-11N-80-06E	55 66	144			
21	1523	2.25	55.02	2470	1710						
34	925	2.25	33.43	2520	1730						
6.8	4579	0.80	165.45	**	1280	CG053-11N-80-06E CF053-11N-80-06E	46 57	142			
7.5	4163	0.90	150.41	670	1330						
8.5	3680	1.00	132.97	1010	1390						
9.3	3345	1.10	120.88	1170	1420						
11	2811	1.30	101.55	1350	1480						
12	2555	1.40	92.32	1440	1510						
15	2153	1.65	77.79	1530	1570						
16	1957	1.85	70.71	1570	1600						
18	1706	2.10	61.63	1600	1620						
20	1551	2.30	56.02	1620	1640						
23	1362	2.65	49.20	1660	1660						
25	1238	2.90	44.73	1660	1660						
6.9	4521	0.80	243.57	**	1280				CG053-11N-71-04F CF053-11N-71-04F	40 51	142
7.9	3967	0.90	213.71	810	1350						
8.7	3606	1.00	194.29	1030	1390						
10	3071	1.20	165.45	1260	1460						
11	2792	1.30	150.41	1350	1480						
13	2468	1.45	132.97	1440	1530						
14	2244	1.60	120.88	1510	1550						
17	1885	1.90	101.55	1570	1600						
18	1714	2.10	92.32	1600	1620						
22	1444	2.50	77.79	1640	1640						
24	1312	2.70	70.71	1660	1660						
19	1629	1.40	58.85	1620	1620	CG052-11N-80-06E CF052-11N-80-06E	44 55	142			
21	1481	1.40	53.50	1640	1640						
23	1332	2.25	48.13	1660	1660						
26	1211	2.25	43.75	1660	1690						
32	987	1.40	35.67	1690	1660						
39	807	2.25	29.17	1710	1710						
29	1092	2.05	58.85	1690	1690	CG052-11N-71-04F CF052-11N-71-04F	37 49	142			
31	993	2.05	53.50	1690	1710						
47	662	2.05	35.67	1710	1730						

Legend see page 29

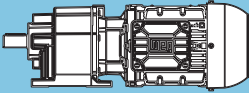
\*\* ... on request

**P<sub>N</sub> = 0.50 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>	F <sub>aN</sub>		m lb	Dimension sheet see page
n <sub>60</sub> rpm					lb	lb			
15	2156	0.85	77.90	880	670	<b>CG033-11N-80-06E</b> <b>CF033-11N-80-06E</b>	35 40	140	
18	1773	1.00	64.05	1060	740				
19	1610	1.10	58.17	1100	760				
20	1529	1.20	55.25	1120	790				
23	1389	1.30	50.18	1170	810				
26	1212	1.50	43.79	1210	830				
32	979	1.85	35.38	1260	880				
35	889	2.00	32.13	1260	880				
15	2038	0.90	109.79	940	700	<b>CG033-11N-71-04F</b> <b>CF033-11N-71-04F</b>	29 33	140	
17	1851	1.00	99.71	1010	720				
20	1592	1.15	85.78	1100	760				
22	1446	1.25	77.90	1150	790				
26	1189	1.50	64.05	1210	830				
29	1080	1.65	58.17	1240	850				
35	895	2.00	48.22	1260	900				
38	813	2.20	43.79	1280	900				
48	657	2.70	35.38	1240	920				
52	596	3.00	32.13	1210	940				
26	1187	1.40	42.88	1210	830	<b>CG032-11N-80-06E</b> <b>CF032-11N-80-06E</b>	35 40	140	
29	1078	1.40	38.95	1240	850				
32	965	1.85	34.88	1260	880				
36	877	2.05	31.67	1260	900				
41	767	2.35	27.71	1280	900				
45	697	2.55	25.17	1260	920				
47	665	1.40	24.03	1240	900				
53	592	3.00	21.40	1210	940				
58	541	2.10	19.54	1170	920				
73	430	2.70	15.53	1080	940				
39	796	2.05	42.88	1280	900	<b>CG032-11N-71-04F</b> <b>CF032-11N-71-04F</b>	29 31	140	
43	723	2.10	38.95	1280	920				
48	647	2.75	34.88	1240	920				
70	446	2.05	24.03	1100	940				
34	916	0.85	33.09	610	200	<b>CG012-11N-80-06E</b> <b>CF012-11N-80-06E</b>	29 31	138	
38	821	0.95	29.65	650	220				
44	706	1.10	25.50	700	250				
49	632	1.20	22.85	720	250				
57	551	1.40	19.92	740	270				
58	540	1.10	19.51	740	250				
63	494	1.55	17.85	760	290				
71	438	1.35	15.82	760	270				
76	412	1.85	14.88	760	290				
85	369	2.05	13.33	740	290				
88	355	2.15	12.83	720	310				
91	345	1.70	12.46	720	290				
98	318	2.40	11.50	700	310				
101	310	2.40	11.20	700	310				
113	278	2.60	10.04	670	310				
118	266	2.20	9.60	650	310				
138	227	3.00	8.22	630	340				
151	208	2.85	7.50	610	310				

Legend see page 29

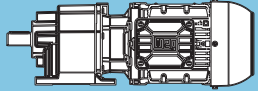
C

P <sub>N</sub> = 0.50 hp								
60 Hz			i	F <sub>rN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
33	961	0.80	51.80	**	200	CG012-11N-71-04F CF012-11N-71-04F	24 26	138
36	862	0.90	46.42	630	220			
40	780	1.00	42.00	670	220			
45	699	1.10	37.64	700	250			
51	614	1.25	33.09	720	270			
57	550	1.40	29.65	740	270			
66	473	1.60	25.50	760	290			
67	465	0.80	25.05	**	250			
74	424	1.80	22.85	760	290			
85	370	2.05	19.92	740	290			
86	362	1.65	19.51	720	270			
94	331	2.30	17.85	720	310			
107	294	2.00	15.82	670	290			
113	276	2.75	14.88	670	310			
135	231	2.55	12.46	630	310			
55	568	0.80	20.53	**	250	CG002-11N-80-06E CF002-11N-80-06E	26 29	136
65	478	0.95	17.29	740	270			
73	427	1.05	15.43	720	270			
83	375	1.20	13.54	700	290			
86	362	1.10	13.10	650	250			
94	334	1.35	12.08	650	290			
108	289	1.40	10.42	630	270			
113	276	1.65	9.97	630	310			
127	246	1.80	8.90	610	310			
138	226	1.80	8.17	580	290			
164	190	2.30	6.88	560	310			
184	170	2.20	6.14	540	310			
235	133	2.60	4.81	490	310			
57	544	0.85	29.33	760	250	CG002-11N-71-04F CF002-11N-71-04F	21 24	136
64	486	0.95	26.18	740	270			
73	427	1.05	23.00	720	270			
82	381	1.20	20.53	700	290			
97	321	1.40	17.29	650	290			
100	313	0.90	16.86	630	270			
109	286	1.55	15.43	630	290			
124	251	1.80	13.54	610	310			
129	243	1.60	13.10	580	290			
139	224	2.00	12.08	580	310			
162	193	2.10	10.42	560	310			
169	185	2.40	9.97	560	310			
189	165	2.70	8.90	540	340			
206	152	2.65	8.17	520	310			
245	128	3.40	6.88	490	340			
274	114	3.30	6.14	470	340			
275	114	3.90	6.14	490	340			
350	89	3.90	4.81	450	340			
476	66	4.75	3.54	400	340			

Legend see page 29

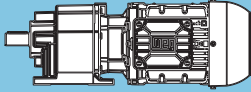
\*\* ... on request

$P_N = 0.75 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{TN}$			$m$	Dimension sheet see page			
$n_{60}$ rpm	$T_2$ lb-in			lb	lb				lb		
<b>0.21</b>	194824	0.85	5339.57	22030	4520	<b>CG165-11N-80-06F</b> <b>CF165-11N-80-06F</b>	1543 1594	170			
<b>0.23</b>	177746	0.90	4884.00	23690	4920						
<b>0.26</b>	158227	1.05	4369.98	25290	5370						
<b>0.31</b>	132589	1.25	3690.13	27020	5980						
<b>0.32</b>	126998	1.30	3543.61	27340	6110						
<b>0.38</b>	107128	1.50	3020.06	28330	6590						
<b>0.47</b>	85538	1.90	2448.96	29200	7080						
<b>0.56</b>	70505	2.30	2050.07	29670	7440						
<b>0.69</b>	55678	2.90	1661.50	30060	7800						
<b>0.22</b>	186933	0.90	7752.38	22930	4720	<b>CG165-11N-80-04E</b> <b>CF165-11N-80-04E</b>	1539 1590	170			
<b>0.24</b>	169539	0.95	7067.08	24480	5130						
<b>0.27</b>	151440	1.10	6345.03	25850	5550						
<b>0.32</b>	126466	1.30	5339.57	27400	6140						
<b>0.35</b>	115083	1.40	4884.00	27990	6410						
<b>0.39</b>	102180	1.60	4369.98	28570	6700						
<b>0.47</b>	85180	1.90	3690.13	29230	7100						
<b>0.49</b>	81377	2.00	3543.61	29360	7190						
<b>0.57</b>	68286	2.35	3020.06	29760	7510						
<b>0.58</b>	67074	2.40	2966.43	29790	7530						
<b>0.70</b>	53954	3.00	2448.96	30100	7850						
<b>0.54</b>	74819	2.15	2093.95	29560	7350	<b>CG164-11N-80-06F</b> <b>CF164-11N-80-06F</b>	1515 1665	168			
<b>0.63</b>	63646	2.55	1803.51	29880	7600						
<b>0.69</b>	58003	2.75	1657.33	30010	7730						
<b>0.73</b>	54256	2.95	1559.96	30080	7820						
<b>0.53</b>	79053	1.50	2162.84	23490	4140	<b>CG144-11N-80-06F</b> <b>CF144-11N-80-06F</b>	961 1001	164			
<b>0.60</b>	68361	1.70	1885.79	23900	4410						
<b>0.68</b>	60035	1.95	1669.82	24170	4630						
<b>0.70</b>	58281	2.00	1624.38	24210	4680						
<b>0.78</b>	51807	2.25	1455.92	24390	4830						
<b>0.81</b>	49729	2.35	1400.42	24440	4880						
<b>0.91</b>	44074	2.65	1254.10	24570	5040						
<b>0.93</b>	42823	2.70	1221.03	24590	5060						
<b>0.80</b>	50756	2.30	2162.84	24410	4880	<b>CG144-11N-80-04E</b> <b>CF144-11N-80-04E</b>	957 996	164			
<b>0.91</b>	43707	2.65	1885.79	24590	5060						
<b>0.60</b>	70145	1.05	1891.77	14030	4560	<b>CG134-11N-80-06F</b> <b>CF134-11N-80-06F</b>	637 642	160			
<b>0.69</b>	60517	1.20	1642.17	14840	4830						
<b>0.78</b>	53603	1.35	1460.54	15310	5040						
<b>0.80</b>	51966	1.40	1418.83	15420	5080						
<b>0.90</b>	46245	1.55	1267.83	15740	5260						
<b>0.93</b>	44587	1.60	1224.91	15830	5310						
<b>1.0</b>	39546	1.80	1095.41	16070	5460						
<b>1.1</b>	38307	1.85	1063.29	16120	5490						
<b>1.2</b>	34420	2.10	961.31	16300	5620						
<b>1.4</b>	29509	2.40	834.47	16460	5760						
<b>1.5</b>	25965	2.75	741.90	16570	5870						
<b>1.6</b>	25181	2.85	720.98	16590	5890						
<b>0.91</b>	45508	1.60	1891.77	15800	5280				<b>CG134-11N-80-04E</b> <b>CF134-11N-80-04E</b>	633 637	160
<b>1.1</b>	39180	1.85	1642.17	16100	5490						
<b>1.2</b>	34560	2.05	1460.54	16300	5620						
<b>1.4</b>	29630	2.40	1267.83	16460	5760						
<b>1.6</b>	25283	2.85	1095.41	16590	5890						

Legend see page 29

$P_N = 0.75 \text{ hp}$

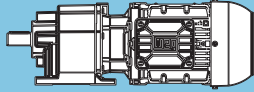
60 Hz		$f_B$	$i$	$F_{rN}$			$m$ lb	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in			lb	lb			
<b>0.86</b>	49252	0.85	1320.15	6270	4500	CG104-11N-80-06F CF104-11N-80-06F	386 395	156
<b>1.0</b>	41468	1.00	1116.07	7640	4740			
<b>1.1</b>	40064	1.00	1080.49	7850	4790			
<b>1.2</b>	33663	1.20	913.46	8610	5010			
<b>1.4</b>	30524	1.35	831.69	8920	5100			
<b>1.6</b>	25594	1.60	703.12	9330	5260			
<b>1.8</b>	22733	1.80	628.39	9530	5370			
<b>2.1</b>	18982	2.10	531.25	9760	5490			
<b>2.2</b>	18338	2.20	514.28	9780	5510			
<b>2.6</b>	15280	2.65	434.78	9940	5620			
<b>2.7</b>	14595	2.75	417.03	9960	5640			
<b>0.95</b>	44853	0.90	1822.91	7150	4650	CG104-11N-80-04E CF104-11N-80-04E	381 390	156
<b>1.0</b>	41807	1.00	1702.59	7620	4740			
<b>1.2</b>	35127	1.15	1439.39	8480	4970			
<b>1.3</b>	32085	1.25	1320.15	8790	5060			
<b>1.5</b>	26903	1.50	1116.07	9240	5240			
<b>1.6</b>	25992	1.55	1080.49	9310	5260			
<b>1.9</b>	21794	1.85	913.46	9600	5400			
<b>2.1</b>	19680	2.05	831.69	9710	5460			
<b>2.5</b>	16432	2.45	703.12	9870	5580			
<b>2.7</b>	14534	2.75	628.39	9960	5640			
<b>1.2</b>	34746	0.80	929.45	**	5420	CG094-11N-80-06F CF094-11N-80-06F	291 287	152
<b>1.4</b>	30506	0.90	819.36	4140	5580			
<b>1.5</b>	29121	0.95	782.16	4500	5620			
<b>1.6</b>	26528	1.05	715.43	5040	5730			
<b>1.8</b>	23639	1.15	640.13	5550	5850			
<b>2.1</b>	19839	1.35	540.55	6070	5980			
<b>2.2</b>	19012	1.40	519.08	6160	6020			
<b>2.3</b>	18519	1.45	506.66	6230	6020			
<b>2.6</b>	16070	1.70	442.39	6470	6140			
<b>2.8</b>	14832	1.80	410.85	6560	6180			
<b>3.2</b>	12844	2.10	358.73	6720	6250			
<b>3.3</b>	12264	2.20	343.93	6770	6270			
<b>3.8</b>	10598	2.55	300.30	6880	6340			
<b>4.1</b>	9755	2.75	278.74	6920	6360			
<b>1.3</b>	33159	0.85	1344.90	3370	5490	CG094-11N-80-04E CF094-11N-80-04E	287 282	152
<b>1.5</b>	27884	1.00	1135.60	4810	5690			
<b>1.6</b>	26084	1.05	1064.47	5150	5760			
<b>1.7</b>	25316	1.05	1035.22	5280	5780			
<b>1.9</b>	22636	1.20	929.45	5710	5890			
<b>2.1</b>	19873	1.35	819.36	6070	5980			
<b>2.2</b>	18893	1.45	782.16	6180	6020			
<b>2.4</b>	17210	1.55	715.43	6360	6090			
<b>2.7</b>	15304	1.75	640.13	6540	6160			
<b>2.8</b>	14770	1.80	619.07	6590	6180			
<b>3.2</b>	12764	2.10	540.55	6740	6250			
<b>3.3</b>	12232	2.20	519.08	6770	6270			
<b>3.4</b>	11915	2.25	506.66	6790	6290			
<b>3.9</b>	10275	2.60	442.39	6900	6360			
<b>4.0</b>	10071	2.65	434.54	6900	6360			
<b>4.2</b>	9483	2.85	410.85	6920	6380			
<b>3.7</b>	12508	2.15	306.73	6740	6270	CG093-11N-80-06F CF093-11N-80-06F	262 258	150
<b>4.7</b>	9900	2.70	242.77	6900	6360			

Legend see page 29

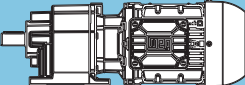
\*\* ... on request



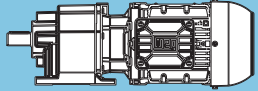
**P<sub>N</sub> = 0.75 hp**

60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
3.1	15045	0.95	368.94	4290	4270	<b>CG083-11N-80-06F</b> <b>CF083-11N-80-06F</b>	148 157	148
4.0	11616	1.20	284.84	4830	4450			
4.8	9742	1.45	238.89	5040	4540			
6.1	7645	1.80	187.48	5220	4650			
7.9	5900	2.35	144.69	5350	4740			
9.5	4880	2.85	119.68	5400	4790			
4.7	9943	1.40	368.94	5010	4540	<b>CG083-11N-80-04E</b> <b>CF083-11N-80-04E</b>	143 152	148
6.1	7676	1.80	284.84	5220	4650			
7.2	6438	2.15	238.89	5310	4720			
9.2	5053	2.75	187.48	5400	4790			
5.3	8817	0.85	216.20	1890	2830	<b>CG073-11N-80-06F</b> <b>CF073-11N-80-06F</b>	95 104	146
5.8	8020	0.95	196.68	2160	2830			
6.4	7234	1.05	177.39	2380	2940			
7.1	6581	1.15	161.38	2520	2940			
8.3	5602	1.30	137.38	2720	3060			
9.1	5096	1.45	124.97	2790	3060			
11	4261	1.75	104.50	2900	3150			
12	3877	1.90	95.06	2940	3150			
13	3514	2.10	86.17	2990	3210			
15	3197	2.30	78.39	3010	3210			
16	2882	2.55	70.68	3030	3260			
18	2622	2.80	64.30	3060	3260			
19	2449	3.00	60.06	3080	3280			
4.9	9468	0.80	351.33	**	2790	<b>CG073-11N-80-04E</b> <b>CF073-11N-80-04E</b>	90 99	146
5.4	8613	0.85	319.60	1980	2790			
6.2	7504	1.00	278.44	2320	2920			
6.8	6826	1.10	253.30	2470	2920			
8.0	5827	1.25	216.20	2680	3060			
8.8	5300	1.40	196.68	2770	3030			
9.7	4781	1.55	177.39	2860	3120			
11	4349	1.70	161.38	2900	3120			
13	3702	2.00	137.38	2970	3190			
14	3368	2.20	124.97	3010	3190			
17	2816	2.60	104.50	3060	3260			
18	2562	2.85	95.06	3080	3260			
6.6	7034	0.80	172.49	**	1280	<b>CG063-11N-80-06F</b> <b>CF063-11N-80-06F</b>	57 68	144
7.4	6278	0.85	153.96	1460	1350			
8.1	5757	0.95	141.17	1690	1390			
9.6	4833	1.10	118.51	1960	1460			
10	4431	1.20	108.67	2070	1480			
13	3651	1.50	89.54	2230	1550			
14	3348	1.60	82.10	2270	1570			
16	2988	1.80	73.28	2340	1600			
17	2740	1.95	67.19	2360	1620			
19	2423	2.20	59.42	2410	1640			
21	2222	2.40	54.49	2430	1640			
23	2029	2.65	49.74	2430	1660			
25	1860	2.90	45.61	2450	1690			
7.1	6538	0.85	242.60	1350	1330	<b>CG063-11N-80-04E</b> <b>CF063-11N-80-04E</b>	53 64	144
7.8	5995	0.90	222.46	1600	1370			
9.2	5069	1.05	188.11	1910	1440			
10	4648	1.15	172.49	2020	1460			
11	4149	1.30	153.96	2140	1510			
12	3805	1.40	141.17	2200	1530			
15	3194	1.70	118.51	2290	1570			
16	2929	1.85	108.67	2340	1600			
19	2413	2.25	89.54	2410	1640			
21	2213	2.45	82.10	2430	1660			
24	1975	2.70	73.28	2450	1660			
26	1811	2.95	67.19	2450	1690			



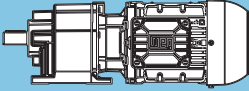
P <sub>N</sub> = 0.75 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
19	2447	1.55	60.00	2410	1640	<b>CG062-11N-80-06F</b> <b>CF062-11N-80-06F</b>	57 68	144
21	2244	1.55	55.02	2430	1640			
24	1939	2.75	47.55	2450	1690			
26	1778	2.85	43.60	2450	1690			
34	1363	1.55	33.43	2500	1660			
43	1080	2.85	26.49	2500	1710			
29	1617	2.30	60.00	2470	1710	<b>CG062-11N-80-04E</b> <b>CF062-11N-80-04E</b>	53 64	144
31	1483	2.30	55.02	2470	1710			
52	901	2.30	33.43	2500	1730			
11	4141	0.90	101.55	700	1330	<b>CG053-11N-80-06F</b> <b>CF053-11N-80-06F</b>	49 60	142
12	3765	0.95	92.32	970	1370			
15	3172	1.15	77.79	1240	1440			
16	2884	1.25	70.71	1330	1480			
18	2513	1.45	61.63	1440	1530			
20	2285	1.55	56.02	1510	1550			
23	2006	1.80	49.20	1550	1570			
25	1824	1.95	44.73	1600	1600			
10	4459	0.80	165.45	**	1300	<b>CG053-11N-80-04E</b> <b>CF053-11N-80-04E</b>	44 55	142
11	4053	0.90	150.41	790	1350			
13	3583	1.00	132.97	1080	1390			
14	3258	1.10	120.88	1210	1440			
17	2737	1.30	101.55	1390	1510			
19	2488	1.45	92.32	1460	1530			
22	2096	1.70	77.79	1530	1570			
24	1906	1.90	70.71	1570	1600			
28	1661	2.15	61.63	1620	1620			
31	1510	2.35	56.02	1640	1640			
35	1326	2.70	49.20	1660	1660			
39	1205	2.95	44.73	1660	1690			
19	2400	0.95	58.85	1460	1530	<b>CG052-11N-80-06F</b> <b>CF052-11N-80-06F</b>	46 57	142
21	2182	0.95	53.50	1530	1550			
24	1963	1.55	48.13	1570	1600			
26	1784	1.55	43.75	1600	1620			
30	1550	2.30	38.00	1640	1640			
32	1454	0.95	35.67	1640	1600			
33	1409	2.55	34.55	1640	1660			
39	1202	2.95	29.46	1660	1690			
50	939	2.55	23.03	1690	1690			
29	1586	1.40	58.85	1620	1640	<b>CG052-11N-80-04E</b> <b>CF052-11N-80-04E</b>	42 53	142
32	1442	1.40	53.50	1640	1640			
36	1297	2.30	48.13	1660	1660			
39	1179	2.35	43.75	1690	1690			
48	961	1.40	35.67	1690	1690			
59	786	2.30	29.17	1710	1710			
21	2253	0.80	55.25	**	670	<b>CG033-11N-80-06F</b> <b>CF033-11N-80-06F</b>	37 42	140
23	2046	0.90	50.18	940	700			
24	1966	0.95	48.22	970	720			
26	1786	1.00	43.79	1060	740			
32	1443	1.25	35.38	1150	810			
35	1310	1.40	32.13	1190	810			
20	2312	0.80	85.78	**	650	<b>CG033-11N-80-04E</b> <b>CF033-11N-80-04E</b>	33 37	140
22	2100	0.85	77.90	920	700			
27	1726	1.05	64.05	1080	760			
30	1568	1.15	58.17	1120	790			
31	1489	1.20	55.25	1150	790			
34	1352	1.35	50.18	1170	810			
36	1300	1.40	48.22	1190	830			
39	1180	1.50	43.79	1210	830			
49	953	1.90	35.38	1190	880			
54	866	2.05	32.13	1150	900			

**P<sub>N</sub> = 0.75 hp**

60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
27	1749	0.95	42.88	1060	740	CG032-11N-80-06F CF032-11N-80-06F	37 42	140
29	1588	0.95	38.95	1120	760			
33	1422	1.25	34.88	1170	810			
36	1292	1.40	31.67	1190	830			
41	1130	1.60	27.71	1240	850			
45	1026	1.75	25.17	1210	850			
47	980	0.95	24.03	1170	830			
53	873	2.05	21.40	1170	900			
58	797	1.45	19.54	1120	880			
59	793	2.25	19.44	1120	900			
67	697	2.55	17.09	1080	920			
73	633	2.80	15.52	1060	920			
95	489	2.40	11.99	990	940			
119	390	2.95	9.57	920	970			
40	1156	1.45	42.88	1210	850	CG032-11N-80-04E CF032-11N-80-04E	33 37	140
44	1050	1.45	38.95	1210	850			
49	940	1.90	34.88	1190	880			
54	854	2.10	31.67	1150	900			
62	747	2.40	27.71	1120	920			
69	678	2.65	25.17	1080	920			
72	648	1.45	24.03	1060	900			
88	527	2.20	19.54	1010	920			
111	418	2.75	15.53	940	940			
50	932	0.85	22.85	610	200	CG012-11N-80-06F CF012-11N-80-06F	33 35	138
57	812	0.95	19.92	650	220			
64	728	1.05	17.85	700	250			
72	645	0.95	15.82	720	220			
77	607	1.25	14.88	720	270			
86	544	1.40	13.33	700	270			
89	523	1.45	12.83	700	270			
91	508	1.15	12.46	670	250			
99	469	1.65	11.50	670	290			
102	457	1.65	11.20	670	290			
114	409	1.80	10.04	650	290			
119	392	1.50	9.60	630	270			
139	335	2.05	8.22	630	310			
152	306	1.95	7.50	580	290			
155	300	2.20	7.36	610	310			
203	228	2.60	5.60	540	310			
236	197	3.00	4.83	520	310			
52	892	0.85	33.09	630	220	CG012-11N-80-04E CF012-11N-80-04E	29 31	138
58	799	0.95	29.65	670	220			
68	687	1.10	25.50	700	250			
75	616	1.25	22.85	720	270			
87	537	1.45	19.92	700	270			
88	526	1.15	19.51	670	250			
97	481	1.60	17.85	670	290			
109	426	1.40	15.82	650	270			
116	401	1.90	14.88	650	290			
129	359	2.10	13.33	630	310			
134	346	2.20	12.83	630	310			
138	336	1.75	12.46	610	290			
150	310	2.45	11.50	610	310			
154	302	2.50	11.20	610	310			
172	270	2.70	10.04	580	310			
180	259	2.30	9.60	560	310			
230	202	2.90	7.50	540	310			

Legend see page 29

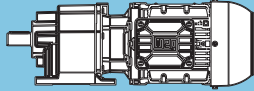


<b>P<sub>N</sub> = 0.75 hp</b>								
<b>60 Hz</b>		<b>f<sub>B</sub></b>	<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in			lb	lb			
<b>84</b>	552	0.85	13.54	650	250	<b>CG002-11N-80-06F</b> <b>CF002-11N-80-06F</b>	29 31	136
<b>94</b>	493	0.90	12.08	630	270			
<b>109</b>	425	0.95	10.42	580	220			
<b>114</b>	407	1.10	9.97	610	270			
<b>128</b>	363	1.25	8.90	580	290			
<b>139</b>	333	1.20	8.17	560	270			
<b>166</b>	280	1.55	6.88	540	310			
<b>186</b>	250	1.80	6.14	540	310			
<b>237</b>	196	1.80	4.81	490	310			
<b>322</b>	144	2.15	3.54	450	310			
<b>467</b>	100	2.80	2.44	400	340			
<b>84</b>	553	0.80	20.53	**	250	<b>CG002-11N-80-04E</b> <b>CF002-11N-80-04E</b>	24 26	136
<b>100</b>	466	0.95	17.29	630	270			
<b>112</b>	416	1.10	15.43	610	270			
<b>127</b>	365	1.25	13.54	580	290			
<b>132</b>	353	1.10	13.10	560	250			
<b>143</b>	326	1.40	12.08	560	290			
<b>165</b>	281	1.45	10.42	540	270			
<b>173</b>	269	1.65	9.97	540	310			
<b>194</b>	240	1.85	8.90	520	310			
<b>211</b>	220	1.85	8.17	490	290			
<b>251</b>	185	2.35	6.88	490	340			
<b>281</b>	165	2.70	6.14	470	340			
<b>359</b>	130	2.70	4.81	430	310			
<b>487</b>	95	3.25	3.54	400	340			

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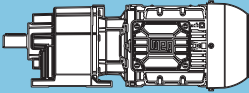
\*\* ... on request

**P<sub>N</sub> = 1.0 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>FN</sub> lb				F <sub>FN</sub> lb				
<b>0.28</b>	205007	0.80	6345.03	**	4290	<b>CG165-11P-L80-04F</b> <b>CF165-11P-L80-04F</b>	1556 1607	170	
<b>0.33</b>	171203	0.95	5339.57	24350	5100				
<b>0.36</b>	156196	1.05	4884.00	25520	5440				
<b>0.40</b>	139043	1.15	4369.98	26680	5850				
<b>0.48</b>	116213	1.40	3690.13	27940	6380				
<b>0.50</b>	111312	1.45	3543.61	28170	6500				
<b>0.58</b>	93895	1.70	3020.06	28910	6900				
<b>0.59</b>	91991	1.75	2966.43	29000	6950				
<b>0.72</b>	74777	2.15	2448.96	29560	7350				
<b>0.73</b>	73220	2.20	2404.16	29610	7400				
<b>0.86</b>	61314	2.60	2050.07	29940	7670				
<b>0.31</b>	182333	0.90	3690.13	23380	4830	<b>CG165-11P-90S/L-06E</b> <b>CF165-11P-90S/L-06E</b>	1559 1609	170	
<b>0.32</b>	175093	0.95	3543.61	24030	5010				
<b>0.38</b>	148082	1.10	3020.06	26100	5640				
<b>0.39</b>	145453	1.10	2966.43	26260	5690				
<b>0.47</b>	118550	1.35	2448.96	27830	6320				
<b>0.48</b>	116381	1.40	2404.16	27920	6380				
<b>0.56</b>	98225	1.65	2050.07	28750	6810				
<b>0.69</b>	78184	2.05	1661.50	29470	7280				
<b>0.84</b>	65404	2.45	2093.95	29830	7580	<b>CG164-11P-L80-04F</b> <b>CF164-11P-L80-04F</b>	1528 1579	168	
<b>0.98</b>	55404	2.90	1803.51	30080	7800				
<b>0.55</b>	103483	1.55	2093.95	28530	6680	<b>CG164-11P-90S/L-06E</b> <b>CF164-11P-90S/L-06E</b>	1530 1581	168	
<b>0.63</b>	88398	1.85	1803.51	29110	7040				
<b>0.69</b>	80732	2.00	1657.33	29380	7220				
<b>0.73</b>	75676	2.15	1559.96	29540	7330				
<b>0.79</b>	69767	2.30	1447.11	29720	7460				
<b>0.80</b>	68677	2.35	1427.45	29740	7490				
<b>0.90</b>	61023	2.65	1278.93	29940	7670				
<b>0.92</b>	59224	2.70	1246.39	29990	7710				
<b>0.93</b>	58668	2.75	1234.69	29990	7730				
<b>0.81</b>	69252	1.70	2162.84	23870	4380				<b>CG144-11P-L80-04F</b> <b>CF144-11P-L80-04F</b>
<b>0.93</b>	59885	1.95	1885.79	24170	4630				
<b>1.1</b>	52590	2.20	1669.82	24370	4830				
<b>1.2</b>	45287	2.55	1455.92	24550	5010				
<b>1.3</b>	43330	2.70	1398.80	24590	5060				
<b>1.4</b>	38366	3.00	1254.10	24680	5190				
<b>0.53</b>	108658	1.10	2162.84	22080	3370	<b>CG144-11P-90S/L-06E</b> <b>CF144-11P-90S/L-06E</b>	977 1016	164	
<b>0.61</b>	94158	1.25	1885.79	22840	3750				
<b>0.69</b>	83033	1.40	1669.82	23360	4050				
<b>0.70</b>	80608	1.45	1624.38	23450	4090				
<b>0.79</b>	71804	1.65	1455.92	23780	4320				
<b>0.82</b>	68925	1.70	1400.42	23900	4410				
<b>0.91</b>	61343	1.90	1254.10	24120	4590				
<b>0.94</b>	59602	1.95	1221.03	24190	4630				
<b>1.0</b>	53206	2.20	1099.05	24370	4810				
<b>1.1</b>	52173	2.25	1079.94	24390	4830				
<b>1.2</b>	45818	2.55	958.27	24550	4990				
<b>1.3</b>	43125	2.70	905.71	24590	5060				
<b>1.4</b>	38896	3.00	825.43	24680	5170				
<b>0.93</b>	61704	1.15	1891.77	14770	4810	<b>CG134-11P-L80-04F</b> <b>CF134-11P-L80-04F</b>	650 655	160	
<b>1.1</b>	53233	1.35	1642.17	15350	5060				
<b>1.2</b>	47055	1.55	1460.54	15710	5240				
<b>1.4</b>	40511	1.75	1267.83	16050	5440				
<b>1.6</b>	34643	2.05	1095.41	16300	5620				
<b>1.7</b>	33557	2.15	1063.29	16320	5640				
<b>1.8</b>	30089	2.40	961.31	16460	5760				
<b>1.9</b>	28636	2.50	918.68	16500	5780				
<b>2.1</b>	25742	2.80	834.47	16590	5870				

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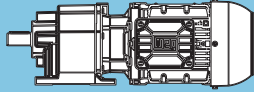
\*\* ... on request

<b>P<sub>N</sub> = 1.0 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>FN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		lb	lb			
0.70	83179	0.90	1642.17	12720	4180	<b>CG134-11P-90S/L-06E</b> <b>CF134-11P-90S/L-06E</b>	653 657	160
0.78	73677	1.00	1460.54	13740	4450			
0.81	71426	1.00	1418.83	13960	4520			
0.90	63564	1.15	1267.83	14640	4770			
0.93	61412	1.20	1224.91	14790	4830			
1.0	54582	1.30	1095.41	15260	5010			
1.1	52982	1.35	1063.29	15380	5080			
1.2	47606	1.50	961.31	15690	5240			
1.4	40986	1.75	834.47	16030	5420			
1.5	36140	2.00	741.90	16230	5580			
1.6	35048	2.05	720.98	16280	5600			
1.8	31049	2.30	644.01	16410	5710			
1.9	29463	2.45	613.66	16480	5760			
2.1	26494	2.70	556.43	16570	5850			
2.2	24648	2.90	521.98	16610	5910			
1.2	47431	0.85	1439.39	6700	4560	<b>CG104-11P-L80-04F</b> <b>CF104-11P-L80-04F</b>	399 408	156
1.3	43324	0.95	1320.15	7400	4700			
1.6	36477	1.10	1116.07	8320	4920			
1.9	29550	1.35	913.46	9040	5150			
2.1	26795	1.50	831.69	9260	5240			
2.5	22421	1.80	703.12	9550	5370			
2.8	19914	2.05	628.39	9710	5460			
3.3	16594	2.45	531.25	9870	5580			
3.4	16030	2.50	514.28	9890	5600			
4.0	13301	3.00	434.78	10000	5690			
1.3	46174	0.90	913.46	6920	4610	<b>CG104-11P-90S/L-06E</b> <b>CF104-11P-90S/L-06E</b>	401 410	156
1.4	41955	0.95	831.69	7600	4740			
1.6	35252	1.15	703.12	8480	4970			
1.8	31376	1.30	628.39	8860	5080			
2.2	26308	1.55	531.25	9280	5260			
2.6	21267	1.90	434.78	9620	5420			
2.7	20315	2.00	417.03	9690	5440			
3.2	16962	2.35	352.56	9850	5550			
3.3	16796	2.40	349.11	9870	5580			
3.9	13966	2.90	295.14	9980	5670			
4.0	13305	3.00	282.94	10000	5690			
4.6	13644	2.95	246.43	10000	5670	<b>CG103-11P-90S/L-06E</b> <b>CF103-11P-90S/L-06E</b>	373 381	154
1.7	35149	0.80	1064.47	**	5400	<b>CG094-11P-L80-04F</b> <b>CF094-11P-L80-04F</b>	306 302	152
1.9	30565	0.90	929.45	4180	5580			
2.1	26835	1.00	819.36	5010	5730			
2.3	25564	1.05	782.16	5260	5780			
2.5	23335	1.15	715.43	5620	5850			
2.7	20794	1.30	640.13	5980	5960			
2.8	20068	1.35	619.07	6050	5980			
3.3	17379	1.55	540.55	6360	6090			
3.4	16655	1.60	519.08	6430	6110			
3.5	16256	1.65	506.66	6450	6110			
4.0	14078	1.90	442.39	6630	6200			
4.1	13799	1.95	434.54	6650	6230			
4.3	12993	2.05	410.85	6720	6250			
4.9	11228	2.40	358.73	6830	6320			
5.0	11000	2.45	352.17	6860	6320			
5.1	10720	2.50	343.93	6860	6340			
5.9	9225	2.90	300.30	6950	6380			

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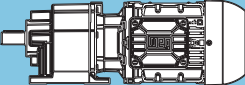
\*\* ... on request

**P<sub>N</sub> = 1.0 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm					lb	lb			
1.8	32424	0.85	640.13	3620	5510	<b>CG094-11P-90S/L-06E</b> <b>CF094-11P-90S/L-06E</b>	306 302	152	
2.1	27268	1.00	540.55	4920	5710				
2.2	26132	1.05	519.08	5150	5760				
2.3	25454	1.05	506.66	5280	5780				
2.6	22134	1.20	442.39	5800	5890				
2.8	20472	1.30	410.85	6000	5960				
3.2	17765	1.50	358.73	6320	6070				
3.3	16997	1.60	343.93	6380	6090				
3.8	14719	1.85	300.30	6590	6180				
4.1	13578	2.00	278.74	6680	6230				
4.7	11734	2.30	243.38	6810	6290				
5.7	11048	2.45	306.73	6860	6320	<b>CG093-11P-L80-04F</b> <b>CF093-11P-L80-04F</b>	278 273	150	
3.7	16982	1.60	306.73	6380	6090	<b>CG093-11P-90S/L-06E</b> <b>CF093-11P-90S/L-06E</b>	278 273	150	
4.7	13441	2.00	242.77	6700	6230				
5.4	11736	2.30	211.98	6810	6290				
6.1	10372	2.60	187.34	6880	6340				
4.8	13289	1.05	368.94	4610	4360	<b>CG083-11P-L80-04F</b> <b>CF083-11P-L80-04F</b>	161 170	148	
6.2	10260	1.35	284.84	4990	4520				
7.4	8604	1.60	238.89	5150	4610				
9.4	6753	2.05	187.48	5280	4700				
12	5212	2.65	144.69	5370	4790				
4.0	15770	0.90	284.84	4180	4230	<b>CG083-11P-90S/L-06E</b> <b>CF083-11P-90S/L-06E</b>	163 172	148	
4.8	13226	1.05	238.89	4610	4360				
6.1	10380	1.35	187.48	4970	4520				
7.9	8011	1.75	144.69	5190	4630				
9.6	6626	2.10	119.68	5310	4700				
11	5636	2.45	101.80	5350	4770				
13	4885	2.85	88.23	5400	4810				
6.9	9123	0.80	253.30	**	2740	<b>CG073-11P-L80-04F</b> <b>CF073-11P-L80-04F</b>	108 117	146	
8.1	7787	0.95	216.20	2250	2900				
8.9	7084	1.05	196.68	2430	2900				
9.9	6390	1.15	177.39	2590	3010				
11	5813	1.25	161.38	2680	3010				
13	4948	1.50	137.38	2830	3100				
14	4501	1.65	124.97	2880	3100				
17	3764	1.95	104.50	2970	3190				
19	3424	2.15	95.06	3010	3190				
20	3104	2.35	86.17	3030	3240				
22	2823	2.60	78.39	3060	3240				
25	2546	2.90	70.68	3080	3280				
7.1	8935	0.85	161.38	1870	2770	<b>CG073-11P-90S/L-06E</b> <b>CF073-11P-90S/L-06E</b>	110 119	146	
8.3	7606	1.00	137.38	2290	2920				
9.2	6919	1.05	124.97	2450	2920				
11	5786	1.30	104.50	2700	3060				
12	5263	1.40	95.06	2770	3060				
13	4771	1.55	86.17	2860	3120				
15	4340	1.70	78.39	2900	3120				
16	3913	1.90	70.68	2940	3190				
18	3560	2.05	64.30	2990	3190				
19	3325	2.20	60.06	3010	3210				
21	3025	2.40	54.63	3030	3210				
23	2734	2.70	49.38	3060	3260				
25	2487	2.85	44.92	3080	3260				

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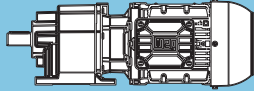
<b>P<sub>N</sub> = 1.0 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	<b>Dimension sheet see page</b>
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in						lb	
<b>9.4</b>	6775	0.80	188.11	**	1330	<b>CG063-11P-L80-04F</b> <b>CF063-11P-L80-04F</b>	73 84	144
<b>10</b>	6213	0.90	172.49	1510	1350			
<b>11</b>	5545	1.00	153.96	1750	1420			
<b>12</b>	5085	1.05	141.17	1910	1440			
<b>15</b>	4268	1.25	118.51	2110	1510			
<b>16</b>	3914	1.40	108.67	2180	1530			
<b>20</b>	3225	1.65	89.54	2290	1570			
<b>21</b>	2957	1.80	82.10	2340	1600			
<b>24</b>	2639	2.05	73.28	2380	1620			
<b>26</b>	2420	2.20	67.19	2410	1640			
<b>30</b>	2140	2.50	59.42	2430	1660			
<b>32</b>	1963	2.75	54.49	2450	1660			
<b>35</b>	1792	3.00	49.74	2450	1690			
<b>9.7</b>	6561	0.85	118.51	1350	1330	<b>CG063-11P-90S/L-06E</b> <b>CF063-11P-90S/L-06E</b>	73 84	144
<b>11</b>	6016	0.90	108.67	1600	1370			
<b>13</b>	4957	1.10	89.54	1930	1460			
<b>14</b>	4546	1.20	82.10	2050	1480			
<b>16</b>	4057	1.35	73.28	2160	1530			
<b>17</b>	3720	1.45	67.19	2230	1530			
<b>19</b>	3290	1.65	59.42	2290	1570			
<b>21</b>	3017	1.80	54.49	2340	1600			
<b>23</b>	2754	1.95	49.74	2360	1620			
<b>25</b>	2525	2.15	45.61	2380	1640			
<b>29</b>	2161	1.75	60.00	2430	1660	<b>CG062-11P-L80-04F</b> <b>CF062-11P-L80-04F</b>	71 82	144
<b>32</b>	1982	1.75	55.02	2450	1660			
<b>53</b>	1204	1.75	33.43	2450	1690			
<b>19</b>	3322	1.15	60.00	2290	1570	<b>CG062-11P-90S/L-06E</b> <b>CF062-11P-90S/L-06E</b>	73 84	144
<b>21</b>	3046	1.15	55.02	2320	1600			
<b>24</b>	2633	2.05	47.55	2380	1620			
<b>26</b>	2414	2.10	43.60	2410	1640			
<b>31</b>	2044	2.60	36.92	2430	1660			
<b>34</b>	1875	2.85	33.86	2450	1690			
<b>43</b>	1467	2.10	26.49	2470	1660			
<b>56</b>	1139	2.95	20.57	2410	1710			
<b>15</b>	4354	0.85	120.88	520	1300	<b>CG053-11P-L80-04F</b> <b>CF053-11P-L80-04F</b>	62 73	142
<b>17</b>	3658	1.00	101.55	1030	1390			
<b>19</b>	3325	1.10	92.32	1190	1420			
<b>23</b>	2802	1.30	77.79	1370	1480			
<b>25</b>	2547	1.40	70.71	1440	1530			
<b>29</b>	2220	1.60	61.63	1510	1550			
<b>31</b>	2018	1.80	56.02	1550	1570			
<b>36</b>	1772	2.00	49.20	1600	1620			
<b>39</b>	1611	2.20	44.73	1620	1620			
<b>15</b>	4307	0.85	77.79	560	1330	<b>CG053-11P-90S/L-06E</b> <b>CF053-11P-90S/L-06E</b>	64 75	142
<b>16</b>	3915	0.95	70.71	880	1350			
<b>19</b>	3412	1.05	61.63	1150	1420			
<b>20</b>	3102	1.15	56.02	1260	1460			
<b>23</b>	2724	1.30	49.20	1390	1510			
<b>26</b>	2476	1.45	44.73	1460	1530			
<b>30</b>	2120	1.05	58.85	1530	1570	<b>CG052-11P-L80-04F</b> <b>CF052-11P-L80-04F</b>	60 71	142
<b>33</b>	1927	1.05	53.50	1570	1600			
<b>37</b>	1733	1.75	48.13	1600	1620			
<b>40</b>	1576	1.75	43.75	1620	1640			
<b>46</b>	1369	2.60	38.00	1660	1660			
<b>49</b>	1285	1.05	35.67	1660	1640			
<b>51</b>	1244	2.85	34.55	1660	1660			
<b>60</b>	1051	1.75	29.17	1690	1660			
<b>76</b>	830	2.85	23.03	1710	1710			

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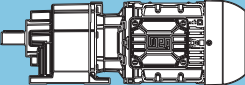
**P<sub>N</sub> = 1.0 hp**

60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>TN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb			
24	2664	1.15	48.13	1420	1510	CG052-11P-90S/L-06E CF052-11P-90S/L-06E	62 73	142
26	2422	1.15	43.75	1460	1530			
30	2104	1.70	38.00	1530	1570			
33	1913	1.90	34.55	1570	1600			
39	1631	2.20	29.46	1620	1640			
43	1483	2.40	26.79	1640	1640			
47	1335	2.70	24.12	1660	1660			
50	1275	1.90	23.03	1660	1640			
52	1214	2.95	21.92	1660	1690			
64	989	2.40	17.86	1690	1660			
78	809	2.95	14.62	1710	1710			
27	2307	0.80	64.05	**	650	CG033-11P-L80-04F CF033-11P-L80-04F	51 55	140
30	2095	0.85	58.17	920	700			
32	1990	0.90	55.25	970	720			
35	1807	1.00	50.18	1030	740			
36	1737	1.05	48.22	1080	760			
40	1577	1.15	43.79	1120	790			
50	1274	1.40	35.38	1120	830			
55	1157	1.55	32.13	1100	850			
41	1545	1.10	42.88	1120	790	CG032-11P-L80-04F CF032-11P-L80-04F	51 55	140
45	1403	1.10	38.95	1150	810			
50	1256	1.45	34.88	1120	830			
56	1141	1.60	31.67	1100	850			
64	998	1.80	27.71	1060	880			
70	907	2.00	25.17	1030	880			
73	865	1.10	24.03	1010	880			
82	771	2.30	21.40	1010	900			
90	704	1.65	19.54	970	900			
91	700	2.55	19.44	970	920			
103	616	2.90	17.09	940	940			
113	559	2.10	15.53	900	920			
147	432	2.70	11.99	850	940			
33	1931	0.95	34.88	990	720	CG032-11P-90S/L-06E CF032-11P-90S/L-06E	53 57	140
36	1754	1.05	31.67	1060	740			
41	1534	1.20	27.71	1120	790			
45	1393	1.30	25.17	1150	810			
53	1185	1.50	21.40	1120	850			
59	1076	1.65	19.44	1080	850			
67	946	1.90	17.09	1060	880			
74	859	2.10	15.52	1030	900			
89	715	2.45	12.92	990	920			
95	664	1.75	11.99	940	900			
98	649	2.70	11.73	940	920			
117	544	2.95	9.82	920	940			
120	530	2.20	9.57	900	920			
158	401	2.90	7.24	830	970			

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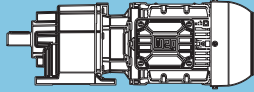
C

P <sub>N</sub> = 1.0 hp								
60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
69	918	0.85	25.50	610	200	CG012-11P-L80-04F CF012-11P-L80-04F	46 49	138
77	823	0.95	22.85	650	220			
88	718	1.05	19.92	670	250			
90	703	0.85	19.51	650	200			
99	643	1.20	17.85	650	250			
111	570	1.05	15.82	610	220			
118	536	1.45	14.88	630	270			
132	480	1.60	13.33	610	290			
137	462	1.65	12.83	610	290			
141	449	1.35	12.46	580	270			
153	414	1.85	11.50	580	290			
157	403	1.85	11.20	580	290			
175	361	2.00	10.04	560	310			
183	346	1.70	9.60	540	290			
214	296	2.30	8.22	540	310			
235	270	2.20	7.50	520	290			
239	265	2.50	7.36	520	310			
314	202	2.90	5.60	470	310			
64	988	0.80	17.85	**	200	CG012-11P-90S/L-06E CF012-11P-90S/L-06E	49 51	138
77	824	0.95	14.88	650	220			
86	738	1.05	13.33	670	250			
89	711	1.10	12.83	670	250			
92	690	0.85	12.46	650	200			
100	637	1.20	11.50	650	250			
102	620	1.20	11.20	650	270			
114	556	1.30	10.04	630	270			
119	532	1.10	9.60	610	250			
139	455	1.50	8.22	610	290			
153	415	1.45	7.50	560	270			
155	408	1.65	7.36	580	290			
204	310	1.90	5.60	540	290			
237	268	2.20	4.83	520	310			
271	234	2.55	4.22	490	310			
114	556	0.80	15.43	**	250	CG002-11P-L80-04F CF002-11P-L80-04F	44 46	136
130	488	0.95	13.54	560	270			
134	472	0.85	13.10	540	220			
146	435	1.05	12.08	540	270			
169	375	1.10	10.42	520	250			
177	359	1.25	9.97	520	290			
198	320	1.40	8.90	520	290			
215	294	1.40	8.17	470	270			
256	248	1.80	6.88	470	310			
287	221	2.05	6.14	450	310			
366	173	2.00	4.81	430	310			
497	128	2.45	3.54	380	310			

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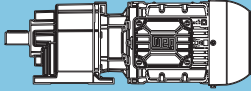
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**P<sub>N</sub> = 1.5 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>TN</sub> lb				F <sub>aN</sub> lb				
<b>0.40</b>	207084	0.80	4369.98	**	4290	<b>CG165-11P-90S/L-04E</b> <b>CF165-11P-90S/L-04E</b>	1554 1605	170	
<b>0.48</b>	173531	0.95	3690.13	24260	5060				
<b>0.50</b>	166641	1.00	3543.61	24820	5240				
<b>0.58</b>	140934	1.15	3020.06	26620	5820				
<b>0.59</b>	138077	1.20	2966.43	26800	5890				
<b>0.72</b>	112826	1.45	2448.96	28150	6470				
<b>0.73</b>	110762	1.45	2404.16	28240	6520				
<b>0.86</b>	93242	1.75	2050.07	28980	6950				
<b>1.1</b>	74216	2.15	1661.50	29610	7370	<b>CG164-11P-90S/L-04E</b> <b>CF164-11P-90S/L-04E</b>	1526 1576	168	
<b>0.84</b>	98537	1.65	2093.95	28750	6810				
<b>0.98</b>	83999	1.90	1803.51	29290	7150				
<b>1.1</b>	76714	2.10	1657.33	29520	7330				
<b>1.2</b>	66294	2.45	1447.11	29830	7550				
<b>1.4</b>	57864	2.80	1278.93	30030	7760	<b>CG144-11P-90S/L-04E</b> <b>CF144-11P-90S/L-04E</b>	972 1012	164	
<b>0.81</b>	103466	1.15	2162.84	22390	3530				
<b>0.93</b>	89659	1.30	1885.79	23090	3890				
<b>1.1</b>	78903	1.50	1669.82	23540	4160				
<b>1.2</b>	68372	1.70	1455.92	23920	4430				
<b>1.3</b>	65630	1.80	1400.42	24010	4500				
<b>1.4</b>	58290	2.00	1254.10	24230	4680				
<b>1.6</b>	50558	2.30	1099.05	24440	4880				
<b>1.7</b>	48183	2.40	1051.77	24480	4950				
<b>1.8</b>	43537	2.65	958.27	24590	5060				
<b>1.9</b>	40893	2.85	905.71	24640	5130	<b>CG134-11P-90S/L-04E</b> <b>CF134-11P-90S/L-04E</b>	648 653	160	
<b>0.93</b>	91617	0.80	1891.77	**	3960				
<b>1.1</b>	79204	0.90	1642.17	13240	4320				
<b>1.2</b>	70156	1.05	1460.54	14120	4590				
<b>1.4</b>	60526	1.20	1267.83	14880	4860				
<b>1.6</b>	51974	1.40	1095.41	15440	5100				
<b>1.7</b>	50346	1.45	1063.29	15560	5150				
<b>1.8</b>	45331	1.60	961.31	15830	5310				
<b>1.9</b>	43142	1.65	918.68	15940	5370				
<b>2.1</b>	39027	1.85	834.47	16120	5490				
<b>2.4</b>	34341	2.10	741.90	16300	5620				
<b>2.7</b>	29503	2.40	644.01	16480	5780				
<b>2.9</b>	27996	2.55	613.66	16520	5820				
<b>3.2</b>	25123	2.85	556.43	16610	5890				
<b>3.3</b>	23951	3.00	532.69	16640	5930	<b>CG104-11P-90S/L-04E</b> <b>CF104-11P-90S/L-04E</b>	397 406	156	
<b>1.6</b>	52327	0.80	1080.49	**	4410				
<b>1.9</b>	44057	0.95	913.46	7330	4680				
<b>2.1</b>	39950	1.00	831.69	7940	4810				
<b>2.5</b>	33567	1.20	703.12	8680	5010				
<b>2.8</b>	29815	1.35	628.39	9010	5150				
<b>3.3</b>	25000	1.60	531.25	9400	5310				
<b>3.4</b>	24151	1.65	514.28	9460	5330				
<b>4.0</b>	20208	2.00	434.78	9690	5460				
<b>4.2</b>	19304	2.10	417.03	9760	5490				
<b>5.0</b>	16118	2.50	352.56	9890	5600				

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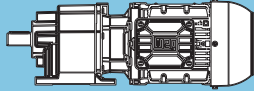
\*\* ... on request

P <sub>N</sub> = 1.5 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
2.5	34648	0.80	715.43	**	5440	CG094-11P-90S/L-04E CF094-11P-90S/L-04E	302 298	152
2.7	30875	0.90	640.13	4140	5580			
2.8	29859	0.90	619.07	4410	5620			
3.3	25965	1.05	540.55	5220	5760			
3.4	24883	1.10	519.08	5400	5800			
3.5	24237	1.10	506.66	5510	5820			
4.0	21076	1.30	442.39	5960	5960			
4.1	20660	1.30	434.54	6000	5960			
4.3	19493	1.40	410.85	6140	6000			
4.9	16916	1.60	358.73	6410	6110			
5.0	16573	1.65	352.17	6450	6110			
5.1	16151	1.65	343.93	6470	6140			
5.9	13987	1.90	300.30	6650	6200			
6.3	12929	2.10	278.74	6740	6250			
7.2	11150	2.40	243.38	6860	6320			
5.7	16204	1.65	306.73	6470	6140	CG093-11P-90S/L-04E CF093-11P-90S/L-04E	273 269	150
7.2	12825	2.10	242.77	6740	6250			
8.3	11198	2.40	211.98	6830	6320			
9.4	9897	2.70	187.34	6920	6360			
6.2	15048	0.95	284.84	4320	4270	CG083-11P-90S/L-04E CF083-11P-90S/L-04E	159 168	148
7.4	12620	1.10	238.89	4720	4410			
9.4	9904	1.40	187.48	5040	4540			
12	7644	1.80	144.69	5240	4650			
15	6322	2.20	119.68	5330	4720			
17	5378	2.60	101.80	5370	4770			
20	4661	2.95	88.23	5420	4810	CG073-11P-90S/L-04E CF073-11P-90S/L-04E	106 115	146
9.9	9371	0.80	177.39	**	2790			
11	8525	0.90	161.38	2020	2790			
13	7257	1.05	137.38	2380	2940			
14	6602	1.10	124.97	2540	2940			
17	5520	1.35	104.50	2740	3080			
19	5022	1.45	95.06	2810	3080			
20	4552	1.60	86.17	2880	3150			
22	4141	1.80	78.39	2920	3150			
25	3734	1.95	70.68	2970	3190			
27	3397	2.15	64.30	3010	3190			
29	3173	2.30	60.06	3030	3240			
32	2886	2.55	54.63	3060	3240			
36	2609	2.80	49.38	3080	3280			
39	2373	3.00	44.92	3080	3280			
15	6260	0.85	118.51	1510	1350	CG063-11P-90S/L-04E CF063-11P-90S/L-04E	68 79	144
16	5741	0.95	108.67	1710	1390			
20	4730	1.15	89.54	2000	1460			
21	4337	1.25	82.10	2090	1510			
24	3871	1.40	73.28	2200	1530			
26	3550	1.50	67.19	2250	1550			
30	3139	1.70	59.42	2320	1600			
32	2878	1.85	54.49	2360	1600			
35	2628	2.05	49.74	2380	1620			
39	2410	2.25	45.61	2410	1640			
29	3170	1.20	60.00	2320	1600	CG062-11P-90S/L-04E CF062-11P-90S/L-04E	68 79	144
32	2906	1.20	55.02	2340	1600			
37	2512	2.15	47.55	2380	1640			
40	2304	2.20	43.60	2410	1640			
48	1951	2.75	36.92	2450	1690			
52	1789	3.00	33.86	2430	1690			
53	1766	1.20	33.43	2410	1640			
66	1400	2.20	26.49	2250	1660			

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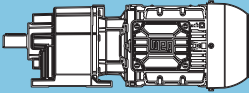
\*\* ... on request

**P<sub>N</sub> = 1.5 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>TN</sub> lb				F <sub>aN</sub> lb				
23	4109	0.90	77.79	760	1350	<b>CG053-11P-90S/L-04E</b> <b>CF053-11P-90S/L-04E</b>	60 71	142	
25	3736	0.95	70.71	1010	1370				
29	3256	1.10	61.63	1210	1440				
31	2960	1.20	56.02	1330	1460				
36	2599	1.40	49.20	1440	1530				
39	2363	1.50	44.73	1480	1550	<b>CG052-11P-90S/L-04E</b> <b>CF052-11P-90S/L-04E</b>	57 68	142	
37	2542	1.20	48.13	1440	1530				
40	2311	1.20	43.75	1510	1550				
46	2007	1.80	38.00	1550	1600				
51	1825	1.95	34.55	1600	1600				
60	1557	2.30	29.46	1640	1640				
66	1415	2.55	26.79	1640	1660				
73	1274	2.80	24.12	1660	1660				
76	1217	1.95	23.03	1660	1640				
99	943	2.55	17.86	1550	1690	<b>CG032-11P-90S/L-04E</b> <b>CF032-11P-90S/L-04E</b>	49 53	140	
50	1842	1.00	34.88	1030	740				
56	1673	1.10	31.67	1010	760				
64	1464	1.25	27.71	990	810				
70	1330	1.35	25.17	970	810				
82	1131	1.60	21.40	940	850				
90	1032	1.10	19.54	900	830				
91	1027	1.75	19.44	920	880				
103	903	2.00	17.09	900	900				
113	820	2.20	15.52	880	900				
136	682	2.55	12.92	830	920				
147	634	1.85	11.99	810	920				
150	620	2.85	11.73	810	940				
184	506	2.30	9.57	760	940				<b>CG012-11P-90S/L-04E</b> <b>CF012-11P-90S/L-04E</b>
99	943	0.80	17.85	**	200				
118	786	1.00	14.88	580	250				
132	704	1.10	13.33	580	250				
137	678	1.15	12.83	560	250				
141	658	0.90	12.46	540	220				
153	608	1.25	11.50	560	270				
157	592	1.30	11.20	560	270				
175	530	1.40	10.04	540	270				
183	507	1.20	9.60	520	250				
214	434	1.55	8.22	520	290				
235	396	1.50	7.50	490	270				
239	389	1.70	7.36	490	290				
314	296	2.00	5.60	450	290				
364	255	2.30	4.83	450	310				
417	223	2.65	4.22	430	310				

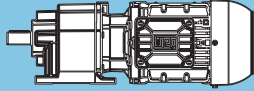
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P <sub>N</sub> = 2.0 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
<b>0.58</b>	195212	0.85	3020.06	22230	4560	<b>CG165-11P-90S/L-04F</b> <b>CF165-11P-90S/L-04F</b>	1556 1607	170
<b>0.59</b>	191746	0.85	2966.43	22590	4630			
<b>0.72</b>	157087	1.05	2448.96	25540	5440			
<b>0.73</b>	153819	1.05	2404.16	25760	5530			
<b>0.86</b>	130160	1.25	2050.07	27250	6070			
<b>1.1</b>	104143	1.55	1661.50	28530	6680			
<b>0.84</b>	136704	1.20	2093.95	26860	5910	<b>CG164-11P-90S/L-04F</b> <b>CF164-11P-90S/L-04F</b>	1528 1579	168
<b>0.97</b>	117020	1.40	1803.51	27940	6380			
<b>1.1</b>	107094	1.50	1657.33	28390	6610			
<b>1.2</b>	92743	1.75	1447.11	28980	6950			
<b>1.4</b>	81291	2.00	1278.93	29380	7220			
<b>1.6</b>	69296	2.30	1101.54	29740	7490			
<b>1.8</b>	59074	2.70	952.78	29990	7730			
<b>1.9</b>	57634	2.80	931.50	30030	7760			
<b>0.81</b>	142948	0.85	2162.84	19690	2520	<b>CG144-11P-90S/L-04F</b> <b>CF144-11P-90S/L-04F</b>	974 1014	164
<b>0.93</b>	124128	0.95	1885.79	21130	2990			
<b>1.1</b>	109463	1.10	1669.82	22050	3370			
<b>1.2</b>	94856	1.25	1455.92	22840	3750			
<b>1.3</b>	91240	1.30	1400.42	23020	3840			
<b>1.4</b>	81205	1.45	1254.10	23450	4090			
<b>1.6</b>	70727	1.65	1099.05	23850	4360			
<b>1.7</b>	67406	1.75	1051.77	23960	4450			
<b>1.8</b>	61035	1.90	958.27	24140	4610			
<b>1.9</b>	57450	2.05	905.71	24260	4700			
<b>2.1</b>	53580	2.15	848.21	24370	4810			
<b>2.4</b>	46140	2.50	739.56	24530	4990			
<b>2.5</b>	44254	2.60	710.80	24570	5040			
<b>2.8</b>	39170	2.95	637.04	24680	5170			
<b>1.2</b>	93966	0.80	1418.83	**	3890	<b>CG134-11P-90S/L-04F</b> <b>CF134-11P-90S/L-04F</b>	650 655	160
<b>1.4</b>	83794	0.85	1267.83	12720	4180			
<b>1.6</b>	71955	1.00	1095.41	13940	4520			
<b>1.7</b>	69845	1.05	1063.29	14140	4590			
<b>1.8</b>	62888	1.15	961.31	14700	4790			
<b>1.9</b>	59976	1.20	918.68	14930	4880			
<b>2.1</b>	54256	1.35	834.47	15310	5040			
<b>2.4</b>	47941	1.50	741.90	15690	5240			
<b>2.7</b>	41274	1.75	644.01	16030	5420			
<b>2.9</b>	39248	1.85	613.66	16120	5490			
<b>3.2</b>	35295	2.05	556.43	16280	5600			
<b>3.3</b>	33719	2.10	532.69	16320	5640			
<b>3.4</b>	32973	2.15	521.98	16370	5670			
<b>3.8</b>	28774	2.50	460.25	16500	5800			
<b>3.9</b>	28269	2.55	453.11	16520	5800			
<b>4.5</b>	24146	2.95	392.69	16640	5930			
<b>2.5</b>	46376	0.90	703.12	6950	4610	<b>CG104-11P-90S/L-04F</b> <b>CF104-11P-90S/L-04F</b>	399 408	156
<b>2.8</b>	41362	1.00	628.39	7730	4770			
<b>3.3</b>	34754	1.15	531.25	8540	4990			
<b>3.4</b>	33575	1.20	514.28	8680	5010			
<b>4.0</b>	28153	1.45	434.78	9170	5190			
<b>4.2</b>	26948	1.50	417.03	9260	5240			
<b>5.0</b>	22549	1.80	352.56	9550	5370			
<b>5.9</b>	18644	2.15	295.14	9780	5510			
<b>6.2</b>	17836	2.25	282.94	9820	5530			
<b>7.3</b>	14830	2.70	239.20	9960	5640			
<b>7.1</b>	17803	2.25	246.43	9820	5530			
<b>8.4</b>	15051	2.65	208.33	9940	5620			

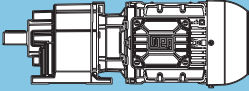
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P <sub>N</sub> = 2.0 hp								
60 Hz			i	F <sub>rn</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
3.4	34378	0.80	519.08	**	5440	CG094-11P-90S/L-04F CF094-11P-90S/L-04F	306 302	152
3.5	33486	0.80	506.66	**	5490			
4.0	29119	0.95	442.39	4560	5640			
4.3	26988	1.00	410.85	5010	5730			
4.9	23468	1.15	358.73	5620	5850			
5.0	22992	1.20	352.17	5690	5870			
5.1	22454	1.20	343.93	5760	5890			
5.8	19485	1.40	300.30	6140	6000			
6.3	18012	1.50	278.74	6290	6070			
7.2	15598	1.75	243.38	6520	6160			
5.7	22159	1.20	306.73	5800	5910	CG093-11P-90S/L-04F CF093-11P-90S/L-04F	278 273	150
7.2	17539	1.55	242.77	6340	6070			
8.3	15314	1.75	211.98	6540	6160			
9.4	13534	2.00	187.34	6700	6230			
11	11445	2.35	158.42	6830	6320			
13	9838	2.70	136.18	6920	6360			
7.3	17258	0.80	238.89	**	4160	CG083-11P-90S/L-04F CF083-11P-90S/L-04F	161 170	148
9.4	13544	1.05	187.48	4590	4340			
12	10453	1.35	144.69	4970	4520			
15	8646	1.60	119.68	5150	4610			
17	7354	1.90	101.80	5260	4680			
20	6374	2.20	88.23	5330	4720			
24	5382	2.55	74.50	5370	4770			
14	9028	0.85	124.97	1840	2770	CG073-11P-90S/L-04F CF073-11P-90S/L-04F	108 117	146
17	7549	1.00	104.50	2320	2920			
18	6867	1.10	95.06	2470	2920			
20	6225	1.20	86.17	2610	3010			
22	5663	1.30	78.39	2720	3010			
25	5106	1.45	70.68	2810	3100			
27	4645	1.60	64.30	2880	3100			
29	4339	1.70	60.06	2900	3150			
32	3947	1.85	54.63	2940	3150			
36	3567	2.05	49.38	2990	3210			
39	3245	2.20	44.92	3010	3210			
45	2830	2.40	39.17	3060	3260			
49	2574	2.50	35.63	3080	3260			
45	2812	2.60	38.92	3060	3260	CG072-11P-90S/L-04F CF072-11P-90S/L-04F	106 115	146
50	2558	2.85	35.41	3080	3260			
20	6469	0.85	89.54	1420	1350	CG063-11P-90S/L-04F CF063-11P-90S/L-04F	73 84	144
21	5931	0.90	82.10	1640	1370			
24	5294	1.05	73.28	1840	1440			
26	4854	1.10	67.19	1980	1460			
30	4293	1.25	59.42	2110	1510			
32	3936	1.35	54.49	2180	1530			
35	3594	1.50	49.74	2250	1550			
38	3295	1.65	45.61	2290	1570			
29	4335	0.90	60.00	2090	1510	CG062-11P-90S/L-04F CF062-11P-90S/L-04F	73 84	144
32	3975	0.90	55.02	2180	1530			
37	3435	1.55	47.55	2270	1570			
40	3150	1.60	43.60	2320	1570			
48	2667	2.00	36.92	2380	1620			
52	2446	2.20	33.86	2360	1640			
53	2415	0.90	33.43	2340	1570			
58	2189	2.45	30.30	2290	1660			
63	2007	2.65	27.78	2250	1660			
66	1914	1.60	26.49	2200	1620			
85	1486	2.25	20.57	2050	1660			
104	1219	2.75	16.88	1930	1690			

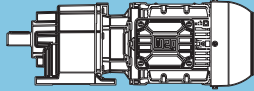
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\*\* ... on request

<b>P<sub>N</sub> = 2.0 hp</b>								
<b>60 Hz</b>		<b>f<sub>B</sub></b>	<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>			<b>lb</b>	<b>lb</b>			
rpm	lb-in			lb	lb		lb	
<b>28</b>	4452	0.80	61.63	**	1300	<b>CG053-11P-90S/L-04F</b> <b>CF053-11P-90S/L-04F</b>	62 73	142
<b>31</b>	4047	0.90	56.02	810	1350			
<b>36</b>	3554	1.00	49.20	1100	1420			
<b>39</b>	3231	1.10	44.73	1240	1440			
<b>36</b>	3477	0.90	48.13	1120	1420	<b>CG052-11P-90S/L-04F</b> <b>CF052-11P-90S/L-04F</b>	60 71	142
<b>40</b>	3161	0.90	43.75	1260	1440			
<b>46</b>	2745	1.30	38.00	1390	1510			
<b>51</b>	2496	1.45	34.55	1460	1530			
<b>60</b>	2129	1.70	29.46	1530	1570			
<b>66</b>	1935	1.85	26.79	1570	1600			
<b>73</b>	1742	2.05	24.12	1600	1620			
<b>76</b>	1664	1.45	23.03	1620	1570			
<b>80</b>	1584	2.25	21.92	1620	1640			
<b>95</b>	1341	2.65	18.56	1550	1660			
<b>98</b>	1290	1.85	17.86	1510	1640			
<b>104</b>	1219	2.95	16.88	1510	1690			
<b>120</b>	1056	2.25	14.62	1440	1660			
<b>156</b>	813	2.95	11.25	1330	1710			
<b>55</b>	2288	0.80	31.67	**	650	<b>CG032-11P-90S/L-04F</b> <b>CF032-11P-90S/L-04F</b>	51 55	140
<b>63</b>	2002	0.90	27.71	920	720			
<b>70</b>	1818	1.00	25.17	900	740			
<b>82</b>	1546	1.15	21.40	880	790			
<b>90</b>	1404	1.30	19.44	880	810			
<b>103</b>	1235	1.45	17.09	850	830			
<b>113</b>	1121	1.60	15.52	830	850			
<b>136</b>	933	1.85	12.92	810	880			
<b>146</b>	866	1.35	11.99	790	880			
<b>150</b>	847	2.10	11.73	790	900			
<b>179</b>	709	2.25	9.82	760	920			
<b>183</b>	692	1.70	9.57	740	900			
<b>197</b>	644	2.55	8.92	740	920			
<b>230</b>	552	2.75	7.64	720	940			
<b>243</b>	523	2.25	7.24	700	940			
<b>319</b>	397	2.90	5.50	650	970			
<b>132</b>	963	0.80	13.33	**	200	<b>CG012-11P-90S/L-04F</b> <b>CF012-11P-90S/L-04F</b>	46 49	138
<b>137</b>	927	0.85	12.83	540	200			
<b>153</b>	831	0.95	11.50	520	220			
<b>157</b>	809	0.95	11.20	520	220			
<b>175</b>	725	1.00	10.04	520	250			
<b>183</b>	694	0.85	9.60	490	200			
<b>214</b>	594	1.15	8.22	490	270			
<b>234</b>	542	1.10	7.50	470	250			
<b>238</b>	532	1.25	7.36	470	270			
<b>313</b>	405	1.45	5.60	430	270			
<b>363</b>	349	1.70	4.83	430	290			
<b>416</b>	305	1.95	4.22	400	290			

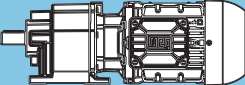


**P<sub>N</sub> = 3.0 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>TN</sub> lb				F <sub>aN</sub> lb				
<b>0.85</b>	195467	0.85	2050.07	22120	4540	<b>CG165-11P-100L-04E</b> <b>CF165-11P-100L-04E</b>	1579	170	
<b>1.1</b>	157207	1.05	1661.50	25470	5420		1629		
<b>0.83</b>	204560	0.80	2093.95	**	4320	<b>CG164-11P-100L-04E</b> <b>CF164-11P-100L-04E</b>	1550 1601	168	
<b>0.97</b>	175467	0.95	1803.51	24010	4990				
<b>1.1</b>	160587	1.00	1657.33	25220	5350				
<b>1.2</b>	139644	1.15	1447.11	26660	5850				
<b>1.4</b>	122658	1.30	1278.93	27630	6230				
<b>1.6</b>	104995	1.55	1101.54	28460	6650				
<b>1.8</b>	89886	1.80	952.78	29070	6990				
<b>1.9</b>	87878	1.85	931.50	29140	7060				
<b>2.2</b>	75776	2.15	811.56	29540	7330				
<b>2.5</b>	64460	2.50	698.99	29850	7600				
<b>2.6</b>	61574	2.60	670.48	29920	7670				
<b>2.9</b>	54950	2.90	604.60	30080	7820				
<b>1.2</b>	141940	0.85	1455.92	19720	2520	<b>CG144-11P-100L-04E</b> <b>CF144-11P-100L-04E</b>	996 1036	164	
<b>1.4</b>	121764	0.95	1254.10	21270	3030				
<b>1.6</b>	106274	1.10	1099.05	22210	3440				
<b>1.7</b>	101494	1.15	1051.77	22480	3570				
<b>1.8</b>	92093	1.25	958.27	22950	3800				
<b>1.9</b>	86863	1.35	905.71	23200	3930				
<b>2.1</b>	81015	1.45	848.21	23450	4090				
<b>2.4</b>	70203	1.65	739.56	23850	4360				
<b>2.5</b>	67196	1.75	710.80	23940	4450				
<b>2.7</b>	59851	1.95	637.04	24190	4630				
<b>2.9</b>	57354	2.05	611.72	24260	4700				
<b>3.2</b>	50904	2.30	548.57	24410	4880				
<b>3.3</b>	48794	2.40	526.92	24480	4920				
<b>3.4</b>	48083	2.40	520.33	24480	4950				
<b>3.8</b>	41412	2.80	453.75	24640	5100				
<b>3.9</b>	41156	2.80	450.95	24640	5130				
<b>4.0</b>	39695	2.90	436.75	24660	5150				
<b>1.8</b>	93911	0.80	961.31	**	3870	<b>CG134-11P-100L-04E</b> <b>CF134-11P-100L-04E</b>	672 677	160	
<b>1.9</b>	89747	0.80	918.68	**	4000				
<b>2.1</b>	81187	0.90	834.47	12970	4250				
<b>2.4</b>	71887	1.00	741.90	13920	4520				
<b>2.7</b>	62146	1.15	644.01	14750	4810				
<b>2.8</b>	59096	1.20	613.66	14970	4900				
<b>3.1</b>	53365	1.35	556.43	15350	5060				
<b>3.3</b>	50984	1.40	532.69	15490	5130				
<b>3.8</b>	43689	1.65	460.25	15890	5350				
<b>3.9</b>	42923	1.65	453.11	15940	5370				
<b>4.4</b>	36894	1.95	392.69	16210	5550				
<b>4.5</b>	36781	1.95	391.48	16210	5550				
<b>4.6</b>	35817	2.00	382.01	16250	5580				
<b>4.7</b>	34466	2.10	368.37	16300	5620				
<b>5.1</b>	31549	2.25	339.29	16410	5710				
<b>5.3</b>	30771	2.35	331.61	16430	5730				
<b>5.5</b>	29549	2.40	319.76	16480	5760				
<b>6.1</b>	26203	2.75	286.51	16570	5870				
<b>6.3</b>	25162	2.85	276.28	16590	5890				
<b>6.4</b>	24880	2.85	273.18	16610	5890				

Legend see page 29

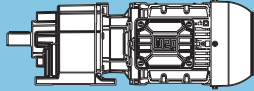
\*\* ... on request

P <sub>N</sub> = 3.0 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
3.3	51898	0.80	531.25	**	4410	<b>CG104-11P-100L-04E</b> <b>CF104-11P-100L-04E</b>	421 430	156
3.4	50138	0.80	514.28	**	4470			
4.0	42214	0.95	434.78	7580	4740			
4.2	40408	1.00	417.03	7850	4790			
4.9	33952	1.20	352.56	8610	5010			
5.0	33619	1.20	349.11	8660	5010			
5.9	28189	1.45	295.14	9150	5190			
6.2	26968	1.50	282.94	9240	5240			
6.4	25952	1.55	272.83	9330	5260			
7.3	22612	1.80	239.20	9550	5370			
7.6	21715	1.85	230.65	9600	5400			
7.1	26260	1.55	246.43	9310	5260	<b>CG103-11P-100L-04E</b> <b>CF103-11P-100L-04E</b>	392 401	154
8.4	22201	1.80	208.33	9580	5400			
9.7	19218	2.10	180.35	9760	5490			
11	17021	2.35	159.72	9850	5550			
13	14724	2.75	138.17	9960	5640			
4.9	35045	0.80	358.73	**	5420	<b>CG094-11P-100L-04E</b> <b>CF094-11P-100L-04E</b>	328 324	152
5.0	34404	0.80	352.17	**	5440			
5.1	33599	0.80	343.93	**	5460			
5.8	29217	0.95	300.30	4520	5640			
6.3	27008	1.00	278.74	4990	5710			
6.5	26044	1.05	268.78	5170	5760			
7.2	23486	1.15	243.38	5600	5850			
7.4	22601	1.20	234.69	5730	5890			
5.7	32686	0.85	306.73	3550	5510	<b>CG093-11P-100L-04E</b> <b>CF093-11P-100L-04E</b>	300 295	150
7.2	25871	1.05	242.77	5220	5760			
8.2	22589	1.20	211.98	5730	5890			
9.3	19964	1.35	187.34	6070	5980			
11	16882	1.60	158.42	6410	6090			
13	14512	1.85	136.18	6610	6180			
14	13009	2.05	122.08	6720	6250			
15	12668	2.10	118.88	6740	6270			
16	11359	2.35	106.60	6830	6320			
17	10854	2.45	101.85	6860	6340			
18	10466	2.55	98.21	6880	6340			
19	10039	2.65	94.21	6900	6360			
20	9237	2.90	86.68	6950	6380			
12	15419	0.90	144.69	4250	4250	<b>CG083-11P-100L-04E</b> <b>CF083-11P-100L-04E</b>	183 192	148
15	12754	1.10	119.68	4680	4380			
17	10848	1.30	101.80	4920	4500			
20	9402	1.50	88.23	5080	4560			
23	7939	1.75	74.50	5220	4630			
24	7656	1.80	71.84	5240	4650			
28	6540	2.10	61.37	5310	4720			
32	5773	2.40	54.18	5350	4770	<b>CG082-11P-100L-04E</b> <b>CF082-11P-100L-04E</b>	181 190	148
56	3328	3.00	31.23	4610	4860			
20	9182	0.80	86.17	**	2810	<b>CG073-11P-100L-04E</b> <b>CF073-11P-100L-04E</b>	130 139	146
22	8353	0.90	78.39	2070	2810			
25	7532	1.00	70.68	2320	2920			
27	6852	1.10	64.30	2470	2920			
29	6400	1.15	60.06	2590	3010			
32	5822	1.25	54.63	2680	3010			
35	5262	1.40	49.38	2790	3080			
37	5074	1.45	47.62	2810	3100			
39	4787	1.50	44.92	2860	3080			
40	4616	1.50	43.32	2880	3100			
45	4174	1.65	39.17	2920	3170			
49	3797	1.70	35.63	2970	3170			

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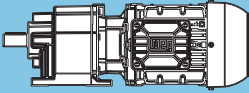
\*\* ... on request

**P<sub>N</sub> = 3.0 hp**

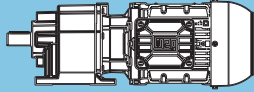
60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm					lb	lb			
45	4148	1.75	38.92	2920	3170	<b>CG072-11P-100L-04E</b> <b>CF072-11P-100L-04E</b>	128 137	146	
49	3773	1.95	35.41	2970	3170				
57	3255	2.25	30.55	3010	3240				
63	2961	2.50	27.79	3030	3240				
74	2512	2.85	23.58	3080	3280				
85	2200	2.80	20.65	3100	3210				
29	6332	0.85	59.42	1460	1350	<b>CG063-11P-100L-04E</b> <b>CF063-11P-100L-04E</b>	95 106	144	
32	5806	0.95	54.49	1690	1390				
35	5301	1.05	49.74	1840	1420				
38	4861	1.10	45.61	1980	1460				
47	3935	1.35	36.92	2180	1530	<b>CG062-11P-100L-04E</b> <b>CF062-11P-100L-04E</b>	93 104	144	
52	3608	1.50	33.86	2250	1550				
58	3228	1.65	30.30	2200	1570				
63	2960	1.80	27.78	2160	1600				
74	2500	2.15	23.46	2070	1640				
81	2293	2.35	21.51	2020	1640				
85	2192	1.55	20.57	1980	1600				
98	1902	2.80	17.85	1930	1690				
103	1799	1.90	16.88	1890	1620				
133	1393	2.40	13.07	1750	1660				
59	3140	1.15	29.46	1260	1460	<b>CG052-11P-100L-04E</b> <b>CF052-11P-100L-04E</b>	82 93	142	
65	2854	1.25	26.79	1350	1480				
72	2570	1.40	24.12	1440	1530				
80	2336	1.55	21.92	1480	1550				
94	1978	1.80	18.56	1480	1600				
98	1903	1.25	17.86	1440	1530				
103	1798	2.00	16.88	1440	1620				
119	1557	1.55	14.62	1370	1600				
124	1495	2.40	14.03	1370	1640				
137	1359	2.65	12.75	1350	1660				
152	1223	2.90	11.48	1300	1690				
155	1199	2.00	11.25	1280	1640				
205	906	2.65	8.50	1190	1690				
82	2281	0.80	21.40	**	670	<b>CG032-11P-100L-04E</b> <b>CF032-11P-100L-04E</b>	73 77	140	
90	2072	0.90	19.44	760	700				
102	1821	1.00	17.09	760	740				
112	1654	1.10	15.52	760	760				
135	1376	1.25	12.92	740	810				
146	1278	0.95	11.99	700	790				
149	1250	1.45	11.73	720	830				
178	1046	1.55	9.82	700	880				
182	1020	1.15	9.57	670	830				
196	950	1.75	8.92	700	880				
228	814	1.85	7.64	670	900				
241	771	1.50	7.24	650	880				
252	739	2.05	6.94	650	920				
293	635	2.25	5.96	630	920				
317	586	2.00	5.50	610	920				
322	577	2.45	5.41	630	940				
408	456	2.55	4.28	580	940				

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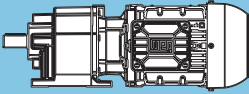
<b>P<sub>N</sub> = 4.0 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>FN</sub></b>			<b>m</b>	<b>Dimension sheet see page</b>
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
1.1	209443	0.80	1602.16	**	4230	<b>CG165-11P-L100L-04F</b> <b>CF165-11P-L100L-04F</b>	1594 1645	170
1.1	208406	0.80	1559.96	**	4270	<b>CG164-11P-L100L-04F</b> <b>CF164-11P-L100L-04F</b>	1565 1616	168
1.2	192936	0.85	1447.11	22500	4630			
1.4	169817	0.95	1278.93	24570	5150			
1.6	145366	1.10	1101.54	26350	5730			
1.8	124964	1.30	952.78	27540	6200			
1.9	122172	1.35	931.50	27700	6270			
2.1	105787	1.55	811.56	28460	6650			
2.2	104808	1.55	805.70	28510	6680			
2.5	90180	1.80	698.99	29090	7010			
2.6	86324	1.85	670.48	29230	7100			
2.9	77201	2.10	604.60	29520	7310			
3.0	73586	2.20	577.48	29630	7400			
3.4	65326	2.45	517.99	29850	7580			
3.5	62863	2.55	499.49	29900	7640			
3.9	54682	2.95	440.86	30100	7820			
1.6	146831	0.80	1099.05	**	2430	<b>CG144-11P-L100L-04F</b> <b>CF144-11P-L100L-04F</b>	1012 1052	164
1.7	140227	0.85	1051.77	19940	2590			
1.8	127500	0.95	958.27	20910	2920			
1.9	120260	1.00	905.71	21400	3100			
2.1	112395	1.05	848.21	21900	3300			
2.4	97397	1.20	739.56	22730	3690			
2.5	92208	1.25	701.59	22980	3820			
2.7	83380	1.40	637.04	23360	4050			
2.8	79903	1.45	611.72	23520	4140			
2.9	77789	1.50	596.77	23580	4180			
3.2	71213	1.65	548.57	23830	4360			
3.3	68262	1.70	526.92	23920	4430			
3.4	66865	1.75	517.20	23990	4470			
3.8	58180	2.00	453.75	24230	4700			
3.9	57820	2.00	450.95	24260	4700			
4.0	55769	2.10	436.75	24300	4740			
4.1	53666	2.15	421.15	24370	4810			
4.5	49191	2.35	388.44	24460	4920			
4.6	48124	2.40	380.80	24500	4950			
4.7	46213	2.50	367.20	24530	4990			
4.8	45187	2.55	359.79	24550	5010			
5.2	41749	2.80	334.50	24640	5100			
5.3	40855	2.85	328.01	24640	5130			
5.5	39232	2.95	316.30	24680	5170			
2.7	85863	0.85	644.01	12480	4110	<b>CG134-11P-L100L-04F</b> <b>CF134-11P-L100L-04F</b>	688 692	160
2.8	81649	0.90	613.66	12970	4250			
3.1	73883	1.00	556.43	13780	4470			
3.3	70587	1.05	532.69	14070	4560			
3.8	60613	1.20	460.25	14880	4860			
4.4	51399	1.40	392.69	15490	5130			
4.6	49898	1.45	382.01	15580	5170			
4.7	48017	1.50	368.37	15690	5240			
5.1	44045	1.65	339.29	15890	5350			
5.2	42959	1.65	331.61	15940	5370			
5.4	41340	1.75	319.76	16030	5420			
5.5	40685	1.75	314.70	16050	5440			
6.1	36812	1.95	286.51	16210	5550			
6.3	35351	2.05	276.28	16280	5600			
6.4	34954	2.05	273.18	16300	5620			
7.4	29828	2.40	236.02	16480	5760			

**P<sub>N</sub> = 4.0 hp**

60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>TN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb			
4.9	46909	0.85	352.56	6860	4590	CG104-11P-L100L-04F CF104-11P-L100L-04F	437 445	156
5.0	46449	0.90	349.11	6950	4610			
5.9	39108	1.05	295.14	8050	4830			
6.1	37415	1.10	282.94	8250	4900			
6.4	36005	1.15	272.83	8410	4950			
7.3	31437	1.30	239.20	8880	5100			
7.5	30252	1.35	230.65	8990	5130	CG103-11P-L100L-04F CF103-11P-L100L-04F	408 417	154
7.1	35912	1.15	246.43	8430	4950			
8.4	30361	1.35	208.33	8970	5130			
9.6	26282	1.55	180.35	9310	5260			
11	23277	1.75	159.72	9510	5350			
13	20136	2.00	138.17	9710	5460			
14	17782	2.25	122.02	9820	5530			
15	17132	2.35	117.56	9850	5550			
17	15033	2.65	103.15	9800	5620	CG094-11P-L100L-04F CF094-11P-L100L-04F	342 337	152
7.1	32449	0.85	243.38	3710	5510			
7.4	31226	0.90	234.69	4070	5580	CG093-11P-L100L-04F CF093-11P-L100L-04F	313 309	150
7.2	35380	0.80	242.77	**	5420			
8.2	30892	0.90	211.98	4160	5580			
9.3	27302	1.00	187.34	4970	5710			
11	23087	1.20	158.42	5690	5870			
13	19845	1.35	136.18	6090	6000			
14	17791	1.50	122.08	6320	6070			
15	17325	1.55	118.88	6360	6090			
16	15534	1.75	106.60	6540	6160			
17	14843	1.80	101.85	6590	6180			
18	14313	1.90	98.21	6630	6200			
20	12633	2.15	86.68	6740	6270			
22	11610	2.30	79.66	6810	6290			
24	10597	2.55	72.72	6880	6340			
25	9979	2.70	68.48	6900	6360			
28	8930	3.00	61.28	6970	6410	CG083-11P-L100L-04F CF083-11P-L100L-04F	198 207	148
15	17441	0.80	119.68	**	4140			
17	14835	0.95	101.80	4360	4290			
20	12857	1.10	88.23	4680	4380			
23	10857	1.30	74.50	4920	4500			
24	10469	1.35	71.84	4970	4520			
28	8944	1.55	61.37	5130	4590	CG082-11P-L100L-04F CF082-11P-L100L-04F	196 205	148
32	7895	1.75	54.18	5220	4650			
41	6249	2.20	42.88	5220	4720			
46	5456	2.55	37.44	4990	4770			
53	4822	2.85	33.09	4740	4810			
56	4551	2.20	31.23	4680	4770			
70	3602	2.80	24.72	4290	4830	CG073-11P-L100L-04F CF073-11P-L100L-04F	146 154	146
27	9370	0.80	64.30	**	2720			
29	8752	0.85	60.06	1960	2830			
32	7962	0.95	54.63	2200	2830			
35	7196	1.05	49.38	2410	2940			
37	6939	1.05	47.62	2470	2970			
39	6546	1.10	44.92	2560	2940			
40	6312	1.10	43.32	2610	2970			
44	5708	1.20	39.17	2720	3060			
49	5192	1.25	35.63	2790	3060			

Legend see page 29

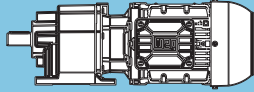
\*\* ... on request

<b>P<sub>N</sub> = 4.0 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
45	5672	1.30	38.92	2720	3060	<b>CG072-11P-L100L-04F</b> <b>CF072-11P-L100L-04F</b>	143 152	146
49	5160	1.45	35.41	2790	3060			
57	4452	1.65	30.55	2900	3150			
63	4050	1.80	27.79	2940	3150			
74	3436	2.10	23.58	3010	3210			
81	3125	2.25	21.45	3030	3210			
84	3009	2.05	20.65	3010	3120			
89	2842	2.40	19.50	3060	3260			
98	2585	2.55	17.74	3080	3260			
105	2417	2.65	16.59	3030	3280			
107	2361	2.55	16.20	2970	3210			
115	2199	2.85	15.09	2940	3280			
121	2095	2.95	14.38	2880	3300			
38	6647	0.80	45.61	**	1330	<b>CG063-11P-L100L-04F</b> <b>CF063-11P-L100L-04F</b>	108 119	144
47	5381	1.00	36.92	1820	1420	<b>CG062-11P-L100L-04F</b> <b>CF062-11P-L100L-04F</b>	108 119	144
51	4934	1.10	33.86	1960	1460			
57	4415	1.25	30.30	2090	1480			
63	4048	1.35	27.78	2070	1530			
74	3419	1.60	23.46	2000	1570			
81	3135	1.70	21.51	1960	1600			
85	2998	1.15	20.57	1910	1510			
98	2601	2.05	17.85	1870	1620			
103	2460	1.40	16.88	1820	1550			
106	2385	2.25	16.36	1820	1640			
118	2145	2.50	14.72	1780	1660			
129	1966	2.75	13.49	1730	1660			
133	1905	1.80	13.07	1710	1620			
175	1449	2.35	9.94	1570	1660			
212	1195	2.80	8.20	1510	1690			
59	4294	0.85	29.46	610	1330	<b>CG052-11P-L100L-04F</b> <b>CF052-11P-L100L-04F</b>	97 108	142
65	3904	0.95	26.79	920	1370			
72	3514	1.05	24.12	1120	1420			
79	3195	1.15	21.92	1240	1440			
94	2705	1.35	18.56	1390	1510			
97	2602	0.95	17.86	1370	1440			
103	2459	1.45	16.88	1370	1530			
119	2130	1.15	14.62	1300	1510			
124	2044	1.75	14.03	1330	1570			
136	1858	1.95	12.75	1280	1600			
152	1673	2.15	11.48	1260	1620			
155	1639	1.45	11.25	1240	1570			
167	1521	2.35	10.43	1240	1640			
187	1356	2.55	9.31	1190	1660			
205	1239	1.95	8.50	1170	1640			
206	1233	2.65	8.46	1170	1690			
223	1135	2.75	7.79	1150	1690			
246	1032	2.85	7.08	1120	1710			
250	1014	2.35	6.96	1100	1660			
276	920	2.95	6.31	1080	1710			
286	887	3.00	6.09	1080	1710			
308	822	2.80	5.64	1030	1710			
368	688	3.00	4.72	990	1730			

Legend see page 29

\*\* ... on request

**P<sub>N</sub> = 4.0 hp**

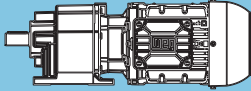
60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			lb	lb			
rpm	lb-in					lb		
112	2262	0.80	15.52	**	670			
135	1882	0.95	12.92	670	740			
148	1710	1.05	11.73	650	760			
177	1431	1.15	9.82	650	810			
182	1395	0.85	9.57	630	760			
195	1299	1.25	8.92	630	830			
228	1113	1.35	7.64	630	850			
240	1055	1.10	7.24	610	830			
251	1011	1.50	6.94	610	880			
292	869	1.65	5.96	610	900			
316	802	1.45	5.50	580	880			
321	789	1.80	5.41	580	900			
407	624	1.85	4.28	540	920			
<b>CG032-11P-L100L-04F</b> <b>CF032-11P-L100L-04F</b>							88 93	140

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\*\*... on request

$P_N = 5.4 \text{ hp}$

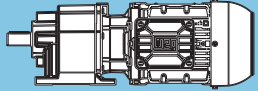
60 Hz		$f_B$	$i$	$F_{rN}$			$m$ lb	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in			lb	lb			
1.6	194143	0.85	1101.54	22350	4590	<b>CG164-11P-112M-04E</b> <b>CF164-11P-112M-04E</b>	1567 1618	168
1.8	167239	1.00	952.78	24770	5220			
1.9	163169	1.00	931.50	25090	5310			
2.2	141577	1.15	811.56	26570	5800			
2.5	121191	1.35	698.99	27720	6290			
2.6	116009	1.40	670.48	27990	6410			
2.9	103967	1.55	604.60	28530	6680			
3.0	101761	1.60	591.77	28620	6740			
3.4	88344	1.85	517.99	29140	7060			
3.5	85013	1.90	499.49	29270	7130			
4.0	74263	2.15	440.86	29610	7370			
4.1	71873	2.25	427.56	29670	7440			
4.2	70175	2.30	418.32	29720	7460			
4.7	61399	2.60	369.82	29940	7670			
4.9	59570	2.70	360.30	29990	7710			
2.1	149800	0.80	848.21	**	2340	<b>CG144-11P-112M-04E</b> <b>CF144-11P-112M-04E</b>	1014 1054	164
2.4	130078	0.90	739.56	20700	2830			
2.5	124765	0.95	710.80	21090	2970			
2.8	111360	1.05	637.04	21940	3330			
2.9	106935	1.10	611.72	22210	3440			
3.2	95503	1.25	548.57	22820	3730			
3.3	91546	1.30	526.92	23000	3820			
3.4	90215	1.30	520.33	23070	3870			
3.9	78188	1.50	453.75	23560	4180			
4.0	75104	1.55	436.75	23690	4250			
4.2	72273	1.60	421.15	23780	4320			
4.5	66385	1.75	388.44	23990	4470			
4.6	64946	1.80	380.80	24030	4520			
4.8	62497	1.85	367.20	24100	4590			
4.9	61110	1.90	359.79	24140	4610			
5.2	56579	2.05	334.50	24280	4720			
5.4	55368	2.10	328.01	24300	4770			
5.5	53281	2.20	316.30	24370	4810			
5.6	52844	2.20	313.70	24370	4830			
6.2	47091	2.45	282.46	24530	4970			
6.4	45315	2.55	272.37	24550	5010			
6.5	44863	2.60	270.22	24570	5040			
8.5	39855	2.90	206.88	24660	5150	<b>CG143-11P-112M-04E</b> <b>CF143-11P-112M-04E</b>	961 1001	162
3.3	94078	0.80	532.69	**	3890	<b>CG134-11P-112M-04E</b> <b>CF134-11P-112M-04E</b>	690 694	160
3.4	92185	0.80	521.98	**	3930			
3.8	80952	0.90	460.25	13040	4270			
3.9	79695	0.90	453.11	13170	4290			
4.5	68646	1.05	392.69	14250	4630			
4.6	66779	1.10	382.01	14410	4680			
4.8	64262	1.15	368.37	14610	4740			
5.2	59068	1.20	339.29	14990	4900			
5.3	57612	1.25	331.61	15080	4950			
5.5	55441	1.30	319.76	15240	5010			
5.6	54563	1.30	314.70	15290	5040			
6.1	49471	1.45	286.51	15600	5190			
6.4	47607	1.50	276.28	15690	5240			
7.4	40254	1.80	236.02	16070	5460			
8.6	39469	1.80	204.88	16100	5490	<b>CG133-11P-112M-04E</b> <b>CF133-11P-112M-04E</b>	637 642	158
9.7	34860	2.05	180.95	16300	5620			
11	30261	2.35	157.08	16460	5760			
12	29180	2.45	151.47	16480	5780			
13	26145	2.75	135.71	16570	5870			

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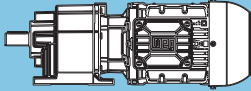
$P_N = 5.4 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{TN}$			$m$	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in			lb	lb			
5.9	52124	0.80	295.14	**	4410	CG104-11P-112M-04E CF104-11P-112M-04E	439 448	156
6.2	49867	0.80	282.94	**	4500			
6.4	48086	0.85	272.83	6630	4540			
7.3	41986	0.95	239.20	7640	4740			
7.6	40403	1.00	230.65	7870	4790			
7.1	47474	0.85	246.43	6740	4560	CG103-11P-112M-04E CF103-11P-112M-04E	410 419	154
8.4	40135	1.00	208.33	7890	4810			
9.7	34743	1.15	180.35	8540	4990			
11	30770	1.30	159.72	8950	5100			
13	26619	1.50	138.17	9280	5240			
14	23506	1.70	122.02	9510	5350			
15	22648	1.80	117.56	9550	5370			
17	19872	2.05	103.15	9710	5460			
18	19274	2.10	100.05	9760	5490			
20	16627	2.40	86.31	9370	5580			
20	17203	2.35	89.30	9400	5550			
22	15236	2.65	79.08	9060	5620			
11	30520	0.90	158.42	4230	5600	CG093-11P-112M-04E CF093-11P-112M-04E	315 311	150
13	26234	1.05	136.18	5170	5760			
14	23519	1.15	122.08	5620	5850			
15	22902	1.20	118.88	5710	5870			
16	20535	1.30	106.60	6020	5960			
17	19622	1.40	101.85	6110	6000			
18	18921	1.45	98.21	6200	6020			
19	18149	1.50	94.21	6290	6050			
20	16700	1.60	86.68	6430	6110			
22	15347	1.75	79.66	6540	6160			
24	14009	1.90	72.72	6650	6200			
26	13192	2.05	68.48	6720	6250			
29	11805	2.25	61.28	6810	6290			
34	9867	2.70	51.22	6900	6360			
36	9514	2.80	49.39	6770	6380			
20	16997	0.85	88.23	3930	4160	CG083-11P-112M-04E CF083-11P-112M-04E	201 209	148
24	14353	1.00	74.50	4450	4320			
29	11824	1.20	61.37	4810	4430			
32	10437	1.35	54.18	4970	4520	CG082-11P-112M-04E CF082-11P-112M-04E	198 207	148
41	8261	1.70	42.88	5190	4630			
47	7213	1.95	37.44	5040	4680			
53	6375	2.20	33.09	4810	4720			
56	6017	1.65	31.23	4740	4680			
63	5391	2.55	27.98	4520	4770			
71	4762	2.10	24.72	4340	4770			
73	4634	2.85	24.05	4270	4810			
81	4158	2.85	21.58	4140	4790			
36	9513	0.80	49.38	**	2790	CG073-11P-112M-04E CF073-11P-112M-04E	148 157	146
37	9173	0.80	47.62	**	2810			
39	8654	0.85	44.92	1980	2790			
41	8345	0.85	43.32	2090	2810			
45	7545	0.90	39.17	2320	2920			
49	6864	0.95	35.63	2470	2920			

Legend see page 29

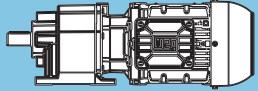
\*\* ... on request

**P<sub>N</sub> = 5.4 hp**

60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>rAN</sub>			
rpm	lb-in			lb	lb			
45	7498	1.00	38.92	2340	2920	<b>CG072-11P-112M-04E</b> <b>CF072-11P-112M-04E</b>	146 154	146
50	6821	1.10	35.41	2450	2920			
57	5885	1.25	30.55	2630	3030			
63	5353	1.40	27.79	2650	3030			
74	4542	1.60	23.58	2740	3150			
82	4132	1.70	21.45	2740	3150			
85	3977	1.55	20.65	2590	3030			
90	3757	1.80	19.50	2770	3190			
99	3417	1.95	17.74	2740	3190			
106	3195	2.00	16.59	2770	3240			
108	3122	1.95	16.20	2630	3120			
116	2907	2.15	15.09	2740	3240			
122	2769	2.25	14.38	2740	3260			
134	2519	2.40	13.08	2700	3260			
140	2409	2.30	12.51	2610	3190			
145	2339	2.50	12.14	2700	3300			
150	2255	2.55	11.71	2680	3300			
159	2127	2.70	11.04	2650	3300			
165	2051	2.75	10.65	2610	3300			
170	1993	2.60	10.34	2560	3240			
176	1926	2.85	10.00	2540	3330			
199	1695	2.90	8.80	2450	3280			
52	6523	0.85	33.86	1370	1330	<b>CG062-11P-112M-04E</b> <b>CF062-11P-112M-04E</b>	110 121	144
58	5836	0.95	30.30	1660	1390			
63	5352	1.00	27.78	1840	1420			
75	4520	1.20	23.46	1890	1480			
82	4145	1.30	21.51	1840	1510			
85	3963	0.85	20.57	1820	1390			
98	3438	1.55	17.85	1800	1570			
104	3252	1.05	16.88	1730	1480			
107	3153	1.70	16.36	1750	1570			
119	2835	1.90	14.72	1710	1620			
130	2600	2.05	13.49	1660	1620			
134	2518	1.35	13.07	1640	1550			
145	2325	2.30	12.07	1640	1640			
159	2132	2.50	11.07	1600	1660			
171	1976	2.70	10.26	1570	1660			
177	1915	1.75	9.94	1530	1620			
187	1812	2.90	9.40	1530	1690			
208	1625	3.00	8.43	1480	1710			
214	1579	2.15	8.20	1460	1660			
261	1296	2.60	6.73	1390	1690			
307	1101	3.00	5.71	1330	1710			

Legend see page 29

$P_N = 5.4 \text{ hp}$

60 Hz		$f_B$	$i$	$F_{rN}$			$m$	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb			
73	4646	0.80	24.12	**	1280			
80	4223	0.85	21.92	670	1330			
95	3576	1.00	18.56	1080	1390			
104	3251	1.10	16.88	1210	1440			
120	2816	0.85	14.62	1210	1420			
125	2702	1.35	14.03	1240	1510			
138	2456	1.45	12.75	1210	1530			
153	2211	1.65	11.48	1190	1570			
156	2167	1.10	11.25	1170	1510			
168	2010	1.80	10.43	1170	1570			
189	1793	1.95	9.31	1150	1620			
206	1638	1.45	8.50	1100	1570			
207	1630	2.00	8.46	1120	1620			
225	1501	2.05	7.79	1100	1640			
248	1365	2.15	7.08	1080	1660			
252	1340	1.80	6.96	1060	1620			
278	1217	2.25	6.31	1060	1690			
288	1173	2.30	6.09	1030	1690			
306	1106	2.35	5.74	1010	1690			
311	1087	2.15	5.64	1010	1660			
317	1066	2.35	5.54	1010	1690			
372	910	2.25	4.72	970	1690			
459	737	2.45	3.83	920	1710			
476	711	2.45	3.69	900	1710			

CG052-11P-112M-04E  
CF052-11P-112M-04E

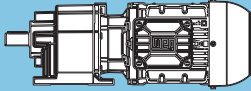
99  
110

142

Legend see page 29

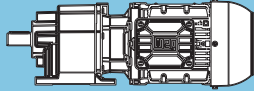
\*\*... on request

**P<sub>N</sub> = 7.5 hp**

60 Hz		f <sub>B</sub>	i	F <sub>N</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
2.2	195558	0.85	811.56	22300	4560	<b>CG164-11P-132S-04E</b> <b>CF164-11P-132S-04E</b>	1607 1658	168
2.5	167745	0.95	698.99	24800	5220			
2.6	160573	1.00	670.48	25340	5400			
2.9	144203	1.15	604.60	26460	5760			
3.0	141144	1.15	591.77	26640	5850			
3.1	137453	1.20	577.48	26860	5910			
3.4	122789	1.30	517.99	27670	6250			
3.5	120820	1.35	509.69	27760	6290			
3.6	117432	1.40	496.41	27940	6380			
4.0	103649	1.55	440.86	28570	6700			
4.1	100315	1.60	427.56	28710	6790			
4.2	98148	1.65	418.32	28800	6830			
4.8	86056	1.90	369.82	29250	7100			
4.9	83667	1.95	360.30	29320	7170			
5.7	71625	2.25	311.64	29670	7440			
2.9	147706	0.80	611.72	**	2410	<b>CG144-11P-132S-04E</b> <b>CF144-11P-132S-04E</b>	1054 1093	164
3.0	143802	0.85	596.77	19670	2520			
3.2	131917	0.90	548.57	20610	2810			
3.3	126452	0.95	526.92	21020	2940			
3.4	124869	0.95	520.33	21130	2990			
3.9	108447	1.10	453.75	22140	3420			
4.0	104169	1.15	436.75	22390	3530			
4.2	100243	1.15	421.15	22590	3620			
4.5	92268	1.25	388.44	22980	3820			
4.6	91678	1.30	385.96	23020	3840			
4.8	87045	1.35	367.20	23220	3960			
4.9	85113	1.40	359.79	23310	4000			
5.3	78804	1.50	334.50	23560	4160			
5.4	77277	1.50	328.01	23630	4200			
5.6	74364	1.55	316.30	23720	4270			
6.2	66000	1.75	282.46	24010	4500			
6.5	63381	1.85	272.37	24100	4560			
7.6	53591	2.15	232.69	24370	4810			
8.5	54490	2.15	206.88	24350	4790	<b>CG143-11P-132S-04E</b> <b>CF143-11P-132S-04E</b>	1001 1041	162
9.8	47510	2.45	180.38	24500	4970			
10	45814	2.55	173.94	24550	5010			
11	40924	2.85	155.38	24640	5130			
4.6	92240	0.80	382.01	**	3930	<b>CG134-11P-132S-04E</b> <b>CF134-11P-132S-04E</b>	730 734	160
4.8	88764	0.80	368.37	**	4050			
5.2	81589	0.90	339.29	13020	4250			
5.3	79743	0.90	331.61	13220	4320			
5.5	76738	0.95	319.76	13510	4410			
5.6	75522	0.95	314.70	13650	4430			
6.2	68476	1.05	286.51	14280	4630			
6.4	66030	1.10	276.28	14480	4700			
6.5	65156	1.10	273.18	14570	4740			
7.5	56064	1.30	236.02	15220	4990			
8.6	53963	1.35	204.88	15350	5060	<b>CG133-11P-132S-04E</b> <b>CF133-11P-132S-04E</b>	677 681	158
9.8	47661	1.50	180.95	15710	5240			
11	41373	1.75	157.08	16030	5420			
12	39895	1.80	151.47	16100	5460			
13	35746	2.00	135.71	16250	5600			
15	30590	2.35	116.14	16460	5730			
17	26827	2.65	101.85	16570	5850			
18	26421	2.70	100.31	16570	5870			
20	23694	3.00	89.96	16640	5930			

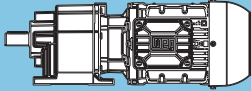
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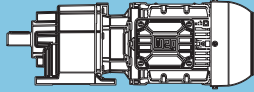
<b>P<sub>N</sub> = 7.5 hp</b>								
<b>60 Hz</b>			<b>i</b>				<b>m</b> lb	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		<b>F<sub>TN</sub></b> lb	<b>F<sub>aN</sub></b> lb			
<b>9.8</b>	47501	0.85	180.35	6790	4560	<b>CG103-11P-132S-04E</b> <b>CF103-11P-132S-04E</b>	450 459	154
<b>11</b>	42069	0.95	159.72	7670	4740			
<b>13</b>	36393	1.10	138.17	8390	4950			
<b>14</b>	32138	1.25	122.02	8830	5080			
<b>15</b>	30964	1.30	117.56	8920	5100			
<b>17</b>	27170	1.50	103.15	9240	5240			
<b>18</b>	26351	1.55	100.05	9310	5260			
<b>20</b>	23520	1.70	89.30	9510	5350			
<b>22</b>	20830	1.95	79.08	9260	5440			
<b>26</b>	18020	2.25	68.41	8700	5530			
<b>27</b>	17376	2.30	65.97	8570	5550			
<b>30</b>	15332	2.60	58.21	8230	5620			
<b>14</b>	32155	0.85	122.08	3820	5530	<b>CG093-11P-132S-04E</b> <b>CF093-11P-132S-04E</b>	357 353	150
<b>15</b>	31312	0.85	118.88	4070	5580			
<b>17</b>	28076	0.95	106.60	4830	5690			
<b>18</b>	25869	1.05	98.21	5240	5780			
<b>19</b>	24813	1.10	94.21	5420	5800			
<b>20</b>	22832	1.20	86.68	5730	5890			
<b>22</b>	20983	1.30	79.66	5980	5960			
<b>24</b>	19153	1.40	72.72	6180	6020			
<b>26</b>	18037	1.50	68.48	6320	6070			
<b>29</b>	16140	1.65	61.28	6500	6140			
<b>30</b>	15745	1.70	59.78	6520	6160			
<b>34</b>	13490	2.00	51.22	6700	6230			
<b>36</b>	13008	2.05	49.39	6720	6250			
<b>40</b>	11481	2.25	43.59	6630	6320			
<b>48</b>	9631	2.50	36.57	6180	6380			
<b>57</b>	8116	2.75	30.81	5800	6430			
<b>45</b>	10430	2.55	39.60	6340	6360	<b>CG092-11P-132S-04E</b> <b>CF092-11P-132S-04E</b>	353 348	150
<b>78</b>	5948	2.55	22.58	5190	6430			
<b>29</b>	16165	0.85	61.37	4140	4230	<b>CG083-11P-132S-04E</b> <b>CF083-11P-132S-04E</b>	240 249	148
<b>33</b>	14269	1.00	54.18	4470	4320	<b>CG082-11P-132S-04E</b> <b>CF082-11P-132S-04E</b>	238 247	148
<b>41</b>	11294	1.25	42.88	4880	4470			
<b>47</b>	9861	1.40	37.44	5040	4540			
<b>53</b>	8715	1.60	33.09	4920	4610			
<b>57</b>	8226	1.25	31.23	4830	4540			
<b>63</b>	7370	1.90	27.98	4610	4680			
<b>71</b>	6511	1.55	24.72	4430	4650			
<b>73</b>	6335	2.10	24.05	4360	4720			
<b>82</b>	5685	2.05	21.58	4200	4700			
<b>84</b>	5530	2.30	21.00	4140	4770			
<b>93</b>	5024	2.35	19.08	4000	4740			
<b>98</b>	4738	2.55	17.99	3910	4810			
<b>102</b>	4569	2.60	17.35	3840	4810			
<b>109</b>	4249	2.75	16.13	3780	4790			
<b>115</b>	4033	2.85	15.31	3690	4860			
<b>127</b>	3652	3.00	13.87	3570	4830			

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**P<sub>N</sub> = 7.5 hp**

60 Hz		f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>FN</sub>	F <sub>FN</sub>			
rpm	lb-in			lb	lb			
50	9326	0.80	35.41	**	2740			
58	8046	0.95	30.55	1780	2900			
64	7319	1.00	27.79	1870	2900			
75	6209	1.15	23.58	2090	3030			
82	5649	1.25	21.45	2160	3010			
85	5438	1.15	20.65	1960	2880			
91	5136	1.35	19.50	2230	3100			
99	4672	1.40	17.74	2270	3100			
106	4369	1.50	16.59	2320	3150			
109	4268	1.40	16.20	2110	2990			
117	3974	1.60	15.09	2320	3150			
123	3786	1.65	14.38	2340	3190			
135	3444	1.75	13.08	2340	3190			
141	3294	1.70	12.51	2230	3100			
145	3197	1.85	12.14	2360	3240			
151	3083	1.90	11.71	2360	3240			
160	2909	1.95	11.04	2340	3240			
166	2805	2.00	10.65	2340	3240			
171	2724	1.90	10.34	2230	3170			
177	2634	2.10	10.00	2360	3280			
194	2396	2.25	9.10	2340	3280			
201	2317	2.15	8.80	2230	3210			
231	2008	2.35	7.63	2230	3240			
274	1696	2.65	6.44	2180	3280			
284	1635	2.70	6.21	2180	3280			
333	1397	3.00	5.30	2070	3300			
75	6180	0.90	23.46	1550	1370			
82	5666	0.95	21.51	1730	1390			
99	4701	1.15	17.85	1690	1480			
105	4446	0.80	16.88	**	1350			
108	4310	1.25	16.36	1640	1510			
120	3876	1.40	14.72	1620	1530			
131	3554	1.50	13.49	1600	1550			
135	3443	1.00	13.07	1550	1460			
146	3179	1.70	12.07	1550	1600			
159	2915	1.85	11.07	1530	1600			
172	2701	2.00	10.26	1510	1620			
178	2619	1.30	9.94	1460	1550			
188	2477	2.15	9.40	1460	1640			
209	2221	2.20	8.43	1440	1660			
215	2159	1.55	8.20	1390	1600			
217	2142	2.25	8.13	1420	1660			
228	2037	2.25	7.73	1390	1660			
237	1964	2.30	7.46	1390	1660			
262	1771	1.90	6.73	1330	1640			
264	1762	2.40	6.69	1350	1690			
288	1616	2.45	6.13	1330	1710			
309	1505	2.20	5.71	1280	1660			
376	1238	2.35	4.70	1210	1690			
390	1193	2.40	4.53	1210	1690			
474	982	2.55	3.73	1150	1710			
						<b>CG072-11P-132S-04E</b> <b>CF072-11P-132S-04E</b>	185 194	146
						<b>CG062-11P-132S-04E</b> <b>CF062-11P-132S-04E</b>	152 163	144

$P_N = 7.5 \text{ hp}$

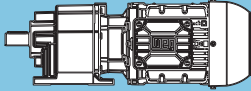
60 Hz		$f_B$	$i$	$F_{rN}$			$m$	Dimension sheet see page
$n_{60}$	$T_2$							
rpm	lb-in			lb	lb			
105	4445	0.80	16.88	**	1300	139 150	142	
126	3694	1.00	14.03	1030	1390			
138	3358	1.10	12.75	1120	1420			
154	3023	1.20	11.48	1100	1460			
157	2963	0.80	11.25	**	1390			
169	2748	1.30	10.43	1080	1510			
190	2452	1.40	9.31	1080	1530			
208	2239	1.10	8.50	1030	1480			
209	2229	1.45	8.46	1060	1550			
227	2052	1.50	7.79	1030	1570			
249	1866	1.60	7.08	1010	1600			
254	1832	1.30	6.96	990	1550			
280	1663	1.65	6.31	990	1620			
290	1604	1.65	6.09	990	1640			
307	1512	1.70	5.74	970	1640			
313	1486	1.55	5.64	970	1600			
319	1458	1.75	5.54	970	1640			
374	1244	1.65	4.72	920	1640			
461	1008	1.80	3.83	880	1660			
478	972	1.80	3.69	880	1690			

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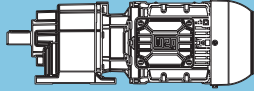
**P<sub>N</sub> = 10 hp**

60 Hz		f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
2.9	198103	0.85	604.60	21990	4500	<b>CG164-11P-L132M-04F</b> <b>CF164-11P-L132M-04F</b>	1638 1689	168
3.0	196226	0.85	598.87	22170	4540			
3.1	189218	0.85	577.48	22860	4700			
3.4	169034	0.95	517.99	24640	5170			
3.5	166323	1.00	509.69	24860	5240			
3.6	161659	1.00	496.41	25220	5350			
4.0	142981	1.15	440.86	26500	5780			
4.1	138383	1.20	427.56	26770	5890			
4.2	135393	1.20	418.32	26950	5960			
4.8	118960	1.35	369.82	27850	6340			
4.9	115898	1.40	360.30	28010	6410			
5.7	99425	1.65	311.64	28730	6790			
3.9	148981	0.80	453.75	**	2360	<b>CG144-11P-L132M-04F</b> <b>CF144-11P-L132M-04F</b>	1085 1124	164
4.1	143106	0.85	436.75	19690	2520			
4.2	137995	0.85	421.15	20120	2650			
4.6	127016	0.95	388.44	20950	2920			
4.8	119827	1.00	367.20	21450	3100			
4.9	117169	1.00	359.79	21600	3170			
5.3	108708	1.10	334.50	22120	3390			
5.4	106601	1.10	328.01	22230	3440			
5.6	102584	1.15	316.30	22460	3550			
6.3	91235	1.30	282.46	23020	3840			
6.5	87796	1.35	272.37	23180	3930			
6.6	87100	1.35	270.22	23200	3960			
7.6	74391	1.55	232.69	23720	4270			
8.6	74095	1.60	206.88	23720	4290	<b>CG143-11P-L132M-04F</b> <b>CF143-11P-L132M-04F</b>	1032 1071	162
9.8	64604	1.80	180.38	24050	4520			
10	62297	1.85	173.94	24120	4590			
11	55648	2.10	155.38	24300	4770			
13	47920	2.45	133.80	24500	4950			
15	41859	2.75	116.88	24640	5100			
16	40567	2.85	113.27	24660	5150			
19	34108	3.00	95.23	24770	5310			
6.2	94070	0.80	286.51	**	3890	<b>CG134-11P-L132M-04F</b> <b>CF134-11P-L132M-04F</b>	761 765	160
6.4	90710	0.80	276.28	**	3980			
6.5	89510	0.80	273.18	**	4020			
7.5	77021	0.95	236.02	13470	4380			
8.6	73378	1.00	204.88	13830	4500	<b>CG133-11P-L132M-04F</b> <b>CF133-11P-L132M-04F</b>	708 712	158
9.8	64809	1.10	180.95	14570	4740			
11	56258	1.30	157.08	15200	4990			
12	54249	1.35	151.47	15310	5060			
13	48607	1.50	135.71	15650	5220			
15	41596	1.75	116.14	16010	5420			
17	36479	1.95	101.85	16230	5580			
18	35927	2.00	100.31	16250	5580			
20	32219	2.20	89.96	16390	5690			
23	27968	2.55	78.09	16520	5820			
24	26969	2.65	75.30	16550	5850			
26	24165	2.95	67.47	16640	5930			
59	10693	3.00	29.86	16880	6320	<b>CG132-11P-L132M-04F</b> <b>CF132-11P-L132M-04F</b>	688 692	158
104	6089	3.00	17.00	16930	6410			

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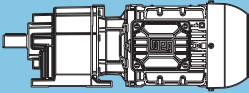
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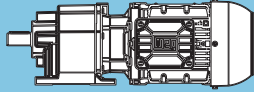
<b>P<sub>N</sub> = 10 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>TN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
13	49487	0.85	138.17	6360	4500	<b>CG103-11P-L132M-04F</b> <b>CF103-11P-L132M-04F</b>	481 489	154
15	43701	0.95	122.02	7400	4700			
17	36945	1.10	103.15	8320	4920			
18	35832	1.15	100.05	8430	4950			
20	31982	1.25	89.30	8830	5080			
21	30912	1.30	86.31	8920	5100			
22	28325	1.45	79.08	9150	5190			
26	24503	1.65	68.41	8950	5330			
27	23628	1.70	65.97	8810	5350			
30	20848	1.95	58.21	8430	5440			
36	17742	2.25	49.54	7870	5530			
41	15306	2.65	42.74	7460	5620			
54	11823	2.80	33.01	6720	5730	<b>CG102-11P-L132M-04F</b> <b>CF102-11P-L132M-04F</b>	470 478	154
73	8741	3.00	24.40	6000	5820			
92	6864	2.80	19.17	5550	5800			
125	5075	3.00	14.17	4970	5890			
18	35176	0.80	98.21	**	5420	<b>CG093-11P-L132M-04F</b> <b>CF093-11P-L132M-04F</b>	388 384	150
19	33741	0.80	94.21	**	5460			
20	31047	0.90	86.68	4110	5580			
22	28532	0.95	79.66	4720	5670			
24	26044	1.05	72.72	5220	5760			
26	24526	1.10	68.48	5460	5820			
29	21947	1.25	61.28	5850	5910			
30	21410	1.25	59.78	5910	5930			
35	18344	1.45	51.22	6270	6050			
36	17688	1.50	49.39	6340	6070			
41	15612	1.65	43.59	6520	6160			
48	13096	1.85	36.57	6340	6250			
57	11036	2.05	30.81	5930	6320			
45	14183	1.90	39.60	6520	6200	<b>CG092-11P-L132M-04F</b> <b>CF092-11P-L132M-04F</b>	384 379	150
53	11990	2.25	33.48	6090	6290			
61	10380	2.55	28.98	5780	6360			
69	9193	2.90	25.67	5510	6410			
78	8088	1.90	22.58	5310	6340			
83	7668	3.00	21.41	5130	6450			
93	6838	2.25	19.09	4950	6380			
107	5919	2.55	16.53	4700	6430			
145	4373	3.00	12.21	4200	6520			
41	15358	0.90	42.88	4270	4250	<b>CG082-11P-L132M-04F</b> <b>CF082-11P-L132M-04F</b>	269 278	148
47	13410	1.05	37.44	4610	4360			
53	11851	1.20	33.09	4810	4430			
57	11185	0.90	31.23	4900	4340			
63	10022	1.40	27.98	4740	4540			
72	8853	1.15	24.72	4540	4500			
74	8614	1.55	24.05	4450	4610			
82	7730	1.55	21.58	4320	4560			
84	7520	1.70	21.00	4230	4680			
93	6832	1.70	19.08	4110	4630			
98	6443	1.90	17.99	3980	4720			
102	6213	1.95	17.35	3930	4740			
110	5777	2.00	16.13	3840	4700			
116	5484	2.10	15.31	3730	4770			
128	4966	2.20	13.87	3620	4740			
138	4600	2.35	12.84	3510	4810			
146	4335	2.45	12.10	3440	4790			
164	3876	2.65	10.82	3280	4860			
171	3714	2.70	10.37	3260	4830			
177	3582	2.75	10.00	3210	4830			
201	3161	3.00	8.83	3060	4860			

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P <sub>N</sub> = 10 hp								
60 Hz			i	F <sub>rn</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
75	8444	0.85	23.58	1210	2860	<b>CG072-11P-L132M-04F</b> <b>CF072-11P-L132M-04F</b>	216 225	146
83	7681	0.90	21.45	1330	2860			
86	7395	0.85	20.65	1100	2650			
91	6984	1.00	19.50	1510	2970			
100	6353	1.05	17.74	1600	2970			
107	5941	1.10	16.59	1690	3030			
109	5803	1.05	16.20	1460	2830			
117	5404	1.15	15.09	1750	3030			
123	5148	1.20	14.38	1800	3100			
135	4684	1.30	13.08	1840	3100			
142	4479	1.25	12.51	1690	2970			
146	4348	1.35	12.14	1910	3150			
151	4192	1.40	11.71	1930	3170			
160	3955	1.45	11.04	1930	3150			
166	3814	1.50	10.65	1960	3170			
171	3705	1.40	10.34	1800	3060			
177	3582	1.55	10.00	1980	3210			
195	3258	1.65	9.10	1980	3210			
201	3151	1.60	8.80	1870	3120			
232	2731	1.75	7.63	1890	3170			
275	2306	1.95	6.44	1910	3210			
285	2224	2.00	6.21	1910	3210			
334	1900	2.20	5.30	1910	3260			
99	6392	0.85	17.85	1460	1350	<b>CG062-11P-L132M-04F</b> <b>CF062-11P-L132M-04F</b>	181 192	144
108	5861	0.95	16.36	1510	1370			
120	5271	1.05	14.72	1510	1440			
131	4833	1.10	13.49	1460	1460			
147	4323	1.25	12.07	1440	1510			
160	3964	1.35	11.07	1420	1530			
173	3673	1.45	10.26	1420	1550			
178	3561	0.95	9.94	1370	1440			
188	3368	1.55	9.40	1390	1570			
210	3020	1.65	8.43	1350	1600			
216	2936	1.15	8.20	1330	1510			
218	2912	1.65	8.13	1350	1600			
229	2770	1.70	7.73	1330	1620			
237	2671	1.70	7.46	1330	1620			
263	2409	1.40	6.73	1280	1570			
265	2396	1.75	6.69	1280	1640			
289	2197	1.80	6.13	1260	1660			
310	2047	1.65	5.71	1240	1600			
377	1683	1.75	4.70	1170	1640			
391	1623	1.75	4.53	1170	1640			
475	1335	1.90	3.73	1100	1690			
139	4566	0.80	12.75	**	1280	<b>CG052-11P-L132M-04F</b> <b>CF052-11P-L132M-04F</b>	170 181	142
154	4111	0.90	11.48	760	1350			
170	3737	0.95	10.43	970	1370			
190	3334	1.05	9.31	970	1440			
208	3044	0.80	8.50	**	1370			
209	3031	1.10	8.46	970	1460			
227	2791	1.15	7.79	970	1510			
250	2537	1.15	7.08	940	1530			
254	2492	0.95	6.96	920	1460			
280	2262	1.20	6.31	920	1550			
291	2181	1.25	6.09	920	1570			
308	2056	1.25	5.74	920	1570			
314	2020	1.15	5.64	900	1530			
320	1983	1.30	5.54	900	1600			
375	1691	1.25	4.72	880	1570			
462	1371	1.30	3.83	830	1620			
480	1322	1.35	3.69	830	1620			

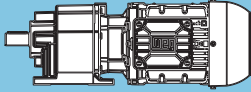
**P<sub>N</sub> = 12.5 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>TN</sub> lb				F <sub>aN</sub> lb				
3.4	209215	0.80	517.99	**	4250	<b>CG164-11P-L132M-04G</b> <b>CF164-11P-L132M-04G</b>	1649 1700	168	
3.5	205861	0.80	509.69	**	4320				
3.6	200089	0.80	496.41	**	4450				
4.0	177334	0.90	440.86	23940	4990				
4.1	171632	0.95	427.56	24440	5130				
4.2	167924	0.95	418.32	24730	5190				
4.8	147847	1.10	369.82	26190	5670				
4.9	143746	1.15	360.30	26440	5760				
5.7	123571	1.30	311.64	27610	6230				
4.8	148311	0.80	367.20	**	2380	<b>CG144-11P-L132M-04G</b> <b>CF144-11P-L132M-04G</b>	1096 1135	164	
4.9	145022	0.80	359.79	**	2470				
5.3	134550	0.90	334.50	20390	2740				
5.4	131943	0.90	328.01	20590	2790				
5.6	127231	0.95	316.30	20930	2920				
6.2	113156	1.05	282.46	21850	3280				
6.5	108891	1.10	272.37	22100	3390				
7.6	92456	1.25	232.69	22950	3820				
8.5	91148	1.30	206.88	23020	3840	<b>CG143-11P-L132M-04G</b> <b>CF143-11P-L132M-04G</b>	1043 1082	162	
9.8	79472	1.45	180.38	23520	4140				
10	76634	1.55	173.94	23630	4230				
11	68455	1.70	155.38	23920	4430				
13	58949	2.00	133.80	24210	4680				
15	51493	2.25	116.88	24410	4860				
16	49904	2.35	113.27	24460	4900				
18	43511	2.65	98.76	24590	5060				
19	41957	2.45	95.23	24620	5100				
8.6	90265	0.80	204.88	**	4000	<b>CG133-11P-L132M-04G</b> <b>CF133-11P-L132M-04G</b>	719 723	158	
9.8	79724	0.90	180.95	13170	4290				
11	69205	1.05	157.08	14210	4610				
12	66734	1.10	151.47	14410	4680				
13	59793	1.20	135.71	14950	4880				
15	51169	1.40	116.14	15510	5130				
17	44874	1.60	101.85	15850	5330				
18	44195	1.65	100.31	15870	5350				
20	39634	1.80	89.96	16100	5460				
23	33176	2.15	75.30	16340	5670				
23	34405	2.10	78.09	16300	5620				
26	29726	2.40	67.47	16480	5760				
31	25438	2.80	57.74	16590	5890				
59	13155	2.45	29.86	16860	6250	<b>CG132-11P-L132M-04G</b> <b>CF132-11P-L132M-04G</b>	699 703	158	
104	7490	2.45	17.00	16910	6360				
15	51794	0.80	117.56	**	4430	<b>CG103-11P-L132M-04G</b> <b>CF103-11P-L132M-04G</b>	492 500	154	
17	45448	0.90	103.15	7100	4630				
18	44078	0.95	100.05	7330	4680				
20	39342	1.05	89.30	8000	4830				
22	34843	1.15	79.08	8540	4990				
26	30142	1.35	68.41	8990	5130				
27	29066	1.40	65.97	9010	5170				
30	25645	1.60	58.21	8610	5280				
36	21825	1.85	49.54	8000	5400				
41	18828	2.15	42.74	7600	5510				
53	14544	2.25	33.01	6880	5640	<b>CG102-11P-L132M-04G</b> <b>CF102-11P-L132M-04G</b>	481 489	154	
72	10752	2.45	24.40	6110	5760				
92	8444	2.25	19.17	5620	5730				
125	6243	2.45	14.17	5010	5850				

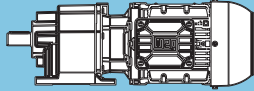
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**P<sub>N</sub> = 12.5 hp**

60 Hz		f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
22	35099	0.80	79.66	**	5420	CG093-11P-L132M-04G CF093-11P-L132M-04G	399 395	150
24	32037	0.85	72.72	3820	5530			
26	30170	0.90	68.48	4340	5600			
29	26998	1.00	61.28	5040	5730			
30	26338	1.05	59.78	5150	5760			
34	22565	1.20	51.22	5760	5890			
36	21759	1.25	49.39	5870	5910			
40	19205	1.35	43.59	6180	6020			
48	16110	1.50	36.57	6470	6140			
57	13576	1.65	30.81	6050	6230			
45	17447	1.55	39.60	6360	6090	CG092-11P-L132M-04G CF092-11P-L132M-04G	395 390	150
53	14750	1.80	33.48	6230	6180			
61	12768	2.10	28.98	5890	6270			
69	11308	2.35	25.67	5600	6320			
78	9949	1.55	22.58	5400	6230			
79	9783	2.75	22.20	5310	6380			
82	9433	2.45	21.41	5240	6380			
92	8411	1.80	19.09	5060	6320			
107	7281	2.10	16.53	4770	6360			
121	6449	2.50	14.64	4540	6410			
139	5578	2.90	12.66	4320	6450			
145	5379	2.45	12.21	4250	6470			
47	16496	0.85	37.44	4050	4200			
53	14579	0.95	33.09	4410	4290			
63	12328	1.15	27.98	4740	4410			
71	10891	0.95	24.72	4680	4360			
73	10597	1.25	24.05	4560	4500			
82	9509	1.25	21.58	4410	4450			
84	9251	1.40	21.00	4320	4560			
93	8404	1.40	19.08	4180	4520			
98	7926	1.55	17.99	4070	4650			
102	7643	1.55	17.35	4000	4650			
109	7107	1.65	16.13	3930	4610			
115	6746	1.70	15.31	3820	4700			
127	6109	1.80	13.87	3690	4680			
137	5659	1.95	12.84	3550	4770			
146	5333	2.00	12.10	3510	4720			
163	4768	2.15	10.82	3330	4810			
170	4569	2.20	10.37	3300	4770			
177	4406	2.25	10.00	3260	4790			
200	3889	2.45	8.83	3100	4810			
238	3262	2.75	7.40	2900	4860			
91	8591	0.80	19.50	**	2860	CG072-11P-L132M-04G CF072-11P-L132M-04G	227 236	146
99	7816	0.85	17.74	1030	2860			
106	7308	0.90	16.59	1170	2940			
109	7139	0.85	16.20	880	2700			
117	6648	0.95	15.09	1260	2940			
123	6333	1.00	14.38	1350	3010			
135	5761	1.05	13.08	1440	3010			
141	5509	1.00	12.51	1260	2860			
145	5348	1.10	12.14	1530	3080			
151	5157	1.15	11.71	1550	3100			
160	4865	1.20	11.04	1570	3080			
166	4691	1.20	10.65	1600	3100			
171	4557	1.15	10.34	1440	2970			
177	4406	1.25	10.00	1660	3150			
194	4008	1.35	9.10	1690	3150			
201	3876	1.30	8.80	1550	3030			
231	3359	1.40	7.63	1640	3100			
274	2837	1.60	6.44	1690	3150			
284	2736	1.60	6.21	1690	3170			
333	2337	1.80	5.30	1710	3210			

**P<sub>N</sub> = 12.5 hp**

60 Hz		f <sub>B</sub>	i	F <sub>rN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
120	6483	0.85	14.72	1390	1350			
131	5945	0.90	13.49	1370	1370			
146	5318	1.00	12.07	1370	1420			
159	4877	1.10	11.07	1350	1460			
172	4519	1.20	10.26	1350	1480			
178	4381	0.80	9.94	**	1350			
188	4144	1.30	9.40	1330	1510			
209	3715	1.35	8.43	1300	1550			
215	3612	0.95	8.20	1260	1440			
217	3583	1.35	8.13	1280	1550			
228	3407	1.35	7.73	1280	1570			
237	3285	1.40	7.46	1260	1570			
262	2963	1.15	6.73	1210	1510			
264	2947	1.45	6.69	1240	1600			
288	2702	1.50	6.13	1210	1620			
309	2518	1.35	5.71	1190	1550			
376	2070	1.40	4.70	1150	1600			
390	1996	1.45	4.53	1120	1620			
474	1642	1.55	3.73	1080	1640			

**CG062-11P-L132M-04G**  
**CF062-11P-L132M-04G**

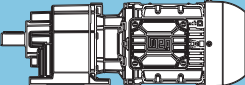
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203

144

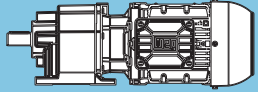
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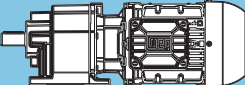
<b>P<sub>N</sub> = 15 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>FN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
4.0	211699	0.80	440.86	**	4180	<b>CG164-22P-160M-04E</b> <b>CF164-22P-160M-04E</b>	1786 1836	168
4.2	205312	0.80	427.56	**	4340			
4.8	176861	0.95	369.82	24010	4990			
4.9	171955	0.95	360.30	24410	5100			
5.2	163353	1.00	342.97	25090	5310			
5.7	148126	1.10	311.64	26170	5670			
6.0	140120	1.15	295.40	26680	5850			
6.9	120454	1.35	255.51	27790	6320			
7.6	122922	1.30	234.67	27650	6250	<b>CG163-22P-160M-04E</b> <b>CF163-22P-160M-04E</b>	1684 1735	166
8.8	105872	1.55	202.12	28460	6650			
10	91575	1.75	174.82	29050	6970			
12	80776	2.00	154.21	29410	7240			
13	69375	2.30	132.44	29740	7490			
14	68373	2.35	130.53	29760	7510			
16	58890	2.75	112.42	30010	7730			
5.7	150640	0.80	313.70	**	2320	<b>CG144-22P-160M-04E</b> <b>CF144-22P-160M-04E</b>	1232 1272	164
6.3	135085	0.90	282.46	20370	2720			
6.6	129228	0.90	270.22	20790	2880			
7.6	110601	1.05	232.69	22010	3350			
8.6	108367	1.10	206.88	22140	3420	<b>CG143-22P-160M-04E</b> <b>CF143-22P-160M-04E</b>	1179 1219	162
9.8	94485	1.25	180.38	22860	3750			
11	81388	1.45	155.38	23450	4090			
13	70085	1.65	133.80	23870	4380			
15	61221	1.90	116.88	24140	4610			
16	59331	1.95	113.27	24210	4650			
18	52883	2.20	100.96	24390	4830			
21	44560	2.60	85.07	24570	5040			
24	38372	3.00	73.25	24680	5190			
11	82279	0.90	157.08	12900	4230	<b>CG133-22P-160M-04E</b> <b>CF133-22P-160M-04E</b>	855 860	158
13	71089	1.00	135.71	14050	4560			
15	60836	1.20	116.14	14880	4860			
18	52544	1.35	100.31	15420	5100			
20	47122	1.55	89.96	15740	5260			
21	44431	1.60	84.82	15870	5330			
23	40904	1.75	78.09	16050	5440			
26	36255	2.00	69.21	16230	5580			
31	30244	2.35	57.74	16460	5760			
32	29416	2.45	56.16	16480	5780			
36	26122	2.75	49.87	16590	5870			
50	18602	2.55	35.51	16770	6090	<b>CG132-22P-160M-04E</b> <b>CF132-22P-160M-04E</b>	836 840	158
88	10591	2.55	20.22	16880	6250			
18	52405	0.80	100.05	**	4410	<b>CG103-22P-160M-04E</b> <b>CF103-22P-160M-04E</b>	628 637	154
21	45210	0.90	86.31	7150	4650			
22	41426	1.00	79.08	7730	4770			
25	37925	1.10	72.40	8180	4880			
26	35836	1.15	68.41	8430	4950			
30	30836	1.30	58.87	8790	5100			
36	25948	1.55	49.54	8160	5260			
39	24110	1.70	46.03	7910	5330			
42	22385	1.80	42.74	7670	5400			
50	18778	2.15	35.85	7150	5510			
61	15268	2.65	29.15	6610	5620			
61	15272	2.65	29.16	6610	5620	<b>CG102-22P-160M-04E</b> <b>CF102-22P-160M-04E</b>	617 626	154
105	8867	2.70	16.93	5420	5710			

**P<sub>N</sub> = 15 hp**

60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
<b>29</b>	32098	0.85	61.28	3820	5530	CG093-22P-160M-04E CF093-22P-160M-04E	536 531	150
<b>30</b>	31314	0.85	59.78	4050	5550			
<b>35</b>	26828	1.00	51.22	5060	5730			
<b>35</b>	26317	1.00	50.24	5150	5760			
<b>41</b>	22833	1.15	43.59	5710	5890			
<b>49</b>	19154	1.25	36.57	6180	6020			
<b>58</b>	16141	1.40	30.81	6110	6140			
<b>70</b>	13234	1.60	25.26	5670	6250			
<b>69</b>	13445	2.00	25.67	5690	6230	CG092-22P-160M-04E CF092-22P-160M-04E	531 527	150
<b>80</b>	11631	2.30	22.20	5370	6290			
<b>94</b>	9896	2.70	18.89	5040	6360			
<b>121</b>	7667	2.10	14.64	4610	6340			
<b>140</b>	6632	2.45	12.66	4360	6410			
<b>165</b>	5643	2.90	10.77	4090	6450			
<b>85</b>	10999	1.15	21.00	4380	4470	CG082-22P-160M-04E CF082-22P-160M-04E	417 425	148
<b>99</b>	9423	1.30	17.99	4110	4560			
<b>116</b>	8020	1.45	15.31	3870	4630			
<b>138</b>	6728	1.65	12.84	3600	4700			
<b>147</b>	6340	1.65	12.10	3550	4650			
<b>164</b>	5669	1.85	10.82	3370	4770			
<b>171</b>	5432	1.85	10.37	3350	4720			
<b>200</b>	4648	2.10	8.87	3120	4810			
<b>201</b>	4623	2.05	8.83	3150	4770			
<b>240</b>	3878	2.30	7.40	2920	4810			
<b>284</b>	3268	2.55	6.24	2740	4860			
<b>347</b>	2680	2.95	5.12	2560	4880			
<b>123</b>	7530	0.85	14.38	900	2920	CG072-22P-160M-04E CF072-22P-160M-04E	364 373	146
<b>136</b>	6850	0.90	13.08	990	2920			
<b>146</b>	6359	0.95	12.14	1120	3010			
<b>161</b>	5784	1.00	11.04	1210	3010			
<b>178</b>	5238	1.05	10.00	1330	3100			
<b>195</b>	4765	1.15	9.10	1390	3080			
<b>233</b>	3994	1.20	7.63	1350	3030			
<b>276</b>	3373	1.35	6.44	1440	3100			
<b>335</b>	2778	1.50	5.30	1530	3170			

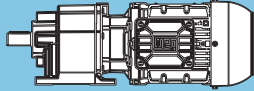
Legend see page 29



P <sub>N</sub> = 20 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>50</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
5.7	204067	0.80	311.64	**	4340	CG164-22P-160L-04F CF164-22P-160L-04F	1836	168
6.0	193039	0.85	295.40	22440	4610		1887	
6.9	166289	1.00	255.51	24820	5240			
7.6	167621	1.00	234.67	24730	5190	CG163-22P-160L-04F CF163-22P-160L-04F	1735 1786	166
8.8	144371	1.15	202.12	26390	5730			
10	124875	1.30	174.82	27540	6200			
12	110150	1.45	154.21	28260	6540			
13	94602	1.70	132.44	28910	6900			
14	93237	1.75	130.53	28960	6920			
16	80304	2.00	112.42	29410	7240			
18	69460	2.30	97.24	29740	7490			
19	65308	2.45	91.43	29850	7580			
21	61269	2.65	85.78	29940	7670			
7.6	152371	0.80	232.69	**	2270			
8.6	147773	0.80	206.88	**	2380	CG143-22P-160L-04F CF143-22P-160L-04F	1230 1270	162
9.8	128844	0.90	180.38	20790	2880			
11	110983	1.05	155.38	21960	3330			
13	95571	1.25	133.80	22800	3730			
15	83483	1.40	116.88	23360	4050			
16	80906	1.45	113.27	23450	4090			
18	72113	1.60	100.96	23780	4340			
21	60764	1.90	85.07	24170	4630			
24	52325	2.20	73.25	24390	4830			
26	49074	2.35	68.70	24460	4920			
28	45707	2.55	63.99	24550	5010			
32	39482	2.95	55.27	24660	5170			
47	26773	2.40	37.48	24860	5490			
83	15267	2.40	21.37	24980	5710			
15	82958	0.90	116.14	12790	4200	CG133-22P-160L-04F CF133-22P-160L-04F	906 911	158
18	71651	1.00	100.31	13960	4540			
20	64257	1.15	89.96	14590	4740			
21	60587	1.20	84.82	14880	4860			
23	55779	1.30	78.09	15220	4990			
26	49439	1.45	69.21	15600	5190			
31	41242	1.75	57.74	16030	5420			
32	40113	1.80	56.16	16070	5460			
36	35621	2.00	49.87	16250	5600			
42	30121	2.40	42.17	16460	5760			
52	24578	2.90	34.41	16610	5910			
50	25366	1.90	35.51	16590	5890	CG132-22P-160L-04F CF132-22P-160L-04F	886 891	158
57	22117	2.40	30.96	16680	5980			
88	14443	1.90	20.22	16840	6110			
101	12593	2.40	17.63	16860	6180			
25	51716	0.80	72.40	**	4430	CG103-22P-160L-04F CF103-22P-160L-04F	679 688	154
26	48868	0.85	68.41	6470	4520			
30	42050	0.95	58.87	7620	4740			
36	35383	1.15	49.54	8480	4970			
39	32878	1.25	46.03	8250	5040			
42	30525	1.35	42.74	7980	5130			
50	25606	1.60	35.85	7420	5280			
61	20820	1.95	29.15	6810	5440			
78	16279	2.45	22.79	6180	5580			
61	20826	1.95	29.16	6810	5440			
70	18078	2.25	25.31	6450	5530			
81	15619	2.55	21.87	6070	5600			
95	13366	3.00	18.71	5710	5690			
105	12091	2.00	16.93	5550	5580			
121	10496	2.30	14.69	5240	5640			
140	9068	2.65	12.70	4950	5710			

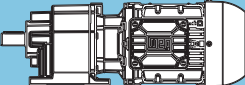


**P<sub>N</sub> = 20 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub>	rpm				F <sub>TN</sub>	F <sub>aN</sub>			
					lb	lb			
<b>41</b>		31136	0.85	43.59	4070	5580	<b>CG093-22P-160L-04F</b> <b>CF093-22P-160L-04F</b>	586	150
<b>49</b>		26119	0.95	36.57	5170	5760		582	
<b>58</b>		22010	1.05	30.81	5820	5910			
<b>70</b>		18046	1.15	25.26	5890	6070			
<b>69</b>		18334	1.45	25.67	5910	6050	<b>CG092-22P-160L-04F</b> <b>CF092-22P-160L-04F</b>	582 578	150
<b>80</b>		15860	1.70	22.20	5550	6140			
<b>94</b>		13494	2.00	18.89	5190	6230			
<b>110</b>		11484	2.35	16.08	4880	6320			
<b>121</b>		10455	1.55	14.64	4740	6200			
<b>128</b>		9907	2.70	13.87	4590	6360			
<b>140</b>		9044	1.80	12.66	4470	6270			
<b>165</b>		7695	2.10	10.77	4200	6340			
<b>194</b>		6549	2.50	9.17	3930	6410			
<b>224</b>		5649	2.85	7.91	3730	6450			
<b>85</b>		14998	0.85	21.00	4340	4270	<b>CG082-22P-160L-04F</b> <b>CF082-22P-160L-04F</b>	467 476	148
<b>99</b>		12850	0.95	17.99	4290	4380			
<b>116</b>		10936	1.05	15.31	4000	4500			
<b>138</b>		9174	1.20	12.84	3730	4590			
<b>147</b>		8646	1.25	12.10	3660	4520			
<b>164</b>		7731	1.35	10.82	3460	4650			
<b>171</b>		7407	1.35	10.37	3440	4590			
<b>200</b>		6338	1.55	8.87	3210	4720			
<b>201</b>		6304	1.50	8.83	3240	4650			
<b>240</b>		5289	1.70	7.40	3010	4720			
<b>284</b>		4457	1.90	6.24	2810	4770			
<b>347</b>		3654	2.15	5.12	2610	4830			
<b>178</b>		7143	0.80	10.00	**	2940	<b>CG072-22P-160L-04F</b> <b>CF072-22P-160L-04F</b>	414 423	146
<b>195</b>		6498	0.85	9.10	720	2940			
<b>233</b>		5446	0.90	7.63	720	2880			
<b>276</b>		4599	1.00	6.44	920	2970			
<b>335</b>		3789	1.10	5.30	1080	3060			

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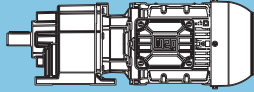
\*\*... on request

<b>P<sub>N</sub> = 25 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	<b>Dimension sheet see page</b>
<b>n<sub>50</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
6.9	206352	0.80	255.51	**	4320	<b>CG164-22P-180M-04E</b> <b>CF164-22P-180M-04E</b>	1867 1918	168
7.6	206732	0.80	234.67	**	4290	<b>CG163-22P-180M-04E</b> <b>CF163-22P-180M-04E</b>	1766 1817	166
8.8	178057	0.90	202.12	23900	4970			
10	154012	1.05	174.82	25790	5530			
12	135851	1.20	154.21	26930	5960			
13	116676	1.40	132.44	27970	6380			
14	114992	1.40	130.53	28060	6430			
16	99042	1.65	112.42	28750	6810			
18	85667	1.90	97.24	29250	7130			
19	80546	2.00	91.43	29410	7240			
21	75565	2.15	85.78	29560	7350			
23	67172	2.40	76.25	29810	7550			
24	64899	2.50	73.67	29850	7600			
27	57736	2.80	65.54	30030	7760			
29	53996	3.00	61.29	30100	7850			
11	136879	0.85	155.38	20210	2680	<b>CG143-22P-180M-04E</b> <b>CF143-22P-180M-04E</b>	1261 1301	162
13	117871	1.00	133.80	21560	3170			
15	102962	1.15	116.88	22440	3550			
18	88939	1.30	100.96	23130	3910			
21	74942	1.55	85.07	23690	4270			
24	64535	1.80	73.25	24050	4520			
26	60524	1.95	68.70	24170	4630			
28	56372	2.05	63.99	24280	4740			
31	49751	2.35	56.47	24460	4900			
32	48694	2.40	55.27	24480	4950			
37	42240	2.75	47.95	24620	5100			
39	40270	2.90	45.71	24660	5150			
47	33020	1.95	37.48	24770	5330	<b>CG142-22P-180M-04E</b> <b>CF142-22P-180M-04E</b>	1230 1270	162
55	28440	2.95	32.28	24840	5460			
83	18829	1.95	21.37	24950	5600			
96	16218	2.95	18.41	24980	5670			
18	88370	0.85	100.31	12180	4050	<b>CG133-22P-180M-04E</b> <b>CF133-22P-180M-04E</b>	937 941	158
21	74724	0.95	84.82	13710	4450			
23	68794	1.05	78.09	14250	4630			
26	60975	1.20	69.21	14860	4860			
31	50865	1.40	57.74	15530	5150			
32	49473	1.45	56.16	15600	5190			
36	43932	1.65	49.87	15890	5350			
40	39497	1.80	44.83	16100	5490			
42	37149	1.95	42.17	16210	5550			
52	30313	2.35	34.41	16460	5760			
64	24595	2.90	27.92	16610	5910			
57	27277	1.95	30.96	16550	5850	<b>CG132-22P-180M-04E</b> <b>CF132-22P-180M-04E</b>	917 922	158
67	23496	2.95	26.67	16660	5930			
101	15531	1.95	17.63	16820	6070			
117	13378	2.95	15.19	16840	6160			
70	22296	1.80	25.31	6610	5400	<b>CG102-22P-180M-04E</b> <b>CF102-22P-180M-04E</b>	699 708	154
81	19264	2.10	21.87	6200	5490			
95	16485	2.45	18.71	5820	5580			
110	14238	2.80	16.16	5490	5640			
121	12945	1.85	14.69	5350	5530			
140	11184	2.15	12.70	5040	5620			
163	9571	2.50	10.86	4740	5690			
189	8267	2.90	9.38	4500	5760			

Legend see page 29

\*\* ... on request

**P<sub>N</sub> = 25 hp**

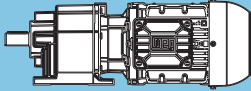
60 Hz		f <sub>B</sub>	i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
<b>80</b>	19561	1.40	22.20	5730	6000	<b>CG092-22P-180M-04E</b> <b>CF092-22P-180M-04E</b>	613 608	150
<b>94</b>	16642	1.60	18.89	5350	6110			
<b>110</b>	14163	1.90	16.08	4990	6200			
<b>128</b>	12219	2.20	13.87	4700	6270			
<b>140</b>	11154	1.45	12.66	4590	6180			
<b>153</b>	10250	2.60	11.63	4360	6360			
<b>165</b>	9490	1.70	10.77	4270	6250			
<b>188</b>	8334	3.00	9.46	4020	6430			
<b>194</b>	8076	2.00	9.17	4000	6340			
<b>224</b>	6968	2.35	7.91	3780	6380			
<b>268</b>	5845	2.80	6.63	3530	6450	<b>CG082-22P-180M-04E</b> <b>CF082-22P-180M-04E</b>	498 507	148
<b>99</b>	15848	0.80	17.99	**	4230			
<b>116</b>	13488	0.85	15.31	4140	4360			
<b>138</b>	11315	1.00	12.84	3820	4470			
<b>164</b>	9535	1.10	10.82	3550	4560			
<b>171</b>	9136	1.10	10.37	3530	4470			
<b>200</b>	7817	1.25	8.87	3280	4650			
<b>201</b>	7775	1.25	8.83	3300	4560			
<b>240</b>	6523	1.40	7.40	3080	4650			
<b>284</b>	5496	1.55	6.24	2880	4720			
<b>347</b>	4506	1.75	5.12	2650	4770			

**C**

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\*\*... on request

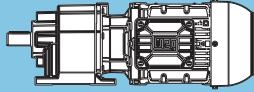
C

P <sub>N</sub> = 30 hp								
60 Hz			i	F <sub>FN</sub>			m lb	Dimension sheet see page
n <sub>50</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		lb	lb			
8.8	211744	0.80	202.12	**	4180	CG163-22P-180L-04F CF163-22P-180L-04F	1812 1863	166
10	183149	0.90	174.82	23450	4860			
12	161553	1.00	154.21	25220	5350			
13	138750	1.15	132.44	26770	5890			
14	136747	1.20	130.53	26890	5930			
16	117779	1.40	112.42	27920	6360			
18	101874	1.60	97.24	28640	6740			
19	95785	1.70	91.43	28870	6880			
21	89861	1.80	85.78	29090	7010			
23	79880	2.00	76.25	29430	7240			
24	77177	2.10	73.67	29520	7310			
27	68659	2.35	65.54	29760	7510			
29	64212	2.50	61.29	29880	7620			
35	53279	3.00	50.86	30120	7870			
13	140171	0.85	133.80	19960	2590	CG143-22P-180L-04F CF143-22P-180L-04F	1307 1347	162
15	122442	0.95	116.88	21270	3030			
18	105765	1.10	100.96	22280	3460			
21	89120	1.30	85.07	23110	3890			
24	76744	1.50	73.25	23630	4230			
26	71975	1.60	68.70	23810	4340			
28	67037	1.75	63.99	23960	4470			
31	59163	1.95	56.47	24210	4680			
32	57907	2.00	55.27	24260	4700			
37	50231	2.30	47.95	24440	4900			
39	47888	2.45	45.71	24500	4950			
47	39407	2.95	37.61	24680	5170			
47	39267	1.65	37.48	24680	5170	CG142-22P-180L-04F CF142-22P-180L-04F	1276 1316	162
55	33820	2.45	32.28	24770	5310			
83	22392	1.65	21.37	24930	5490			
96	19286	2.45	18.41	24950	5580			
21	88861	0.80	84.82	**	4050	CG133-22P-180L-04F CF133-22P-180L-04F	983 988	158
23	81809	0.90	78.09	12970	4250			
26	72511	1.00	69.21	13920	4520			
31	60488	1.20	57.74	14900	4860			
32	58832	1.25	56.16	15020	4920			
36	52244	1.40	49.87	15440	5100			
40	46970	1.55	44.83	15740	5260			
42	44177	1.65	42.17	15890	5350			
52	36048	2.00	34.41	16250	5580			
64	29248	2.45	27.92	16480	5780			
57	32438	1.65	30.96	16390	5690	CG132-22P-180L-04F CF132-22P-180L-04F	963 968	158
67	27941	2.45	26.67	16520	5820			
77	24061	2.95	22.97	16640	5930			
101	18469	1.65	17.63	16770	5980			
117	15909	2.45	15.19	16590	6070			
70	26514	1.55	25.31	6770	5260	CG102-22P-180L-04F CF102-22P-180L-04F	745 754	154
81	22908	1.75	21.87	6340	5370			
95	19604	2.05	18.71	5930	5490			
110	16932	2.40	16.16	5600	5580			
121	15394	1.60	14.69	5440	5440			
130	14318	2.80	13.67	5220	5640			
140	13300	1.80	12.70	5130	5530			
163	11382	2.10	10.86	4830	5600			
189	9831	2.45	9.38	4540	5690			
224	8313	2.90	7.93	4250	5760			

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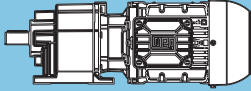
\*\* ... on request

**P<sub>N</sub> = 30 hp**

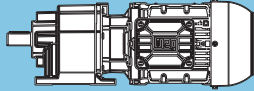
60 Hz		f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in			lb	lb			
<b>80</b>	23261	1.15	22.20	5670	5870	<b>CG092-22P-180L-04F</b> <b>CF092-22P-180L-04F</b>	659 655	150
<b>94</b>	19791	1.35	18.89	5490	6000			
<b>110</b>	16843	1.60	16.08	5100	6110			
<b>128</b>	14530	1.85	13.87	4790	6200			
<b>140</b>	13265	1.25	12.66	4680	6070			
<b>153</b>	12189	2.20	11.63	4450	6290			
<b>165</b>	11286	1.45	10.77	4360	6160			
<b>188</b>	9911	2.55	9.46	4090	6360			
<b>194</b>	9604	1.70	9.17	4090	6250			
<b>224</b>	8286	1.95	7.91	3840	6320			
<b>240</b>	7749	3.00	7.40	3710	6450			
<b>268</b>	6951	2.35	6.63	3600	6380			
<b>329</b>	5651	2.85	5.39	3300	6450			
<b>138</b>	13455	0.85	12.84	3930	4360	<b>CG082-22P-180L-04F</b> <b>CF082-22P-180L-04F</b>	545 553	148
<b>164</b>	11338	0.95	10.82	3640	4470			
<b>171</b>	10864	0.95	10.37	3640	4360			
<b>200</b>	9296	1.05	8.87	3350	4560			
<b>201</b>	9246	1.05	8.83	3390	4470			
<b>240</b>	7756	1.15	7.40	3150	4560			
<b>284</b>	6536	1.30	6.24	2920	4650			
<b>347</b>	5359	1.50	5.12	2700	4720			

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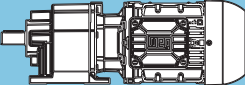
<b>P<sub>N</sub> = 40 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>FN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in					lb		
13	188672	0.85	132.44	23000	4740	<b>CG163-22P-200L-04E</b> <b>CF163-22P-200L-04E</b>	1940 1991	166
16	156975	1.05	110.19	25610	5460			
18	138529	1.20	97.24	26820	5890			
19	130249	1.25	91.43	27290	6090			
21	122194	1.35	85.78	27720	6270			
23	108621	1.50	76.25	28370	6590			
24	104946	1.55	73.67	28530	6680			
27	93362	1.75	65.54	28980	6950			
29	87315	1.85	61.29	29200	7080			
31	80796	2.00	56.72	29410	7240			
35	72449	2.20	50.86	29670	7420			
42	60419	2.65	42.41	29970	7710			
54	47011	2.65	33.00	30260	8030	<b>CG162-22P-200L-04E</b> <b>CF162-22P-200L-04E</b>	1885 1936	166
101	25209	2.65	17.70	30550	8450			
18	143820	0.85	100.96	19690	2520	<b>CG143-22P-200L-04E</b> <b>CF143-22P-200L-04E</b>	1435 1475	162
21	118938	1.00	83.49	21540	3150			
24	104357	1.15	73.25	22390	3530			
26	97872	1.20	68.70	22730	3690			
28	91158	1.30	63.99	23040	3870			
32	80450	1.45	56.47	23490	4140			
37	68305	1.70	47.95	23940	4430			
39	65119	1.80	45.71	24030	4520			
43	58303	2.00	40.93	24230	4700			
47	53585	2.15	37.61	24370	4810			
58	44047	2.60	30.92	24590	5060			
68	37397	2.90	26.25	24710	5240			
64	39778	2.65	27.92	24660	5170	<b>CG142-22P-200L-04E</b> <b>CF142-22P-200L-04E</b>	1404 1444	162
112	22684	2.65	15.92	24930	5460			
31	82252	0.90	57.74	12950	4250	<b>CG133-22P-200L-04E</b> <b>CF133-22P-200L-04E</b>	1111 1116	158
32	80001	0.90	56.16	13200	4320			
36	71042	1.00	49.87	14070	4560			
40	63870	1.15	44.83	14660	4770			
42	60072	1.20	42.17	14950	4880			
52	49019	1.45	34.41	15650	5220			
64	39772	1.80	27.92	16100	5490			
80	31752	2.25	22.29	16410	5710			
78	32718	2.20	22.97	16370	5690			
89	28580	2.50	20.06	16430	5800	<b>CG132-22P-200L-04E</b> <b>CF132-22P-200L-04E</b>	1091 1096	158
103	24687	2.90	17.33	16190	5910			
136	18629	2.35	13.08	15220	5960			
156	16273	2.70	11.42	14900	6050			
95	26658	1.50	18.71	6200	5260			
110	23024	1.75	16.16	5820	5370	<b>CG102-22P-200L-04E</b> <b>CF102-22P-200L-04E</b>	873 882	154
130	19469	2.05	13.67	5420	5490			
160	15887	2.55	11.15	4970	5600			
164	15477	1.55	10.86	4990	5420			
190	13368	1.80	9.38	4700	5530			
224	11304	2.15	7.93	4380	5620			
275	9224	2.60	6.47	4050	5710			
111	22903	1.20	16.08	5370	5890			
128	19758	1.35	13.87	5040	6000	<b>CG092-22P-200L-04E</b> <b>CF092-22P-200L-04E</b>	787 783	150
153	16574	1.60	11.63	4650	6110			
188	13476	1.85	9.46	4250	6230			
194	13060	1.25	9.17	4250	6070			
225	11267	1.45	7.91	4000	6160			
241	10537	2.20	7.40	3820	6340			
268	9451	1.75	6.63	3710	6250			
330	7685	2.10	5.39	3390	6360			
422	6009	2.70	4.22	3080	6430			

Legend see page 29

<b>P<sub>N</sub> = 50 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>TN</sub></b>			<b>m</b> lb	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		lb	lb			
16	193386	0.85	110.19	22530	4630	<b>CG163-22P-200L-04F</b> <b>CF163-22P-200L-04F</b>	2000 2050	166
18	170661	0.95	97.24	24570	5150			
19	160460	1.00	91.43	25340	5400			
21	150537	1.10	85.78	26030	5620			
23	133816	1.20	76.25	27090	6000			
24	129289	1.25	73.67	27340	6110			
27	115018	1.40	65.54	28060	6450			
29	107568	1.50	61.29	28390	6610			
31	99537	1.65	56.72	28730	6790			
35	89254	1.80	50.86	29140	7040			
42	74433	2.15	42.41	29610	7370			
49	63977	2.50	36.45	29880	7620			
56	55366	2.80	31.55	30080	7820			
54	57915	2.15	33.00	30030	7760	<b>CG162-22P-200L-04F</b> <b>CF162-22P-200L-04F</b>	1944 1995	166
101	31056	2.15	17.70	30480	8300			
21	146525	0.80	83.49	**	2450	<b>CG143-22P-200L-04F</b> <b>CF143-22P-200L-04F</b>	1495 1534	162
24	128563	0.90	73.25	20860	2900			
26	120573	1.00	68.70	21420	3100			
28	112302	1.05	63.99	21920	3300			
32	99111	1.20	56.47	22660	3640			
37	84148	1.40	47.95	23340	4020			
39	80223	1.45	45.71	23520	4140			
44	71826	1.65	40.93	23810	4340			
47	66014	1.75	37.61	24010	4500			
58	54263	2.10	30.92	24350	4790			
68	46071	2.35	26.25	24550	5010			
80	39325	2.60	22.41	24680	5170			
64	49005	2.15	27.92	24480	4920	<b>CG142-22P-200L-04F</b> <b>CF142-22P-200L-04F</b>	1464 1504	162
72	43226	2.70	24.63	24590	5080			
112	27945	2.15	15.92	24140	5310			
127	24650	2.95	14.05	23630	5420			
36	87520	0.85	49.87	12320	4090	<b>CG133-22P-200L-04F</b> <b>CF133-22P-200L-04F</b>	1171 1175	158
40	78684	0.90	44.83	13330	4340			
42	74006	1.00	42.17	13800	4470			
52	60389	1.20	34.41	14750	4880			
64	48997	1.45	27.92	15170	5220			
80	39117	1.85	22.29	15330	5490			
78	40307	1.80	22.97	15310	5460	<b>CG132-22P-200L-04F</b> <b>CF132-22P-200L-04F</b>	1151 1155	158
89	35209	2.05	20.06	15310	5600			
103	30414	2.35	17.33	15220	5760			
124	25152	2.85	14.33	14990	5890			
136	22950	1.90	13.08	14410	5820			
156	20047	2.20	11.42	14190	5910			
181	17317	2.55	9.87	13920	6000			
95	32841	1.25	18.71	6430	5060			
110	28365	1.45	16.16	6020	5190			
130	23985	1.70	13.67	5580	5330			
160	19572	2.05	11.15	5100	5490			
164	19067	1.30	10.86	5130	5260			
190	16468	1.50	9.38	4810	5370			
197	15880	2.55	9.05	4680	5600			
225	13926	1.75	7.93	4500	5490			
247	12678	3.15	7.22	4250	5710			
275	11363	2.15	6.47	4140	5620			
339	9220	2.60	5.25	3800	5710			
425	7361	3.25	4.19	3460	5780			

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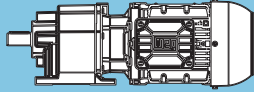
<b>P<sub>N</sub> = 60 hp</b>								
<b>60 Hz</b>			<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>lb</b>	<b>lb</b>			
rpm	lb-in						lb	
18	207560	0.80	97.24	**	4290	<b>CG163-22P-225S/M-04F</b> <b>CF163-22P-225S/M-04F</b>	2302 2352	166
19	195154	0.85	91.43	22350	4590			
21	183085	0.90	85.78	23520	4860			
23	162749	1.00	76.25	25180	5330			
24	157243	1.05	73.67	25580	5460			
27	139886	1.15	65.54	26730	5870			
29	130826	1.25	61.29	27250	6070			
31	121058	1.35	56.72	27760	6290			
35	108552	1.50	50.86	28350	6590			
42	90527	1.80	42.41	29090	7010			
49	77810	2.05	36.45	29490	7310			
56	67337	2.30	31.55	29810	7550			
54	70437	1.75	33.00	29720	7460	<b>CG162-22P-225S/M-04F</b> <b>CF162-22P-225S/M-04F</b>	2247 2297	166
71	53690	3.00	25.15	30120	7870			
101	37771	1.75	17.70	30390	8120			
26	146643	0.80	68.70	**	2430	<b>CG143-22P-225S/M-04F</b> <b>CF143-22P-225S/M-04F</b>	1797 1836	162
28	136583	0.85	63.99	20280	2700			
32	120540	1.00	56.47	21420	3100			
37	102342	1.15	47.95	22480	3570			
39	97569	1.20	45.71	22730	3690			
44	87356	1.35	40.93	23200	3960			
47	80288	1.45	37.61	23490	4140			
58	65996	1.75	30.92	24010	4500			
68	56033	1.95	26.25	24300	4740			
80	47828	2.15	22.41	24500	4970			
64	59601	1.75	27.92	24210	4650	<b>CG142-22P-225S/M-04F</b> <b>CF142-22P-225S/M-04F</b>	1766 1806	162
72	52573	2.20	24.63	24390	4830			
84	45152	2.55	21.15	24570	5040			
112	33987	1.75	15.92	23160	5130			
127	29979	2.45	14.05	22750	5240			
148	25748	2.80	12.06	22210	5370			
42	90007	0.80	42.17	**	4000	<b>CG133-22P-225S/M-04F</b> <b>CF133-22P-225S/M-04F</b>	1473 1477	158
52	73445	1.00	34.41	12540	4500			
64	59591	1.20	27.92	13380	4900			
80	47575	1.50	22.29	13890	5240			
78	49022	1.45	22.97	13830	5220	<b>CG132-22P-225S/M-04F</b> <b>CF132-22P-225S/M-04F</b>	1453 1457	158
89	42822	1.70	20.06	14010	5400			
103	36989	1.95	17.33	14100	5550			
124	30590	2.35	14.33	14070	5730			
136	27912	1.55	13.08	13470	5640			
151	25172	2.85	11.79	13890	5890			
156	24382	1.80	11.42	13380	5760			
181	21061	2.10	9.87	13220	5890			
184	20691	3.45	9.69	13600	6020			
217	17567	4.05	8.23	13310	6110			
218	17417	2.55	8.16	12970	6000			
254	14995	4.75	7.03	12990	6200			
265	14332	3.10	6.71	12630	6110			
323	11781	3.75	5.52	12230	6200			
380	10003	4.40	4.69	11870	6270			
446	8538	5.15	4.00	11510	6320			

Legend see page 29

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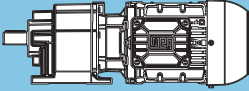


**P<sub>N</sub> = 75 hp**

60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	F <sub>TN</sub>			m lb	Dimension sheet see page
n <sub>60</sub> rpm	F <sub>TN</sub> lb				F <sub>aN</sub> lb				
<b>23</b>	198581	0.85	76.25	21960	4500	<b>CG163-22P-225S/M-04G</b> <b>CF163-22P-225S/M-04G</b>	2407 2458	166	
<b>24</b>	191863	0.85	73.67	22640	4650				
<b>27</b>	170685	0.95	65.54	24550	5150				
<b>29</b>	159630	1.00	61.29	25380	5400				
<b>31</b>	147711	1.10	56.72	26210	5690				
<b>35</b>	132451	1.25	50.86	27130	6020				
<b>42</b>	110458	1.45	42.41	28260	6540				
<b>49</b>	94941	1.70	36.45	28910	6900				
<b>57</b>	82162	1.90	31.55	29360	7190				
<b>71</b>	65511	2.45	25.15	29850	7580	<b>CG162-22P-225S/M-04G</b> <b>CF162-22P-225S/M-04G</b>	2352 2403	166	
<b>85</b>	55005	2.90	21.12	30100	7820				
<b>132</b>	35129	2.55	13.49	30440	8180				
<b>32</b>	147079	0.80	56.47	**	2430	<b>CG143-22P-225S/M-04G</b> <b>CF143-22P-225S/M-04G</b>	1903 1942	162	
<b>37</b>	124875	0.95	47.95	21110	2990				
<b>39</b>	119050	1.00	45.71	21490	3150				
<b>44</b>	106589	1.10	40.93	22260	3460				
<b>47</b>	97964	1.20	37.61	22710	3690				
<b>58</b>	80526	1.40	30.92	23110	4110				
<b>68</b>	68369	1.60	26.25	23270	4430				
<b>80</b>	58358	1.75	22.41	23160	4700				
<b>72</b>	64147	1.80	24.63	23340	4540	<b>CG142-22P-225S/M-04G</b> <b>CF142-22P-225S/M-04G</b>	1872 1911	162	
<b>84</b>	55093	2.10	21.15	23180	4770				
<b>101</b>	45837	2.55	17.60	22860	5010				
<b>127</b>	36580	2.00	14.05	21650	5040				
<b>148</b>	31417	2.30	12.06	21270	5190				
<b>52</b>	89616	0.80	34.41	**	4020	<b>CG133-22P-225S/M-04G</b> <b>CF133-22P-225S/M-04G</b>	1579 1583	158	
<b>64</b>	72711	1.00	27.92	11130	4520				
<b>80</b>	58049	1.25	22.29	12120	4950				
<b>89</b>	52250	1.40	20.06	12410	5100	<b>CG132-22P-225S/M-04G</b> <b>CF132-22P-225S/M-04G</b>	1559 1563	158	
<b>103</b>	45133	1.60	17.33	12700	5310				
<b>125</b>	37325	1.90	14.33	12880	5550				
<b>151</b>	30714	2.35	11.79	12950	5730				
<b>156</b>	29750	1.50	11.42	12340	5580				
<b>181</b>	25698	1.75	9.87	12340	5710				
<b>184</b>	25247	2.85	9.69	12810	5890				
<b>217</b>	21435	3.35	8.23	12660	6000				
<b>219</b>	21252	2.10	8.16	12230	5870				
<b>254</b>	18296	3.90	7.03	12430	6090				
<b>266</b>	17488	2.55	6.71	12000	6000				
<b>323</b>	14375	3.05	5.52	11740	6110				
<b>381</b>	12205	3.60	4.69	11440	6200				
<b>446</b>	10418	4.25	4.00	11150	6250				

Legend see page 29

\*\* ... on request

<b>P<sub>N</sub> = 100 hp</b>								
<b>60 Hz</b>		<b>f<sub>B</sub></b>	<b>i</b>	<b>F<sub>rN</sub></b>			<b>m</b>	Dimension sheet see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in			lb	lb			
<b>31</b>	201991	0.80	56.72	**	4430	<b>CG163-22P-250S/M-04F</b> <b>CF163-22P-250S/M-04F</b>	2637 2687	166
<b>35</b>	181123	0.90	50.86	23690	4920			
<b>42</b>	151048	1.10	42.41	26010	5620			
<b>49</b>	129829	1.25	36.45	27310	6090			
<b>56</b>	112354	1.40	31.55	28190	6500			
<b>71</b>	89584	1.80	25.15	29110	7040	<b>CG162-22P-250S/M-04F</b> <b>CF162-22P-250S/M-04F</b>	2582 2632	166
<b>84</b>	75217	2.15	21.12	29580	7370			
<b>102</b>	61895	2.60	17.38	29940	7670			
<b>132</b>	48038	1.85	13.49	28960	7850			
<b>157</b>	40334	2.50	11.33	28390	8050			
<b>191</b>	33190	3.00	9.32	27610	8230			

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# Selection tables - Gear units

## Structure of the selection tables

Type	i	T <sub>2max</sub> [lb-in]	n <sub>2</sub> [rpm]	i <sub>exact</sub>	n <sub>1max</sub> [rpm]	IEC motor frame size <b>7</b>													
						63	71	80	90	100	112	132	160	180	200	225	250	-	
						IEC adapter <b>8</b>													
						I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280	
NEMA adapter <b>9</b>																			
						N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-			
<b>C002</b>																			
2 stages	<b>10</b>																		
n <sub>1</sub> =1750 rpm	<b>11</b>																		
Maximum torque 443 lb-in	<b>12</b>																		

Type	i	SERVO adapter											Input unit									
		n <sub>1max</sub> [rpm]	Adapter size <b>14</b>									n <sub>1max</sub> [rpm]	Input shaft <b>16</b> [mm]									
			S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	19x40	24x50	28x60	38x80	42x110	48x110	55x110		

- 1** Type of gear unit
- 2** Total ratio
- 3** Permissible output torque at S1 operation ( $f_b = 1.0$ )
- 4** Output speed (gear unit) at  $n_1 = 1750$  rpm
- 5** Exact mathematical ratio
- 6** Maximum permissible input speed gear unit, valid for direct mounting and IEC / NEMA adapter  
Max. perm. input speed IEC / NEMA adapter: I63 - I132 / N56 - N213 = 3000 rpm, I160 - I280 / N254 - N364 = 2500 rpm  
Max. perm. motor speed (Direct mounting): motor frame size 63 - 180 = 3000 rpm, 200 - 250 = 2500 rpm, higher motor speed on request
- 7** Possible motor frame sizes (Direct mounting)
- 8** Possible IEC adapter sizes
- 9** Possible NEMA adapter sizes
- 10** Number of gear stages
- 11** Motor speed
- 12** Maximum torque
- 13** Maximum input speed - SERVO adapter
- 14** Possible SERVO adapter sizes
- 15** Maximum input speed - input unit (higher input speeds on request)
- 16** Possible input shafts of the input unit

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	-	-	-	-	-	-	-	-
		IEC adapter															
		163	171		180	-	-	-	-	-	-	-	-	-			
NEMA adapter																	
		[lb-in]	[rpm]			N56	-	-	-	-	-	-	-	-	-		
<b>C002</b>	47.44	443	37	759/16	6000												
	42.34	443	41	1863/44	6000												
	36.85	443	47	737/20	6000												
	32.89	443	53	1809/55	6000												
	29.33	443	60	88/3	6000												
	26.18	443	67	288/11	6000												
	23.00	443	76	23/1	6000												
	20.53	443	85	2484/121	6000												
	17.29	443	101	121/7	6000												
	16.86	274	104	2967/176	6000												
	15.43	443	113	108/7	6000												
	13.54	443	129	176/13	6000												
	13.10	381	134	2881/220	6000												
	12.08	443	145	1728/143	6000												
	10.42	398	168	344/33	6000												
	9.97	443	176	319/32	6000												
	8.90	443	197	783/88	6000												
	8.17	398	214	989/121	6000												
	6.88	434	255	55/8	6000												
	6.14	372	285	43/7	6000												
6.14	443	285	135/22	6000													
4.81	345	364	688/143	6000													
3.54	310	494	1247/352	6000													
2.44	274	716	215/88	6000													
<b>C012</b>	66.50	752	26	133/2	6000												
	59.59	752	29	1311/22	6000												
	51.80	752	34	259/5	6000												
	46.42	752	38	2553/55	6000												
	42.00	752	42	42/1	6000												
	37.64	752	46	414/11	6000												
	33.09	752	53	364/11	6000												
	29.65	752	59	3588/121	6000												
	25.50	752	69	51/2	6000												
	25.05	363	70	551/22	6000												
	22.85	752	77	3519/154	6000												
	19.92	752	88	259/13	6000												
	19.51	584	90	1073/55	6000												
	17.85	752	98	2553/143	6000												
	15.82	584	111	174/11	6000												
	14.88	752	118	119/8	6000												
	13.33	752	131	1173/88	6000												
	12.83	752	136	77/6	6000												
	12.46	584	140	1508/121	6000												
	11.50	752	152	23/2	6000												
11.20	743	156	56/5	6000													
10.04	717	174	552/55	6000													
9.60	584	182	1479/154	6000													
8.22	673	213	189/23	6000													
7.50	584	233	1073/143	6000													
7.36	655	238	81/11	6000													
5.60	584	312	493/88	6000													
4.83	584	362	29/6	6000													
4.22	584	415	232/55	6000													
3.09	558	565	783/253	6000													

Legend see page 99

Type	i	SERVO adapter											Input unit							
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]						
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>C002</b>	47.44	5000																		
	42.34	5000																		
	36.85	5000																		
	32.89	5000																		
	29.33	5000																		
	26.18	5000																		
	23.00	5000																		
	20.53	5000																		
	17.29	5000																		
	16.86	5000																		
	15.43	5000																		
	13.54	5000																		
	13.10	5000																		
	12.08	5000																		
	10.42	5000																		
	9.97	4200																		
	8.90	4200																		
	8.17	5000																		
	6.88	3400																		
	6.14	5000																		
	6.14	3400																		
	4.81	5000																		
	3.54	4200																		
	2.44	3400																		
<b>C012</b>	66.50	5000																		
	59.59	5000																		
	51.80	5000																		
	46.42	5000																		
	42.00	5000																		
	37.64	5000																		
	33.09	5000																		
	29.65	5000																		
	25.50	5000																		
	25.05	5000																		
	22.85	5000																		
	19.92	5000																		
	19.51	5000																		
	17.85	5000																		
	15.82	5000																		
	14.88	4700																		
	13.33	4700																		
	12.83	4200																		
	12.46	5000																		
	11.50	4200																		
	11.20	3800																		
	10.04	3800																		
	9.60	5000																		
	8.22	3300																		
	7.50	5000																		
	7.36	3300																		
	5.60	4700																		
	4.83	4200																		
	4.22	3800																		
	3.09	3300																		

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size															
						IEC adapter															
		NEMA adapter																			
		[lb-in]	[rpm]			[rpm]	N56	N143/145	-	-	-	-	-	-	-						
<b>C032</b>	42.88	1629	41	2573/60	6000																
	38.95	1487	45	5063/130	6000																
	34.88	1770	50	279/8	6000																
	31.67	1770	55	1647/52	6000																
	27.71	1770	63	1829/66	6000																
	25.17	1770	70	3599/143	6000																
	24.03	912	73	913/38	6000																
	21.40	1770	82	899/42	6000																
	19.54	1133	90	1485/76	6000																
	19.44	1770	90	1769/91	6000																
	17.09	1770	102	1333/78	6000																
	15.53	1151	113	295/19	6000																
	15.52	1770	113	2623/169	6000																
	12.92	1717	135	155/12	6000																
	11.99	1151	146	1595/133	6000																
	11.73	1752	149	305/26	6000																
	9.82	1593	178	589/60	6000																
	9.57	1151	183	2365/247	6000																
	8.92	1620	196	1159/130	6000																
	7.64	1496	229	527/69	6000																
	7.24	1151	242	275/38	6000																
	6.94	1513	252	2074/299	6000																
5.96	1398	294	155/26	6000																	
5.50	1151	318	11/2	6000																	
5.41	1407	323	915/169	6000																	
4.28	1151	409	1870/437	6000																	
3.34	1151	524	825/247	6000																	
<b>C033</b>	286.32	1770	6.1	20615/72	6000																
	260.03	1770	6.7	40565/156	6000																
	223.03	1770	7.8	8029/36	6000																
	202.55	1770	8.6	15799/78	6000																
	180.83	1770	9.7	1085/6	6000																
	164.23	1770	11	2135/13	6000																
	142.47	1770	12	14105/99	6000																
	129.39	1770	14	4270/33	6000																
	109.79	1770	16	2635/24	6000																
	99.71	1770	18	5185/52	6000																
	85.78	1770	20	40145/468	6000																
	77.90	1770	22	78995/1014	6000																
	64.05	1770	27	18445/288	6000																
	58.17	1770	30	36295/624	6000																
	55.25	1770	32	11935/216	6000																
	50.18	1770	35	23485/468	6000																
	48.22	1770	36	434/9	6000																
	43.79	1770	40	1708/39	6000																
	35.38	1770	49	3255/92	6000																
	32.13	1770	54	19215/598	6000																

Legend see page 99

Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
<b>C032</b>	42.88	5000											3000								
	38.95	5000											3000								
	34.88	5000											3000								
	31.67	5000											3000								
	27.71	5000											3000								
	25.17	5000											3000								
	24.03	5000											3000								
	21.40	5000											3000								
	19.54	5000											3000								
	19.44	5000											3000								
	17.09	5000											3000								
	15.53	5000											3000								
	15.52	5000											3000								
	12.92	5000											3000								
	11.99	5000											3000								
	11.73	5000											3000								
	9.82	4200											3000								
	9.57	5000											3000								
	8.92	4200											3000								
	7.64	3600											3000								
	7.24	5000											3000								
	6.94	3600											3000								
	5.96	3200											3000								
	5.50	4200											3000								
	5.41	3200											3000								
	4.28	3600											3000								
	3.34	3200											3000								
<b>C033</b>	286.32	5000											-								
	260.03	5000											-								
	223.03	5000											3000								
	202.55	5000											3000								
	180.83	5000											3000								
	164.23	5000											3000								
	142.47	5000											3000								
	129.39	5000											3000								
	109.79	5000											3000								
	99.71	5000											3000								
	85.78	5000											3000								
	77.90	5000											3000								
	64.05	5000											3000								
	58.17	5000											3000								
	55.25	4600											3000								
	50.18	4600											3000								
	48.22	4200											3000								
	43.79	4200											3000								
	35.38	3600											3000								
	32.13	3600											3000								



Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171	180	190	1100	1112	-	-	-	-	-				
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	-	-	-	-	-	-	
C052	58.85	2213	30	1177/20	6000											
	53.50	2009	33	107/2	6000											
	48.13	2983	36	385/8	6000											
	43.75	2717	40	175/4	6000											
	38.00	3540	46	38/1	6000											
	35.67	1336	49	107/3	6000											
	34.55	3540	51	380/11	6000											
	29.46	3540	59	825/28	6000											
	29.17	1806	60	175/6	6000											
	26.79	3540	65	375/14	6000											
	24.12	3540	73	627/26	6000											
	23.03	2363	76	760/33	6000											
	21.92	3540	80	285/13	6000											
	18.56	3540	94	297/16	6000											
	17.86	2363	98	125/7	6000											
	16.88	3540	104	135/8	6000											
	14.62	2363	120	190/13	6000											
	14.03	3540	125	561/40	6000											
	12.75	3540	137	51/4	6000											
	11.48	3540	152	264/23	6000											
	Maximum torque 3540 lb-in	11.25	2363	156	45/4	6000										
		10.43	3540	168	240/23	6000										
		9.31	3416	188	121/13	6000										
		8.50	2363	206	17/2	6000										
		8.46	3231	207	110/13	6000										
		7.79	3071	225	187/24	5600										
		7.08	2903	247	85/12	5600										
		6.96	2363	252	160/23	6000										
		6.31	2708	277	341/54	5000										
		6.09	2646	287	341/56	4800										
		5.74	2558	305	155/27	5000										
		5.64	2292	310	220/39	6000										
		5.54	2505	316	155/28	4800										
	4.72	2036	371	85/18	5600											
	3.83	1770	457	310/81	5000											
	3.69	1726	474	155/42	4800											
C053	328.43	3540	5.3	2299/7	6000											
	298.57	3540	5.9	2090/7	6000											
	267.93	3540	6.5	3751/14	6000											
	243.57	3540	7.2	1705/7	6000											
	213.71	3540	8.2	1496/7	6000											
	194.29	3540	9.0	1360/7	6000											
	165.45	3540	11	8107/49	6000											
	150.41	3540	12	7370/49	6000											
	132.97	3540	13	12100/91	6000											
	120.88	3540	14	11000/91	6000											
	101.55	3540	17	5687/56	6000											
	92.32	3540	19	2585/28	6000											
	77.79	3540	22	1089/14	6000											
	70.71	3540	25	495/7	6000											
	61.63	3540	28	9922/161	6000											
	56.02	3540	31	9020/161	6000											
	49.20	3540	36	4477/91	6000											
44.73	3540	39	4070/91	6000												

Legend see page 99



Type	i	SERVO adapter										Input unit													
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]											
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110			
<b>C052</b>	58.85	5000													3000										
	53.50	5000													3000										
	48.13	5000													3000										
	43.75	5000													3000										
	38.00	5000													3000										
	35.67	5000													3000										
	34.55	5000													3000										
	29.46	5000													3000										
	29.17	5000													3000										
	26.79	5000													3000										
	24.12	5000													3000										
	23.03	5000													3000										
	21.92	5000													3000										
	18.56	5000													3000										
	17.86	5000													3000										
	16.88	5000													3000										
	14.62	5000													3000										
	14.03	4800													3000										
	12.75	4800													3000										
	11.48	4200													3000										
	11.25	5000													3000										
	10.43	4200													3000										
	9.31	3700													3000										
	8.50	4800													3000										
	8.46	3700													3000										
	7.79	3300													3000										
	7.08	3300													3000										
	6.96	4200													3000										
	6.31	3000													3000										
	6.09	2900													2900										
	5.74	3000													3000										
	5.64	3700													3000										
	5.54	2900													2900										
	4.72	3300													3000										
	3.83	3000													3000										
	3.69	2900													2900										
<b>C053</b>	328.43	5000													3000										
	298.57	5000													3000										
	267.93	5000													3000										
	243.57	5000													3000										
	213.71	5000													3000										
	194.29	5000													3000										
	165.45	5000													3000										
	150.41	5000													3000										
	132.97	5000													3000										
	120.88	5000													3000										
	101.55	5000													3000										
	92.32	5000													3000										
	77.79	4800													3000										
	70.71	4800													3000										
	61.63	4200													3000										
	56.02	4200													3000										
	49.20	3700													3000										
	44.73	3700													3000										

Legend see page 99



C

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	-	-	-	-	-		
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	-	-	-	-	-	-	
C062	60.00	3717	29	60/1	6000											
	55.02	3408	32	3081/56	6000											
	47.55	5310	37	6800/143	6000											
	43.60	4983	40	6715/154	6000											
	36.92	5310	47	480/13	6000											
	33.86	5310	52	237/7	6000											
	33.43	2071	52	234/7	6000											
	30.30	5310	58	5120/169	6000											
	27.78	5310	63	2528/91	6000											
	26.49	3027	66	2040/77	6000											
	23.46	5310	75	305/13	6000											
	21.51	5310	81	4819/224	6000											
	20.57	3337	85	144/7	6000											
	17.85	5310	98	232/13	6000											
	16.88	3337	104	1536/91	6000											
	16.36	5310	107	2291/140	6000											
	14.72	5310	119	4400/299	6000											
	13.49	5310	130	4345/322	6000											
	13.07	3337	134	183/14	6000											
	12.07	5310	145	2040/169	6000											
	11.07	5310	158	4029/364	6000											
	10.26	5310	171	400/39	5600											
	9.94	3337	176	348/35	6000											
	9.40	5213	186	395/42	5600											
	8.43	4841	208	2960/351	5000											
	8.20	3337	213	1320/161	6000											
	8.13	4726	215	740/91	4800											
	7.73	4576	226	2923/378	5000											
	7.46	4461	235	2923/392	4800											
	6.73	3337	260	612/91	6000											
	6.69	4151	262	2000/299	4400											
6.13	3921	285	1975/322	4400												
5.71	3284	306	40/7	5600												
4.70	2876	372	296/63	5000												
4.53	2815	386	222/49	4800												
3.73	2469	470	600/161	4400												
C063	375.71	5310	4.7	83032/221	6000											
	344.51	5310	5.1	819941/2380	6000											
	307.24	5310	5.7	67900/221	6000											
	281.73	5310	6.2	38315/136	6000											
	242.60	5310	7.2	589760/2431	6000											
	222.46	5310	7.9	291194/1309	6000											
	188.11	5310	9.3	291000/1547	6000											
	172.49	5310	10	574725/3332	6000											
	153.96	5310	11	442320/2873	6000											
	141.17	5310	12	436791/3094	6000											
	118.51	5310	15	26190/221	6000											
	108.67	5310	16	206901/1904	6000											
	89.54	5310	20	1164/13	6000											
	82.10	5310	21	22989/280	6000											
	73.28	5310	24	372480/5083	6000											
	67.19	5310	26	183912/2737	6000											
	59.42	5310	29	170720/2873	6000											
	54.49	5310	32	84293/1547	6000											
	49.74	5310	35	1940/39	5600											
45.61	5310	38	7663/168	5600												

Legend see page 99

Type	i	SERVO adapter										Input unit															
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]													
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110							
<b>C062</b>	60.00	5000													3000												
	55.02	5000													3000												
	47.55	5000													3000												
	43.60	5000													3000												
	36.92	5000													3000												
	33.86	5000													3000												
	33.43	5000													3000												
	30.30	5000													3000												
	27.78	5000													3000												
	26.49	5000													3000												
	23.46	5000													3000												
	21.51	5000													3000												
	20.57	5000													3000												
	17.85	5000													3000												
	16.88	5000													3000												
	16.36	5000													3000												
	14.72	4500													3000												
	13.49	4500													3000												
	13.07	5000													3000												
	12.07	3900													3000												
	11.07	3900													3000												
	10.26	3600													3000												
	9.94	5000													3000												
	9.40	3600													3000												
	8.43	3200													3000												
	8.20	4500													3000												
	8.13	3100													3000												
	7.73	3200													3000												
	7.46	3100													3000												
	6.73	3900													3000												
	6.69	2800													2800												
	6.13	2800													2800												
	5.71	3600													3000												
	4.70	3200													3000												
	4.53	3100													3000												
	3.73	2800													2800												
<b>C063</b>	375.71	5000													3000												
	344.51	5000													3000												
	307.24	5000													3000												
	281.73	5000													3000												
	242.60	5000													3000												
	222.46	5000													3000												
	188.11	5000													3000												
	172.49	5000													3000												
	153.96	5000													3000												
	141.17	5000													3000												
	118.51	5000													3000												
	108.67	5000													3000												
	89.54	5000													3000												
	82.10	5000													3000												
	73.28	4500													3000												
	67.19	4500													3000												
	59.42	3900													3000												
	54.49	3900													3000												
	49.74	3600													3000												
	45.61	3600													3000												

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		63	I71			I80	I90	I100	I112	I132	-	-	-	-	-	
NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
<b>C072</b>	38.92	7258	45	506/13	6000											
	35.41	7258	49	5984/169	6000											
	30.55	7258	57	1955/64	6000											
	27.79	7258	63	1445/52	6000											
	23.58	7098	74	943/40	6000											
	21.45	6904	82	1394/65	6000											
	20.65	6072	85	1342/65	6000											
	19.50	6700	90	39/2	6000											
	17.74	6514	99	408/23	6000											
	16.59	6373	106	1725/104	6000											
	16.20	5939	108	1037/64	6000											
	15.09	6196	116	2550/169	6000											
	14.38	6098	122	115/8	5600											
	13.08	5930	134	170/13	5600											
	12.51	5470	140	2501/200	6000											
	12.14	5788	144	437/36	5000											
	11.71	5726	150	1311/112	4800											
	11.04	5638	158	1292/117	5000											
	10.65	5576	164	969/91	4800											
	10.34	5151	169	2379/230	6000											
	10.00	5461	175	10/1	4400											
9.10	5310	192	2720/299	4400												
8.80	4886	199	915/104	6000												
7.63	4673	230	61/8	5600												
6.44	4425	272	1159/180	5000												
6.21	4372	282	3477/560	4800												
5.30	4160	330	122/23	4400												
<b>C073</b>	351.33	7258	5.0	14053/40	6000											
	319.60	7258	5.5	1598/5	6000											
	278.44	7258	6.3	18377/66	6000											
	253.30	7258	6.9	108664/429	6000											
	216.20	7258	8.1	1081/5	6000											
	196.68	7258	8.9	12784/65	6000											
	177.39	7258	9.9	34592/195	6000											
	161.38	7258	11	409088/2535	6000											
	137.38	7258	13	65941/480	6000											
	124.97	7258	14	48739/390	6000											
	104.50	7258	17	31349/300	6000											
	95.06	7258	18	92684/975	6000											
	86.17	7258	20	517/6	6000											
	78.39	7258	22	70312/897	6000											
	70.68	7258	25	18377/260	6000											
	64.30	7258	27	54332/845	6000											
	60.06	7258	29	1081/18	5600											
	54.63	7258	32	6392/117	5600											
	49.38	7258	35	39997/810	5000											
	47.62	7249	37	39997/840	4800											
	44.92	7027	39	236504/5265	5000											
43.32	6921	40	59126/1365	4800												
39.17	6771	45	235/6	4400												
35.63	6426	49	31960/897	4400												

Legend see page 99

Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
<b>C072</b>	38.92	5000												2500							
	35.41	5000												2500							
	30.55	5000												2500							
	27.79	5000												2500							
	23.58	5000												2500							
	21.45	5000												2500							
	20.65	5000												2500							
	19.50	4700												2500							
	17.74	4700												2500							
	16.59	4200												2500							
	16.20	5000												2500							
	15.09	4200												2500							
	14.38	3700												2500							
	13.08	3700												2500							
	12.51	5000												2500							
	12.14	3300												2500							
	11.71	3200												2500							
	11.04	3300												2500							
	10.65	3200												2500							
	10.34	4700												2500							
	10.00	2900												2500							
	9.10	2900												2500							
	8.80	4200												2500							
	7.63	3700												2500							
	6.44	3300												2500							
	6.21	3200												2500							
	5.30	2900												2500							
<b>C073</b>	351.33	5000												3000							
	319.60	5000												3000							
	278.44	5000												3000							
	253.30	5000												3000							
	216.20	5000												2500							
	196.68	5000												2500							
	177.39	5000												2500							
	161.38	5000												2500							
	137.38	5000												2500							
	124.97	5000												2500							
	104.50	5000												2500							
	95.06	5000												2500							
	86.17	4700												2500							
	78.39	4700												2500							
	70.68	4200												2500							
	64.30	4200												2500							
	60.06	3700												2500							
	54.63	3700												2500							
	49.38	3300												2500							
	47.62	3200												2500							
	44.92	3300												2500							
	43.32	3200												2500							
	39.17	2900												2500							
	35.63	2900												2500							

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	-	-	-
		IEC adapter															
		63	171	180	190	1100	1112	1132	1160	-	-	-	-	-			
NEMA adapter																	
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-	
<b>C082</b>	54.18	13719	32	4930/91	6000												
	42.88	13719	41	9605/224	6000												
	37.44	13719	47	3145/84	6000												
	33.09	13719	53	1853/56	6000												
	31.23	9886	56	406/13	6000												
	27.98	13710	63	4505/161	6000												
	24.72	9913	71	791/32	6000												
	24.05	13090	73	8755/364	6000												
	21.58	11648	81	259/12	6000												
	21.00	12550	83	7055/336	5600												
	19.08	11559	92	763/40	6000												
	17.99	11975	97	3400/189	5000												
	17.35	11842	101	850/49	4800												
	16.13	11488	108	371/23	6000												
	Maximum torque 13719 lb-in	15.31	11400	114	2465/161	4400											
		13.87	10913	126	721/52	6000											
		12.84	10798	136	4675/364	3900											
		12.10	10417	145	581/48	5600											
		10.82	10249	162	3485/322	3500											
		10.37	9886	169	280/27	5000											
		10.00	9762	175	10/1	4800											
		8.87	9647	197	1615/182	3100											
		8.83	9355	198	203/23	4400											
	7.40	8815	236	385/52	3900												
	6.24	8311	280	287/46	3500												
	5.12	7771	342	133/26	3100												
<b>C083</b>	368.94	13719	4.7	909075/2464	6000												
	284.84	13719	6.1	893265/3136	6000												
	238.89	13719	7.3	86955/364	6000												
	187.48	13719	9.3	671925/3584	6000												
	144.69	13719	12	64821/448	6000												
	119.68	13719	15	308295/2576	6000												
	101.80	13719	17	592875/5824	6000												
	Maximum torque 13719 lb-in	88.23	13719	20	39525/448	5600											
		74.50	13719	23	50065/672	5000											
		71.84	13719	24	450585/6272	4800											
		61.37	13719	29	39525/644	4400											

Legend see page 99

Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]									
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110	
<b>C082</b>	54.18	5000													2500								
	42.88	5000													2500								
	37.44	5000													2500								
	33.09	5000													2500								
	31.23	5000													2500								
	27.98	5000													2500								
	24.72	5000													2500								
	24.05	4600													2500								
	21.58	5000													2500								
	21.00	4200													2500								
	19.08	5000													2500								
	17.99	3700													2500								
	17.35	3600													2500								
	16.13	5000													2500								
	15.31	3300													2500								
	13.87	4600													2500								
	12.84	2900													2500								
	12.10	4200													2500								
	10.82	2600													2500								
	10.37	3700													2500								
	10.00	3600													2500								
	8.87	-													2300								
	8.83	3300													2500								
	7.40	2900													2500								
	6.24	2600													2500								
	5.12	-													2300								
<b>C083</b>	368.94	5000													3000								
	284.84	5000													2500								
	238.89	5000													2500								
	187.48	5000													2500								
	144.69	5000													2500								
	119.68	5000													2500								
	101.80	4600													2500								
	88.23	4200													2500								
	74.50	3700													2500								
	71.84	3600													2500								
	61.37	3300													2500								

Legend see page 99

C

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size												
						63	71	80	90	100	112	132	160	180	200	-	-	-
		IEC adapter																
		163	171			180	190	1100	1112	1132	1160	1180	-	-	-	-		
NEMA adapter																		
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-		
<b>C092</b>	39.60	26287	44	198/5	6000													
	33.48	26481	52	770/23	6000													
	28.98	26384	60	1507/52	6000													
	25.67	26552	68	77/3	5600													
	22.58	14993	77	1242/55	6000													
	22.20	26552	79	1199/54	5000													
	21.41	22738	82	1199/56	4800													
	19.09	15099	92	210/11	6000													
	18.89	26552	93	869/46	4400													
	16.53	15046	106	9453/572	6000													
	16.08	26552	109	209/13	3900													
	14.64	16100	120	161/11	5600													
	13.87	26552	126	319/23	3500													
	12.66	16100	138	2507/198	5000													
	Maximum torque 26552 lb-in	12.21	12966	143	7521/616	4800												
		11.63	26464	150	605/52	3100												
		10.77	16100	162	237/22	4400												
		9.46	24826	185	473/50	2700												
		9.17	16100	191	1311/143	3900												
		7.91	16100	221	87/11	3500												
	7.40	23012	237	429/58	2300													
	6.63	16100	264	345/52	3100													
	5.39	16100	324	2967/550	2700													
	4.22	16100	415	2691/638	2300													
<b>C093</b>	306.73	26552	5.7	7975/26	6000													
	242.77	26552	7.2	31075/128	6000													
	211.98	26552	8.3	10175/48	6000													
	187.34	26552	9.3	5995/32	6000													
	158.42	26552	11	14575/92	6000													
	154.24	26552	11	14036/91	6000													
	136.18	26552	13	28325/208	6000													
	122.08	26552	14	13673/112	6000													
	118.88	26552	15	22825/192	5600													
	106.60	26552	16	4477/42	6000													
	101.85	26552	17	2750/27	5000													
	98.21	26552	18	1375/14	4800													
	94.21	26552	19	13189/140	6000													
	86.68	26552	20	7975/92	4400													
	79.66	26552	22	12826/161	6000													
	72.72	26552	24	15125/208	3900													
	68.48	26552	26	12463/182	6000													
	61.28	26552	29	11275/184	3500													
	59.78	26552	29	10043/168	5600													
	51.22	26552	34	9680/189	5000													
50.24	25871	35	5225/104	3100														
49.39	26508	35	2420/49	4800														
43.59	25304	40	7018/161	4400														
36.57	23693	48	6655/182	3900														
30.81	22215	57	4961/161	3500														
25.26	20631	69	2299/91	3100														

Legend see page 99



Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
<b>C092</b>	39.60	5000												2500							
	33.48	5000												2500							
	28.98	5000												2500							
	25.67	4500												2500							
	22.58	5000												2500							
	22.20	4000												2500							
	21.41	3900												2500							
	19.09	5000												2500							
	18.89	3600												2500							
	16.53	5000												2500							
	16.08	3100												2500							
	14.64	4500												2500							
	13.87	2800												2500							
	12.66	4000												2500							
	12.21	3900												2500							
	11.63	-												2500							
	10.77	3600												2500							
	9.46	-												2200							
	9.17	3100												2500							
	7.91	2800												2500							
	7.40	-												1900							
	6.63	-												2500							
	5.39	-												2200							
	4.22	-												1900							
<b>C093</b>	306.73	5000												2500							
	242.77	5000												2500							
	211.98	5000												2500							
	187.34	5000												2500							
	158.42	5000												2500							
	154.24	5000												2500							
	136.18	5000												2500							
	122.08	5000												2500							
	118.88	4500												2500							
	106.60	5000												2500							
	101.85	4000												2500							
	98.21	3900												2500							
	94.21	5000												2500							
	86.68	3600												2500							
	79.66	5000												2500							
	72.72	3100												2500							
	68.48	5000												2500							
	61.28	2800												2500							
	59.78	4500												2500							
	51.22	4000												2500							
	50.24	-												2500							
	49.39	3900												2500							
	43.59	3600												2500							
	36.57	3100												2500							
	30.81	2800												2500							
	25.26	-												2500							

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	1132	-	-	-	-	-	-
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	-
C094  4 stages n <sub>1</sub> =1750 rpm  Maximum torque 26552 lb-in	3282.02	26552	0.5	170665/52	6000											
	2683.89	26552	0.7	279125/104	6000											
	2597.68	26552	0.7	665005/256	6000											
	2268.18	26552	0.8	217745/96	6000											
	2124.27	26552	0.8	1087625/512	6000											
	2119.23	26552	0.8	27550/13	6000											
	1854.82	26552	0.9	356125/192	6000											
	1677.34	26552	1.0	53675/32	6000											
	1643.20	26552	1.1	598125/364	6000											
	1464.58	26552	1.2	17575/12	6000											
	1344.90	26552	1.3	454575/338	6000											
	1300.57	26552	1.3	2330625/1792	6000											
	1135.60	26552	1.5	254375/224	6000											
	1064.47	26552	1.6	1771275/1664	6000											
	1035.22	26552	1.7	215325/208	6000											
	929.45	26552	1.9	193325/208	6000											
	819.36	26552	2.1	839025/1024	6000											
	782.16	26552	2.2	81345/104	6000											
	715.43	26552	2.4	91575/128	6000											
	640.13	26552	2.7	191400/299	6000											
	619.07	26552	2.8	316965/512	6000											
	540.55	26552	3.2	34595/64	6000											
	519.08	26552	3.4	87725/169	6000											
	506.66	26552	3.5	93225/184	6000											
	442.39	26552	4.0	10175/23	6000											
	434.54	26552	4.0	135575/312	5600											
	410.85	26552	4.3	341825/832	6000											
	358.73	26552	4.9	111925/312	6000											
	352.17	26552	5.0	247225/702	5000											
	343.93	26552	5.1	528275/1536	5600											
	339.59	26552	5.2	247225/728	4800											
	300.30	26552	5.8	172975/576	5600											
	278.74	26552	6.3	963325/3456	5000											
	268.78	26552	6.5	963325/3584	4800											
243.38	26552	7.2	315425/1296	5000												
234.69	26552	7.5	315425/1344	4800												

Legend see page 99



Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	-	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-	
<b>C102</b>	33.01	32704	53	6437/195	6000												
	29.16	39828	60	1312/45	5600												
	25.31	39828	69	2050/81	5000												
	24.40	25933	72	1025/42	4800												
	21.87	39828	80	328/15	4400												
	19.17	18994	91	11461/598	6000												
	18.71	39828	94	3649/195	3900												
	16.93	23879	103	1168/69	5600												
	16.16	39828	108	5576/345	3500												
	14.69	23879	119	9125/621	5000												
	14.17	15055	124	9125/644	4800												
	13.67	39828	128	41/3	3100												
	12.70	23879	138	292/23	4400												
	11.15	39828	157	1394/125	2700												
	10.86	23879	161	6497/598	3900												
	9.38	23879	186	4964/529	3500												
	9.05	39828	193	1312/145	2300												
	7.93	23879	221	365/46	3100												
7.22	39828	242	1517/210	2100													
6.47	23879	270	3723/575	2700													
5.25	23879	333	3504/667	2300													
4.19	23879	417	2701/644	2100													
<b>C103</b>	246.43	39828	7.1	141696/575	6000												
	208.33	39828	8.4	110208/529	6000												
	180.35	39828	9.7	269616/1495	6000												
	159.72	39828	11	18368/115	5600												
	138.17	39828	13	143008/1035	5000												
	133.24	39828	13	107256/805	4800												
	122.02	39828	14	15252/125	6000												
	117.56	39828	15	310944/2645	4400												
	103.15	39828	17	35588/345	6000												
	100.05	39828	17	149568/1495	3900												
	89.30	39828	20	174127/1950	6000												
	86.31	39828	20	228288/2645	3500												
	79.08	39828	22	17794/225	5600												
	72.40	39828	24	21648/299	3100												
	68.41	39828	26	138539/2025	5000												
	65.97	39828	27	138539/2100	4800												
	58.87	39828	30	169248/2875	2700												
	58.21	39828	30	100409/1725	4400												
	49.54	39828	35	48298/975	3900												
	46.03	39828	38	153504/3335	2300												
42.74	39828	41	73718/1725	3500													
35.85	39828	49	13981/390	3100													
29.15	39828	60	54653/1875	2700													
22.79	39828	77	16523/725	2300													

Legend see page 99

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]								
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>C102</b>	33.01	5000												2500								
	29.16	4800												2500								
	25.31	4200												2500								
	24.40	4100												2500								
	21.87	3700												2500								
	19.17	5000												2500								
	18.71	3300												2500								
	16.93	4800												2500								
	16.16	3000												2500								
	14.69	4200												2500								
	14.17	4100												2500								
	13.67	-												2500								
	12.70	3700												2500								
	11.15	-												2300								
	10.86	3300												2500								
	9.38	3000												2500								
	9.05	-												2000								
	7.93	-												2500								
	7.22	-												1800								
	6.47	-												2300								
	5.25	-												2000								
	4.19	-												1800								
<b>C103</b>	246.43	5000												2500								
	208.33	5000												2500								
	180.35	5000												2500								
	159.72	4800												2500								
	138.17	4200												2500								
	133.24	4100												2500								
	122.02	5000												2500								
	117.56	3700												2500								
	103.15	5000												2500								
	100.05	3300												2500								
	89.30	5000												2500								
	86.31	3000												2500								
	79.08	4800												2500								
	72.40	-												2500								
	68.41	4200												2500								
	65.97	4100												2500								
	58.87	-												2300								
	58.21	3700												2500								
	49.54	3300												2500								
	46.03	-												2000								
	42.74	3000												2500								
	35.85	-												2500								
	29.15	-												2300								
	22.79	-												2000								

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size																	
						IEC adapter																	
		NEMA adapter																					
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-									
<b>C104</b>	2636.78	39828	0.7	7580736/2875	6000																		
4 stages n <sub>1</sub> =1750 rpm	2229.16	39828	0.8	5896128/2645	6000																		
	2156.24	39828	0.8	247968/115	6000																		
	1822.91	39828	1.0	964320/529	6000																		
	1702.59	39828	1.0	10768896/6325	6000																		
	1439.39	39828	1.2	8375808/5819	6000																		
	1320.15	39828	1.3	212544/161	6000																		
	1116.07	39828	1.6	590400/529	6000																		
	1080.49	39828	1.6	8076672/7475	6000																		
	913.46	39828	1.9	6281856/6877	6000																		
	831.69	39828	2.1	478224/575	6000																		
	703.12	39828	2.5	371952/529	6000																		
	Maximum torque 39828 lb-in	628.39	39828	2.8	1806624/2875	6000																	
		531.25	39828	3.3	1405152/2645	6000																	
		514.28	39828	3.4	6801408/13225	6000																	
		434.78	39828	4.0	5289984/12167	6000																	
		417.03	39828	4.2	3117312/7475	6000																	
352.56		39828	5.0	2424576/6877	6000																		
349.11		39828	5.0	200736/575	5600																		
295.14		39828	5.9	156128/529	5600																		
282.94		39828	6.2	162688/575	5000																		
272.83		39828	6.4	1098144/4025	4800																		
239.20	39828	7.3	1138816/4761	5000																			
230.65	39828	7.6	122016/529	4800																			

Legend see page 99

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]										
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>C104</b>	2636.78	5000													3000									
	2229.16	5000													3000									
	2156.24	5000													3000									
	1822.91	5000													3000									
	1702.59	5000													3000									
	1439.39	5000													3000									
	1320.15	5000													3000									
	1116.07	5000													3000									
	1080.49	5000													3000									
	913.46	5000													3000									
	831.69	5000													3000									
	703.12	5000													3000									
	628.39	5000													3000									
	531.25	5000													3000									
	514.28	5000													3000									
	434.78	5000													3000									
	417.03	5000													3000									
	352.56	5000													3000									
	349.11	4800													3000									
	295.14	4800													3000									
	282.94	4200													3000									
	272.83	4100													3000									
	239.20	4200													3000									
	230.65	4100													3000									



Legend see page 99





Type	i	SERVO adapter											Input unit											
		n <sub>1max</sub>	Adapter size									n <sub>1max</sub>	Input shaft [mm]											
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180		S189	S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>C132</b>	35.51	5000												2500										
	30.96	4500												2500										
	29.86	4400												2500										
	26.67	4000												2500										
	22.97	3500												2500										
	20.22	5000												2500										
	20.06	3200												1800										
	17.63	4500												2500										
	17.33	-												1800										
	17.00	4400												2500										
	15.19	4000												2500										
	14.33	-												1800										
	13.08	3500												2500										
	11.79	-												1800										
	11.42	3200												1800										
	9.87	-												1800										
	9.69	-												1800										
	8.23	-												1700										
	8.16	-												1800										
	7.03	-												1500										
	6.71	-												1800										
	5.52	-												1800										
	4.69	-												1700										
	4.00	-												1500										
<b>C133</b>	204.88	5000												2500										
	180.95	5000												2500										
	157.08	4500												2500										
	151.47	4400												2500										
	135.71	4000												2500										
	116.14	3500												2500										
	101.85	5000												2500										
	100.31	3200												1800										
	89.96	5000												2500										
	84.82	-												1800										
	78.09	4500												2500										
	75.30	4400												2500										
	69.21	-												1800										
	67.47	4000												2500										
	57.74	3500												2500										
	56.16	-												1800										
	49.87	3200												1800										
	44.83	-												1800										
	42.17	-												1800										
	34.41	-												1800										
	27.92	-												1800										
	22.29	-												1800										

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		163	171		180	190	1100	1112	1132	1160	-	-	-	-	-	
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-
C134	1891.77	70806	0.9	437000/231	6000											
	1642.17	70806	1.1	6828125/4158	6000											
	1460.54	70806	1.2	214700/147	6000											
	1418.83	70806	1.2	109250/77	6000											
	1267.83	70806	1.4	6709375/5292	6000											
	1224.91	70806	1.4	334400/273	6000											
	1095.41	70806	1.6	53675/49	6000											
	1063.29	70806	1.6	2612500/2457	6000											
	961.31	70806	1.8	40375/42	6000											
	918.68	70806	1.9	83600/91	6000											
	834.47	70806	2.1	5046875/6048	6000											
	741.90	70806	2.4	15580/21	6000											
	720.98	70806	2.4	40375/56	6000											
	644.01	70806	2.7	486875/756	6000											
	4 stages	613.66	70806	2.9	98800/161	6000										
		556.43	70806	3.1	3895/7	6000										
		532.69	70806	3.3	771875/1449	6000										
	Maximum torque 70806 lb-in	521.98	70806	3.4	47500/91	6000										
		460.25	70806	3.8	74100/161	6000										
		453.11	70806	3.9	1484375/3276	6000										
		452.38	70806	3.9	9500/21	5600										
		392.69	70806	4.5	296875/756	5600										
		391.48	70806	4.5	35625/91	6000										
		382.01	70806	4.6	72200/189	5000										
		368.37	70806	4.8	18050/49	4800										
		339.29	70806	5.2	2375/7	5600										
		331.61	70806	5.3	1128125/3402	5000										
		319.76	70806	5.5	1128125/3528	4800										
		314.70	70806	5.6	152000/483	4400										
		286.51	70806	6.1	18050/63	5000										
		276.28	70806	6.3	27075/98	4800										
		273.18	70806	6.4	1187500/4347	4400										
	236.02	70806	7.4	38000/161	4400											

Legend see page 99

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>C134</b>	1891.77	5000													3000									
	1642.17	5000													3000									
	1460.54	5000													2500									
	1418.83	5000													3000									
	1267.83	5000													2500									
	1224.91	5000													2500									
	1095.41	5000													2500									
	1063.29	5000													2500									
	961.31	5000													2500									
	918.68	5000													2500									
	834.47	5000													2500									
	741.90	5000													2500									
	720.98	5000													2500									
	644.01	5000													2500									
	613.66	5000													2500									
	556.43	5000													2500									
	532.69	5000													2500									
	521.98	5000													2500									
	460.25	5000													2500									
	453.11	5000													2500									
	452.38	5000													2500									
	392.69	5000													2500									
	391.48	5000													2500									
	382.01	4500													2500									
	368.37	4400													2500									
	339.29	5000													2500									
	331.61	4500													2500									
	319.76	4400													2500									
	314.70	4000													2500									
	286.51	4500													2500									
	276.28	4400													2500									
	273.18	4000													2500									
	236.02	4000													2500									



Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size													
						63	71	80	90	100	112	132	160	180	200	225	-	-	
						IEC adapter													
						63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	-	
						NEMA adapter													
N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-									
	[lb-in]	[rpm]		[rpm]															
<b>C142</b>	37.48	63044	47	1012/27	5000														
	32.28	82852	54	1485/46	4400														
	27.92	104076	63	363/13	3900														
	24.63	115060	71	1133/46	3500														
	21.37	35952	82	2116/99	5000														
	21.15	115060	83	275/13	3100														
	18.41	47245	95	405/22	4400														
	17.60	115060	99	88/5	2700														
	15.92	59353	110	207/13	3900														
	14.60	115060	120	847/58	2300														
	14.05	72178	125	309/22	3500														
	12.18	115060	144	341/28	2100														
	12.06	71089	145	1725/143	3100														
	10.47	115060	167	649/62	1900														
	10.04	80498	174	552/55	2700														
	9.06	115060	193	154/17	1700														
	8.33	79807	210	483/58	2300														
	6.94	80498	252	2139/308	2100														
5.97	80498	293	4071/682	1900															
5.17	78028	339	966/187	1700															
<b>C143</b>	206.88	115060	8.5	39721/192	5600														
	180.38	115060	9.7	19481/108	5000														
	173.94	115060	10	2783/16	4800														
	155.38	115060	11	1243/8	4400														
	133.80	115060	13	13915/104	3900														
	116.88	115060	15	935/8	3500														
	113.27	115060	15	146795/1296	5600														
	100.96	115060	17	20999/208	3100														
	98.76	115060	18	71995/729	5000														
	95.23	101146	18	10285/108	4800														
	85.07	115060	21	105655/1242	4400														
	83.49	115060	21	8349/100	2700														
	73.25	115060	24	51425/702	3900														
	68.70	115060	25	15939/232	2300														
	63.99	115060	27	79475/1242	3500														
	56.47	115060	31	6325/112	2100														
	55.27	115060	32	77605/1404	3100														
	47.95	115060	36	11891/248	1900														
	45.71	115060	38	2057/45	2700														
	40.93	115060	43	2783/68	1700														
	37.61	115060	47	6545/174	2300														
30.92	112449	57	23375/756	2100															
26.25	107059	67	43945/1674	1900															
22.41	102093	78	605/27	1700															

Legend see page 99

Type	i	SERVO adapter											Input unit											
		n <sub>1max</sub>	Adapter size											n <sub>1max</sub>	Input shaft [mm]									
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>C142</b>	37.48	4800												2500										
	32.28	4200												2500										
	27.92	3700												2500										
	24.63	3400												1800										
	21.37	4800												2500										
	21.15	-												1800										
	18.41	4200												2500										
	17.60	-												1800										
	15.92	3700												2500										
	14.60	-												1800										
	14.05	3400												1800										
	12.18	-												1800										
	12.06	-												1800										
	10.47	-												1800										
	10.04	-												1800										
	9.06	-												1600										
	8.33	-												1800										
	6.94	-												1800										
	5.97	-												1800										
	5.17	-												1600										
<b>C143</b>	206.88	5000												2500										
	180.38	4800												2500										
	173.94	4600												2500										
	155.38	4200												2500										
	133.80	3700												2500										
	116.88	3400												1800										
	113.27	5000												2500										
	100.96	-												1800										
	98.76	4800												2500										
	95.23	4600												2500										
	85.07	4200												2500										
	83.49	-												1800										
	73.25	3700												2500										
	68.70	-												1800										
	63.99	3400												1800										
	56.47	-												1800										
	55.27	-												1800										
	47.95	-												1800										
	45.71	-												1800										
	40.93	-												1600										
	37.61	-												1800										
	30.92	-												1800										
	26.25	-												1800										
	22.41	-												1600										



Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	1132	1160	-	-	-	-	-
NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-
<b>C144</b>	2162.84	115060	0.8	415265/192	6000											
	1885.79	115060	0.9	203665/108	6000											
	1669.82	115060	1.0	4488473/2688	6000											
	1624.38	115060	1.1	12995/8	6000											
	1455.92	115060	1.2	314479/216	6000											
	1400.42	115060	1.2	436931/312	6000											
	1398.80	115060	1.3	145475/104	6000											
	1254.10	115060	1.4	140459/112	6000											
	1221.03	115060	1.4	428582/351	6000											
	1099.05	115060	1.6	3376285/3072	6000											
	1079.94	115060	1.6	1572395/1456	6000											
	1051.77	115060	1.7	13673/13	6000											
	958.27	115060	1.8	1655885/1728	6000											
	905.71	115060	1.9	153065/169	6000											
	848.21	115060	2.1	1628561/1920	6000											
	825.43	115060	2.1	105655/128	6000											
	739.56	115060	2.4	798721/1080	6000											
	710.80	115060	2.5	1182775/1664	6000											
	701.59	115060	2.5	22451/32	6000											
4 stages	637.04	115060	2.7	50963/80	6000											
n <sub>1</sub> =1750 rpm	611.72	115060	2.9	11011/18	6000											
	596.77	115060	2.9	993025/1664	6000											
	548.57	115060	3.2	114103/208	6000											
	526.92	115060	3.3	48477/92	6000											
Maximum torque	520.33	115060	3.4	487025/936	6000											
115060 lb-in	517.20	115060	3.4	198605/384	5600											
	453.75	115060	3.9	1815/4	6000											
	450.95	115060	3.9	97405/216	5600											
	448.20	115060	3.9	93225/208	6000											
	436.75	115060	4.0	754699/1728	5000											
	421.15	115060	4.2	754699/1792	4800											
	388.44	115060	4.5	6215/16	5600											
	385.96	115060	4.5	1043625/2704	6000											
	380.80	115060	4.6	370139/972	5000											
	367.20	115060	4.8	52877/144	4800											
	359.79	115060	4.9	8635/24	4400											
	334.50	115060	5.2	69575/208	5600											
	328.01	115060	5.3	23617/72	5000											
	316.30	115060	5.5	70851/224	4800											
	313.70	115060	5.6	8470/27	4400											
	282.46	115060	6.2	264385/936	5000											
	272.37	115060	6.4	793155/2912	4800											
	270.22	115060	6.5	6215/23	4400											
	232.69	115060	7.5	3025/13	4400											

Legend see page 99

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>C144</b>	2162.84	5000												3000								
	1885.79	5000												3000								
	1669.82	5000												2500								
	1624.38	5000												3000								
	1455.92	5000												2500								
	1400.42	5000												2500								
	1398.80	5000												3000								
	1254.10	5000												2500								
	1221.03	5000												2500								
	1099.05	5000												2500								
	1079.94	5000												2500								
	1051.77	5000												2500								
	958.27	5000												2500								
	905.71	5000												2500								
	848.21	5000												2500								
	825.43	5000												2500								
	739.56	5000												2500								
	710.80	5000												2500								
	701.59	5000												2500								
	637.04	5000												2500								
	611.72	5000												2500								
	596.77	5000												2500								
	548.57	5000												2500								
	526.92	5000												2500								
	520.33	5000												2500								
	517.20	5000												2500								
	453.75	5000												2500								
	450.95	5000												2500								
	448.20	5000												2500								
	436.75	4800												2500								
	421.15	4600												2500								
	388.44	5000												2500								
	385.96	5000												2500								
	380.80	4800												2500								
	367.20	4600												2500								
	359.79	4200												2500								
	334.50	5000												2500								
	328.01	4800												2500								
	316.30	4600												2500								
	313.70	4200												2500								
	282.46	4800												2500								
	272.37	4600												2500								
	270.22	4200												2500								
	232.69	4200												2500								



Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size												
						63	71	80	90	100	112	132	160	180	200	225	250	-
		IEC adapter																
		63	171	180	190	1100	1112	1132	1160	1180	1200	1225	1250	1280				
						NEMA adapter												
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-		
<b>C162</b>	33.00	123255	53	33/1	3900													
2 stages n <sub>1</sub> =1750 rpm	25.15	159313	70	327/13	3100													
	21.12	159313	83	528/25	2700													
	17.70	66097	99	407/23	3900													
	17.38	159313	101	504/29	2300													
	14.79	159313	118	207/14	2100													
	13.49	88534	130	4033/299	3100													
	12.77	159313	137	396/31	1900													
	11.33	99668	155	6512/575	2700													
Maximum torque 159313 lb-in	11.12	159313	157	189/17	1700													
	9.32	99102	188	6216/667	2300													
	7.93	99668	221	111/14	2100													
	6.85	99668	255	4884/713	1900													
	5.96	99668	294	2331/391	1700													
<b>C163</b>	234.67	159313	7.5	704/3	5000													
3 stages n <sub>1</sub> =1750 rpm	202.12	159313	8.7	106920/529	4400													
	174.82	159313	10	52272/299	3900													
	154.21	159313	11	81576/529	3500													
	132.44	159313	13	39600/299	3100													
	130.53	159313	13	15272/117	5000													
	112.42	159313	16	33615/299	4400													
	110.19	159313	16	12672/115	2700													
	97.24	159313	18	16434/169	3900													
	91.43	159313	19	60984/667	2300													
	85.78	159313	20	25647/299	3500													
Maximum torque 159313 lb-in	76.25	159313	23	12276/161	2100													
	73.67	159313	24	12450/169	3100													
	65.54	159313	27	46728/713	1900													
	61.29	159313	29	3984/65	2700													
	56.72	159313	31	22176/391	1700													
	50.86	159313	34	19173/377	2300													
	42.41	159313	41	7719/182	2100													
	36.45	159313	48	14691/403	1900													
31.55	154330	55	6972/221	1700														

Legend see page 99



Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]									
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110			
<b>C162</b>	33.00	-													2500								
	25.15	-													1800								
	21.12	-													1800								
	17.70	-													2500								
	17.38	-													1800								
	14.79	-													1800								
	13.49	-													1800								
	12.77	-													1800								
	11.33	-													1800								
	11.12	-													1700								
	9.32	-													1800								
	7.93	-													1800								
	6.85	-													1800								
	5.96	-													1700								
<b>C163</b>	234.67	-													2500								
	202.12	-													2500								
	174.82	-													2500								
	154.21	-													1800								
	132.44	-													1800								
	130.53	-													2500								
	112.42	-													2500								
	110.19	-													1800								
	97.24	-													2500								
	91.43	-													1800								
	85.78	-													1800								
	76.25	-													1800								
	73.67	-													1800								
	65.54	-													1800								
	61.29	-													1800								
	56.72	-													1700								
	50.86	-													1800								
	42.41	-													1800								
	36.45	-													1800								
	31.55	-													1700								

C

Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	1200	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	-	-	-	
C164	2093.95	159313	0.8	81664/39	6000												
	1803.51	159313	1.0	12402720/6877	6000												
	1657.33	159313	1.1	4972/3	6000												
	1559.96	159313	1.1	6063552/3887	6000												
	1447.11	159313	1.2	13024/9	6000												
	1427.45	159313	1.2	1510245/1058	6000												
	1278.93	159313	1.4	19184/15	6000												
	1246.39	159313	1.4	659340/529	6000												
	1234.69	159313	1.4	369171/299	6000												
	1101.54	159313	1.6	582714/529	6000												
	1081.51	159313	1.6	74624/69	6000												
	1078.07	159313	1.6	322344/299	6000												
	952.78	159313	1.8	1424412/1495	6000												
	931.50	159313	1.9	11333520/12167	6000												
	929.64	159313	1.9	36256/39	6000												
	811.56	159313	2.2	7304/9	5600												
	805.70	159313	2.2	5540832/6877	6000												
	800.70	159313	2.2	5506380/6877	6000												
	698.99	159313	2.5	369765/529	5600												
	695.31	159313	2.5	56320/81	5000												
	692.57	159313	2.5	2692008/3887	6000												
	670.48	159313	2.6	14080/21	4800												
	604.60	159313	2.9	180774/299	5600												
	598.87	159313	2.9	316800/529	5000												
	591.77	159313	3.0	40832/69	4400												
	577.48	159313	3.0	2138400/3703	4800												
	517.99	159313	3.4	154880/299	5000												
	509.69	159313	3.4	6201360/12167	4400												
	499.49	159313	3.5	1045440/2093	4800												
	496.41	159313	3.5	19360/39	3900												
	440.86	159313	4.0	3031776/6877	4400												
	427.56	159313	4.1	2940300/6877	3900												
	418.32	159313	4.2	28864/69	3500												
	369.82	159313	4.7	1437480/3887	3900												
	360.30	159313	4.9	4383720/12167	3500												
	342.97	159313	5.1	13376/39	3100												
	311.64	159313	5.6	2143152/6877	3500												
	295.40	159313	5.9	2031480/6877	3100												
	255.51	159313	6.8	993168/3887	3100												

Legend see page 99

Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]									
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110	
<b>C164</b>	2093.95	5000													2500								
	1803.51	5000													2500								
	1657.33	5000													2500								
	1559.96	5000													2500								
	1447.11	5000													2500								
	1427.45	5000													2500								
	1278.93	5000													2500								
	1246.39	5000													2500								
	1234.69	5000													2500								
	1101.54	5000													2500								
	1081.51	5000													2500								
	1078.07	5000													2500								
	952.78	5000													2500								
	931.50	5000													2500								
	929.64	5000													2500								
	811.56	5000													2500								
	805.70	5000													2500								
	800.70	5000													2500								
	698.99	5000													2500								
	695.31	4900													2500								
	692.57	5000													2500								
	670.48	4700													2500								
	604.60	5000													2500								
	598.87	4900													2500								
	591.77	4300													2500								
	577.48	4700													2500								
	517.99	4900													2500								
	509.69	4300													2500								
	499.49	4700													2500								
	496.41	3800													2500								
	440.86	4300													2500								
	427.56	3800													2500								
	418.32	3500													2500								
	369.82	3800													2500								
	360.30	3500													2500								
	342.97	-													2500								
	311.64	3500													2500								
	295.40	-													2500								
	255.51	-													2500								



Legend see page 99

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171		180	190	1100	1112	1132	-	-	-	-			
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
C165	22405.25	159313	0.1	4369024/195	6000											
	18322.05	159313	0.1	714560/39	6000											
	15484.09	159313	0.1	696784/45	6000											
	14467.28	159313	0.1	564224/39	6000											
	12662.22	159313	0.1	113960/9	6000											
	11217.58	159313	0.2	1020800/91	6000											
	9998.22	159313	0.2	89984/9	6000											
	9181.16	159313	0.2	1551616/169	6000											
	7752.38	159313	0.2	162800/21	6000											
	7067.08	159313	0.2	91872/13	6000											
	6345.03	159313	0.3	247456/39	6000											
	5339.57	159313	0.3	347072/65	6000											
	4884.00	159313	0.4	4884/1	6000											
	4369.98	159313	0.4	1306624/299	6000											
	3690.13	159313	0.5	55352/15	6000											
	3543.61	159313	0.5	1796608/507	6000											
	3020.06	159313	0.6	208384/69	6000											
	2966.43	159313	0.6	347072/117	5600											
	2448.96	159313	0.7	286528/117	6000											
	2404.16	159313	0.7	2531584/1053	5000											
2318.30	159313	0.8	632896/273	4800												
2050.07	159313	0.9	55352/27	5600												
1661.50	159313	1.1	403744/243	5000												
1602.16	159313	1.1	100936/63	4800												

Legend see page 99

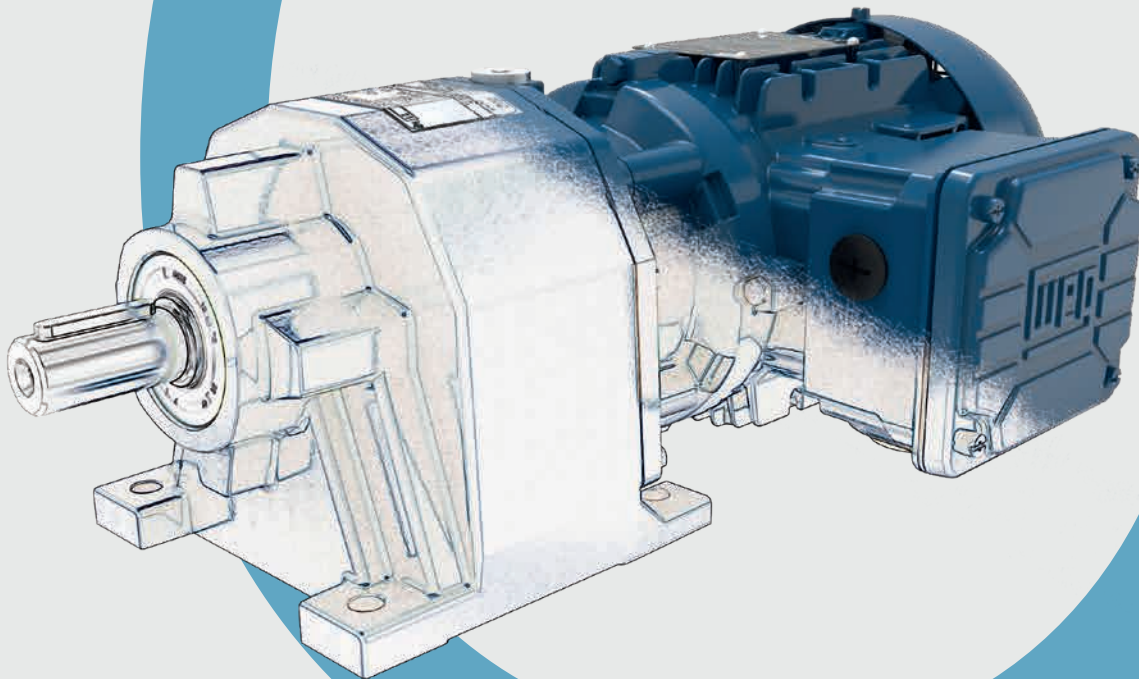
Type	i	SERVO adapter										Input unit														
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]												
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110						
<b>C165</b>	22405.25	5000													3000											
	18322.05	5000													3000											
	15484.09	5000													3000											
	14467.28	5000													3000											
	12662.22	5000													3000											
	11217.58	5000													3000											
	9998.22	5000													3000											
	9181.16	5000													3000											
	7752.38	5000													3000											
	7067.08	5000													3000											
	6345.03	5000													3000											
	5339.57	5000													3000											
	4884.00	5000													3000											
	4369.98	5000													3000											
	3690.13	5000													3000											
	3543.61	5000													3000											
	3020.06	5000													3000											
	2966.43	5000													3000											
	2448.96	5000													3000											
	2404.16	4900													3000											
	2318.30	4700													3000											
	2050.07	5000													3000											
	1661.50	4900													3000											
	1602.16	4700													3000											



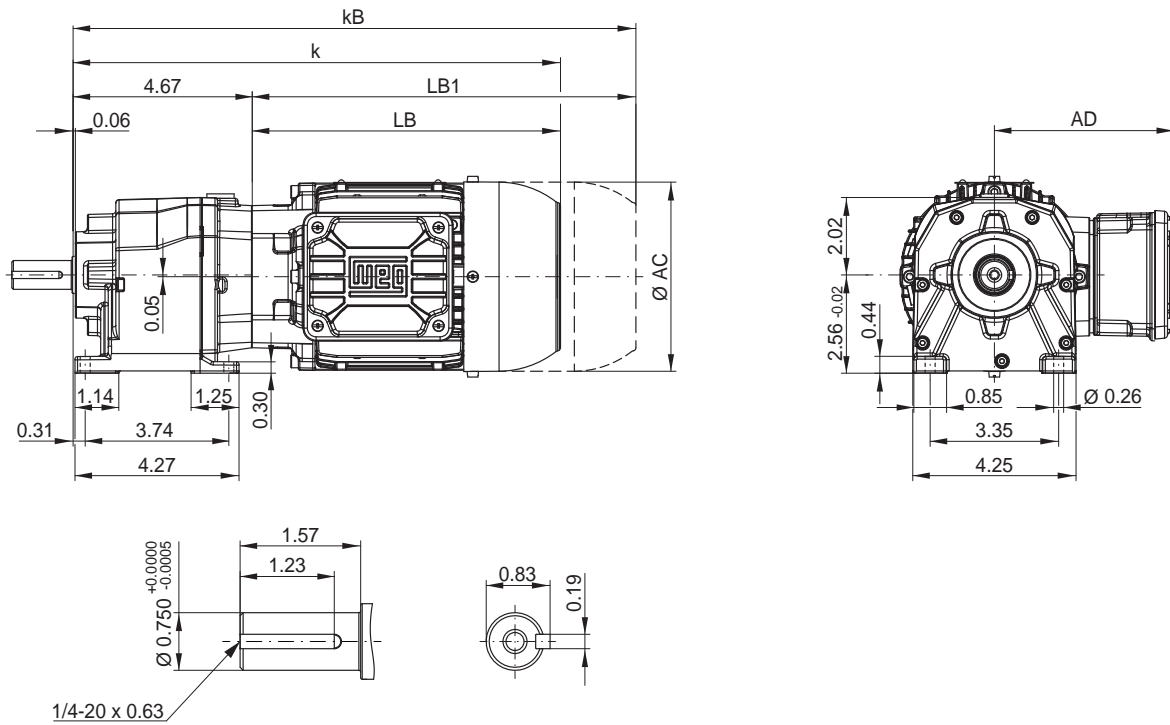
Legend see page 99



Dimension sheets - Geared motors

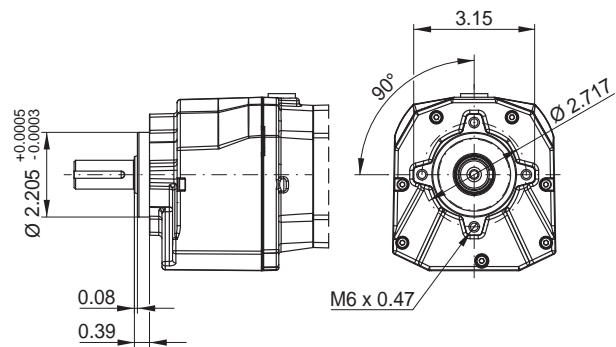
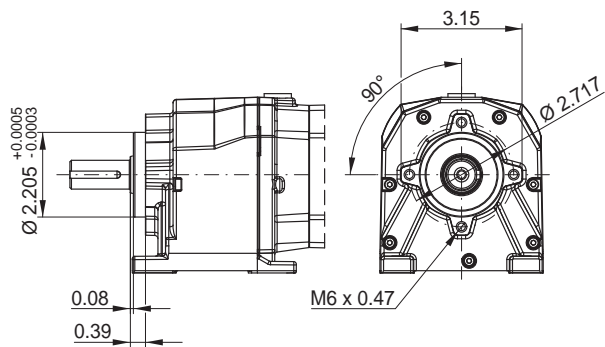


### CG00 - Foot mounted



### CW00 - Foot mounted with flange execution + centering and threaded hole

### CC00 - Flange execution + centering and threaded hole

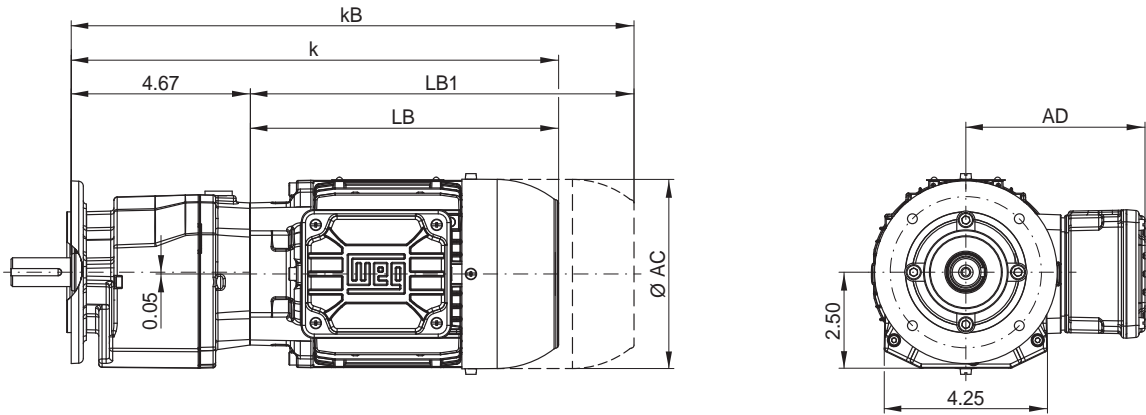


Motor fr.	63	71	80	80L
AC	4.96	5.55	6.26	6.26
AD	5.04	5.35	5.71	5.71
k	12.72	14.06	14.37	15.30
kB	14.45	15.98	16.65	17.58
LB	8.03	9.37	9.69	10.63
LB1	9.76	11.30	11.97	12.91

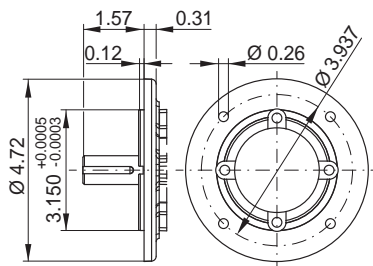
Motor dimension sheets see from page 488  
Description of motor lengths LB and LB1 see page 492



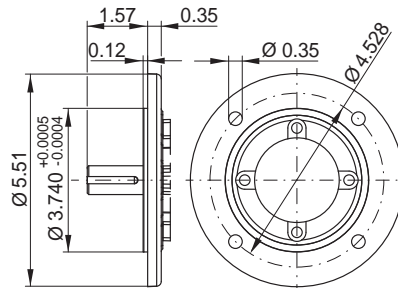
### CF00 - Flange execution



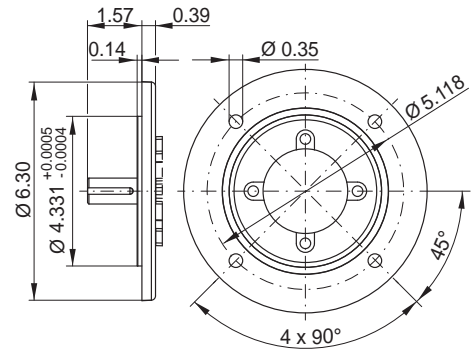
#### Flange Ø 4.72 in (Ø 120 mm)



#### Flange Ø 5.51 in (Ø 140 mm)

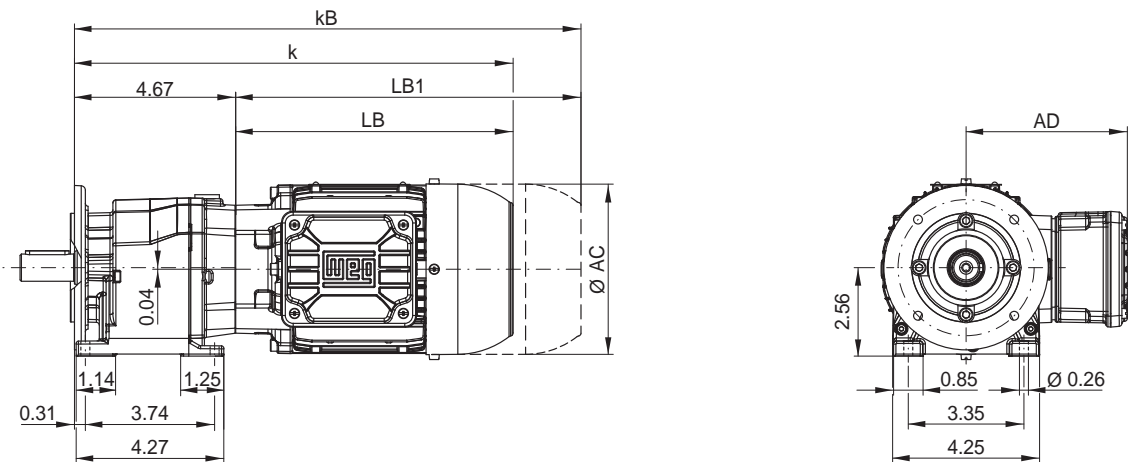


#### Flange Ø 6.30 in (Ø 160 mm)



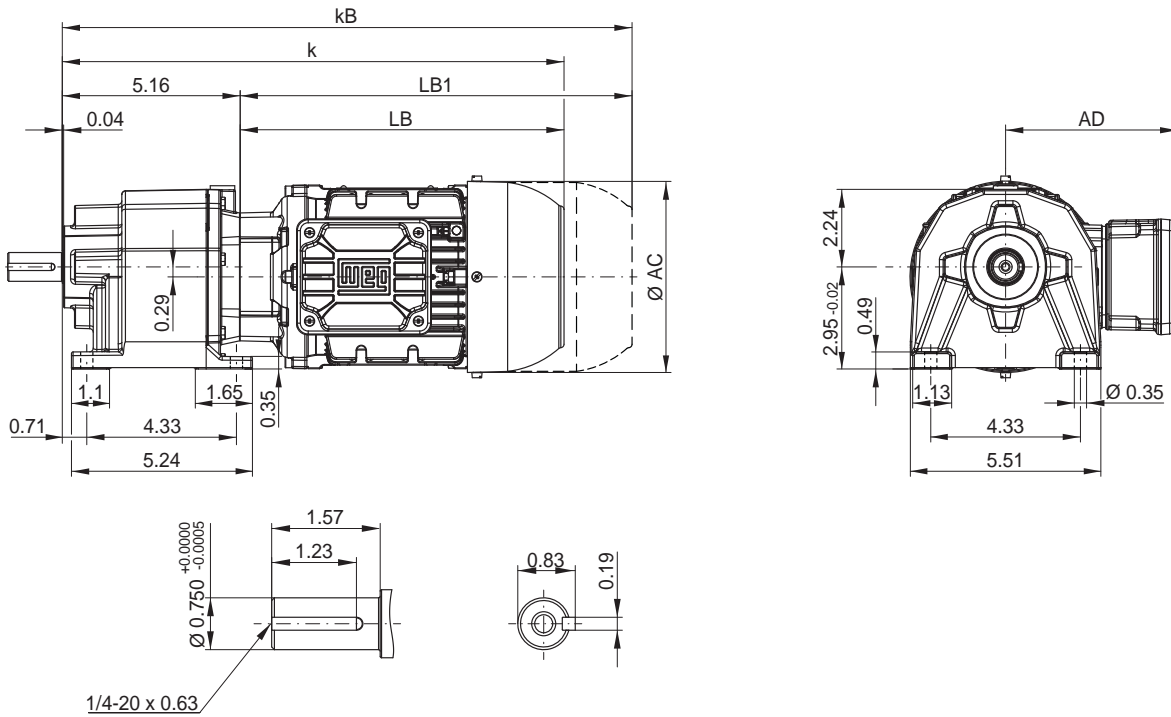
### CA00 - Foot mounted and flange execution

mountable flange sizes on the housing: Ø 4.72 in (Ø 120 mm)



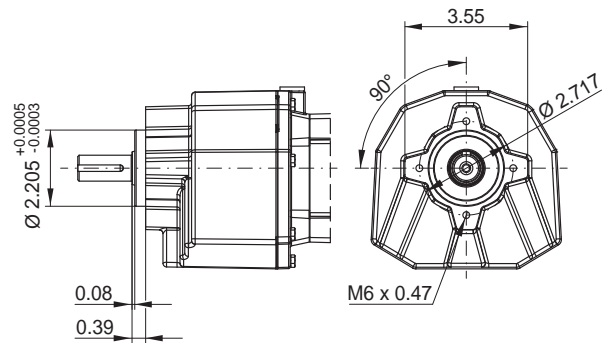
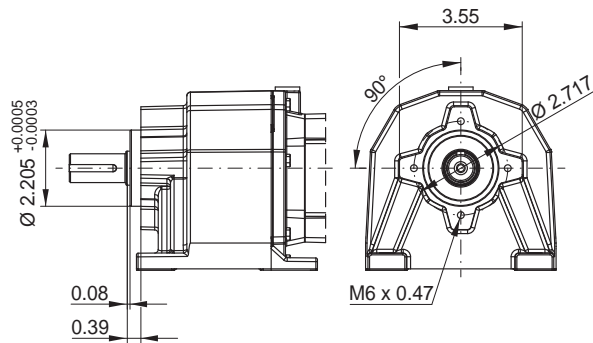
Dimensions in inch.

### CG01 - Foot mounted



### CW01 - Foot mounted with flange execution + centering and threaded hole

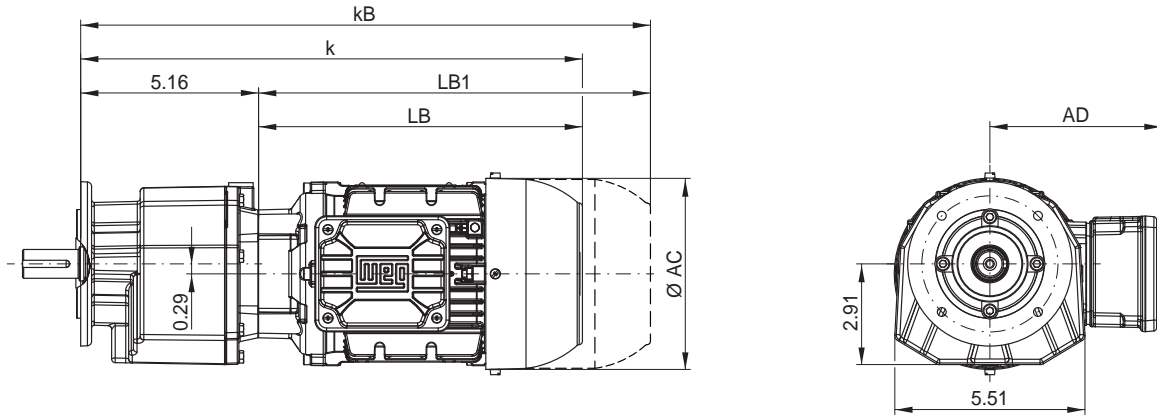
### CC01 - Flange execution + centering and threaded hole



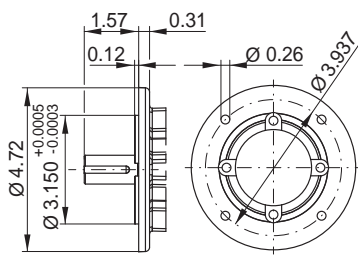
Motor fr.	63	71	80	80L	90S/L
AC	4.96	5.55	6.26	6.26	7.01
AD	5.04	5.35	5.71	5.71	6.10
k	13.19	14.53	14.84	15.79	16.50
kB	14.92	16.46	17.13	18.07	19.37
LB	8.03	9.37	9.69	10.63	11.34
LB1	9.76	11.30	11.97	12.91	14.21

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

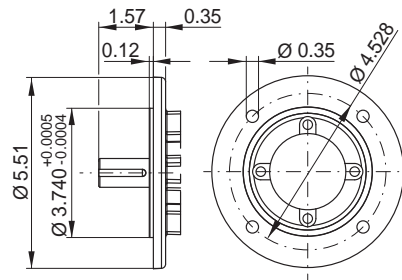
### CF01 - Flange execution



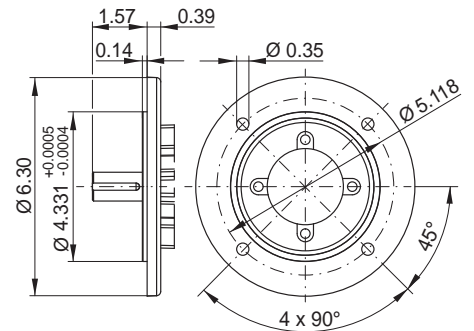
#### Flange Ø 4.72 in (Ø 120 mm)



#### Flange Ø 5.51 in (Ø 140 mm)

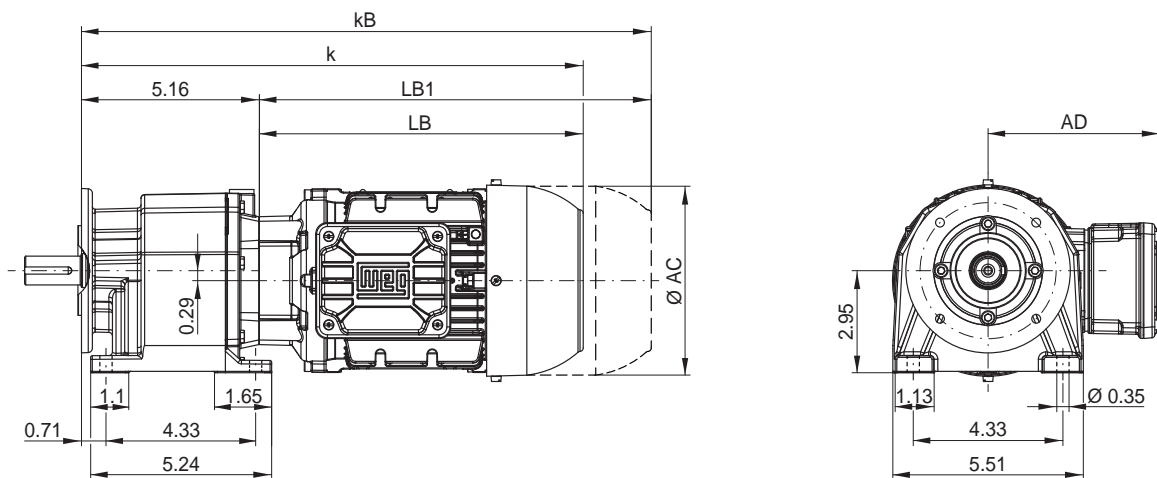


#### Flange Ø 6.30 in (Ø 160 mm)



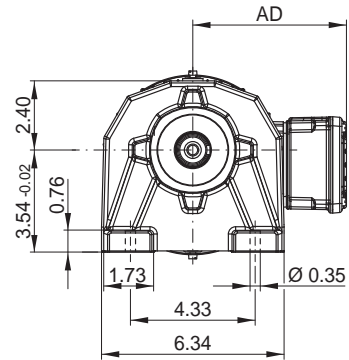
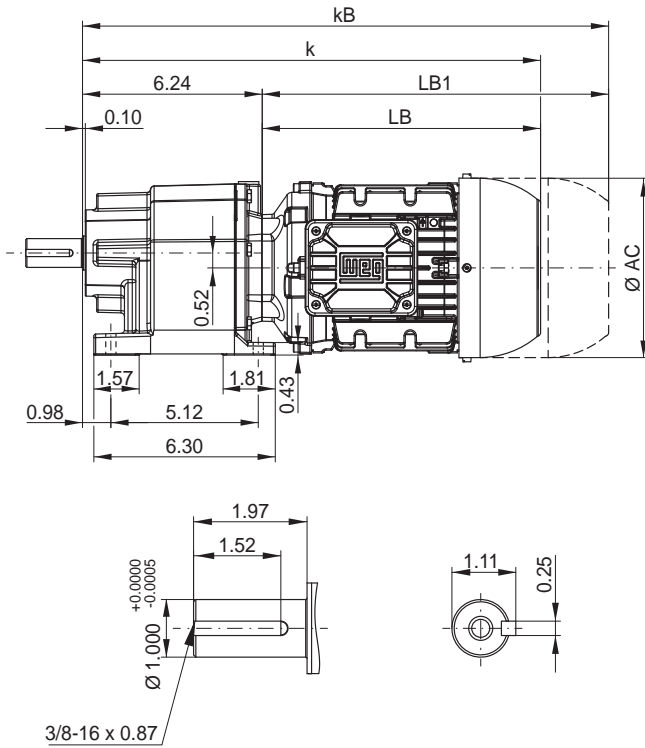
### CA01 - Foot mounted and flange execution

mountable flange sizes on the housing: Ø 4.72 in (Ø 120 mm) and Ø 5.51 in (Ø 140 mm)

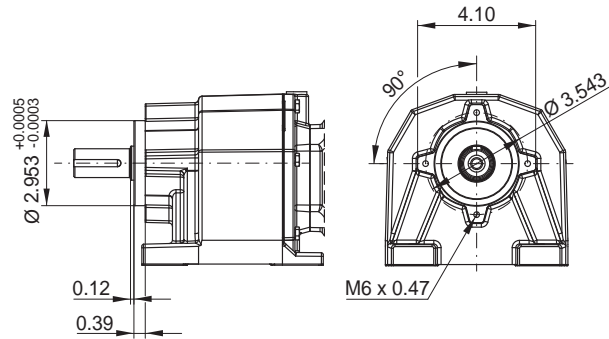


Dimensions in inch.

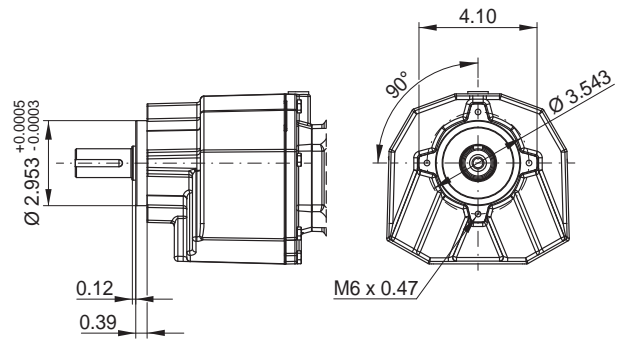
### CG03 - Foot mounted



### CW03 - Foot mounted with flange execution + centering and threaded hole



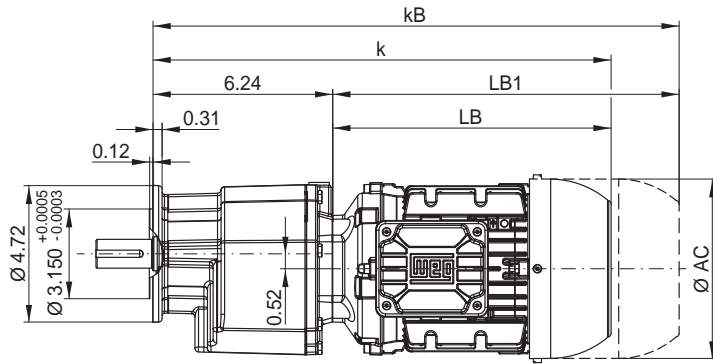
### CC03 - Flange execution + centering and threaded hole



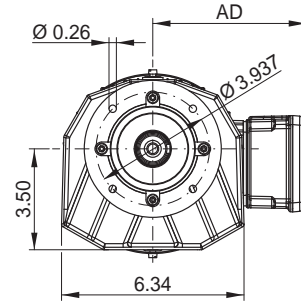
Motor fr.	63	71	80	80L	90S/L	100L	L100L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50
k	14.29	15.63	15.94	16.87	17.60	19.57	21.06
kB	16.02	17.56	18.23	19.15	20.47	22.87	24.37
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

### CF03 - Flange execution



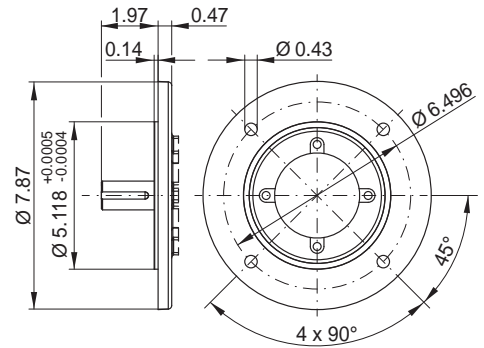
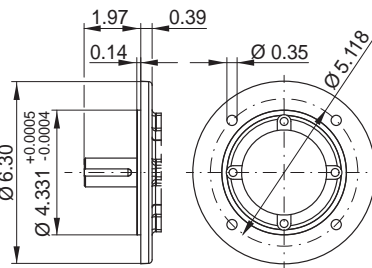
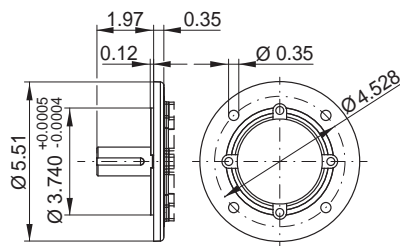
Flange Ø 4.72 in (Ø 120 mm)



Flange Ø 5.51 in (Ø 140 mm)

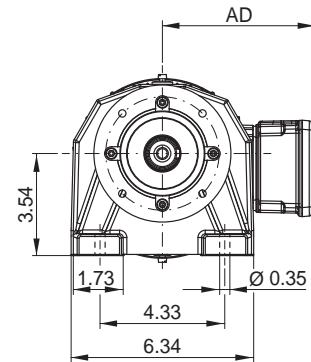
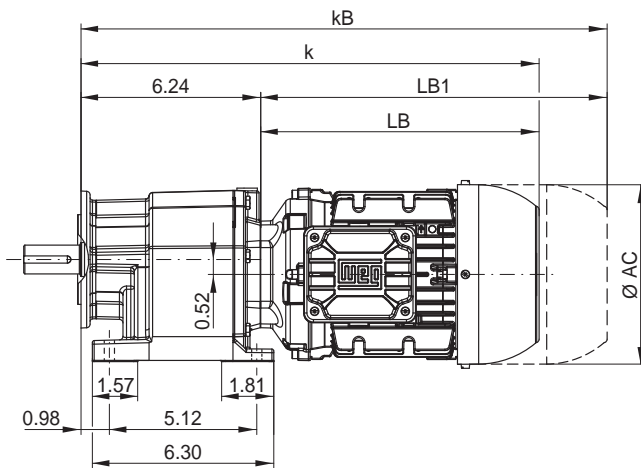
Flange Ø 6.30 in (Ø 160 mm)

Flange Ø 7.87 in (Ø 200 mm)



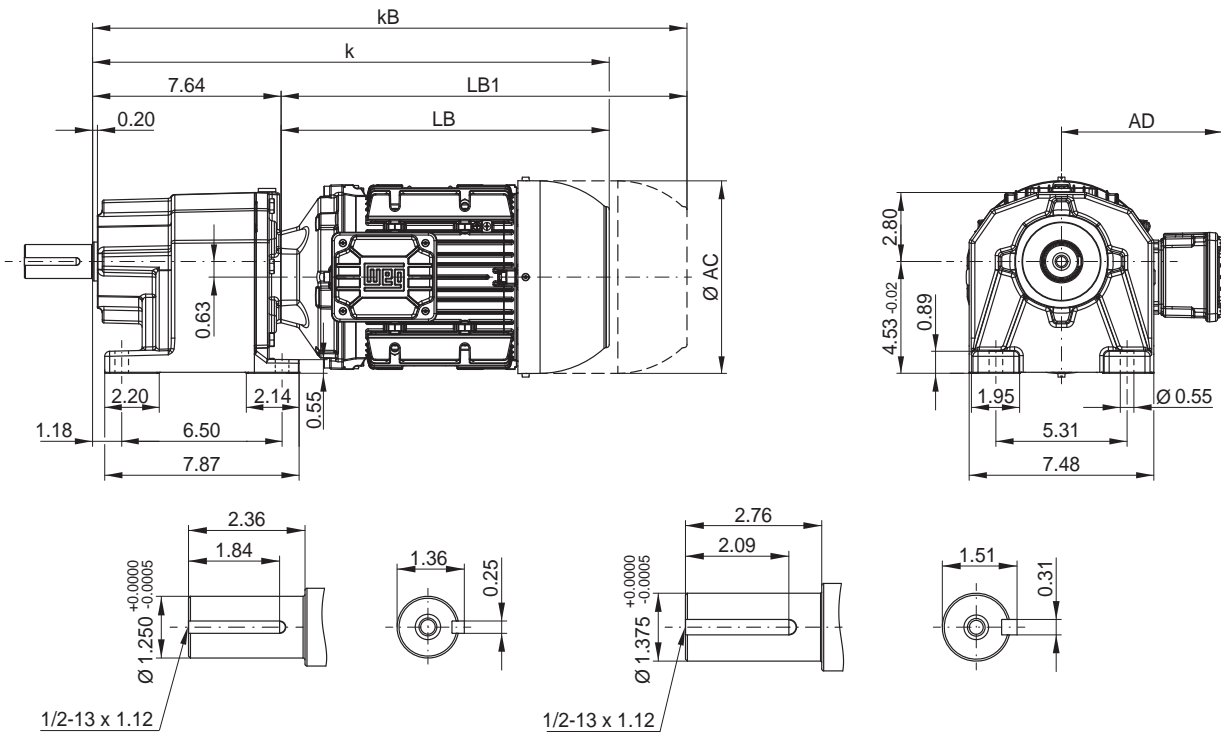
### CA03 - Foot mounted and flange execution

mountable flange sizes on the housing: Ø 4.72 in (Ø 120 mm), Ø 5.51 in (Ø 140 mm) and Ø 6.30 in (Ø 160 mm)

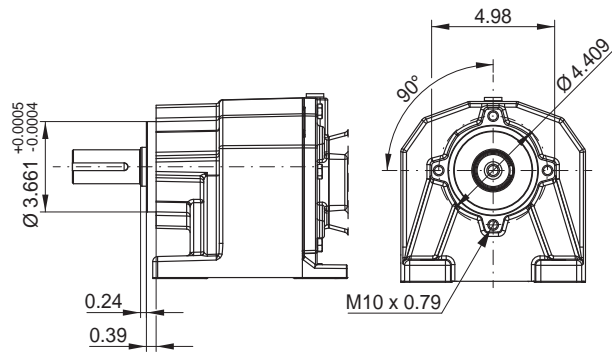


Dimensions in inch.

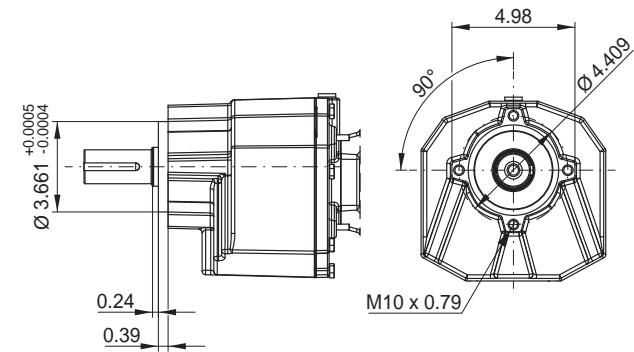
### CG05 - Foot mounted



### CW05 - Foot mounted with flange execution + centering and threaded hole



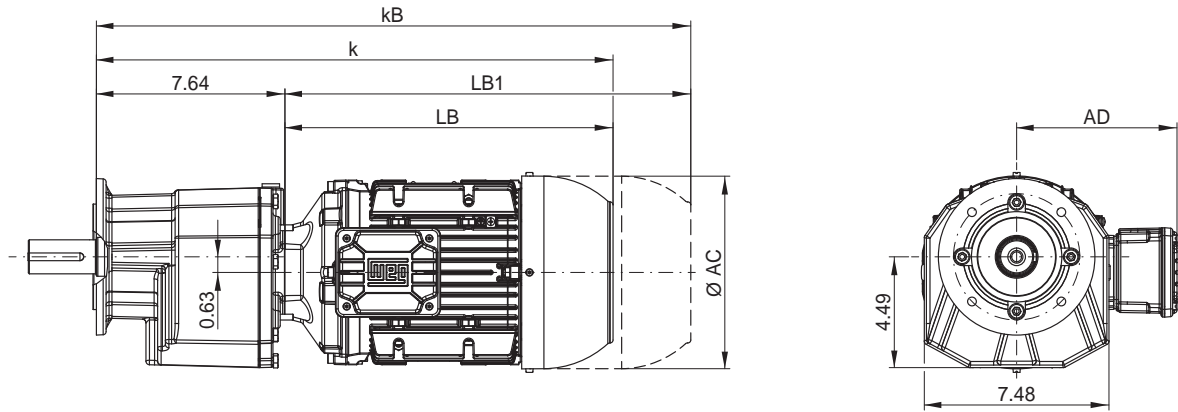
### CC05 - Flange execution + centering and threaded hole



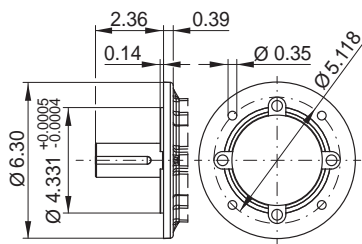
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	15.67	17.01	17.32	18.27	19.57	21.54	23.03	21.93	24.49	25.98
kB	17.40	18.94	19.61	20.55	22.44	24.84	26.34	25.35	29.13	30.63
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

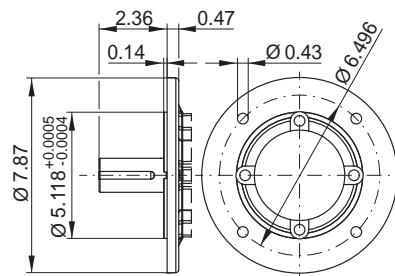
### CF05 - Flange execution



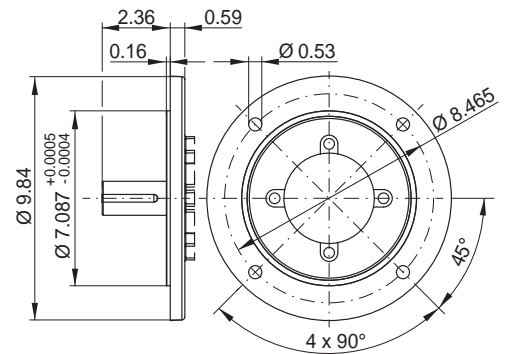
#### Flange Ø 6.30 in (Ø 160 mm)



#### Flange Ø 7.87 in (Ø 200 mm)

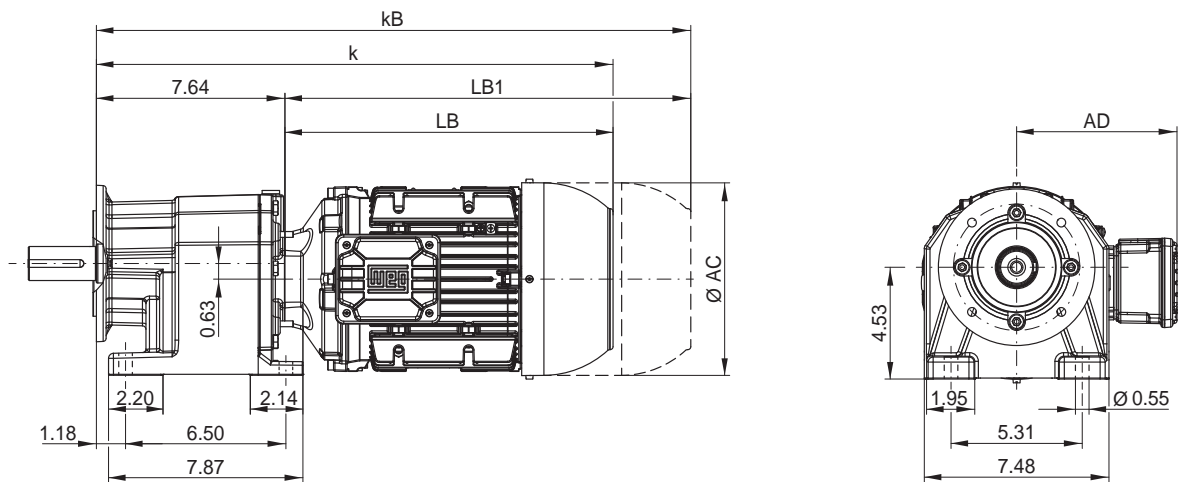


#### Flange Ø 9.84 in (Ø 250 mm)



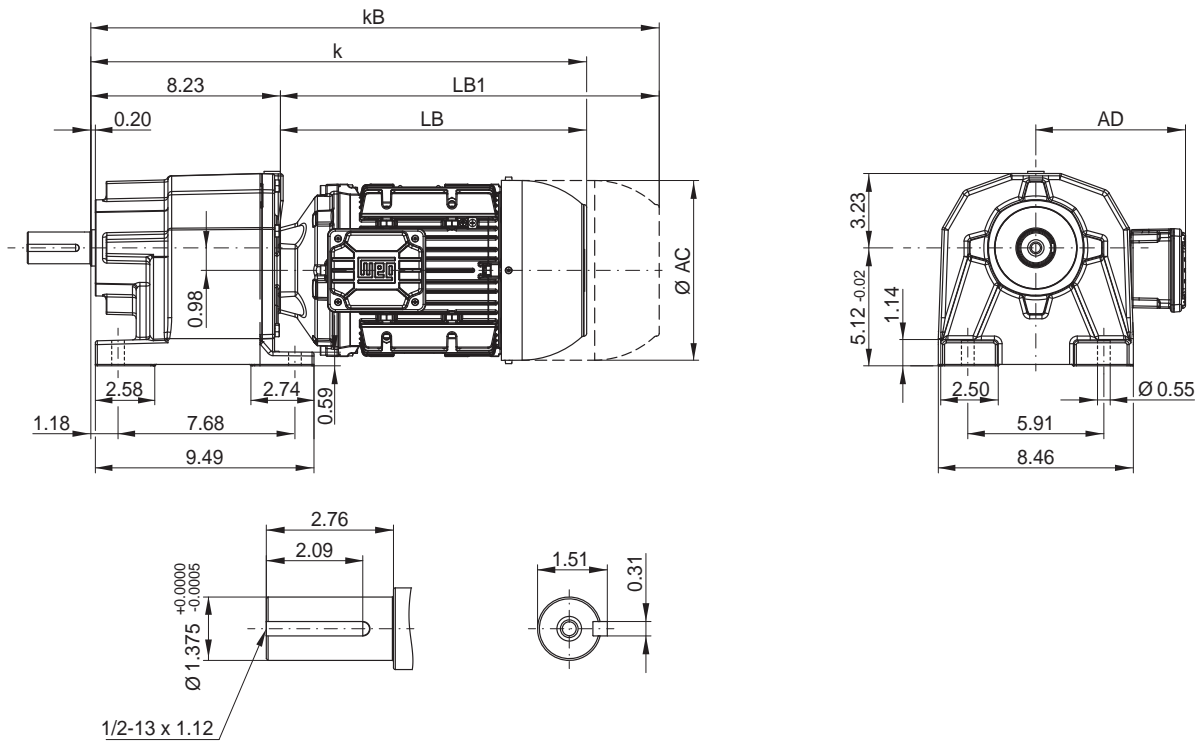
### CA05 - Foot mounted and flange execution

mountable flange sizes on the housing: Ø 6.30 in (Ø 160 mm) and Ø 7.87 in (Ø 200 mm)

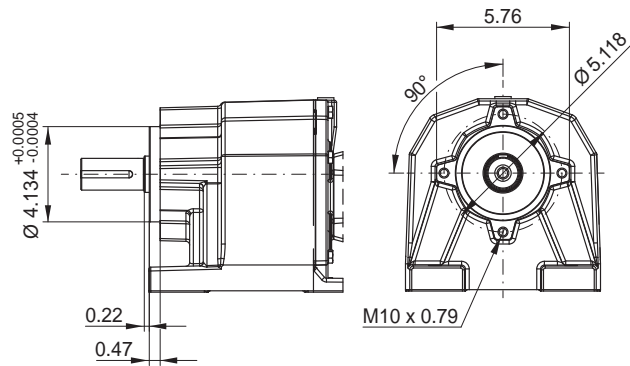


Dimensions in inch.

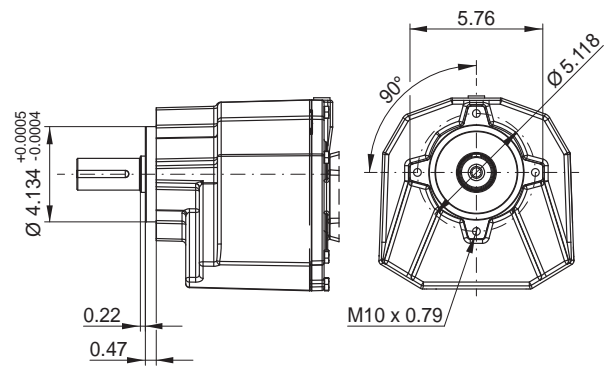
### CG06 - Foot mounted



### CW06 - Foot mounted with flange execution + centering and threaded hole



### CC06 - Flange execution + centering and threaded hole

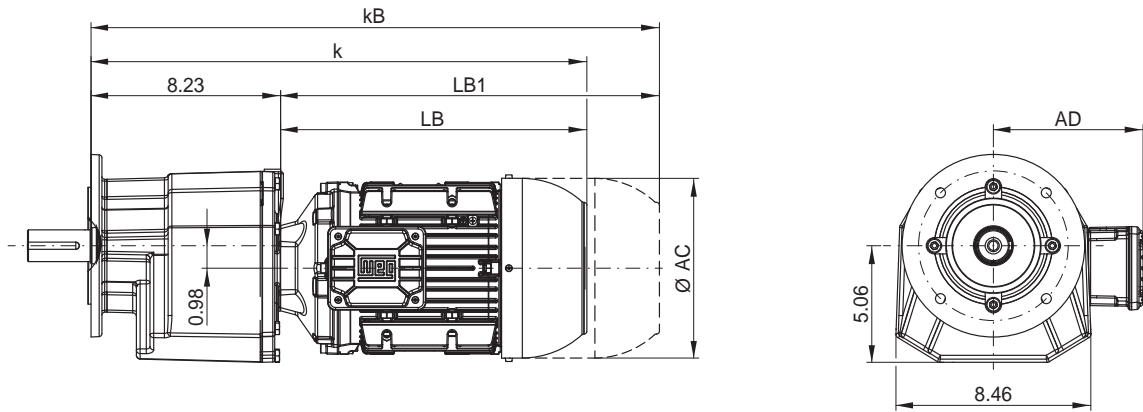


Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	16.26	17.60	17.91	18.86	19.57	21.54	23.03	21.93	24.49	25.98
kB	17.99	19.53	20.20	21.14	22.44	24.84	26.34	25.35	29.13	30.63
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

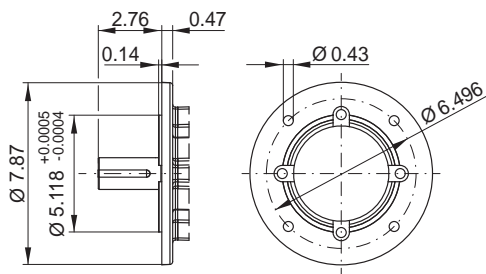
Motor dimension sheets see from page 488  
Description of motor lengths LB and LB1 see page 492



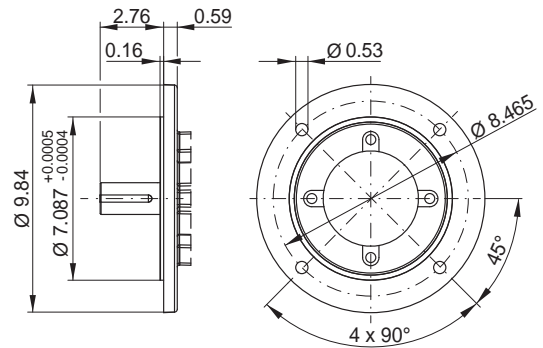
### CF06 - Flange execution



### Flange $\varnothing 7.87$ in ( $\varnothing 200$ mm)

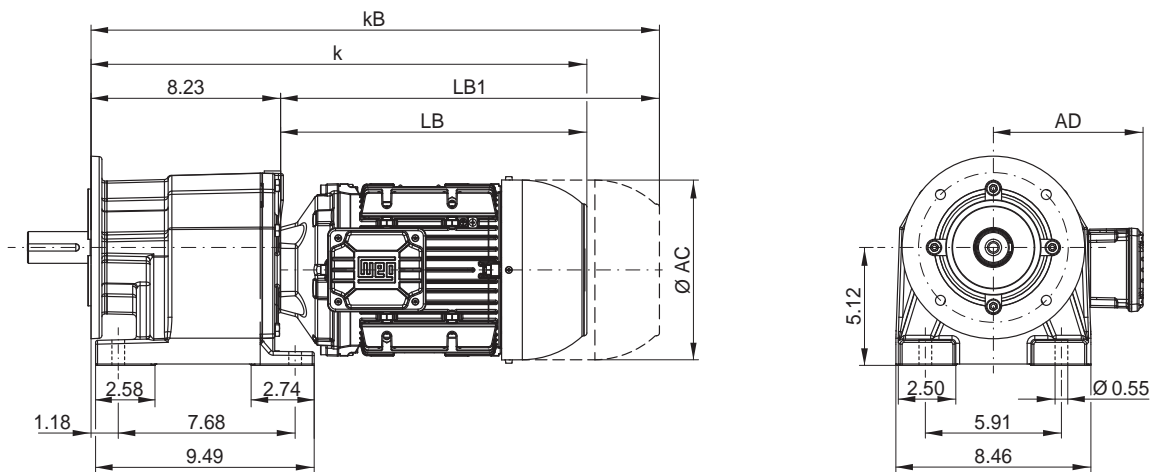


### Flange $\varnothing 9.84$ in ( $\varnothing 250$ mm)



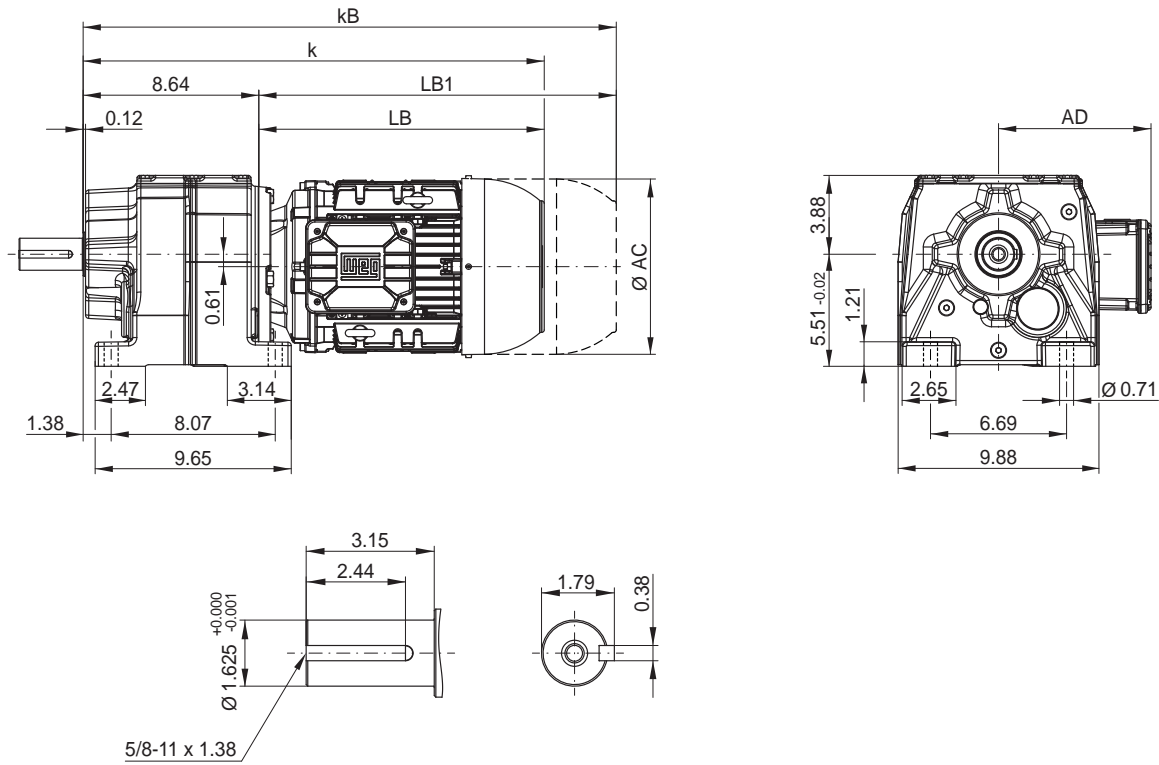
### CA06 - Foot mounted and flange execution

mountable flange sizes on the housing:  $\varnothing 7.87$  in ( $\varnothing 200$  mm)

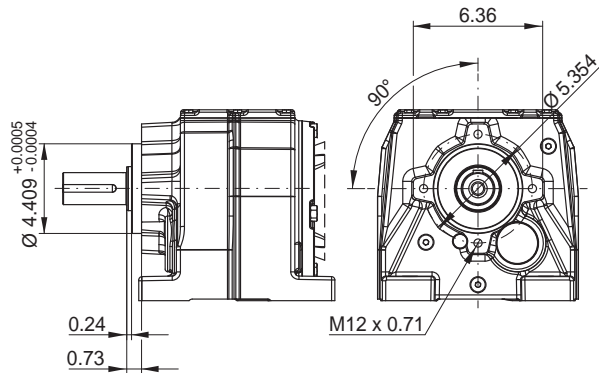


Dimensions in inch.

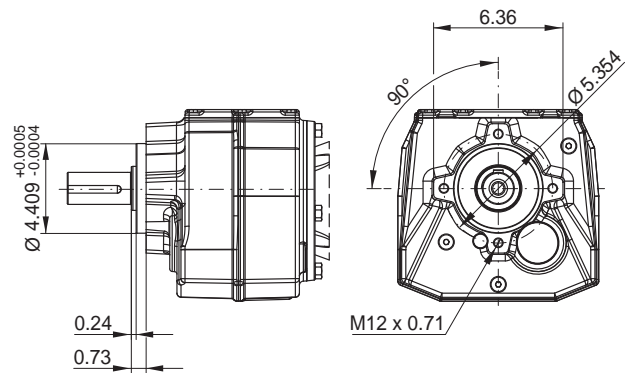
### CG07 - Foot mounted



### CW07 - Foot mounted with flange execution + centering and threaded hole



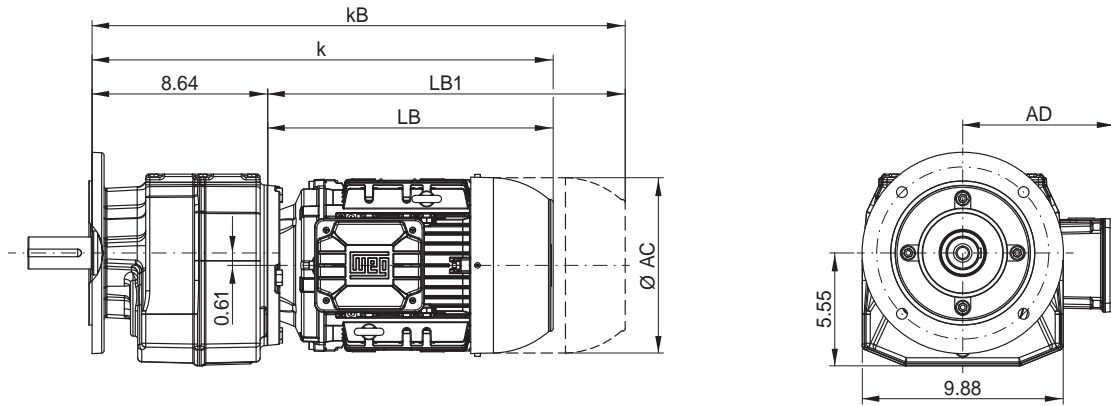
### CC07 - Flange execution + centering and threaded hole



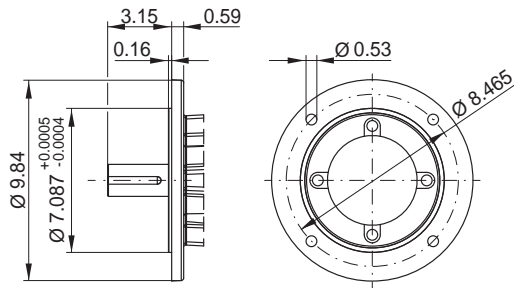
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	16.69	18.03	18.35	19.27	20.00	21.97	23.46	22.36	24.92	26.42	30.12	31.85
kB	18.43	19.96	20.63	21.56	22.87	25.28	26.77	25.79	29.57	31.06	35.00	36.73
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

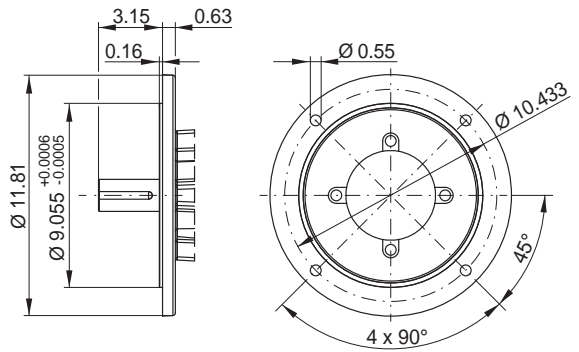
### CF07 - Flange execution



### Flange $\varnothing 9.84$ in ( $\varnothing 250$ mm)

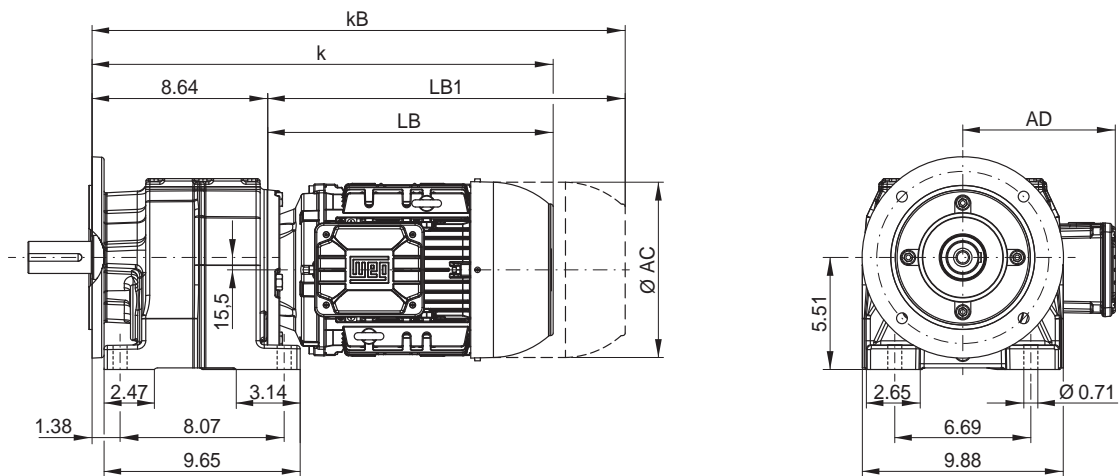


### Flange $\varnothing 11.81$ in ( $\varnothing 300$ mm)



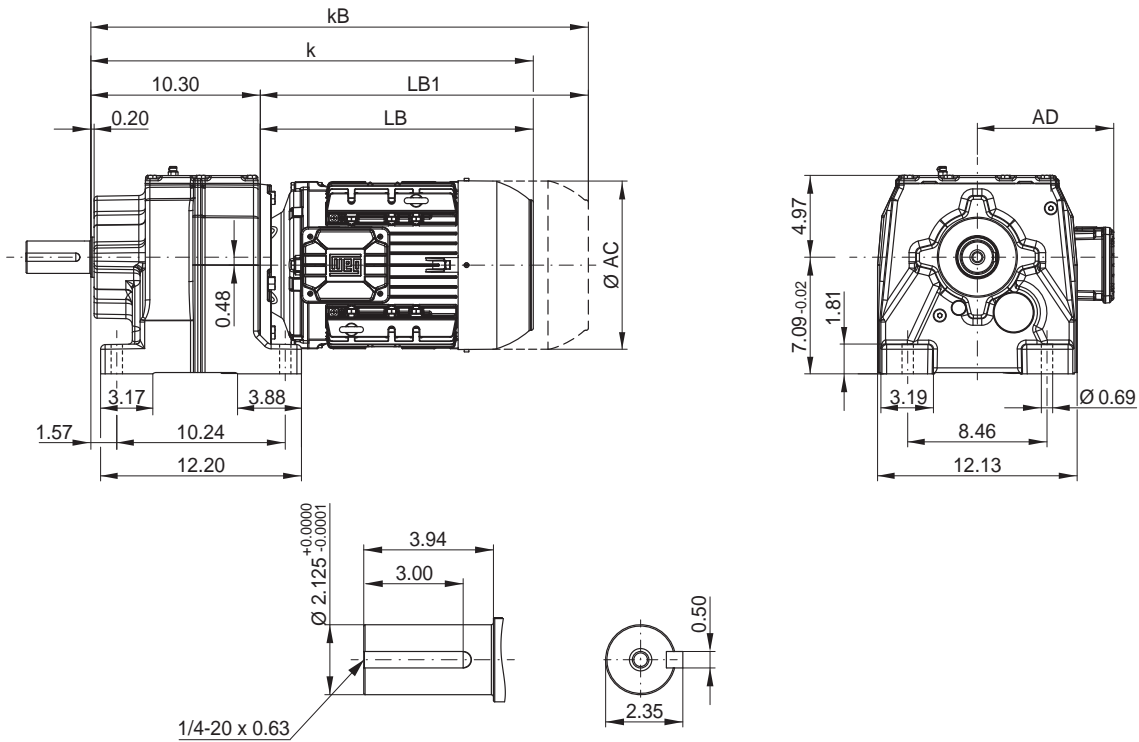
### CA07 - Foot mounted and flange execution

mountable flange sizes on the housing:  $\varnothing 9.84$  in ( $\varnothing 250$  mm)

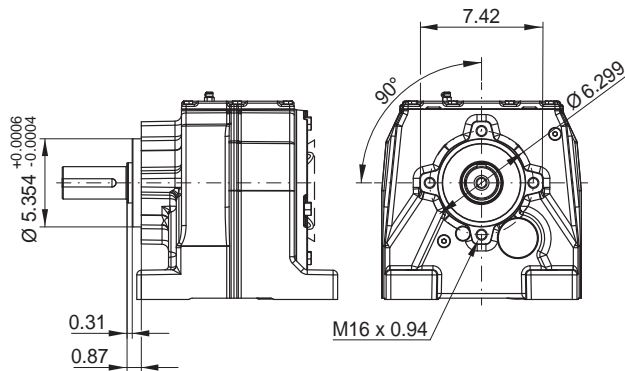


Dimensions in inch.

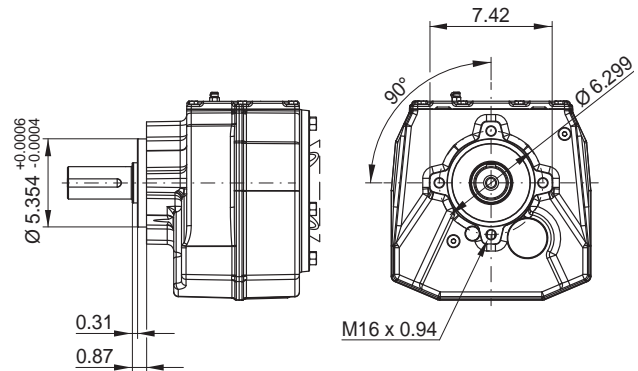
### CG08 - Foot mounted



### CW08 - Foot mounted with flange execution + centering and threaded hole



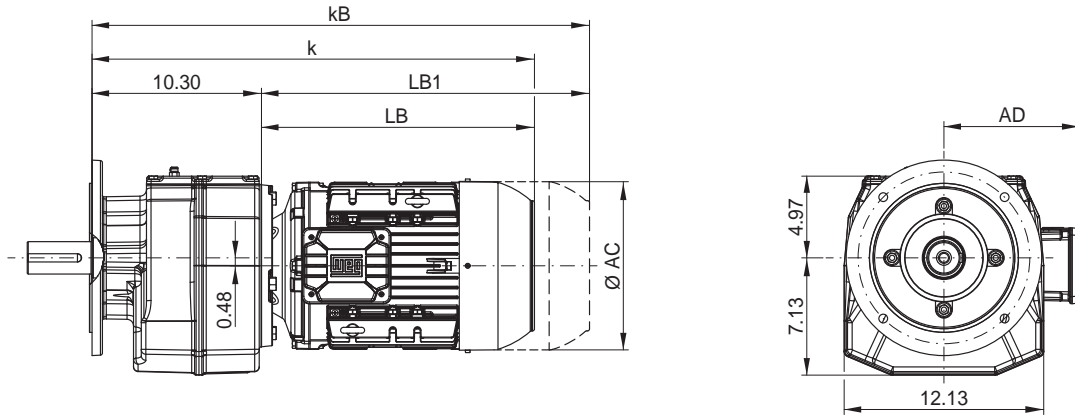
### CC08 - Flange execution + centering and threaded hole



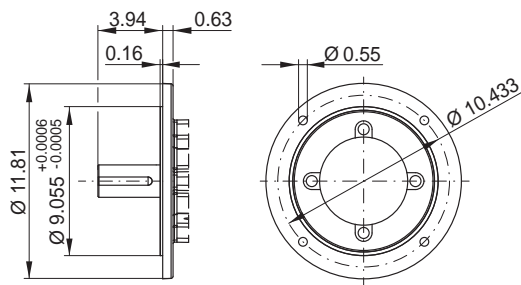
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06
k	18.35	19.69	20.00	20.93	21.65	23.62	25.12	24.02	26.57	28.07	31.57	33.31	34.25	35.75
kB	20.08	21.61	22.28	23.21	24.53	26.93	28.43	27.44	31.22	32.72	36.46	38.19	38.90	40.39
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.26	22.99	23.94	25.43
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.14	27.87	28.58	30.08

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

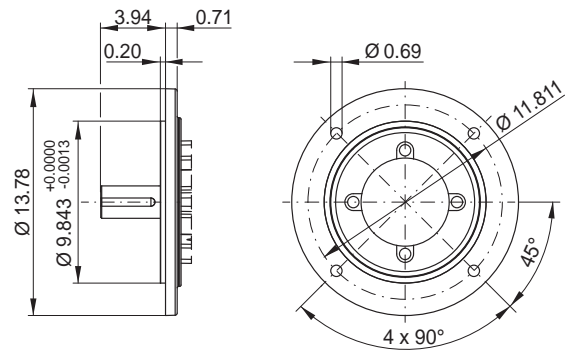
### CF08 - Flange execution



### Flange $\emptyset 11.81$ in ( $\emptyset 300$ mm)

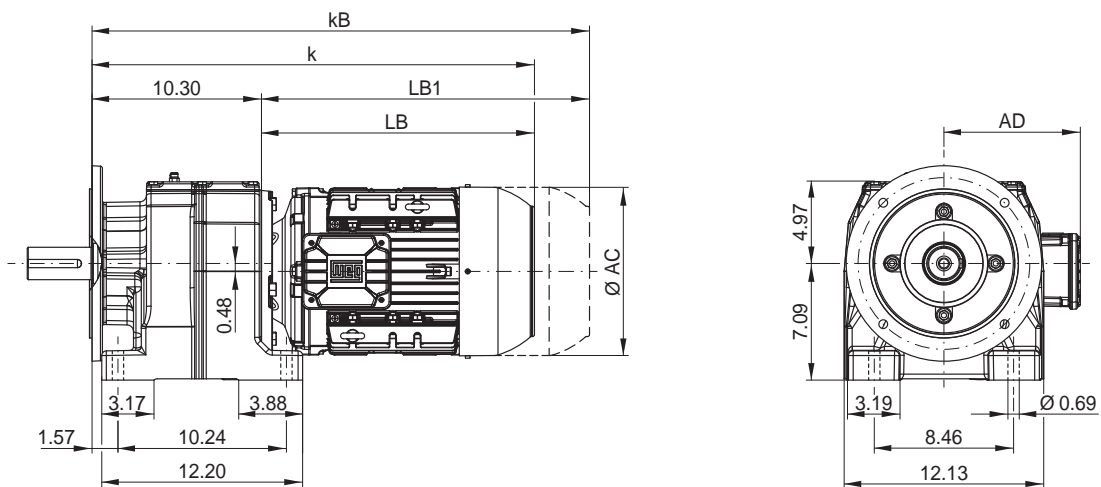


### Flange $\emptyset 13.78$ in ( $\emptyset 350$ mm)



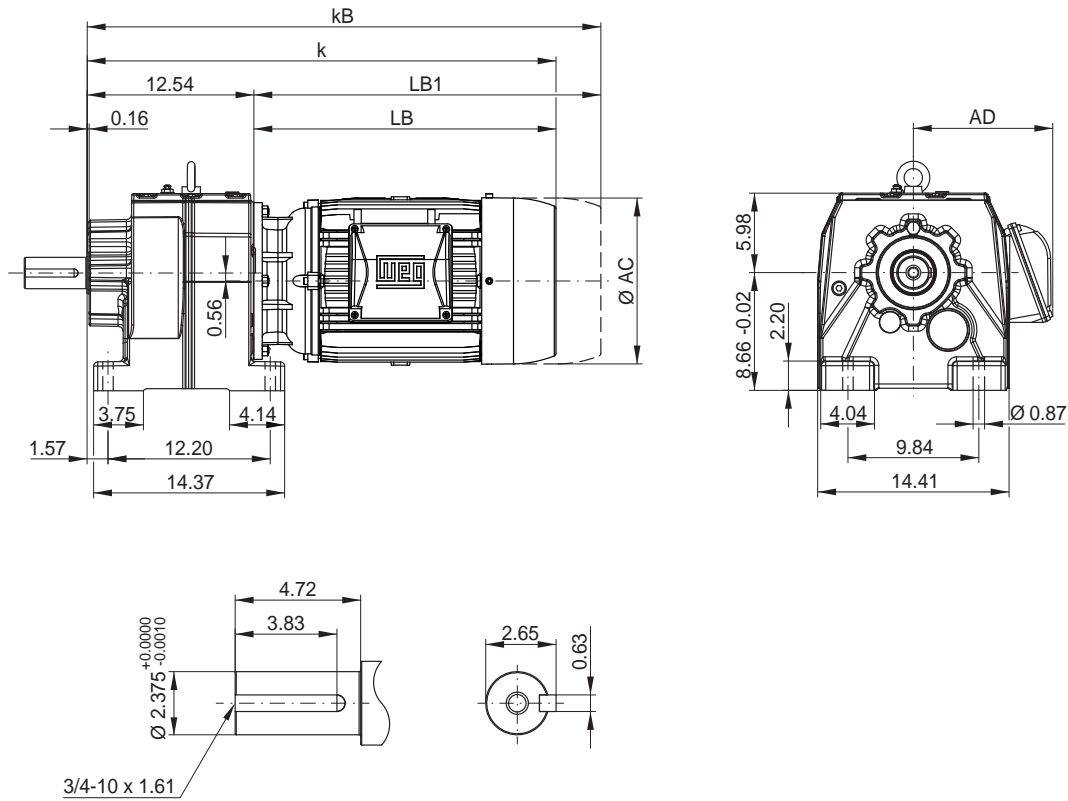
### CA08 - Foot mounted and flange execution

mountable flange sizes on the housing:  $\emptyset 11.81$  in ( $\emptyset 300$  mm)



Dimensions in inch.

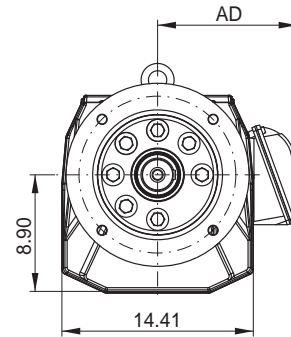
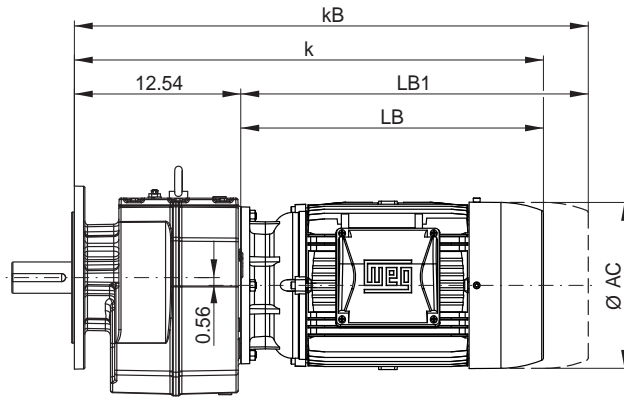
CG092 / CG093 - Foot mounted



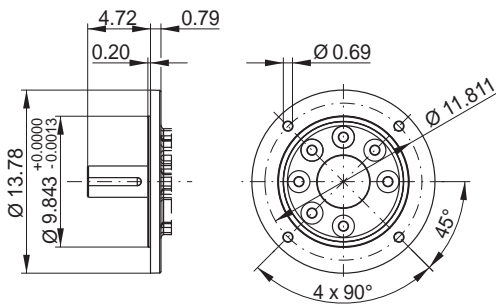
Motor fr. Dimension	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	20.59	21.93	22.24	23.17	23.90	25.87	27.36	26.26	28.82	30.31	33.62	35.35	36.30	37.80	41.42
kB	22.32	23.86	24.53	25.45	26.77	29.17	30.67	29.69	33.46	34.96	38.50	40.24	40.94	42.44	46.38
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

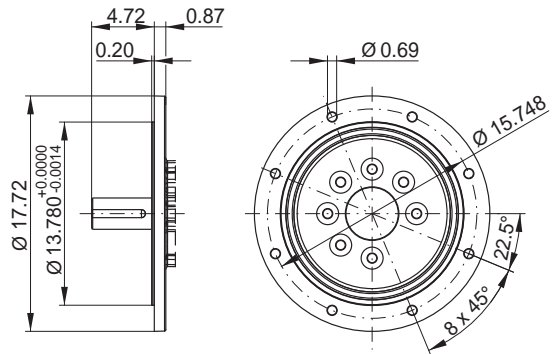
**CF092 / CF093 - Flange execution**



**Flange  $\varnothing 13.78$  in ( $\varnothing 350$  mm)**

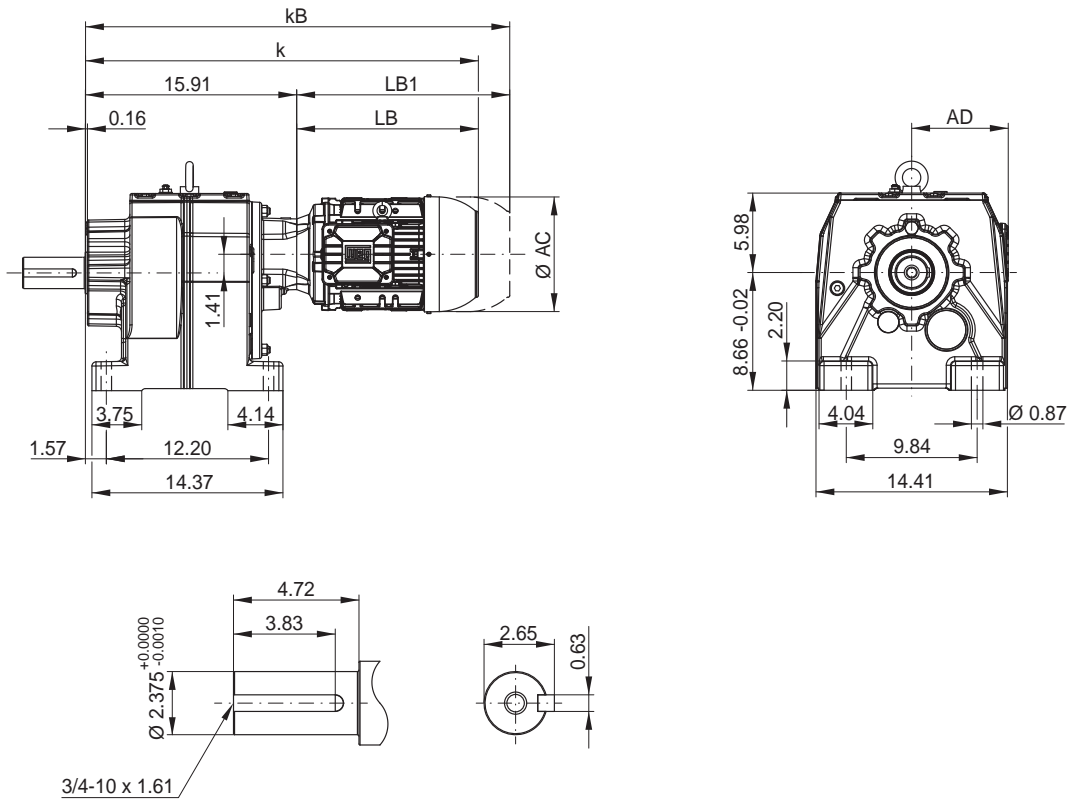


**Flange  $\varnothing 17.72$  in ( $\varnothing 450$  mm)**



Dimensions in inch.

### CG094 - Foot mounted

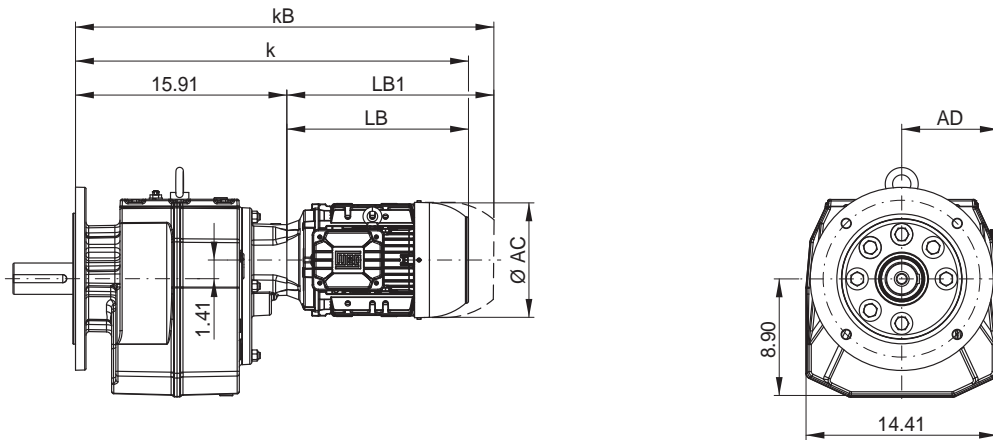


Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	23.94	25.28	25.59	26.54	27.24	29.21	30.71	29.61	32.17	33.66
kB	25.67	27.20	27.87	28.82	30.12	32.52	34.02	33.03	36.81	38.31
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

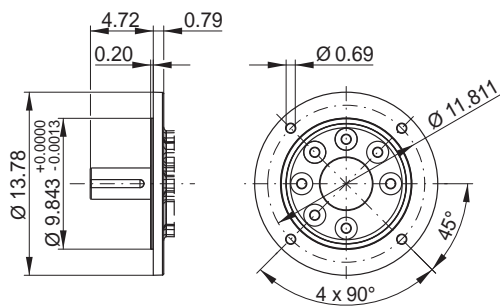
Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492



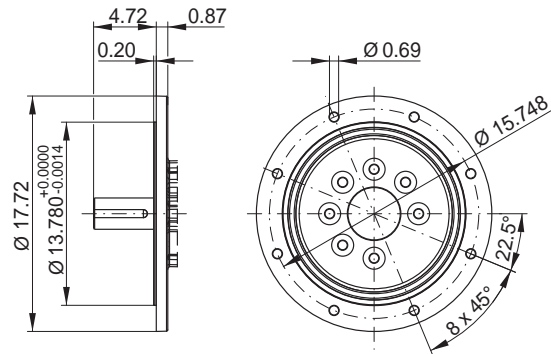
**CF094 - Flange execution**



**Flange  $\varnothing 13.78$  in ( $\varnothing 350$  mm)**

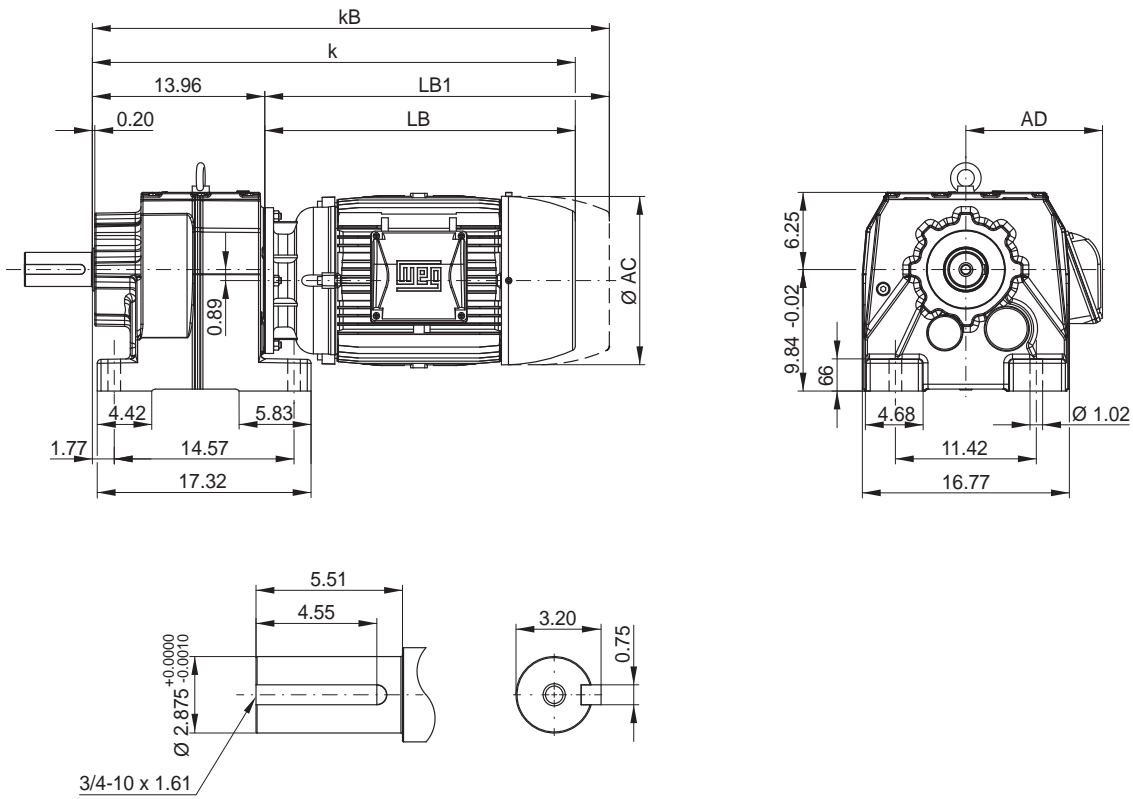


**Flange  $\varnothing 17.72$  in ( $\varnothing 450$  mm)**



Dimensions in inch.

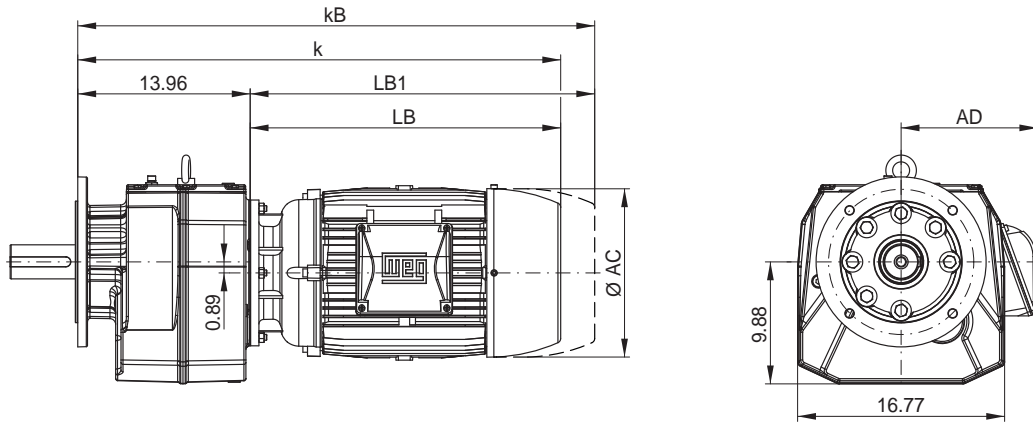
**CG102 / CG103 - Foot mounted**



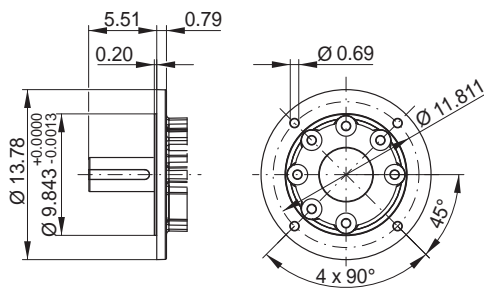
Motor fr. Dimension	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	22.01	23.35	23.66	24.60	25.31	27.28	28.78	27.68	30.24	31.73	35.04	36.77	37.72	39.21	42.83
kB	23.74	25.28	25.94	26.88	28.19	30.59	32.09	31.10	34.88	36.38	39.92	41.65	42.36	43.86	47.80
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

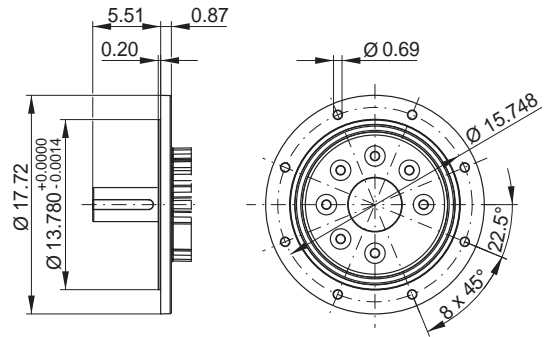
**CF102 / CF103 - Flange execution**



**Flange Ø 13.78 in (Ø 350 mm)**

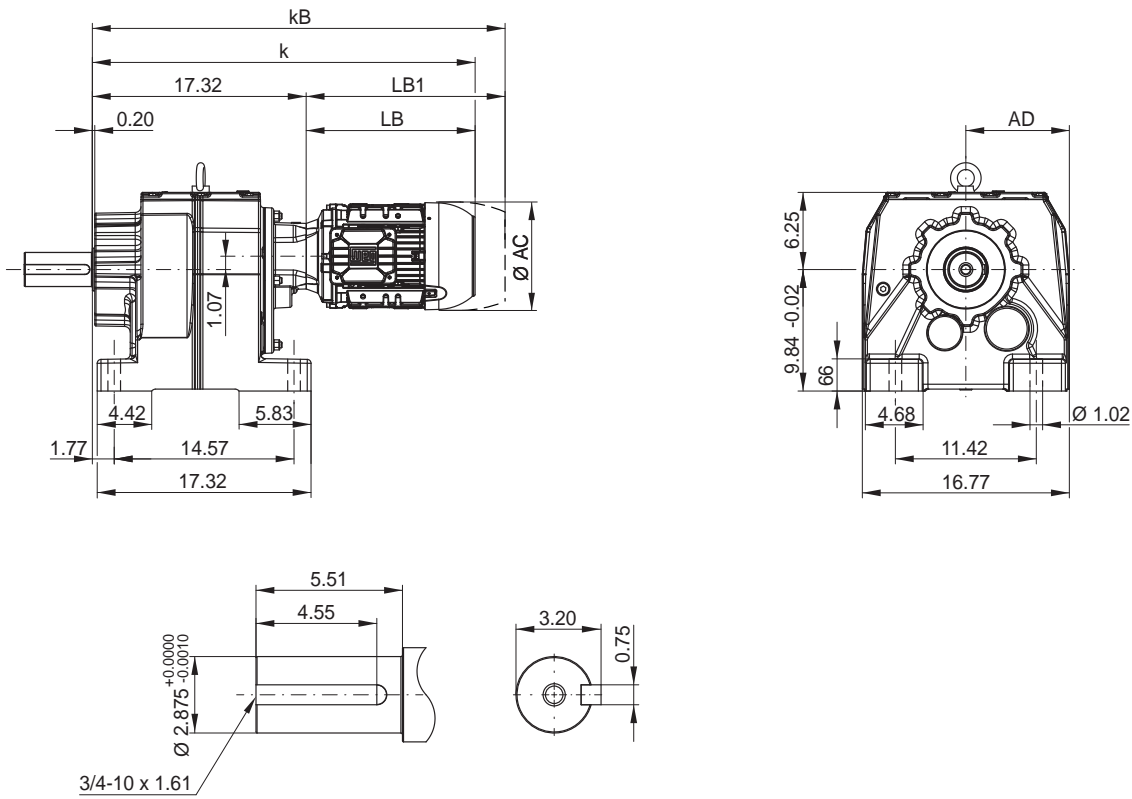


**Flange Ø 17.72 in (Ø 450 mm)**



Dimensions in inch.

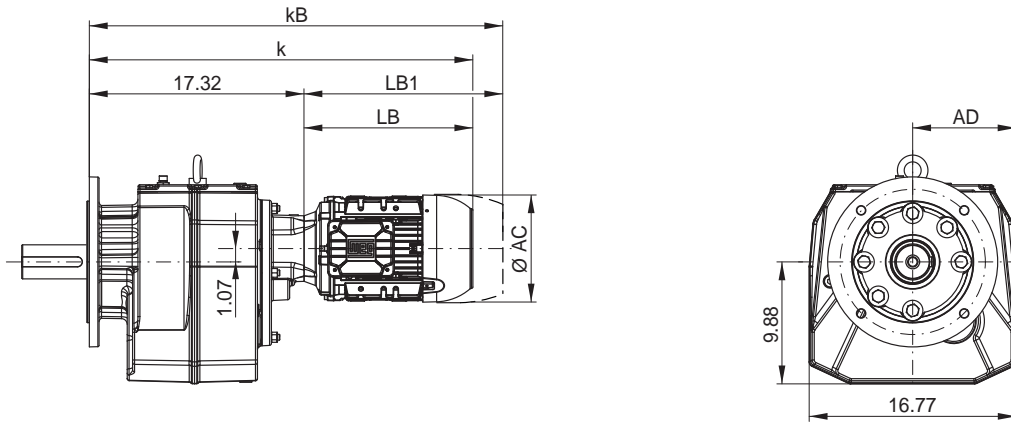
### CG104 - Foot mounted



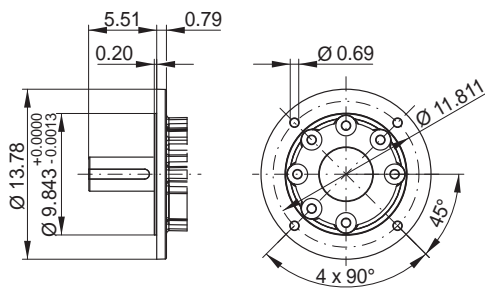
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	25.35	26.69	27.01	27.95	28.66	30.63	32.13	31.02	33.58	35.08
kB	27.09	28.62	29.29	30.24	31.54	33.94	35.43	34.45	38.23	39.72
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

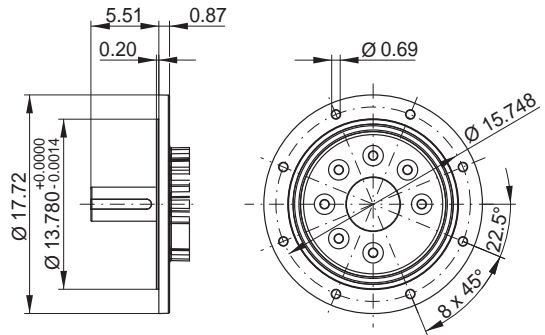
### CF104 - Flange execution



### Flange Ø 13.78 in (Ø 350 mm)

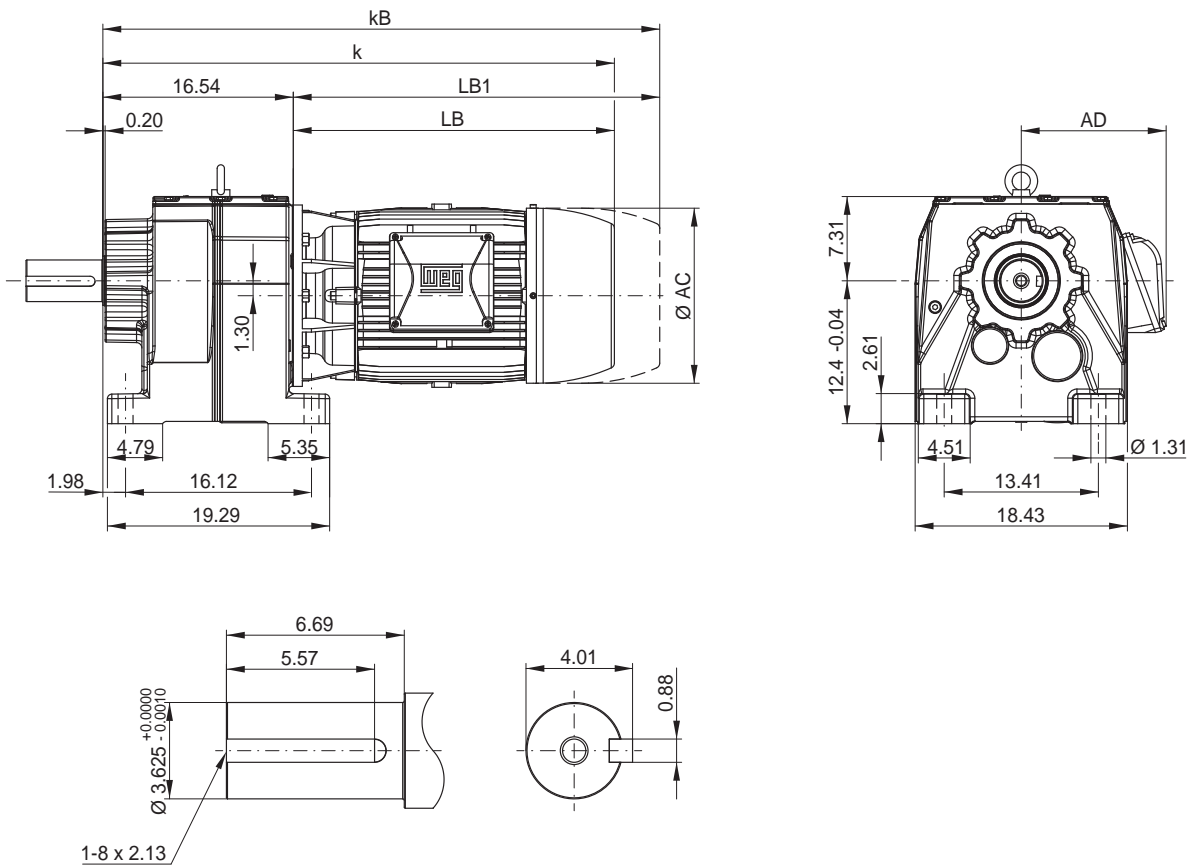


### Flange Ø 17.72 in (Ø 450 mm)



Dimensions in inch.

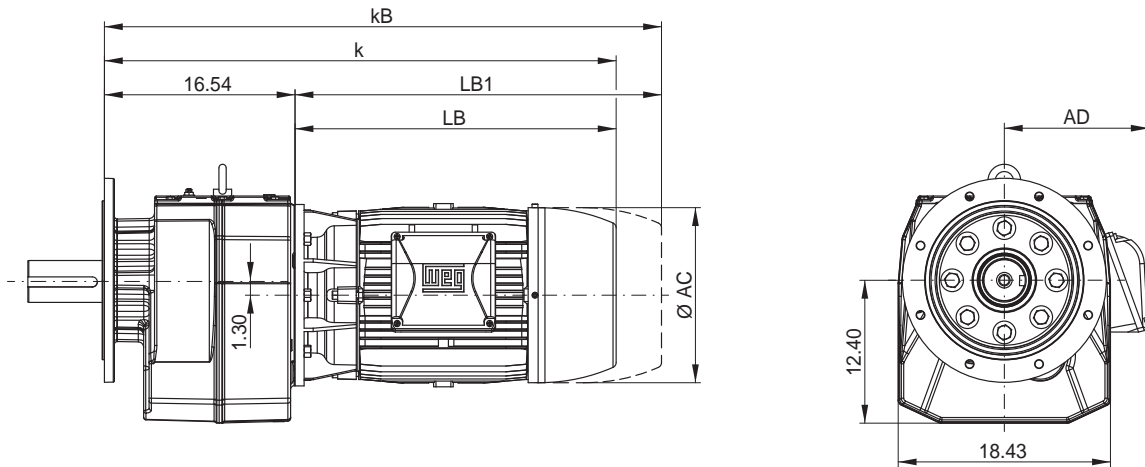
CG132 / CG133 - Foot mounted



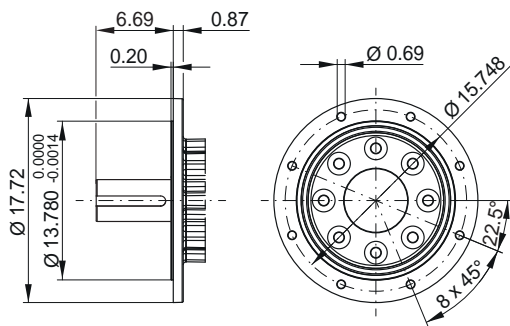
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	30.24	32.80	34.29	37.09	38.82	39.76	41.26	44.88	49.13
kB	-	-	-	-	-	-	-	33.66	37.44	38.94	41.97	43.70	44.41	45.91	49.84	53.78
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

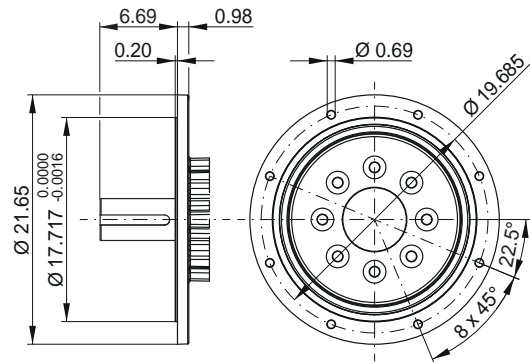
**CF132 / CF133 - Flange execution**



**Flange Ø 17.72 in (Ø 450 mm)**

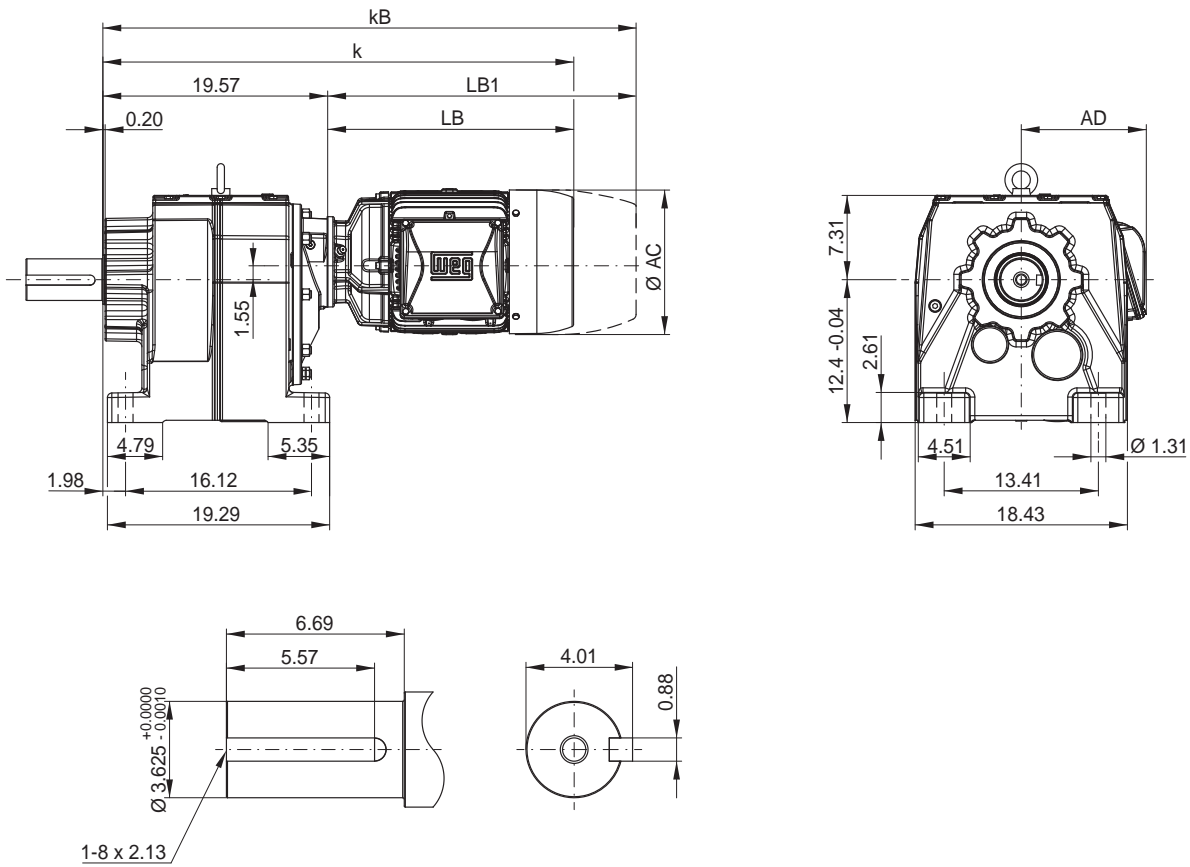


**Flange Ø 21.65 in (Ø 550 mm)**



Dimensions in inch.

### CG134 - Foot mounted

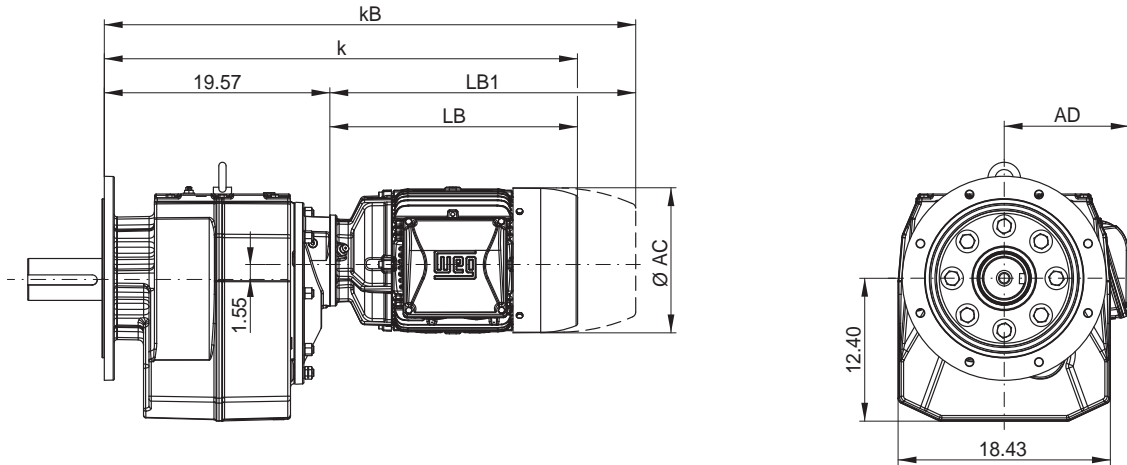


Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	27.60	28.94	29.25	30.20	30.91	32.87	34.37	33.27	35.83	37.32	41.02	42.76
kB	29.33	30.87	31.54	32.48	33.78	36.18	37.68	36.69	40.47	41.97	45.91	47.64
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

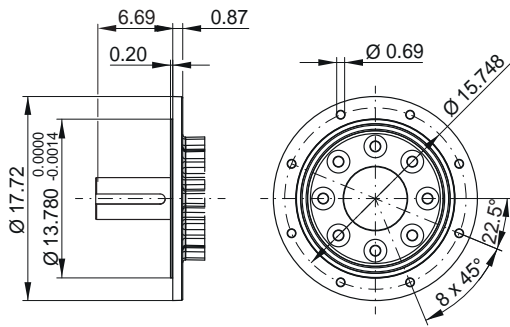
Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492



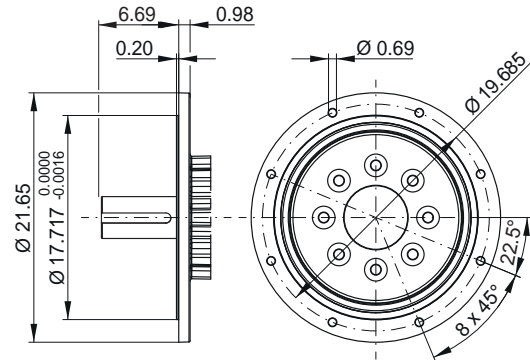
### CF134 - Flange execution



### Flange $\varnothing 17.72$ in ( $\varnothing 450$ mm)

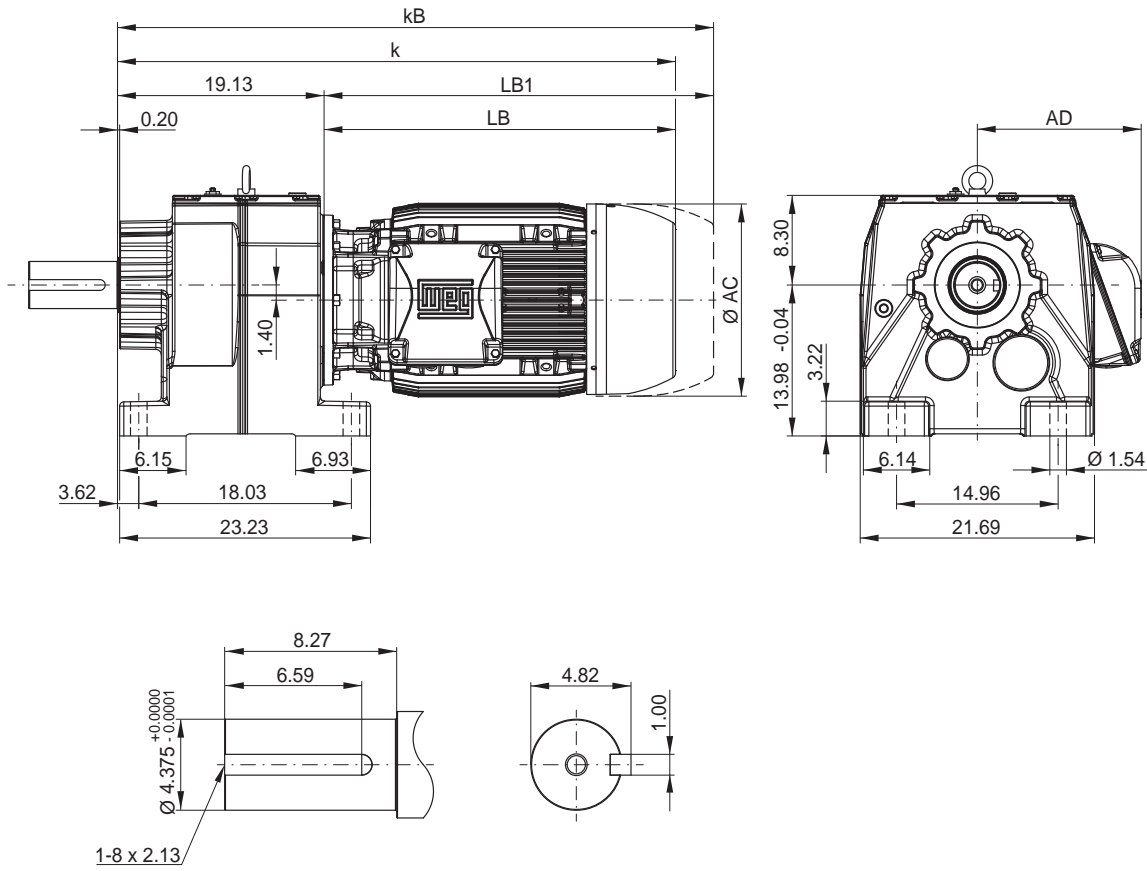


### Flange $\varnothing 21.65$ in ( $\varnothing 550$ mm)



Dimensions in inch.

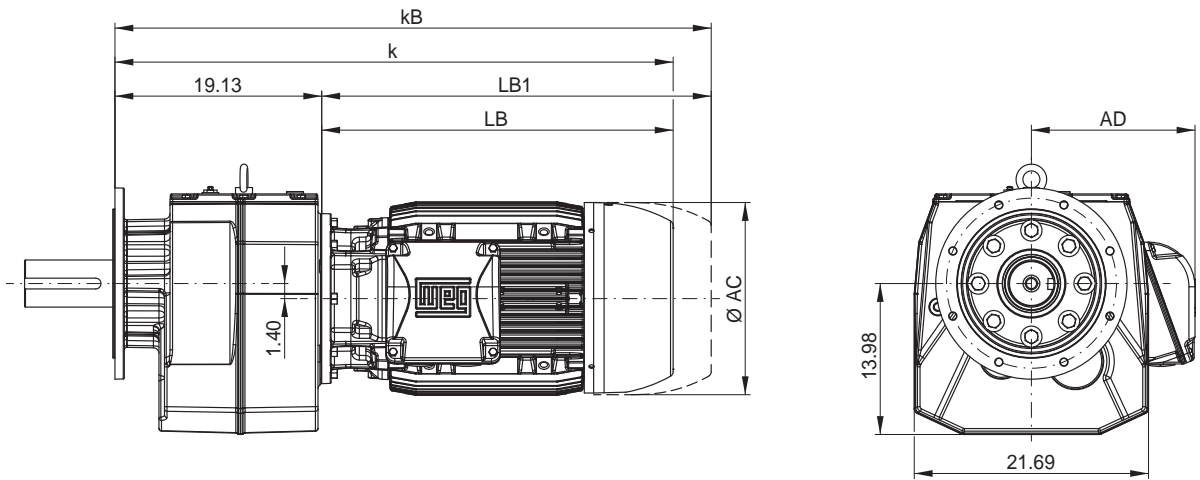
CG142 / CG143 - Foot mounted



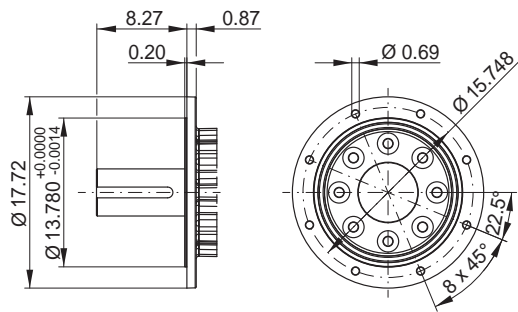
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	32.83	35.39	36.89	39.69	41.42	42.36	43.86	47.48	51.73
kB	-	-	-	-	-	-	-	36.26	40.04	41.54	44.57	46.30	47.01	48.50	52.44	56.38
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

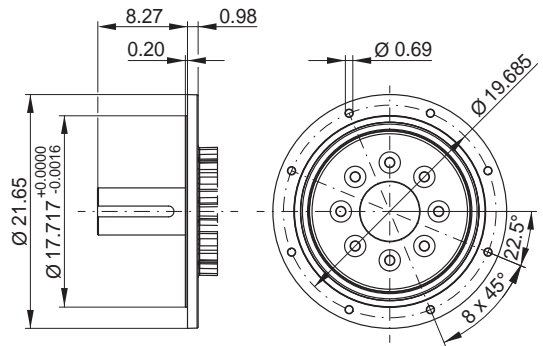
**CF142 / CF143 - Flange execution**



**Flange Ø 17.72 in (Ø 450 mm)**

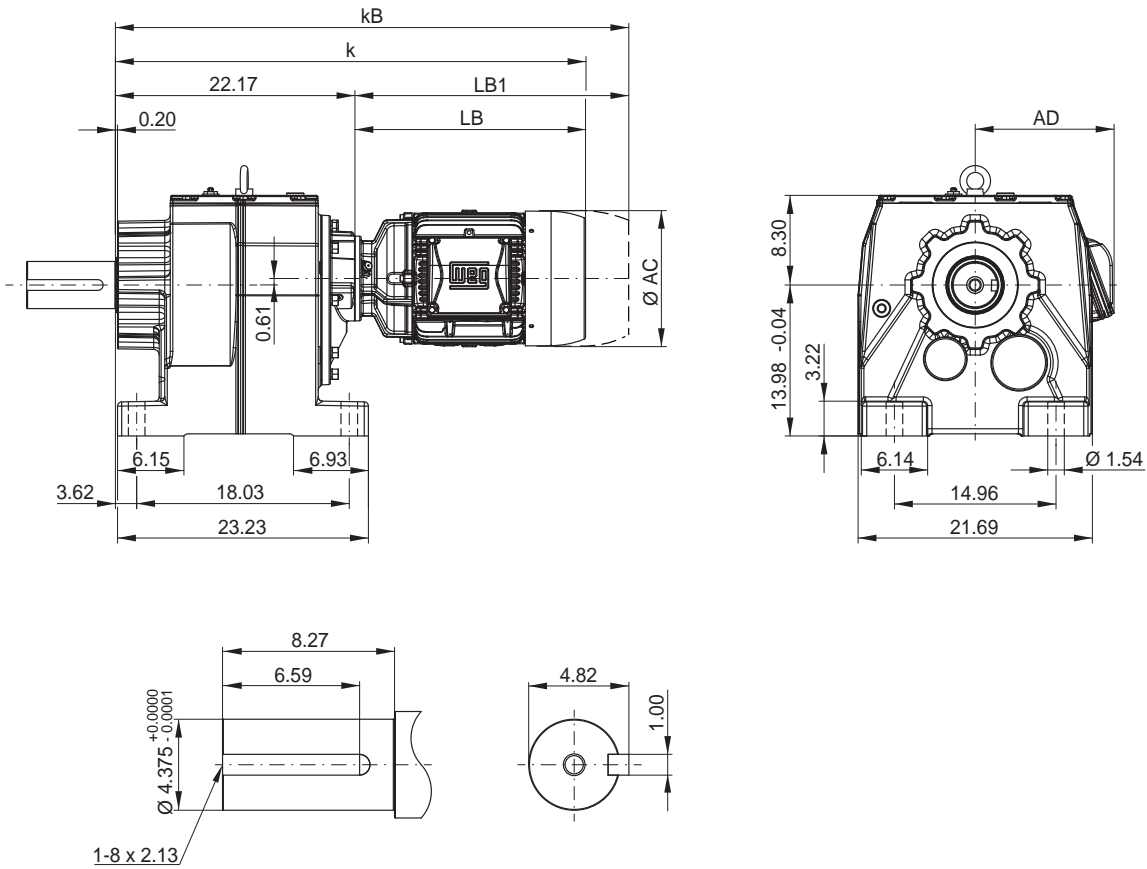


**Flange Ø 21.65 in (Ø 550 mm)**



Dimensions in inch.

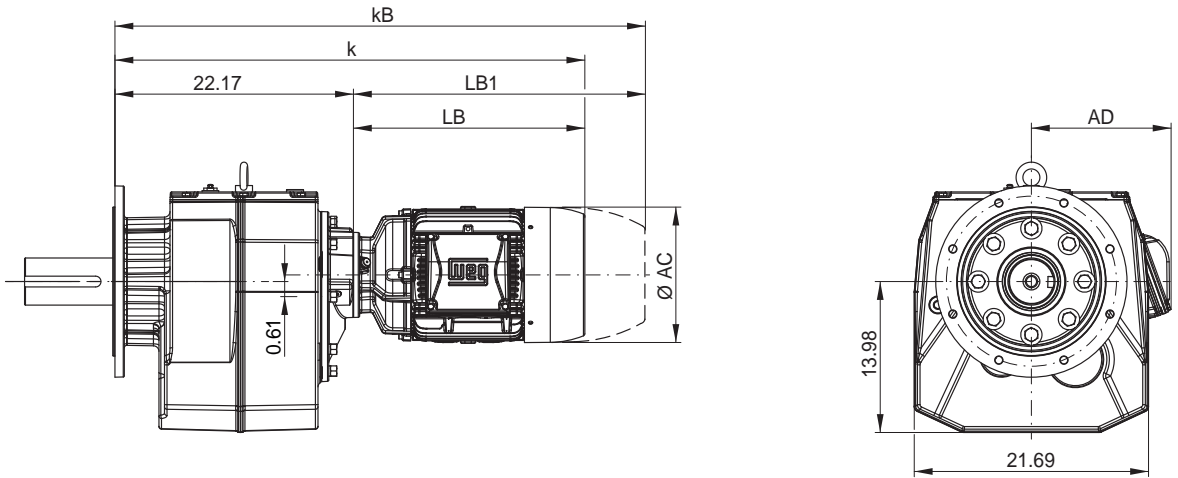
### CG144 - Foot mounted



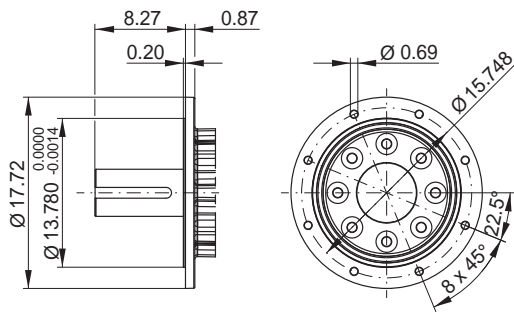
Motor fr. Dimension	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	30.20	31.54	31.85	32.80	33.50	35.47	36.97	35.87	38.43	39.92	43.62	45.35
kB	31.93	33.46	34.13	35.08	36.38	38.78	40.28	39.29	43.07	44.57	48.50	50.24
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

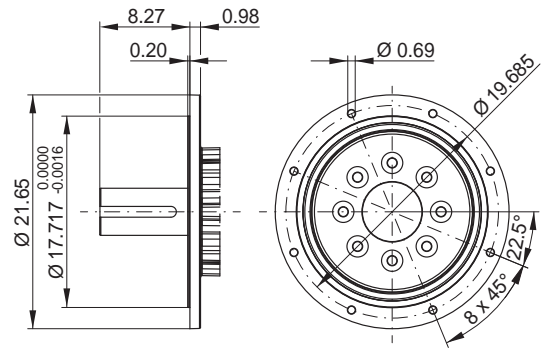
### CF144 - Flange execution



### Flange $\varnothing 17.72$ in ( $\varnothing 450$ mm)

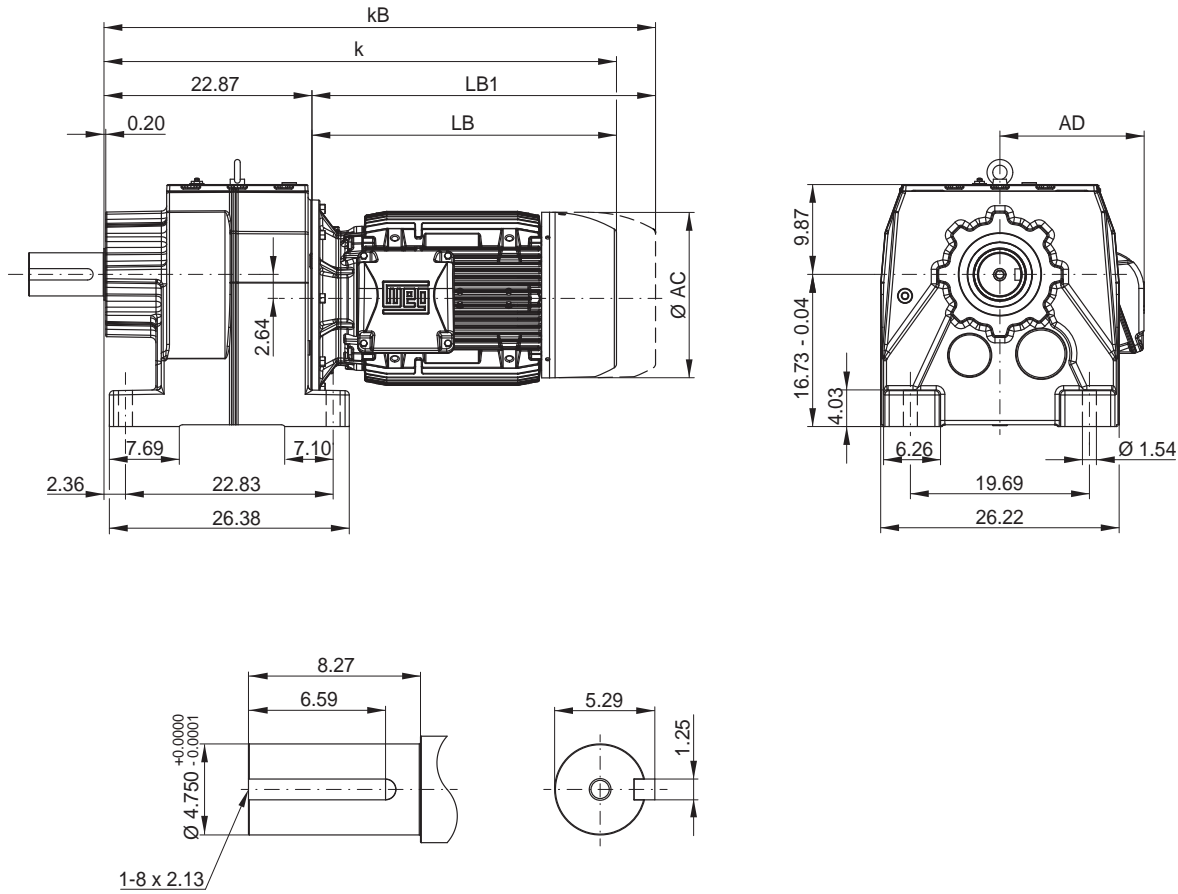


### Flange $\varnothing 21.65$ in ( $\varnothing 550$ mm)



Dimensions in inch.

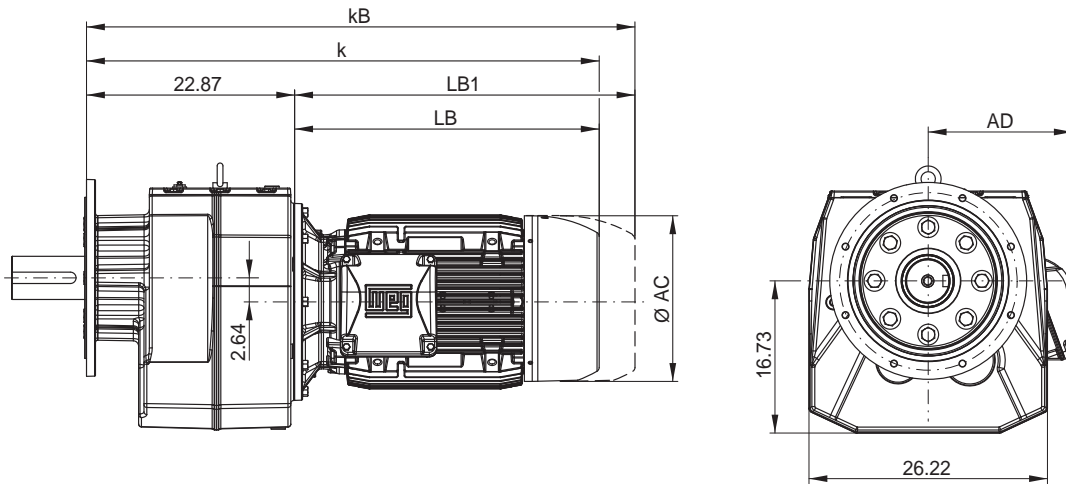
**CG162 / CG163 - Foot mounted**



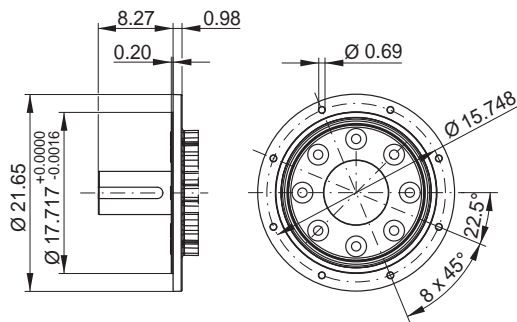
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M	250S/M
AC	-	-	-	-	-	-	-	-	-	-	12.95	12.95	13.66	13.66	15.20	17.83	18.98
AD	-	-	-	-	-	-	-	-	-	-	10.47	10.47	11.06	11.06	12.48	15.16	15.87
k	-	-	-	-	-	-	-	-	-	-	42.80	44.53	45.47	46.97	50.59	54.84	56.38
kB	-	-	-	-	-	-	-	-	-	-	47.68	49.41	50.12	51.61	55.55	59.49	61.02
LB	-	-	-	-	-	-	-	-	-	-	19.92	21.65	22.60	24.09	27.72	31.97	33.50
LB1	-	-	-	-	-	-	-	-	-	-	24.80	26.54	27.24	28.74	32.68	36.61	38.15

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

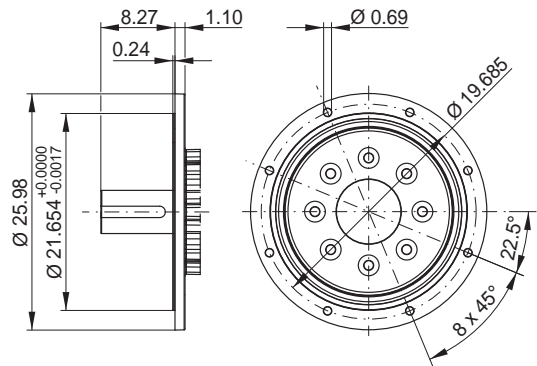
**CF162 / CF163 - Flange execution**



**Flange Ø 21.65 in (Ø 550 mm)**

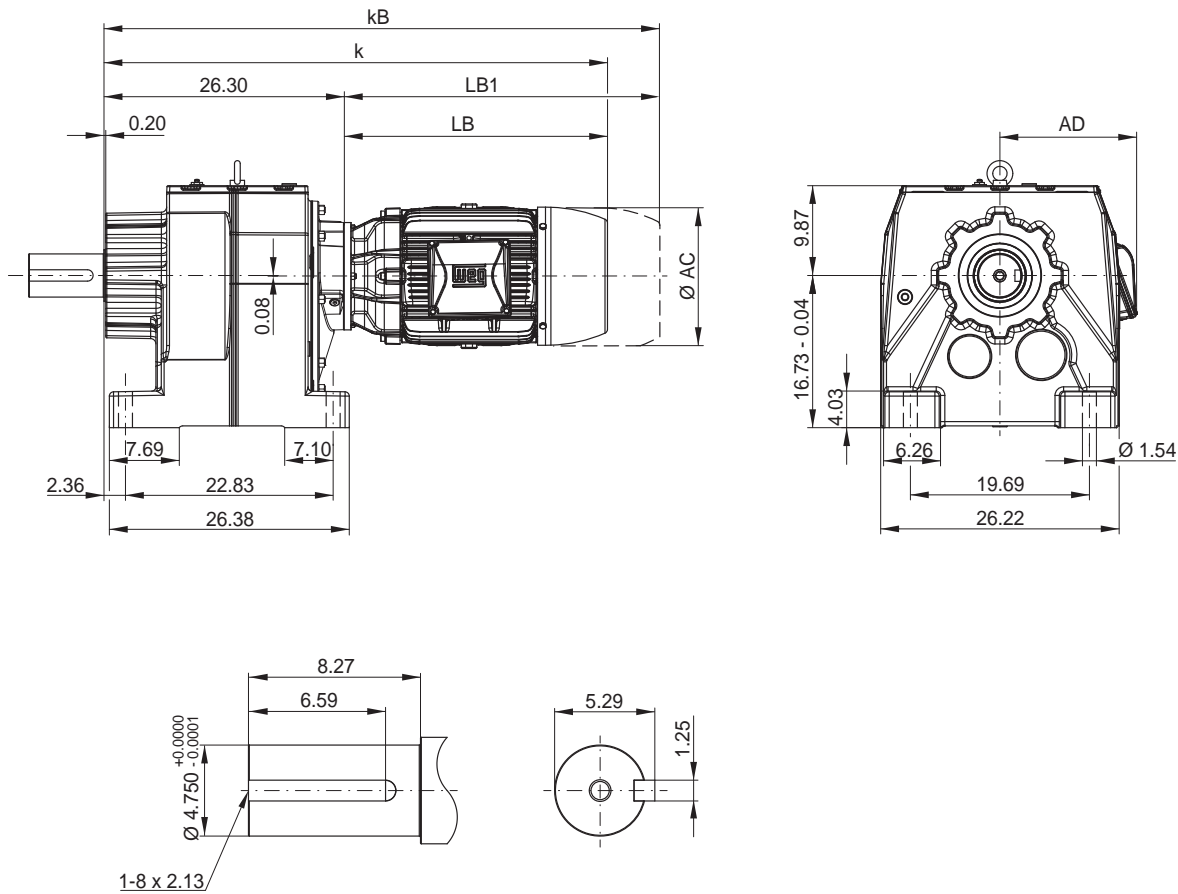


**Flange Ø 25.98 in (Ø 660 mm)**



Dimensions in inch.

### CG164 - Foot mounted

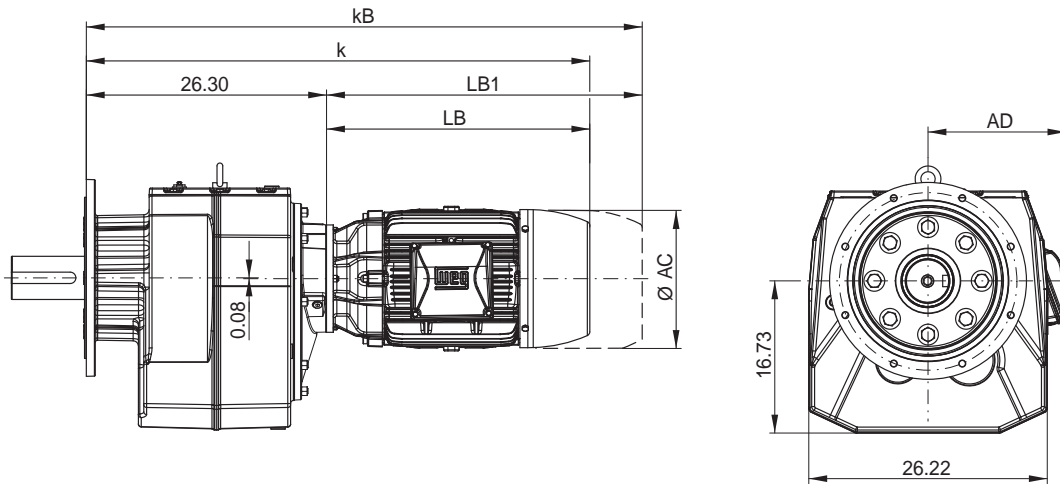


Motor fr. Dimension	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	8.03	9.37	9.69	36.93	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
kB	36.06	37.60	38.27	39.21	40.51	42.91	44.41	43.43	47.20	48.70	52.24	53.98	54.69	56.18	60.12
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

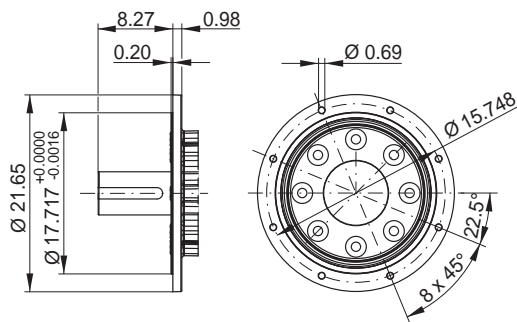
Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492



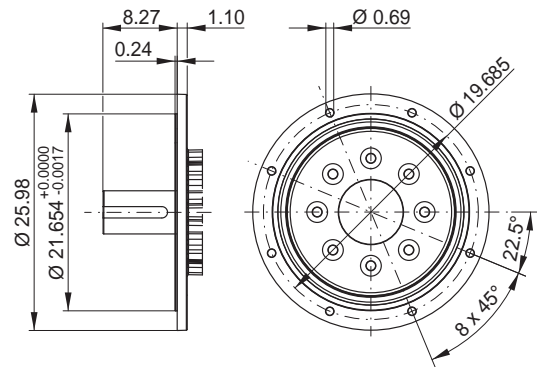
### CF164 - Flange execution



### Flange $\varnothing 21.65$ in ( $\varnothing 550$ mm)

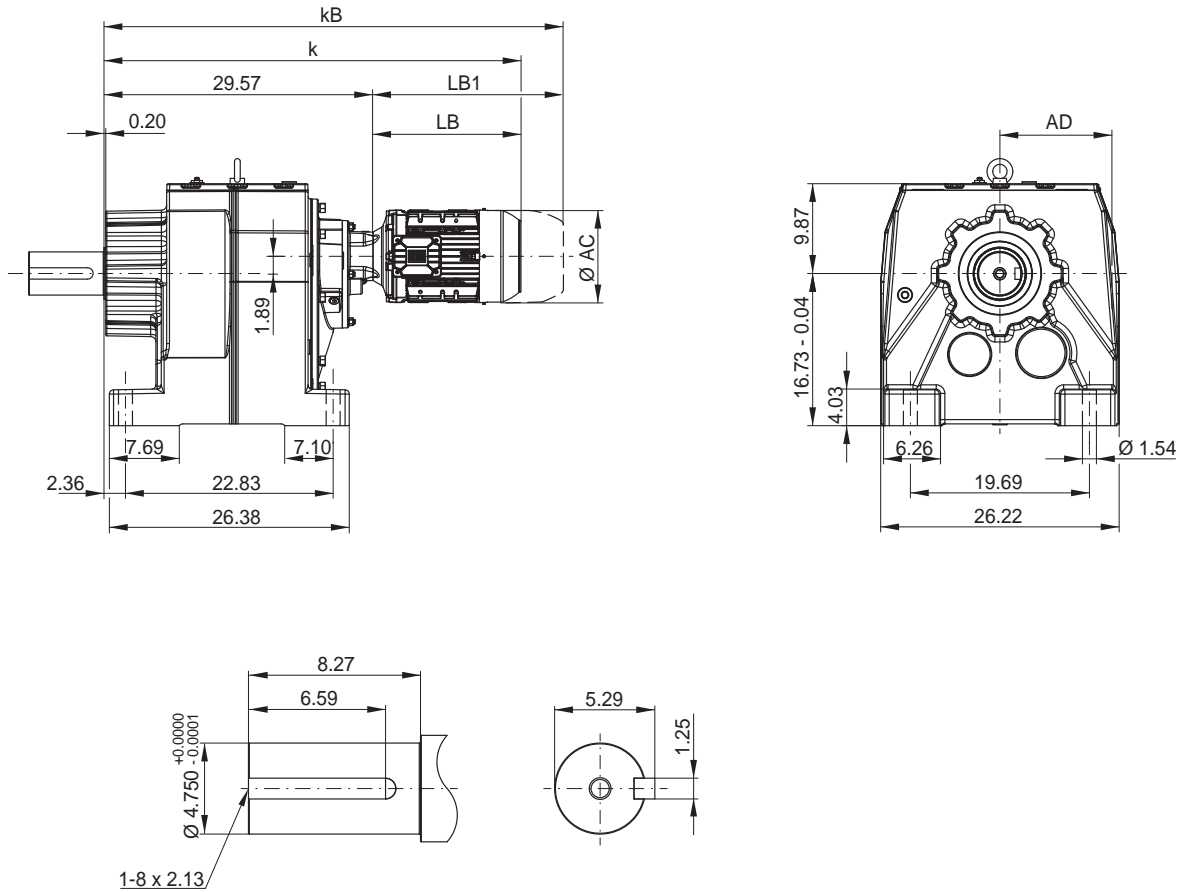


### Flange $\varnothing 25.98$ in ( $\varnothing 660$ mm)



Dimensions in inch.

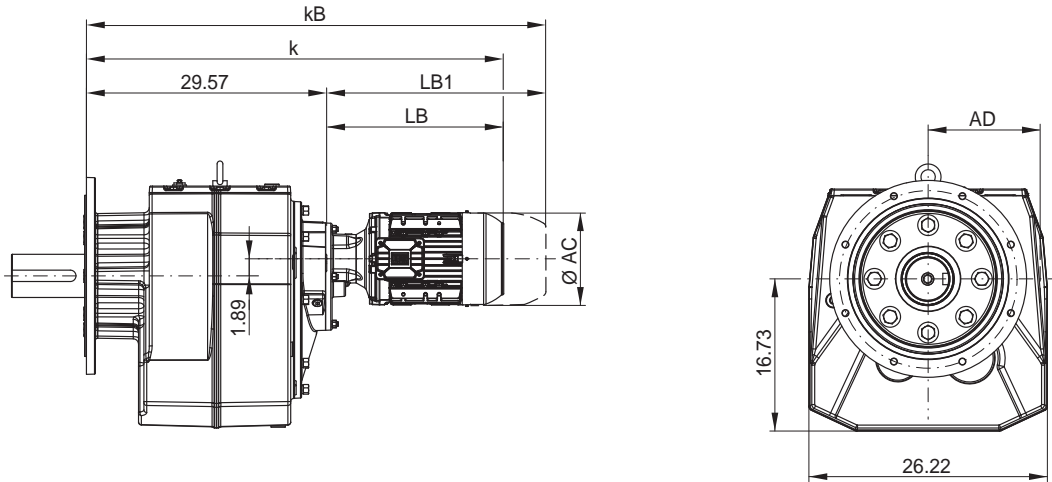
### CG165 - Foot mounted



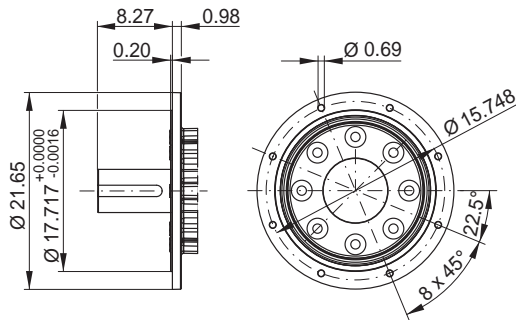
Motor fr.	63	71	80	80L	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	37.60	38.94	39.25	40.20	40.91	42.87	44.37	43.27	45.83	47.32
kB	39.33	40.87	41.54	42.48	43.78	46.18	47.68	46.69	50.47	51.97
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488  
 Description of motor lengths LB and LB1 see page 492

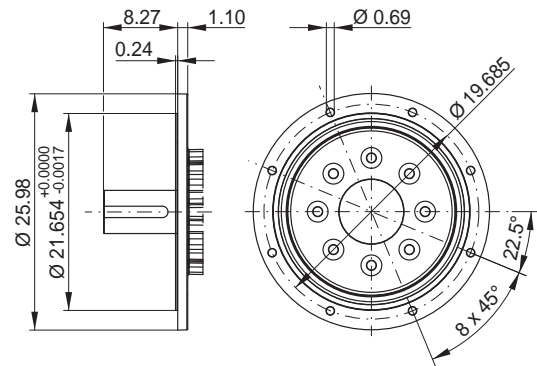
### CF165 - Flange execution



### Flange Ø 21.65 in (Ø 550 mm)



### Flange Ø 25.98 in (Ø 660 mm)



Dimensions in inch.

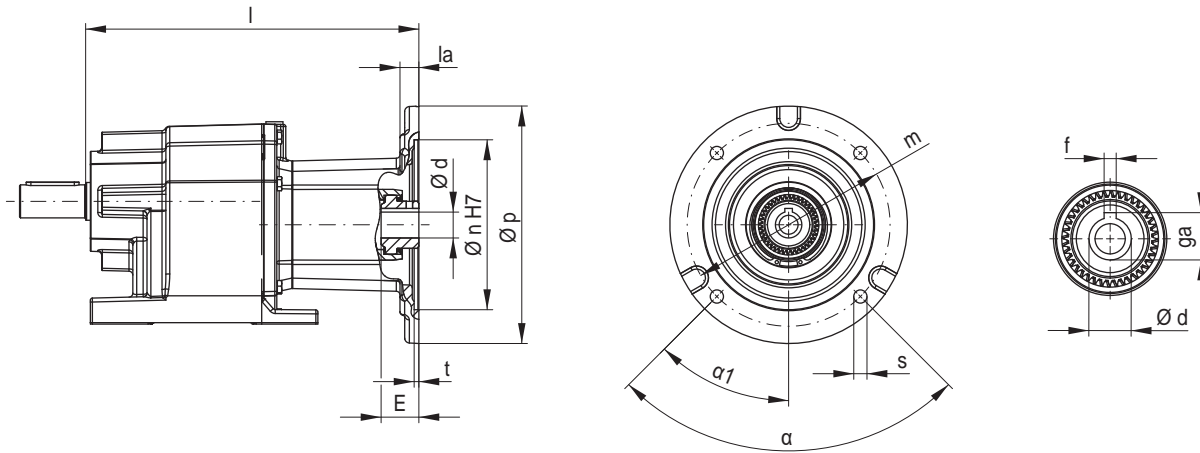


# Dimension sheets - Input types



## IEC Adapter I63 to I280

C



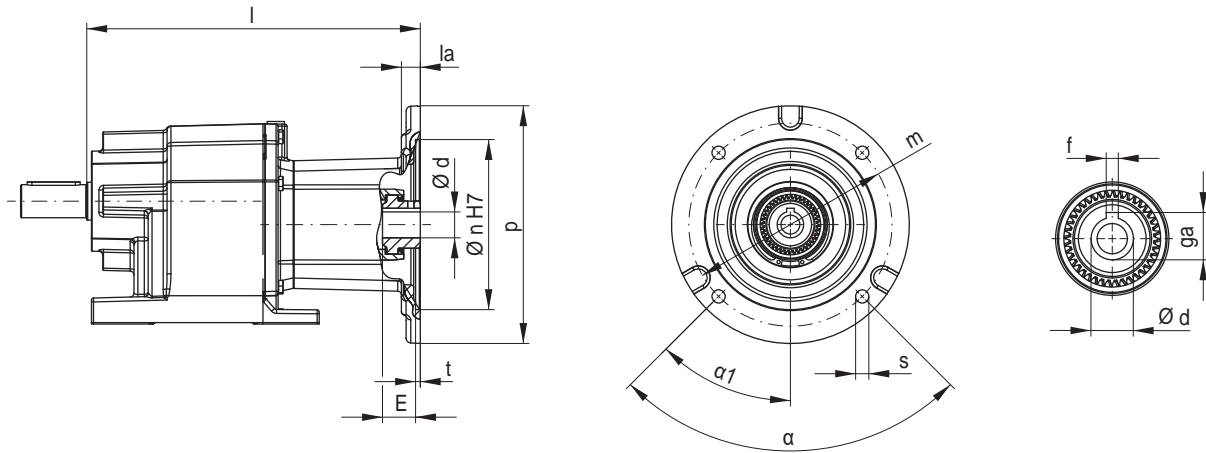
Type	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
p	6.30	6.30	7.87	7.87	9.84	9.84	11.81	13.78	13.78	15.75	17.72	21.65	21.65
n	3.74	4.33	5.12	5.12	7.09	7.09	9.06	9.84	9.84	11.81	13.78	17.72	17.72
la	0.89	0.39	0.51	0.51	0.59	0.79	0.59	1.38	1.38	0.79	0.79	0.79	0.79
m	4.53	5.12	6.50	6.50	8.46	8.46	10.43	11.81	11.81	13.78	15.75	19.69	19.69
t	0.18	0.18	0.18	0.18	0.20	0.20	0.20	0.20	0.20	0.22	0.20	0.20	0.20
s	M8 x 0.63	M8 x 0.39	0.47	0.47	0.55	0.55	0.55	0.75	0.75	0.75	0.75	0.75	0.75
$\alpha$	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	1.77	1.77	1.77
$\alpha_1$	1.38	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
d	0.43	0.55	0.75	0.94	1.10	1.10	1.50	1.65	1.89	2.17	2.36	2.56	2.95
f	0.16	0.20	0.24	0.31	0.31	0.31	0.39	0.47	0.55	0.63	0.71	0.71	0.79
ga	0.50	0.64	0.86	1.07	1.23	1.23	1.63	1.78	2.04	2.33	2.54	2.73	3.15
E <sup>1)</sup>	0.98	1.26	1.69	1.87	2.48	3.94	3.37	4.39	4.39	4.51	5.51	5.75	5.75

<sup>1)</sup> Maximum motor shaft length for motors with key

Gear unit size	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
	l												
C00	5.93	5.93	7.03	-	-	-	-	-	-	-	-	-	-
C01	6.42	6.42	7.52	7.52	-	-	-	-	-	-	-	-	-
C03	7.50	7.50	8.60	8.60	9.82	-	-	-	-	-	-	-	-
C05	8.90	8.90	10.00	10.00	11.22	13.31	13.74	-	-	-	-	-	-
C06	9.49	9.49	10.59	10.59	11.81	13.90	14.33	-	-	-	-	-	-
C07	9.94	9.94	11.04	11.04	12.26	14.35	14.78	18.17	-	-	-	-	-
C08	11.56	11.56	12.66	12.66	13.88	15.96	16.40	19.63	19.63	-	-	-	-
C09	13.50	13.50	14.61	14.61	15.83	17.91	18.35	21.67	21.67	22.80	-	-	-
C10	14.92	14.92	16.02	16.02	17.24	19.33	19.76	23.09	23.09	24.21	-	-	-
C13	-	-	-	-	-	21.48	21.91	25.14	25.14	26.26	27.44	-	-
C14	-	-	-	-	-	24.07	24.51	27.74	27.74	28.86	30.04	33.54	-
C16	-	-	-	-	-	-	-	30.85	30.85	31.97	33.15	36.65	36.65

Dimensions in inch.

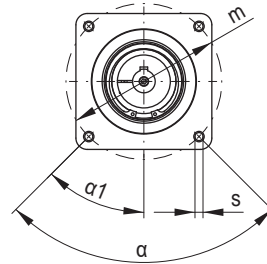
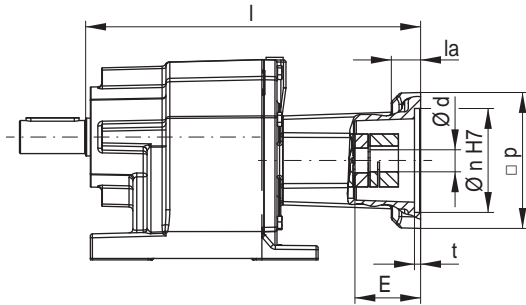
## NEMA Adapter N56 to N364



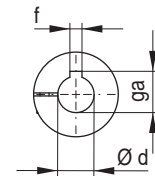
Type	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
$p$	6.69	6.69	9.84	9.84	11.81	8.86	11.02	13.78	15.75
$n$	4.50	4.50	8.50	8.50	8.50	8.50	10.50	12.50	12.50
$la$	0.51	0.51	0.39	0.66	0.39	1.18	1.38	0.59	0.59
$m$	5.88	5.88	7.25	7.25	7.25	7.25	9.00	11.00	11.00
$t$	0.18	0.18	0.20	0.13	0.20	0.20	0.12	0.20	0.20
$s$	0.43	0.43	0.55	0.55	0.55	0.55	0.55	0.75	0.75
$\alpha$	90°	90°	90°	90°	90°	90°	90°	90°	90°
$\alpha_1$	45°	45°	45°	45°	45°	45°	45°	45°	45°
$d$	0.63	0.88	1.13	1.13	1.38	1.63	1.88	2.13	2.38
$f$	0.19	0.19	0.25	0.25	0.31	0.38	0.50	0.50	0.63
$ga$	0.71	0.96	1.24	1.24	1.52	1.80	2.10	2.35	2.65
$E$	2.17	2.17	2.66	3.81	3.17	4.15	4.39	4.31	4.31

Gear unit size	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
	$l$								
C00	7.03	7.03	-	-	-	-	-	-	-
C01	7.52	7.52	-	-	-	-	-	-	-
C03	8.60	8.60	9.82	-	-	-	-	-	-
C05	10.00	10.00	11.22	13.31	13.74	-	-	-	-
C06	10.59	10.59	11.81	13.90	14.33	-	-	-	-
C07	11.04	11.04	12.26	14.35	14.78	18.17	-	-	-
C08	12.66	12.66	13.88	15.96	16.40	19.63	19.74	-	-
C09	14.61	14.61	15.83	17.91	18.35	21.67	21.79	23.66	-
C10	16.02	16.02	17.24	19.33	19.76	23.09	23.21	25.08	-
C13	-	-	-	21.48	21.91	25.14	25.26	27.13	27.74
C14	-	-	-	24.07	24.51	27.74	27.85	29.72	30.33
C16	-	-	-	-	-	30.85	30.96	33.44	33.44

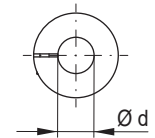
## SERVO Adapter S92 to S190



Shaft with key



Smooth shaft



Type	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190
p	3.98	5.67	5.67	5.67	5.67	5.67	5.67	7.76	7.76	7.76
n	3.15	3.74	3.74	4.33	4.33	4.33	5.12	4.50	5.12	7.09
la	0.69	1.22	1.22	1.22	1.22	1.22	1.22	1.38	1.26	1.50
m	3.94	4.53	5.12	5.12	5.71	6.50	6.50	7.87	8.46	8.46
t	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
s	M6x0.47	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x16	0.53	0.59	0.59
α	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°
α <sub>1</sub>	45°	45°	45°	45°	45°	45°	45°	45°	45°	45°
d <sup>1)</sup>	0.55   0.63   0.75	0.75	0.75   0.94	0.94	0.75   0.87   0.94   1.10	0.94	0.94   1.26	1.38	1.26   1.50	1.50
f	0.20   0.20   0.24	0.24	0.24   0.31	0.31	0.24   0.24   0.31   0.31	0.31	0.31   0.39	0.39	0.39   0.39	0.39
ga	0.64   0.72   0.86	0.86	0.86   1.07	1.07	0.86   0.98   1.07   1.23	1.07	1.07   1.39	1.51	1.39   1.39	1.63
E <sup>2)</sup>	1.87	2.74	2.74   2.11	2.11	2.97   2.97   2.46   2.46	2.62	2.46   2.46	2.58	2.89   2.34	3.41
E <sup>3)</sup>	1.87	2.74	2.74   2.62	2.62	2.97   2.97   2.97   2.46	2.11	2.97   2.46	3.41	2.89   2.34	3.41

<sup>1)</sup> Other shaft diameters on request

<sup>2)</sup> Maximum motor shaft length for motors with key

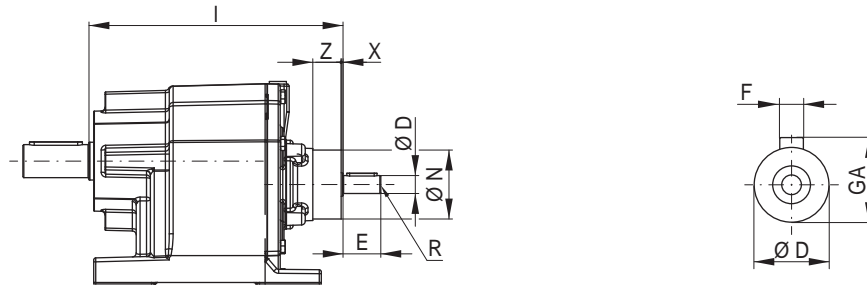
<sup>3)</sup> Maximum motor shaft length for motors with smooth shaft

Gear unit size	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190
	l									
C00	8.50	10.39	10.39	10.39	10.39	10.39	10.39	-	-	-
C01	9.00	10.89	10.89	10.89	10.89	10.89	10.89	-	-	-
C03	10.08	11.97	11.97	11.97	11.97	11.97	11.97	-	-	-
C05	11.48	13.37	13.37	13.37	13.37	13.37	13.37	16.14	15.91	16.97
C06	12.07	13.96	13.96	13.96	13.96	13.96	13.96	16.73	16.50	17.56
C07	12.52	14.41	14.41	14.41	14.41	14.41	14.41	17.19	16.95	18.01
C08	14.13	16.02	16.02	16.02	16.02	16.02	16.02	18.80	18.56	19.63
C09	16.08	17.97	17.97	17.97	17.97	17.97	17.97	20.75	20.51	21.57
C10	17.50	19.39	19.39	19.39	19.39	19.39	19.39	22.17	21.93	22.99
C13	-	-	-	-	-	-	-	24.31	24.07	25.14
C14	-	-	-	-	-	-	-	26.91	26.67	27.74
C16	-	-	-	-	-	-	-	-	-	-

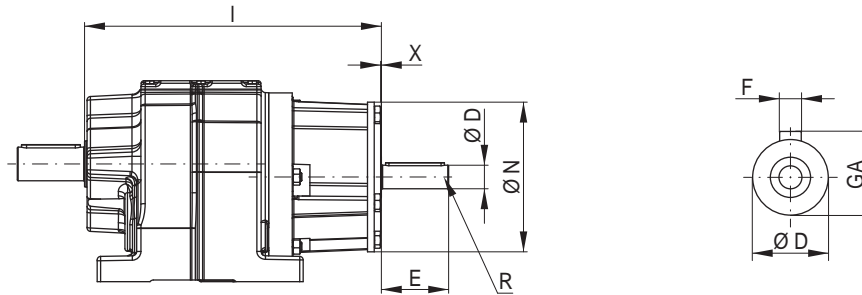
Dimensions in inch.



### Input Unit U, U3



### Input Unit U5, U6, U7



Type	Input shaft						
	19x40*	24x50*	28x60*	38x80*	42x110*	48x110*	55x110*
	U2	U3	U5			U6	U7
D	0.75	0.94	1.10	1.50	1.65	1.89	2.17
F	0.24	0.31	0.31	0.39	0.47	0.55	0.63
GA	0.85	1.06	1.22	1.61	1.77	2.03	2.32
E	1.57	1.97	2.36	3.15	4.33	4.33	4.33
N	2.87	3.98	7.01			9.25	11.42
X	0.08	0.10	0.07			0.26	0.16
Z	0.12	1.38	-			-	-
R	M6	M10	M10	M12	M16	M16	M20

Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
D	< Ø 55 mm (2.165 in)	k6
	≥ Ø 55 mm (2.165 in)	m6

Gear unit size	Input shaft				
	19x40*	24x50*	28x60* 38x80* 42x110*	48x110*	55x110*
	U2	U3	U5	U6	U7
	I				
C00	7.03	-	-	-	-
C01	7.52	-	-	-	-
C03	8.60	-	-	-	-
C05	10.00	11.26	-	-	-
C06	10.59	11.85	-	-	-
C07	11.04	12.30	13.98	-	-
C08	12.66	13.92	15.43	-	-
C09	14.61	15.87	17.48	18.35	-
C10	16.02	17.28	18.90	19.76	-
C13	-	19.43	20.94	21.81	24.53
C14	-	22.03	23.54	24.41	27.13
C16	-	-	26.65	27.52	30.24

\* Shaft sizes in mm.





## Parallel shaft geared motors F

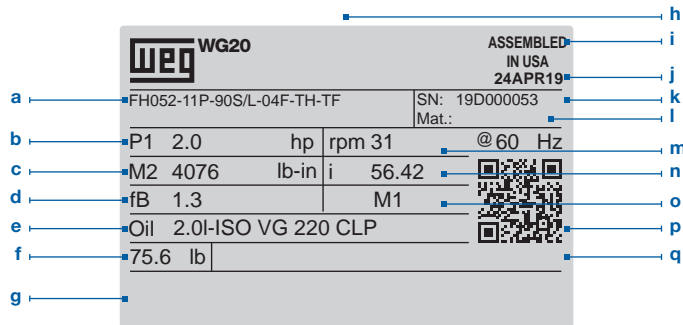


# Technical Data

Size		F02	F03	F04	F05	F06	F07	F08	F09	F10	F12	F15
Power	[hp]	0.16 - 2.0	0.16 - 4.0	0.16 - 4.0	0.16 - 12.5	0.16 - 20	0.16 - 20	0.16 - 30	0.16 - 50	0.16 - 75	0.16 - 75	0.16 - 100
Torque	[lb-in]	1150	1950	3540	5310	7260	13280	26600	39800	70800	115000	159000
Ratio		3.93 97.85	3.85 70.17	4.26 422.98	4.98 487.67	4.41 412.64	4.29 385.37	4.09 3836.13	4.16 3086.96	4.38 2276.77	4.64 2307.03	5.84 24805.81
Number of stages		2	2	2/3	2/3	2/3	2/3	2/3/4	2/3/4	2/3/4	2/3/4	2/3/4/5
Housing material		aluminium					cast iron					
Solid shaft	Type	with key acc. to DIN 6885.1 and threaded hole acc. to DIN 332 sheet 2										
	Tolerance	< Ø 55 mm (2.165 in): k6 / ≥ Ø 55 mm (2.165 in): m6										
	Material	standard: C45E (1.1191) / stainless steel on request										
Hollow shaft	Type	with key acc. to DIN 6885.1										
	Tolerance	H7										
	Material	standard: C45E (1.1191) / stainless steel on request										
Flanges	Tolerance	centering ≤ 250 mm (9.842 in): j6 / > 250 mm (9.842 in): h6 acc. to DIN EN 50347										
	Material	cast iron										
Gear wheels	Type	honed										
	Material	16MnCr5 (1.7131) case hardened – minimum 58HRC										
Shaft seals	Type	type AS acc. to DIN 3760										
	Material	standard NBR / special FKM										
Bearing		standard / reinforced										
Lubricants	Type	standard CLP 220 / special CLP HC 220										
	Quantity	depending on mounting position										
Shaft height		acc. to DIN 747: ≤ 50 mm (1.968 in): -0.4 mm (-0.016 in) > 50 mm (1.968 in) to ≤ 250 mm (9.842 in): -0.5 mm (0.020 in) > 250 mm (9.842 in): -1 mm (0.040 in)										

## General information

### 1. Nameplate



a	Type code	j	Production date
b	Motor power	k	Serial number
c	Output torque	l	Material number
d	Service factor	m	Output speed and Frequency
e	Type and quantity of lubricant	n	Total gear ratio
f	Weight	o	Mounting position
g	Space for ATEX code (if applicable)	p	QR-Code linked online to additional information
h	Production company	q	Space for additional information
i	Production country		

## 2. Type code

FH073-EX-11P-90S/L-04F ...

1 2 3 4 5 6 7 8 9 10

FH073-EX-I112-HT

1 2 3 4 5 11 12


<b>1</b>	Type:	F = Parallel shaft gear unit										
<b>2</b>	Design:	D = Hollow shaft with shrink disc E = Hollow shaft with EasyLock F = B5 flange execution with output shaft H = Hollow shaft O = B5 flange execution with hollow shaft P = B5 flange execution with hollow shaft and shrink disc					Q = B5 flange execution with EasyLock S = Output shaft T = Hollow shaft with rubber buffer U = Hollow shaft with shrink disc and rubber buffer V = Hollow shaft with rubber buffer and EasyLock					
<b>3</b>	Size:	02	03	04	05	06	07	08	09	10	12	15
<b>4</b>	Number of stages:	2 = 2 gear stages			3 = 3 gear stages			4 = 4 gear stages			5 = 5 gear stages	
<b>5</b>	ATEX execution:	when operated in explosive atmospheres, see page 482										
<b>6</b>	Motor type:	11N = Integral motor aluminium IE1 11P = Integral motor aluminium IE3					22P = Integral motor cast iron IE3					
<b>7</b>	Motor frame size:	63 L132M	71 160M	80 160L	L80 180M	90S/L 180L	100L 200L	L100L 225S/M	112M 250S/M	132S		
<b>8</b>	Number of poles:	04 = 4 poles				06 = 6 poles						
<b>9</b>	Power indicator:	E	F	G								
<b>10</b>	Motor modules:	see from page 493										
<b>11</b>	Adapters, Input unit:	IEC Adapter		I63 I160	I71 I180	I80 I200	I90 I225	I100 I250	I112 I280	I132		
		NEMA Adapter		N56 N254	N143 N284	N182 N324	N184 N364	N213				
		SERVO Adapter		S92 S141	S105 S142	S114 S180	S115 S189	S130 S190				
		Input unit		U2	U3	U5	U6	U7				
	Direct Mounting (IEC):	IEC63 IEC132	IEC71 IEC160	IEC80 IEC180	IEC90 IEC200	IEC100 IEC225	IEC112 IEC250					
<b>12</b>	High/Low temperature execution:	HT LT										

Type code Motor see page 475


### 3. Range

Size	F02	F03	F04	F05	F06	F07	F08	F09	F10	F12	F15
Housing material	Aluminium					Cast iron					


### 4. Design




D




F




H




O




P




S




T




U



E



Q



V

D	Hollow shaft with shrink disc
F	B5 flange execution with output shaft
H	Hollow shaft
O	B5 flange execution with hollow shaft
P	B5 flange exec. with hollow s. and shrink disc
S	Output shaft
T	Hollow shaft with rubber buffer
U	Hollow shaft with shrink disc and rubber buffer
Executions using EasyLock	
E	Hollow shaft with EasyLock
Q	B5 flange execution with EasyLock
V	Hollow shaft with rubber buffer and EasyLock

### 5. Venting the gear unit





The parallel shaft gear unit sizes F02 to F05 are neither equipped with a vent plug nor an oil drain plug. They are supplied with lifetime-lubrication.

By default, the parallel shaft gear units from F06 are equipped with vent plug with a safety strap for transportation (see illustration). The rubber strap (a) of the vent plug must be removed entirely before the initial startup. The vent plug is placed accordingly to the mounting position (see chapter Mounting positions, page 185)



### 6. Overhung and axial loads

The overhung loads ( $F_{rN}$ ) indicated in the respective selection tables apply to gear units with the force acting on the shaft center ( $x=l/2$ ). The permissible overhung loads listed are based on the least favorable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ( $f_z$ ) has to be taken into consideration when determining the overhung load.

Gear wheels	Sprockets		V-belts	Flat belts
				
$f_z=1.1$ ( $z \leq 17$ )	$f_z=1.2$ ( $z \leq 13$ )	$f_z=1.1$ ( $z > 13$ )	$f_z=1.8$	$f_z=2.5$

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

**Q1**  $F_{zL} = F_{rN} \cdot a_1$

**Q2**  $F_{zW} = F_W \cdot a_2$

**Q3**  $F_{Qvorh} = \frac{0.6691062 \cdot T_2}{d_0} \cdot f_z$

**Q4**  $F_{Qvorh} \leq F_{zL}$   
 $F_{Qvorh} \leq F_{zW}$

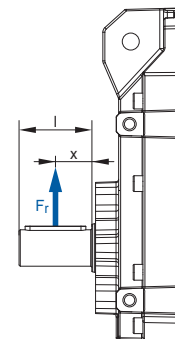
Variable	Unit	Description
a1		Load action factor - output shaft bearing from table 1
a2		Load action factor - output shaft from table 1
d0	[in]	Effective diameter of the transmission element
T2	[lb-in]	Geared motor output torque (from selection tables) or required calculated output torque
FzL	[lb]	Permissible overhung load for output shaft bearings
FzW	[lb]	Permissible overhung load for output shaft
FrN	[lb]	Permissible overhung load from selection tables
FW	[lb]	Permissible overhung load - Output shaft x=l/2 from table 2
FQvorh	[lb]	Existing overhung load at gear shaft
fz		Factor for transmission element
Tmax	[lb-in]	Highest possible output torque for coupling operation (table 2)

**F**

Always use both equations Q1 and Q2 for your calculations.

x / l						
0	0.25	0.5	0.75	1	1.5	2
a1 → Equation Q1						
1.39	1.18	1.00	0.85	0.73	0.52	0.38
a2 → Equation Q2						
2.00	2.00	1.00	0.55	0.38	0.23	0.17

Table 1: Load action factors a<sub>1</sub>, a<sub>2</sub>



Intermediate values can be interpolated linearly. Combined load ( $F_r \neq 0$ ;  $F_a = 0$ ) on request.

	T <sub>max</sub> at F <sub>r</sub> = 0	Output torque T <sub>2</sub> [lb-in]												
		440	890	1770	2660	3540	5310	7260	13700	26600	39800	70800	115000	159000
F <sub>w</sub> [lb] at x/l = 0.5 → Equation Q2														
Ø 0.750x1.57	1220	650	490											
Ø 1.000x1.97	2820	1380	1350	1150										
Ø 1.250x2.36	5300		2020	1960	1800	1570								
Ø 1.375x2.76	7040			2470	2470	2250	1840							
Ø 1.625x3.15	11400				3370	3370	3150	2810						
Ø 2.000x3.94	20900					5620	5620	5620	4950					
Ø 2.125x3.94	24100						6070	6070	5400					
Ø 2.375x4.72	33600							7190	6740	5400				
Ø 2.875x5.51	58800								11470	10790	8090			
Ø 3.625x6.69	111000									17310	16860	15060		
Ø 4.375x8.27	189000										17760	16640	13490	
Ø 4.750x8.27	240000											29450	27880	25180

Table 2: Permissible overhung load - output shaft x = l/2

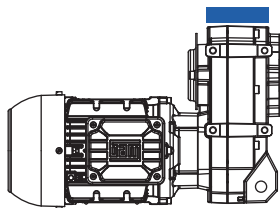
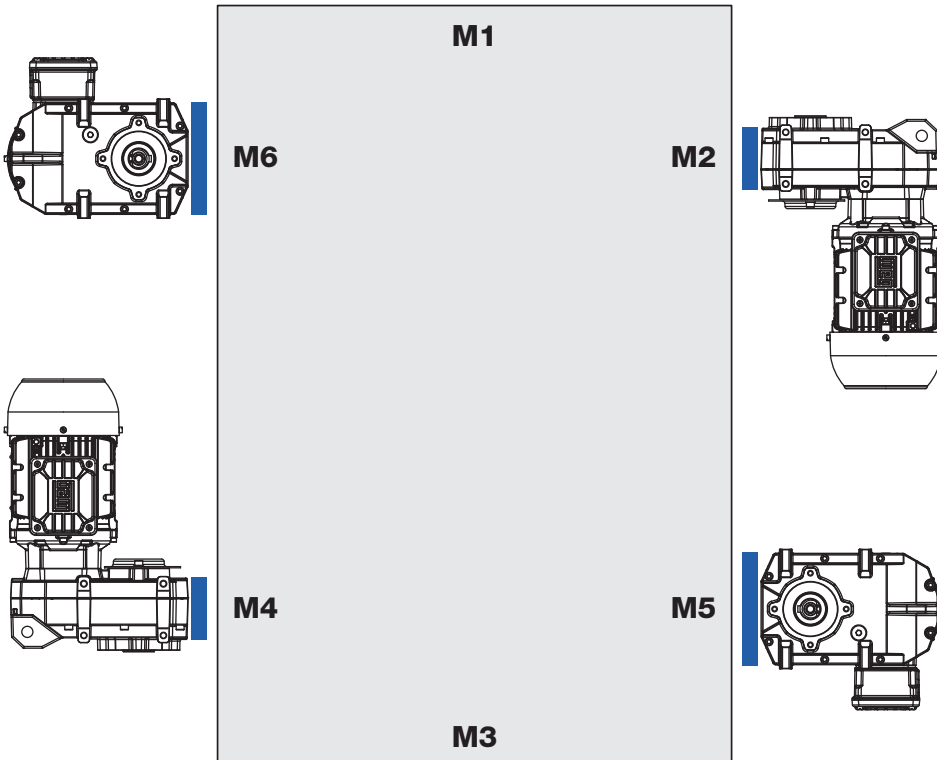
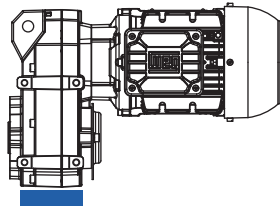
The axial loads (F<sub>aN</sub>) for the respective execution (output shaft or hollow shaft), given in the following selection tables, are valid at radial force F<sub>rN</sub> = 0. If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions - Sizes F02 to F05

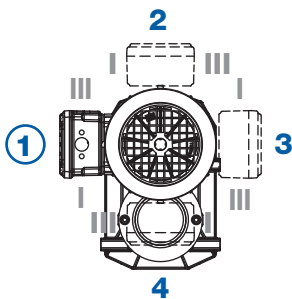
Gear units F02 to F05 are not vented and supplied with lifetime lubrication.

■ Reference area



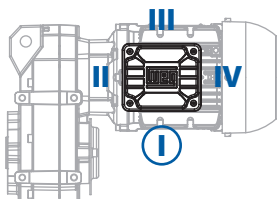
### Position of the terminal box

Standard: Position 1

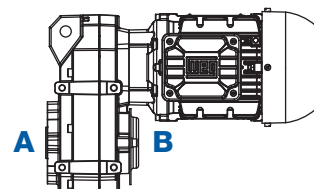


### Cable entry

Standard: Position I



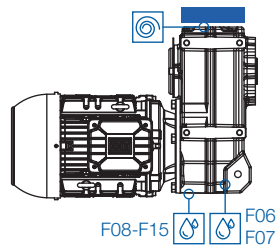
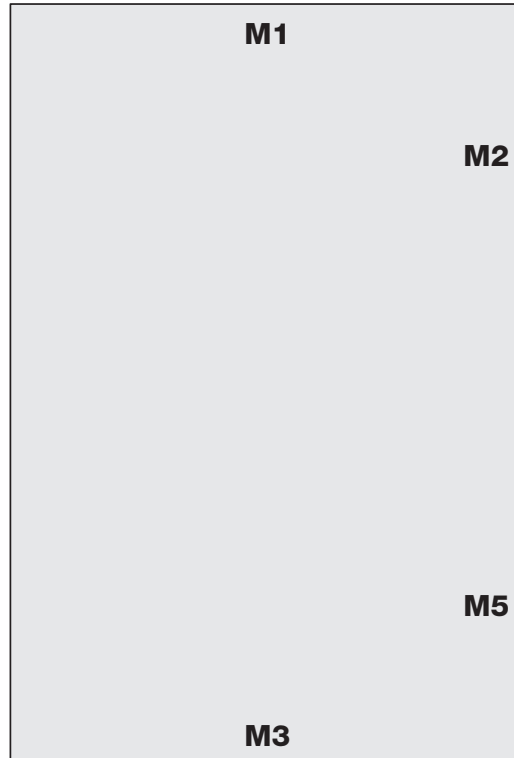
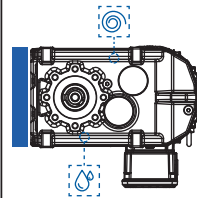
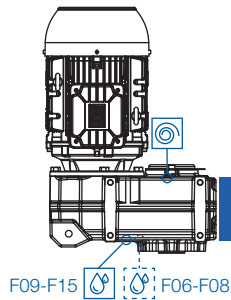
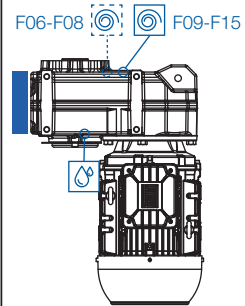
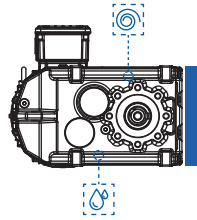
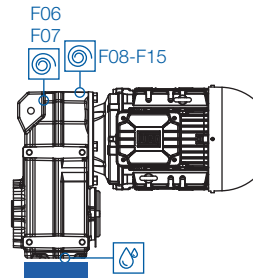
### Side indication





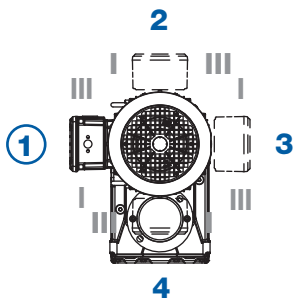
**Mounting positions - Sizes F06 to F15**

- Vent plug
- Oil drain plug
- Position on this side
- Position covered or on the opposite side
- Reference area



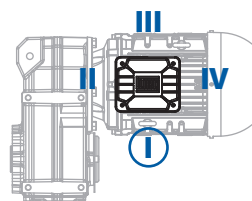
**Position of the terminal box**

Standard: Position 1

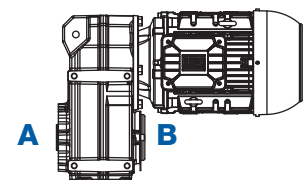


**Cable entry**

Standard: Position I



**Side indication**





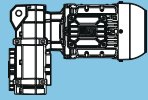
## Selection tables - Geared motors

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +68 °F.

The selection tables are calculated with following motor data:

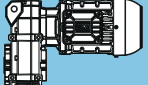
Power (IEC frame size)	Motor series (IE class)
up to 0.75 hp (63 - 80)	11N (IE1) - aluminium
1.0 - 12.5 hp (80 - 132)	11P (IE3) - aluminium
15.0 - 100 hp (160 - 250)	22P (IE3) - cast iron

### Structure of the selection tables

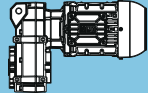
1											
P <sub>N</sub> = 0.16 hp											
60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm					F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb			
2	3	4	5	6	7	8	9	10	11	12	

- 1 Rated power of the motor
- 2 Output speed at 60 Hz
- 3 Output torque
- 4 Service factor
- 5 Total ratio
- 6 Permissible radial load - Execution with output shaft at midpoint of the shaft (standard bearing) at axial load=0
- 7 Permissible axial load - Execution with output shaft (standard bearing) at axial load=0
- 8 Permissible radial load - Execution with hollow shaft at midpoint of x=l/2 (standard bearing) at axial load=0
- 9 Permissible axial load - Execution with hollow shaft (standard bearing) at axial load=0
- 10 Geared motor type
- 11 Weight
- 12 Dimension sheet see page

F

P <sub>N</sub> = 0.16 hp													
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page			
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>						
rpm	lb-in			lb	lb	lb	lb						
0.04	204249	0.80	24805.81	**	**	**	**	FH155-11N-63-06F	1508	320			
0.05	165750	1.00	20285.13	16210	25650	**	**						
0.06	139004	1.15	17143.10	19040	26240	19040	26240						
0.07	129544	1.25	16017.35	19850	26440	19850	26440						
0.08	112511	1.45	14018.89	21090	26800	21090	26800						
0.09	98909	1.65	12419.47	21920	27090	21920	27090						
0.10	87254	1.85	11069.46	22530	27340	22530	27340						
0.11	79506	2.05	10164.86	22860	27520	22860	27520						
0.13	66100	2.45	8582.99	23380	27810	23380	27810						
0.14	59481	2.70	7824.26	23600	27940	23600	27940						
0.07	130789	1.25	24805.81	19830	26420	19830	26420				FH155-11N-63-04E	1508	320
0.08	105589	1.55	20285.13	21580	26950	21580	26950						
0.10	88093	1.85	17143.10	22500	27340	22500	27340						
0.11	81885	1.95	16017.35	22800	27470	22800	27470						
0.12	70749	2.30	14018.89	23250	27720	23250	27720						
0.14	61870	2.60	12419.47	23540	27900	23540	27900						
0.15	54292	2.95	11069.46	23760	28060	23760	28060						
0.36	25293	1.60	3086.96	7940	9240	7940	9240	FH094-11N-63-06F	384	306			
0.42	21164	1.90	2609.75	8250	9370	8250	9370						
0.44	20429	1.95	2524.38	8300	9400	8300	9400						
0.52	17058	2.35	2134.14	8520	9530	8520	9530						
0.55	15834	2.55	1993.28	8590	9550	8590	9550						
0.55	15986	2.50	3086.96	8590	9550	8590	9550	FH094-11N-63-04E	384	306			
0.65	13292	3.00	2609.75	8700	9670	8700	9670						
0.29	32214	0.85	3836.13	2160	3010	**	**	FH084-11N-63-06F	265	302			
0.35	26182	1.05	3137.02	4230	7400	4230	**						
0.36	25341	1.05	3036.24	4430	7820	4430	**						
0.42	21991	1.25	2651.12	5060	9220	5060	1910						
0.45	20554	1.30	2482.91	5280	9280	5280	1980						
0.51	17836	1.50	2167.97	5640	9400	5640	2090						
0.56	16030	1.70	1960.53	5850	9460	5850	2160						
0.58	15672	1.70	1920.62	5870	9490	5870	2180						
0.65	13882	1.95	1711.85	6050	9550	6050	2250						
0.70	12669	2.10	1571.96	6140	9600	6140	2290						
0.73	12226	2.20	1520.15	6180	9620	6180	2320						
0.83	10544	2.55	1327.33	6290	9690	6290	2380						
0.89	9822	2.75	1244.18	6340	9710	6340	2410						
0.91	9532	2.80	1209.99	6360	9730	6360	2430						
0.44	20702	1.30	3836.13	5280	9280	5280	1980	FH084-11N-63-04E	265	302			
0.54	16756	1.60	3137.02	5780	9440	5780	2140						
0.56	16185	1.65	3036.24	5850	9460	5850	2160						
0.64	14016	1.90	2651.12	6050	9550	6050	2250						
0.68	13072	2.05	2482.91	6110	9600	6110	2290						
0.78	11273	2.40	2167.97	6250	9670	6250	2360						
0.86	10111	2.65	1960.53	6320	9710	6320	2410						
0.88	9884	2.70	1920.62	6340	9710	6340	2410						
2.7	3788	1.95	412.64	2590	3100	2590	880	FH063-11N-63-06F	79	296			
2.9	3473	2.10	378.37	2610	3120	2610	900						
3.3	3097	2.35	337.44	2650	3170	2650	920						
3.6	2840	2.60	309.42	2680	3190	2680	940						
4.1	2446	3.00	266.44	2720	3210	2720	990						
4.1	2469	2.95	412.64	2720	3210	2720	990	FH063-11N-63-04E	79	296			
2.3	4476	1.20	487.67	1600	2340	1600	830	FH053-11N-63-06F	44	294			
2.5	4090	1.30	445.56	1710	2360	1710	850						
2.9	3487	1.55	379.87	1870	2430	1870	920						
3.2	3186	1.70	347.07	1910	2430	1910	920						
3.6	2827	1.90	308.00	1980	2470	1980	970						
3.9	2583	2.05	281.41	2020	2500	2020	990						
4.6	2228	2.40	242.67	2070	2520	2070	1010						
5.0	2035	2.60	221.71	2090	2540	2090	1030						

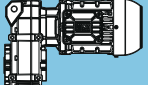
**P<sub>N</sub> = 0.16 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
3.5	2918	1.85	487.67	1960	2470	1960	970	<b>FH053-11N-63-04E</b>	44	294
3.8	2666	2.00	445.56	2000	2470	2000	970			
4.5	2273	2.35	379.87	2070	2520	2070	1010			
4.9	2077	2.55	347.07	2090	2540	2090	1030			
5.5	1843	2.90	308.00	2110	2540	2110	1030			
2.6	3883	0.95	422.98	470	580	**	**	<b>FH043-11N-63-06F</b>	31	292
2.9	3542	1.00	385.85	790	1240	790	**			
3.4	3024	1.20	329.48	1060	1820	1060	580			
3.7	2759	1.30	300.55	1170	1890	1170	630			
4.1	2452	1.45	267.14	1260	1910	1260	650			
4.5	2237	1.60	243.69	1330	1930	1330	670			
5.2	1932	1.85	210.48	1390	1960	1390	700			
5.8	1762	2.05	192.00	1420	1980	1420	720			
6.8	1489	2.40	162.19	1460	2000	1460	740			
7.5	1358	2.65	147.96	1480	2000	1480	740			
4.0	2531	1.40	422.98	1240	1910	1240	650	<b>FH043-11N-63-04E</b>	31	292
4.4	2309	1.55	385.85	1300	1930	1300	670			
5.1	1972	1.80	329.48	1390	1960	1390	700			
5.6	1799	2.00	300.55	1420	1980	1420	720			
6.3	1599	2.25	267.14	1460	1980	1460	720			
7.0	1458	2.45	243.69	1480	2000	1480	740			
8.1	1260	2.85	210.48	1510	2020	1510	760			
11	898	1.30	97.85	1100	470	1100	470	<b>FH022-11N-63-06F</b>	22	288
13	809	1.45	88.09	1120	520	1120	520			
14	700	1.65	76.22	1150	520	1150	520			
16	630	1.85	68.62	1150	540	1150	540			
18	567	2.05	61.80	1150	540	1150	540			
20	511	2.30	55.64	1170	560	1170	560			
23	447	2.60	48.69	1170	540	1170	540			
25	402	2.90	43.83	1170	560	1170	560			
35	292	1.65	31.79	1170	580	1170	580			
17	586	2.00	97.85	1150	520	1150	520			
19	527	2.20	88.09	1150	560	1150	560			
22	456	2.55	76.22	1170	540	1170	540			
25	411	2.85	68.62	1170	560	1170	560			
27	370	3.15	61.80	1170	560	1170	560			
30	333	3.50	55.64	1170	580	1170	580			
35	291	3.95	48.69	1170	560	1170	560			
39	262	4.40	43.83	1170	580	1170	580			
45	225	5.15	37.52	1170	580	1170	580			
50	202	5.70	33.78	1170	580	1170	580			
53	190	2.50	31.79	1170	610	1170	610			
58	175	6.60	29.32	1170	580	1170	580			
64	158	7.30	26.39	1170	610	1170	610			
68	148	5.05	24.76	1170	610	1170	610			
77	131	8.80	21.89	1190	610	1190	610			
84	120	6.20	20.08	1170	610	1170	610			
86	118	9.80	19.70	1170	610	1170	610			
103	99	11.70	16.48	1100	610	1100	610			
107	95	7.90	15.82	1080	610	1080	610			
114	89	13.00	14.84	1060	610	1060	610			
139	73	10.20	12.19	990	610	990	610			
140	72	15.95	12.09	990	610	990	610			
156	65	17.70	10.89	940	610	940	610			
178	57	13.10	9.52	900	610	900	610			
238	43	17.50	7.11	830	610	830	610			
317	32	23.25	5.35	740	610	740	610			
431	24	27.10	3.93	670	610	670	610			

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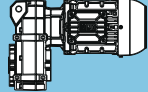
$P_N = 0.25 \text{ hp}$

60 Hz		$f_B$	$i$	Output shaft		Hollow shaft			$m$ lb	Dimension sheet see page
$n_{50}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
0.06	211732	0.80	17143.10	**	**	**	**	FH155-11N-71-06E	1512	320
0.07	197323	0.85	16017.35	11240	18250	**	**			
0.08	172263	0.95	14018.89	15470	25540	**	**			
0.09	151830	1.05	12419.47	17890	25970	17890	**			
0.10	134290	1.20	11069.46	19510	26350	19510	26350			
0.11	123000	1.30	10164.86	20410	26590	20410	26590			
0.13	102533	1.60	8582.99	21740	27020	21740	27020			
0.14	92989	1.75	7824.26	22260	27220	22260	27220			
0.16	82632	1.95	7024.85	22750	27450	22750	27450			
0.19	68468	2.35	5911.67	23310	27760	23310	27760			
0.20	61981	2.60	5407.29	23540	27900	23540	27900			
0.23	54600	2.95	4838.19	23760	28060	23760	28060			
0.07	199143	0.80	24805.81	**	**	**	**	FH155-11N-63-04F	1508	320
0.08	161606	1.00	20285.13	16730	25740	**	**			
0.10	135529	1.20	17143.10	19360	26300	19360	26300			
0.11	125981	1.30	16017.35	20140	26500	20140	26500			
0.12	109417	1.50	14018.89	21290	26860	21290	26860			
0.14	96189	1.70	12419.47	22080	27160	22080	27160			
0.15	84854	1.90	11069.46	22640	27400	22640	27400			
0.17	77319	2.10	10164.86	22950	27560	22950	27560			
0.20	64281	2.50	8582.99	23450	27830	23450	27830			
0.22	57843	2.80	7824.26	23650	27990	23650	27990			
0.49	27016	2.65	2276.77	13420	14770	13420	14770	FH104-11N-71-06E	619	310
0.36	38647	1.05	3086.96	6290	8770	6290	**	FH094-11N-71-06E	388	306
0.42	32472	1.25	2609.75	7190	8990	7190	8990			
0.44	31346	1.30	2524.38	7330	9040	7330	9040			
0.52	26283	1.55	2134.14	7850	9220	7850	9220			
0.55	24447	1.65	1993.28	8000	9260	8000	9260			
0.66	20456	1.95	1685.14	8320	9400	8320	9400			
0.71	18646	2.15	1545.54	8430	9460	8430	9460			
0.85	15536	2.60	1306.62	8590	9580	8590	9580			
0.87	15010	2.70	1264.97	8630	9600	8630	9600			
0.55	24610	1.65	3086.96	7980	9260	7980	9260	FH094-11N-63-04F	384	306
0.65	20592	1.95	2609.75	8300	9400	8300	9400			
0.67	19877	2.05	2524.38	8340	9420	8340	9420			
0.80	16597	2.40	2134.14	8540	9530	8540	9530			
0.85	15406	2.60	1993.28	8610	9580	8610	9580			
0.42	33463	0.80	2651.12	**	**	**	**	FH084-11N-71-06E	269	302
0.45	31276	0.85	2482.91	2700	4140	**	**			
0.51	27197	1.00	2167.97	4020	6950	**	**			
0.56	24494	1.10	1960.53	4630	8270	4630	1820			
0.58	23996	1.15	1920.62	4720	8480	4720	1840			
0.65	21256	1.25	1711.85	5190	9260	5190	1960			
0.70	19439	1.40	1571.96	5440	9330	5440	2020			
0.73	18799	1.45	1520.15	5530	9350	5530	2050			
0.83	16280	1.65	1327.33	5820	9460	5820	2160			
0.89	15197	1.75	1244.18	5930	9510	5930	2200			
0.91	14749	1.85	1209.99	5980	9530	5980	2230			
1.0	13160	2.05	1086.37	6110	9580	6110	2270			
1.2	11482	2.35	957.69	6230	9640	6230	2340			
1.3	9902	2.70	836.22	6340	9710	6340	2410			

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**P<sub>N</sub> = 0.25 hp**

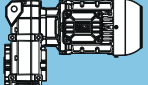
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.44</b>	31409	0.85	3836.13	2590	3890	**	**	<b>FH084-11N-63-04F</b>	265	302
<b>0.54</b>	25528	1.05	3137.02	4380	7730	4380	**			
<b>0.56</b>	24657	1.10	3036.24	4560	8140	4560	1820			
<b>0.64</b>	21441	1.25	2651.12	5150	9240	5150	1930			
<b>0.68</b>	19999	1.35	2482.91	5350	9310	5350	2000			
<b>0.69</b>	19951	1.35	2477.02	5370	9310	5370	2000			
<b>0.78</b>	17355	1.55	2167.97	5690	9420	5690	2110			
<b>0.87</b>	15598	1.75	1960.53	5890	9490	5890	2180			
<b>0.89</b>	15249	1.75	1920.62	5910	9510	5910	2200			
<b>0.99</b>	13507	2.00	1711.85	6070	9580	6070	2270			
<b>1.1</b>	12327	2.20	1571.96	6160	9620	6160	2320			
<b>1.3</b>	10259	2.60	1327.33	6320	9710	6320	2410			
<b>1.4</b>	9556	2.80	1244.18	6360	9730	6360	2430			
<b>2.9</b>	5306	2.55	385.37	4430	3980	4430	1460	<b>FH073-11N-71-06E</b>	134	298
<b>2.7</b>	5682	1.30	412.64	2270	2940	2270	720	<b>FH063-11N-71-06E</b>	84	296
<b>2.9</b>	5210	1.40	378.37	2360	2990	2360	740			
<b>3.3</b>	4646	1.60	337.44	2450	3030	2450	810			
<b>3.6</b>	4260	1.75	309.42	2520	3060	2520	830			
<b>4.1</b>	3669	2.00	266.44	2590	3120	2590	880			
<b>4.5</b>	3364	2.20	244.32	2630	3150	2630	900			
<b>5.3</b>	2844	2.60	206.59	2680	3190	2680	940			
<b>5.8</b>	2608	2.80	189.44	2700	3210	2700	970			
<b>4.1</b>	3693	2.00	412.64	2590	3120	2590	880	<b>FH063-11N-63-04F</b>	79	296
<b>4.5</b>	3386	2.15	378.37	2630	3150	2630	900			
<b>5.0</b>	3020	2.45	337.44	2650	3170	2650	940			
<b>5.5</b>	2769	2.65	309.42	2680	3190	2680	940			
<b>2.3</b>	6715	0.80	487.67	**	**	**	**	<b>FH053-11N-71-06E</b>	49	294
<b>2.5</b>	6135	0.90	445.56	830	1170	**	**			
<b>2.9</b>	5230	1.05	379.87	1350	2270	1350	**			
<b>3.2</b>	4779	1.15	347.07	1510	2320	1510	810			
<b>3.6</b>	4241	1.30	308.00	1690	2360	1690	850			
<b>3.9</b>	3875	1.40	281.41	1780	2380	1780	880			
<b>4.6</b>	3341	1.60	242.67	1890	2430	1890	920			
<b>5.0</b>	3053	1.75	221.71	1930	2450	1930	940			
<b>5.9</b>	2575	2.10	187.00	2020	2500	2020	990			
<b>6.5</b>	2352	2.25	170.85	2050	2520	2050	1010			
<b>7.6</b>	2012	2.65	146.10	2090	2540	2090	1030			
<b>8.3</b>	1838	2.90	133.49	2110	2540	2110	1030			
<b>3.5</b>	4364	1.25	487.67	1640	2340	1640	830	<b>FH053-11N-63-04F</b>	44	294
<b>3.8</b>	3988	1.35	445.56	1750	2380	1750	880			
<b>4.5</b>	3400	1.60	379.87	1870	2430	1870	920			
<b>4.9</b>	3106	1.75	347.07	1930	2450	1930	940			
<b>5.5</b>	2756	1.95	308.00	1980	2470	1980	970			
<b>6.0</b>	2519	2.10	281.41	2020	2500	2020	990			
<b>7.0</b>	2172	2.45	242.67	2070	2520	2070	1010			
<b>7.7</b>	1984	2.70	221.71	2090	2540	2090	1030			
<b>13</b>	1203	2.75	87.38	2160	2610	2160	1100	<b>FH052-11N-71-06E</b>	49	294
<b>14</b>	1099	2.75	79.84	2160	2610	2160	1100			
<b>23</b>	663	2.75	48.15	2180	2630	2180	1120			

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$P_N = 0.25 \text{ hp}$

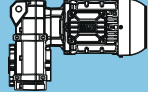
60 Hz		$f_B$	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{50}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
3.4	4537	0.80	329.48	**	**	**	**	FH043-11N-71-06E	35	292
3.7	4138	0.90	300.55	**	**	**	**			
4.1	3678	1.00	267.14	700	1060	**	**			
4.5	3355	1.10	243.69	900	1480	900	560			
5.2	2898	1.25	210.48	1120	1870	1120	610			
5.8	2644	1.35	192.00	1210	1890	1210	630			
6.8	2233	1.60	162.19	1330	1930	1330	670			
7.5	2037	1.75	147.96	1370	1960	1370	700			
8.7	1745	2.05	126.72	1440	1980	1440	720			
9.6	1592	2.25	115.60	1460	1980	1460	720			
12	1303	2.75	94.61	1510	2020	1510	760			
13	1188	3.00	86.31	1510	2020	1510	760			
4.0	3786	0.95	422.98	580	810	**	**			
4.4	3453	1.05	385.85	830	1350	830	**			
5.2	2949	1.25	329.48	1100	1870	1100	610			
5.7	2690	1.35	300.55	1190	1890	1190	630			
6.4	2391	1.50	267.14	1280	1910	1280	650			
7.0	2181	1.65	243.69	1330	1930	1330	670			
8.1	1884	1.90	210.48	1390	1960	1390	700			
8.9	1718	2.10	192.00	1440	1980	1440	720			
10	1452	2.45	162.19	1480	2000	1480	740			
11	1324	2.70	147.96	1510	2020	1510	760			
15	1044	2.75	75.79	1530	2050	1530	790	FH042-11N-71-06E	35	292
16	952	2.75	69.14	1530	2050	1530	790			
27	567	2.75	41.20	1570	2070	1570	810			
16	966	2.05	70.17	1060	670	1060	670	FH032-11N-71-06E	33	290
17	876	2.25	63.63	1080	720	1080	720			
19	786	2.50	57.07	1100	700	1100	700			
21	713	2.75	51.75	1100	740	1100	740			
40	381	2.80	27.67	1150	760	1150	760			
11	1347	0.90	97.85	1010	400	**	**	FH022-11N-71-06E	26	288
13	1213	0.95	88.09	1030	470	**	**			
14	1049	1.10	76.22	1080	450	1080	450			
16	945	1.25	68.62	1100	520	1100	520			
18	851	1.40	61.80	1120	490	1120	490			
20	766	1.55	55.64	1120	540	1120	540			
23	670	1.75	48.69	1150	520	1150	520			
25	603	1.95	43.83	1150	540	1150	540			
29	517	2.25	37.52	1150	540	1150	540			
33	465	2.50	33.78	1170	560	1170	560			
35	438	1.10	31.79	1170	560	1170	560			
38	404	2.90	29.32	1170	560	1170	560			
45	341	2.20	24.76	1170	580	1170	580			
55	276	2.70	20.08	1170	580	1170	580			

Legend see page 187

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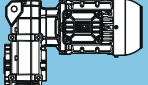


$P_N = 0.25 \text{ hp}$

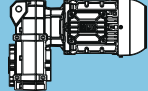
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{60}$	$T_2$	$f_B$		$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
17	876	1.35	97.85	1100	470	1100	470	FH022-11N-63-04F	22	288
19	788	1.50	88.09	1120	520	1120	520			
22	682	1.70	76.22	1150	520	1150	520			
25	614	1.90	68.62	1150	540	1150	540			
28	553	2.10	61.80	1150	540	1150	540			
31	498	2.35	55.64	1170	560	1170	560			
35	436	2.65	48.69	1170	540	1170	540			
39	392	2.95	43.83	1170	560	1170	560			
45	336	3.45	37.52	1170	560	1170	560			
50	302	3.85	33.78	1170	580	1170	580			
53	285	1.65	31.79	1170	580	1170	580			
58	262	4.40	29.32	1170	580	1170	580			
64	236	4.90	26.39	1170	580	1170	580			
69	222	3.40	24.76	1170	580	1170	580			
78	196	5.90	21.89	1170	580	1170	580			
85	180	4.15	20.08	1170	610	1170	610			
86	176	6.55	19.70	1170	610	1170	610			
103	147	7.85	16.48	1100	580	1100	580			
107	142	5.30	15.82	1080	610	1080	610			
115	133	8.70	14.84	1060	610	1060	610			
139	109	6.85	12.19	990	610	990	610			
141	108	10.65	12.09	990	610	990	610			
156	97	11.85	10.89	940	610	940	610			
179	85	8.75	9.52	900	610	900	610			
239	64	11.70	7.11	830	610	830	610			
318	48	15.55	5.35	740	610	740	610			
433	35	18.15	3.93	670	610	670	610			

F

Legend see page 187

<b>P<sub>N</sub> = 0.33 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.09</b>	212084	0.80	12419.47	**	**	**	**	<b>FH155-11N-71-06F</b>	1515	320
<b>0.10</b>	188548	0.85	11069.46	12990	21940	**	**			
<b>0.11</b>	172697	0.95	10164.86	15440	25520	**	**			
<b>0.13</b>	144706	1.15	8582.99	18610	26120	18610	26120			
<b>0.14</b>	131240	1.25	7824.26	19780	26420	19780	26420			
<b>0.16</b>	116928	1.40	7024.85	20840	26730	20840	26730			
<b>0.19</b>	97392	1.65	5911.67	22030	27130	22030	27130			
<b>0.21</b>	88397	1.85	5407.29	22480	27340	22480	27340			
<b>0.23</b>	78484	2.05	4838.19	22930	27540	22930	27540			
<b>0.27</b>	65085	2.45	4085.50	23450	27830	23450	27830			
<b>0.10</b>	190659	0.85	17143.10	12390	20660	**	**	<b>FH155-11N-71-04E</b>	1510	320
<b>0.11</b>	177684	0.90	16017.35	14570	25310	**	**			
<b>0.12</b>	154721	1.05	14018.89	17490	25900	17490	**			
<b>0.14</b>	136368	1.20	12419.47	19290	26280	19290	26280			
<b>0.15</b>	120613	1.35	11069.46	20550	26620	20550	26620			
<b>0.17</b>	110189	1.45	10164.86	21240	26840	21240	26840			
<b>0.20</b>	92089	1.75	8582.99	22280	27250	22280	27250			
<b>0.22</b>	83302	1.95	7824.26	22710	27430	22710	27430			
<b>0.24</b>	74023	2.20	7024.85	23090	27630	23090	27630			
<b>0.29</b>	61174	2.65	5911.67	23560	27900	23560	27900			
<b>0.31</b>	55233	2.90	5407.29	23740	28030	23740	28030			
<b>0.49</b>	38371	1.85	2276.77	12900	14430	12900	14430	<b>FH104-11N-71-06F</b>	622	310
<b>0.56</b>	32966	2.15	1976.36	13170	14590	13170	14590			
<b>0.63</b>	29018	2.45	1757.78	13350	14700	13350	14700			
<b>0.65</b>	28131	2.55	1707.58	13380	14720	13380	14720			
<b>0.73</b>	24826	2.90	1525.85	13510	14840	13510	14840			
<b>0.75</b>	23936	3.00	1474.19	13530	14860	13530	14860			
<b>0.75</b>	24137	2.95	2276.77	13530	14840	13530	14840	<b>FH104-11N-71-04E</b>	617	310
<b>0.43</b>	45359	0.90	2609.75	4920	8270	**	**	<b>FH094-11N-71-06F</b>	390	306
<b>0.44</b>	43875	0.95	2524.38	5280	8590	**	**			
<b>0.52</b>	36866	1.10	2134.14	6590	8830	6590	8830			
<b>0.56</b>	34362	1.20	1993.28	6950	8920	6950	8920			
<b>0.66</b>	28812	1.40	1685.14	7600	9130	7600	9130			
<b>0.72</b>	26317	1.55	1545.54	7850	9220	7850	9220			
<b>0.85</b>	22021	1.85	1306.62	8210	9350	8210	9350			
<b>0.88</b>	21275	1.90	1264.97	8250	9370	8250	9370			
<b>1.0</b>	17765	2.25	1069.42	8480	9510	8480	9510			
<b>1.1</b>	16041	2.50	973.69	8570	9550	8570	9550			
<b>1.3</b>	13338	3.00	823.17	8700	9640	8700	9640			
<b>0.55</b>	34747	1.15	3086.96	6860	8900	6860	8900	<b>FH094-11N-71-04E</b>	386	306
<b>0.65</b>	29195	1.40	2609.75	7550	9100	7550	9100			
<b>0.67</b>	28182	1.45	2524.38	7640	9130	7640	9130			
<b>0.80</b>	23582	1.70	2134.14	8070	9280	8070	9280			
<b>0.85</b>	21935	1.85	1993.28	8210	9350	8210	9350			
<b>1.0</b>	18353	2.20	1685.14	8430	9490	8430	9490			
<b>1.1</b>	16694	2.40	1545.54	8540	9530	8540	9530			
<b>1.3</b>	13881	2.90	1306.62	8680	9640	8680	9640			

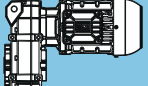
**$P_N = 0.33 \text{ hp}$** 

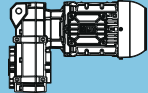
60 Hz		$f_B$	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
<b>0.57</b>	34215	0.80	1960.53	**	**	**	**	<b>FH084-11N-71-06F</b>	271	302
<b>0.58</b>	33519	0.80	1920.62	**	**	**	**			
<b>0.65</b>	29753	0.90	1711.85	3300	5420	**	**			
<b>0.71</b>	27266	1.00	1571.96	4020	6950	**	**			
<b>0.73</b>	26313	1.05	1520.15	4250	7440	4250	**			
<b>0.84</b>	22882	1.20	1327.33	4920	8920	4920	1890			
<b>0.89</b>	21360	1.25	1244.18	5170	9260	5170	1960			
<b>0.92</b>	20773	1.30	1209.99	5260	9280	5260	1980			
<b>1.0</b>	18537	1.45	1086.37	5580	9370	5580	2070			
<b>1.2</b>	16240	1.65	957.69	5820	9460	5820	2160			
<b>1.3</b>	14064	1.90	836.22	6050	9550	6050	2250			
<b>1.5</b>	12480	2.15	748.21	6160	9620	6160	2320			
<b>1.8</b>	10387	2.60	631.81	6320	9690	6320	2380			
<b>1.9</b>	9675	2.75	592.20	6340	9730	6340	2430			
<b>0.56</b>	34598	0.80	3036.24	**	**	**	**	<b>FH084-11N-71-04E</b>	267	302
<b>0.64</b>	30086	0.90	2651.12	3120	5040	**	**			
<b>0.68</b>	28120	0.95	2482.91	3750	6360	**	**			
<b>0.69</b>	28053	0.95	2477.02	3750	6360	**	**			
<b>0.78</b>	24453	1.10	2167.97	4610	8230	4610	1820			
<b>0.87</b>	22022	1.25	1960.53	5060	9220	5060	1910			
<b>0.89</b>	21574	1.25	1920.62	5130	9240	5130	1930			
<b>0.99</b>	19111	1.40	1711.85	5490	9350	5490	2050			
<b>1.1</b>	17477	1.55	1571.96	5690	9420	5690	2110			
<b>1.3</b>	14606	1.85	1327.33	5980	9530	5980	2230			
<b>1.4</b>	13635	1.95	1244.18	6070	9550	6070	2250			
<b>1.6</b>	11783	2.30	1086.37	6200	9640	6200	2340			
<b>1.8</b>	10280	2.60	957.69	6320	9690	6320	2380			
<b>1.9</b>	9773	2.75	914.22	6340	9710	6340	2410			
<b>2.9</b>	7336	1.85	385.37	4270	3890	4270	1350	<b>FH074-11N-71-06F</b>	137	298
<b>3.6</b>	5814	2.30	305.42	4410	3960	4410	1440			
<b>4.7</b>	4515	2.95	237.15	4470	4020	4470	1510			
<b>4.4</b>	4790	2.80	385.37	4470	4020	4470	1480	<b>FH073-11N-71-04E</b>	132	298
<b>2.7</b>	7855	0.95	412.64	1640	2610	**	**	<b>FH063-11N-71-06F</b>	86	296
<b>2.9</b>	7203	1.05	378.37	1870	2810	1870	**			
<b>3.3</b>	6424	1.15	337.44	2090	2880	2090	650			
<b>3.6</b>	5890	1.25	309.42	2230	2920	2230	700			
<b>4.2</b>	5072	1.45	266.44	2380	2990	2380	760			
<b>4.5</b>	4651	1.60	244.32	2450	3030	2450	790			
<b>5.4</b>	3933	1.85	206.59	2560	3100	2560	850			
<b>5.9</b>	3606	2.05	189.44	2610	3120	2610	880			
<b>6.6</b>	3219	2.30	169.09	2650	3150	2650	920			
<b>7.2</b>	2952	2.50	155.05	2680	3170	2680	940			
<b>8.5</b>	2478	2.95	130.15	2720	3210	2720	990			
<b>4.1</b>	5129	1.45	412.64	2380	2990	2380	760	<b>FH063-11N-71-04E</b>	82	296
<b>4.5</b>	4703	1.55	378.37	2450	3030	2450	790			
<b>5.0</b>	4194	1.75	337.44	2520	3080	2520	830			
<b>5.5</b>	3846	1.90	309.42	2560	3100	2560	850			
<b>6.4</b>	3312	2.20	266.44	2630	3150	2630	900			
<b>7.0</b>	3037	2.40	244.32	2650	3170	2650	920			
<b>8.2</b>	2568	2.85	206.59	2700	3210	2700	970			

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\*\* ... on request

$P_N = 0.33 \text{ hp}$

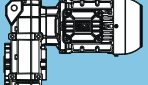
60 Hz		$f_B$	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{50}$	$T_2$			$F_{rN}$	$F_{sN}$	$F_{rN}$	$F_{sN}$			
rpm	lb-in			lb	lb	lb	lb			
3.2	6607	0.80	347.07	**	**	**	**	FH053-11N-71-06F	51	294
3.6	5863	0.95	308.00	1010	1550	**	**			
3.9	5357	1.00	281.41	1280	2140	**	**			
4.6	4620	1.15	242.67	1570	2340	1570	830			
5.0	4221	1.30	221.71	1690	2360	1690	850			
5.9	3560	1.50	187.00	1840	2410	1840	900			
6.5	3252	1.65	170.85	1910	2430	1910	920			
7.6	2781	1.95	146.10	1980	2470	1980	970			
8.3	2541	2.10	133.49	2020	2500	2020	990			
10	2077	2.60	109.08	2090	2540	2090	1030			
11	1897	2.80	99.66	2090	2540	2090	1030			
3.5	6062	0.90	487.67	850	1210	**	**	FH053-11N-71-04E	46	294
3.8	5538	1.00	445.56	1190	1930	**	**			
4.5	4722	1.15	379.87	1530	2320	1530	810			
4.9	4314	1.25	347.07	1660	2340	1660	830			
5.5	3828	1.40	308.00	1780	2380	1780	880			
6.0	3498	1.55	281.41	1870	2410	1870	900			
7.0	3016	1.80	242.67	1960	2450	1960	940			
7.7	2756	1.95	221.71	1980	2470	1980	970			
9.1	2324	2.30	187.00	2050	2520	2050	1010			
10	2124	2.50	170.85	2070	2520	2070	1010			
12	1816	2.95	146.10	2110	2560	2110	1060			
13	1663	2.00	87.38	2110	2560	2110	1060	FH052-11N-71-06F	51	294
14	1520	2.00	79.84	2140	2590	2140	1080			
23	917	2.00	48.15	2180	2590	2180	1080			
4.6	4639	0.80	243.69	**	**	**	**	FH043-11N-71-06F	37	292
5.3	4007	0.90	210.48	340	290	**	**			
5.8	3655	1.00	192.00	720	1100	**	**			
6.8	3088	1.15	162.19	1030	1780	1030	580			
7.5	2817	1.30	147.96	1150	1870	1150	610			
8.8	2412	1.50	126.72	1280	1910	1280	650			
9.6	2201	1.65	115.60	1330	1930	1330	670			
12	1801	2.00	94.61	1420	1980	1420	720			
13	1643	2.20	86.31	1440	1980	1440	720			
16	1356	2.65	71.24	1480	2000	1480	740			
17	1237	2.90	64.98	1510	2020	1510	760			
5.2	4095	0.90	329.48	**	**	**	**	FH043-11N-71-04E	33	292
5.7	3736	0.95	300.55	630	920	**	**			
6.4	3321	1.10	267.14	920	1530	920	560			
7.0	3029	1.20	243.69	1060	1840	1060	610			
8.1	2616	1.40	210.48	1210	1890	1210	630			
8.9	2387	1.50	192.00	1280	1910	1280	650			
10	2016	1.80	162.19	1370	1960	1370	700			
11	1839	1.95	147.96	1420	1960	1420	700			
13	1575	2.25	126.72	1460	1980	1460	720			
15	1437	2.50	115.60	1480	2000	1480	740			
15	1443	2.00	75.79	1480	2000	1480	740			
16	1316	2.00	69.14	1510	2020	1510	760			
27	784	2.00	41.20	1550	2020	1550	760			
16	1336	1.50	70.17	990	610	990	610	FH032-11N-71-06F	35	290
17	1211	1.65	63.63	1010	670	1010	670			
19	1086	1.80	57.07	1030	650	1030	650			
21	985	2.00	51.75	1060	700	1060	700			
24	863	2.30	45.35	1080	670	1080	670			
27	783	2.50	41.12	1100	720	1100	720			
32	667	2.95	35.03	1120	720	1120	720			
40	527	2.00	27.67	1120	740	1120	740			
24	872	2.25	70.17	1080	670	1080	670			
27	791	2.50	63.63	1100	720	1100	720			
30	709	2.75	57.07	1100	700	1100	700			

P <sub>N</sub> = 0.33 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
15	1451	0.80	76.22	**	**	**	**	FH022-11N-71-06F	29	288
16	1306	0.90	68.62	1010	470	**	**			
18	1176	1.00	61.80	1060	430	**	**			
20	1059	1.10	55.64	1080	490	1080	490			
23	927	1.25	48.69	1100	470	1100	470			
25	834	1.40	43.83	1120	520	1120	520			
30	714	1.65	37.52	1120	520	1120	520			
33	643	1.80	33.78	1150	540	1150	540			
35	605	0.80	31.79	**	**	**	**			
38	558	2.10	29.32	1150	540	1150	540			
42	502	2.30	26.39	1170	560	1170	560			
45	471	1.60	24.76	1170	560	1170	560			
51	417	2.80	21.89	1170	560	1170	560			
55	382	1.95	20.08	1170	580	1170	580			
70	301	2.50	15.82	1170	580	1170	580			
17	1216	0.95	97.85	1030	430	**	**			
19	1095	1.10	88.09	1060	490	1060	**			
22	947	1.25	76.22	1100	470	1100	470			
25	853	1.35	68.62	1120	520	1120	520			
28	768	1.50	61.80	1120	490	1120	490			
31	692	1.70	55.64	1150	540	1150	540			
35	605	1.95	48.69	1150	520	1150	520			
39	545	2.15	43.83	1150	560	1150	560			
45	466	2.50	37.52	1170	540	1170	540			
50	420	2.75	33.78	1170	560	1170	560			
53	395	1.20	31.79	1170	560	1170	560			
58	364	3.20	29.32	1170	560	1170	560			
64	328	3.55	26.39	1170	580	1170	580			
69	308	2.45	24.76	1170	580	1170	580			
78	272	4.25	21.89	1170	580	1170	580			
85	250	3.00	20.08	1170	580	1170	580			
86	245	4.70	19.70	1170	580	1170	580			
103	205	5.65	16.48	1120	580	1120	580			
107	197	3.80	15.82	1100	610	1100	610			
115	184	6.25	14.84	1080	610	1080	610			
139	152	4.95	12.19	990	610	990	610			
141	150	7.70	12.09	990	580	990	580			
156	135	8.55	10.89	970	610	970	610			
179	118	6.30	9.52	920	610	920	610			
239	88	8.45	7.11	830	610	830	610			
318	67	11.20	5.35	740	610	740	610			
433	49	13.05	3.93	670	610	670	610			

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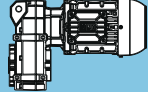
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P <sub>N</sub> = 0.50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
0.14	193751	0.85	7824.26	12180	20230	**	**	FH155-11N-80-06E	1519	320
0.16	173511	0.95	7024.85	15420	25520	**	**			
0.19	144899	1.10	5911.67	18640	26120	18640	26120			
0.21	131859	1.25	5407.29	19780	26420	19780	26420			
0.23	117076	1.40	4838.19	20860	26730	20860	26730			
0.28	97851	1.65	4085.50	22030	27130	22030	27130			
0.29	93724	1.70	3923.28	22260	27220	22260	27220			
0.34	78854	2.05	3343.64	22930	27540	22930	27540			
0.42	62471	2.60	2711.35	23540	27900	23540	27900			
0.14	206772	0.80	12419.47	**	**	**	**	FH155-11N-71-04F	1512	320
0.15	183356	0.90	11069.46	13830	23720	**	**			
0.17	167942	0.95	10164.86	16050	25630	**	**			
0.20	140721	1.15	8582.99	18970	26210	18970	26210			
0.22	127626	1.25	7824.26	20050	26480	20050	26480			
0.24	113999	1.40	7024.85	21040	26770	21040	26770			
0.29	94709	1.70	5911.67	22170	27200	22170	27200			
0.31	86183	1.85	5407.29	22590	27380	22590	27380			
0.35	76321	2.10	4838.19	23020	27580	23020	27580			
0.41	63291	2.55	4085.50	23490	27880	23490	27880			
0.49	54723	2.95	2318.30	23760	28060	23760	28060	FH154-11N-80-06E	1490	318
0.49	56061	2.10	2307.03	19110	20530	19110	20530	FH124-11N-80-06E	935	314
0.56	48377	2.40	2011.51	19360	20700	19360	20700			
0.63	42307	2.75	1781.14	19540	20860	19540	20860			
0.65	41070	2.85	1732.67	19560	20880	19560	20880			
0.50	56827	1.25	2276.77	11600	13920	11600	13920	FH104-11N-80-06E	626	310
0.57	49026	1.45	1976.36	12230	14140	12230	14140			
0.64	43335	1.65	1757.78	12610	14300	12610	14300			
0.66	42011	1.70	1707.58	12700	14340	12700	14340			
0.74	37309	1.90	1525.85	12970	14480	12970	14480			
0.77	35897	2.00	1474.19	13040	14500	13040	14500			
0.86	31837	2.25	1318.33	13240	14640	13240	14640			
0.88	30840	2.30	1279.68	13290	14660	13290	14660			
0.98	27652	2.60	1156.94	13400	14750	13400	14750			
1.0	26316	2.70	1105.64	13470	14790	13470	14790			
1.1	23657	3.00	1004.29	13560	14860	13560	14860			
0.74	37333	1.90	2276.77	12970	14460	12970	14460	FH104-11N-71-04F	619	310
0.85	32074	2.25	1976.36	13220	14610	13220	14610			
0.96	28233	2.55	1757.78	13380	14720	13380	14720			
0.99	27370	2.60	1707.58	13420	14750	13420	14750			
1.1	24154	2.95	1525.85	13530	14840	13530	14840			
0.57	50573	0.80	1993.28	**	**	**	**	FH094-11N-80-06E	395	306
0.67	42493	0.95	1685.14	5620	8660	**	**			
0.73	38893	1.05	1545.54	6290	8770	6290	**			
0.86	32679	1.25	1306.62	7170	8990	7170	8990			
0.89	31573	1.30	1264.97	7310	9040	7310	9040			
1.1	26474	1.55	1069.42	7850	9190	7850	9190			
1.2	23955	1.70	973.69	8070	9280	8070	9280			
1.4	20044	2.00	823.17	8340	9420	8340	9420			
1.5	17767	2.25	735.68	8480	9510	8480	9510			
1.8	14804	2.70	621.95	8630	9600	8630	9600			
1.9	14271	2.80	602.09	8660	9620	8660	9620			

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**P<sub>N</sub> = 0.50 hp**

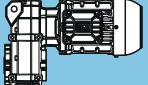
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.55</b>	52524	0.80	3086.96	**	**	**	**	<b>FH094-11N-71-04F</b>	388	306
<b>0.65</b>	44223	0.95	2609.75	5190	8590	**	**			
<b>0.67</b>	42689	0.95	2524.38	5530	8630	**	**			
<b>0.79</b>	35942	1.15	2134.14	6720	8880	6720	8880			
<b>0.85</b>	33433	1.20	1993.28	7060	8970	7060	8970			
<b>1.0</b>	28091	1.45	1685.14	7670	9150	7670	9150			
<b>1.1</b>	25605	1.60	1545.54	7910	9240	7910	9240			
<b>1.3</b>	21425	1.90	1306.62	8250	9370	8250	9370			
<b>1.6</b>	17284	2.35	1069.42	8500	9510	8500	9510			
<b>1.7</b>	15607	2.60	973.69	8590	9580	8590	9580			
<b>0.85</b>	33677	0.80	1327.33	**	**	**	**	<b>FH084-11N-80-06E</b>	273	302
<b>0.91</b>	31503	0.85	1244.18	2680	4090	**	**			
<b>0.93</b>	30574	0.90	1209.99	3060	4880	**	**			
<b>1.0</b>	27394	1.00	1086.37	4000	6900	**	**			
<b>1.2</b>	24051	1.15	957.69	4740	8520	4740	1840			
<b>1.4</b>	20872	1.30	836.22	5260	9280	5260	1980			
<b>1.5</b>	18560	1.45	748.21	5580	9370	5580	2070			
<b>1.6</b>	17913	1.50	723.59	5640	9400	5640	2090			
<b>1.8</b>	15544	1.75	631.81	5910	9490	5910	2180			
<b>1.9</b>	14866	1.80	606.72	5980	9510	5980	2200			
<b>2.2</b>	12539	2.15	517.08	6160	9620	6160	2320			
<b>2.4</b>	11573	2.30	480.21	6230	9640	6230	2340			
<b>2.7</b>	9980	2.70	419.30	6340	9710	6340	2410			
<b>2.8</b>	9528	2.80	401.99	6360	9730	6360	2430			
<b>0.86</b>	33358	0.80	1960.53	**	**	**	**	<b>FH084-11N-71-04F</b>	267	302
<b>0.88</b>	32612	0.85	1920.62	2050	2790	**	**			
<b>0.98</b>	29008	0.95	1711.85	3530	5890	**	**			
<b>1.1</b>	26529	1.05	1571.96	4180	7280	4180	**			
<b>1.3</b>	22263	1.20	1327.33	5040	9170	5040	1910			
<b>1.4</b>	20826	1.30	1244.18	5260	9280	5260	1980			
<b>1.6</b>	18072	1.50	1086.37	5620	9400	5620	2090			
<b>1.8</b>	15053	1.80	914.22	5930	9510	5930	2200			
<b>2.0</b>	13684	1.95	836.22	6070	9550	6070	2250			
<b>2.3</b>	12143	2.20	748.21	6180	9620	6180	2320			
<b>2.7</b>	10106	2.65	631.81	6320	9710	6320	2410			
<b>2.8</b>	9414	2.85	592.20	6360	9730	6360	2430			
<b>3.2</b>	9922	2.70	358.52	6340	9710	6340	2410	<b>FH083-11N-80-06E</b>	245	300
<b>2.9</b>	10666	1.25	385.37	3890	3710	3890	1170	<b>FH073-11N-80-06E</b>	141	298
<b>3.7</b>	8453	1.60	305.42	4160	3820	4160	1300			
<b>4.8</b>	6563	2.05	237.15	4340	3930	4340	1390			
<b>5.8</b>	5385	2.50	194.58	4430	3980	4430	1460			
<b>4.4</b>	7153	1.90	385.37	4290	3890	4290	1370	<b>FH073-11N-71-04F</b>	134	298
<b>5.5</b>	5669	2.35	305.42	4410	3980	4410	1440			
<b>3.3</b>	9339	0.80	337.44	**	**	**	**	<b>FH063-11N-80-06E</b>	90	296
<b>3.7</b>	8564	0.85	309.42	1330	1930	**	**			
<b>4.2</b>	7374	1.00	266.44	1820	2810	1820	**			
<b>4.6</b>	6762	1.10	244.32	2020	2860	2020	610			
<b>5.5</b>	5718	1.30	206.59	2270	2940	2270	720			
<b>6.0</b>	5243	1.40	189.44	2360	2990	2360	740			
<b>6.7</b>	4680	1.60	169.09	2450	3030	2450	790			
<b>7.3</b>	4291	1.70	155.05	2520	3060	2520	830			
<b>8.7</b>	3602	2.05	130.15	2610	3120	2610	900			
<b>9.5</b>	3303	2.20	119.35	2630	3150	2630	900			
<b>11</b>	2722	2.70	98.34	2700	3190	2700	970			
<b>13</b>	2496	2.95	90.17	2720	3210	2720	990			

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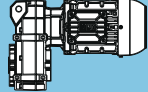
P <sub>N</sub> = 0.50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>sN</sub>	F <sub>rN</sub>	F <sub>sN</sub>			
rpm	lb-in			lb	lb	lb	lb			
4.1	7659	0.95	412.64	1710	2770	**	**	FH063-11N-71-04F	84	296
4.5	7023	1.05	378.37	1930	2830	1930	**			
5.0	6263	1.20	337.44	2140	2900	2140	650			
5.4	5743	1.30	309.42	2250	2940	2250	700			
6.3	4945	1.50	266.44	2410	3010	2410	760			
6.9	4535	1.65	244.32	2470	3030	2470	810			
8.2	3834	1.90	206.59	2590	3100	2590	880			
8.9	3516	2.10	189.44	2610	3120	2610	900			
10	3138	2.35	169.09	2650	3170	2650	920			
11	2878	2.55	155.05	2680	3190	2680	940			
4.7	6716	0.80	242.67	**	**	**	**			
5.1	6136	0.90	221.71	850	1210	**	**			
6.0	5175	1.05	187.00	1370	2290	1370	**			
6.6	4728	1.15	170.85	1550	2320	1550	810			
7.7	4043	1.35	146.10	1730	2380	1730	880			
8.5	3694	1.45	133.49	1820	2410	1820	900			
10	3019	1.80	109.08	1960	2450	1960	940			
11	2758	1.95	99.66	2000	2470	2000	970			
12	2605	2.05	94.11	2020	2500	2020	990			
13	2380	2.25	85.99	2050	2500	2050	990			
14	2273	2.35	82.13	2070	2520	2070	1010			
15	2077	2.55	75.04	2090	2540	2090	1030			
4.4	7051	0.80	379.87	**	**	**	**	FH053-11N-71-04F	49	294
4.9	6442	0.85	347.07	490	470	**	**			
5.5	5717	0.95	308.00	1100	1750	**	**			
6.0	5223	1.05	281.41	1350	2270	1350	**			
6.9	4504	1.20	242.67	1600	2340	1600	830			
7.6	4115	1.30	221.71	1710	2360	1710	850			
9.0	3471	1.55	187.00	1870	2430	1870	920			
9.9	3171	1.70	170.85	1930	2450	1930	940			
12	2712	2.00	146.10	2000	2470	2000	970			
13	2478	2.15	133.49	2020	2500	2020	990			
15	2025	2.65	109.08	2090	2540	2090	1030			
17	1850	2.90	99.66	2110	2540	2110	1030			
13	2418	1.40	87.38	2050	2500	2050	990	FH052-11N-80-06E	53	294
14	2210	1.40	79.84	2070	2520	2070	1010			
16	1978	2.25	71.46	2090	2540	2090	1030			
17	1807	2.25	65.29	2110	2560	2110	1060			
23	1333	1.40	48.15	2140	2540	2140	1030			
29	1090	2.25	39.38	2160	2590	2160	1080			
19	1622	2.05	87.38	2110	2560	2110	1060	FH052-11N-71-04F	46	294
21	1482	2.05	79.84	2140	2590	2140	1080			
35	894	2.05	48.15	2180	2610	2180	1100			
7.0	4489	0.80	162.19	**	**	**	**	FH043-11N-80-06E	42	292
7.6	4095	0.90	147.96	160	-70	**	**			
8.9	3507	1.05	126.72	830	1350	830	**			
9.8	3199	1.15	115.60	990	1690	990	580			
12	2618	1.40	94.61	1210	1890	1210	630			
13	2389	1.50	86.31	1280	1910	1280	650			
14	2259	1.60	81.63	1330	1930	1330	670			
15	2061	1.75	74.46	1370	1960	1370	700			
16	1972	1.80	71.24	1390	1960	1390	700			
17	1798	2.00	64.98	1420	1980	1420	720			
22	1447	2.45	52.27	1480	2000	1480	740			
24	1320	2.70	47.68	1510	2020	1510	760			

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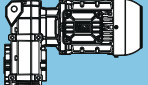


**P<sub>N</sub> = 0.50 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
6.9	4523	0.80	243.69	**	**	**	**	<b>FH043-11N-71-04F</b>	35	292
8.0	3907	0.95	210.48	470	580	**	**			
8.8	3564	1.00	192.00	790	1240	790	**			
10	3010	1.20	162.19	1080	1870	1080	610			
11	2746	1.30	147.96	1170	1890	1170	630			
13	2352	1.55	126.72	1300	1910	1300	650			
15	2146	1.70	115.60	1350	1930	1350	670			
18	1756	2.05	94.61	1440	1980	1440	720			
20	1602	2.25	86.31	1460	1980	1460	720			
24	1322	2.70	71.24	1510	2020	1510	760			
26	1206	2.95	64.98	1510	2020	1510	760			
15	2098	1.40	75.79	1370	1930	1370	670	<b>FH042-11N-80-06E</b>	40	292
16	1914	1.40	69.14	1390	1960	1390	700			
18	1715	2.10	61.98	1440	1980	1440	720			
20	1565	2.25	56.54	1460	2000	1460	740			
23	1354	2.65	48.94	1480	2000	1480	740			
25	1235	2.90	44.64	1510	2020	1510	760			
27	1140	1.40	41.20	1530	1980	1530	720			
34	932	2.25	33.69	1550	2020	1550	760			
22	1407	2.05	75.79	1480	2000	1480	740	<b>FH042-11N-71-04F</b>	35	292
24	1283	2.05	69.14	1510	2020	1510	760			
41	765	2.05	41.20	1550	2050	1550	790			
16	1942	1.05	70.17	740	520	740	**	<b>FH032-11N-80-06E</b>	37	290
18	1761	1.15	63.63	830	610	830	610			
20	1579	1.25	57.07	900	560	900	560			
22	1432	1.40	51.75	940	650	940	650			
25	1255	1.60	45.35	1010	630	1010	630			
27	1138	1.75	41.12	1030	700	1030	700			
32	969	2.05	35.03	1060	670	1060	670			
36	879	2.25	31.76	1080	720	1080	720			
40	774	2.55	27.97	1100	700	1100	700			
41	766	1.40	27.67	1100	720	1100	720			
45	702	2.80	25.36	1100	740	1100	740			
50	623	2.10	22.50	1120	740	1120	740			
63	495	2.70	17.88	1120	760	1120	760			
24	1302	1.50	70.17	990	610	990	610	<b>FH032-11N-71-04F</b>	31	290
26	1181	1.65	63.63	1010	670	1010	670			
30	1059	1.85	57.07	1060	650	1060	650			
33	960	2.05	51.75	1080	720	1080	720			
37	842	2.35	45.35	1080	670	1080	670			
41	763	2.60	41.12	1100	740	1100	740			
48	650	3.00	35.03	1120	720	1120	720			
61	514	2.10	27.67	1120	740	1120	740			
23	1348	0.90	48.69	1010	400	**	**	<b>FH022-11N-80-06E</b>	33	288
26	1213	0.95	43.83	1030	470	**	**			
30	1038	1.15	37.52	1080	450	1080	450			
33	935	1.25	33.78	1100	520	1100	520			
39	811	1.45	29.32	1120	490	1120	490			
43	730	1.60	26.39	1120	540	1120	540			
46	685	1.10	24.76	1150	540	1150	540			
52	606	1.90	21.89	1150	520	1150	520			
56	556	1.35	20.08	1150	560	1150	560			
57	545	2.15	19.70	1150	560	1150	560			
60	523	2.25	18.88	1150	540	1150	540			
66	470	2.45	17.00	1170	560	1170	560			
69	456	2.55	16.48	1170	540	1170	540			
71	438	1.70	15.82	1170	560	1170	560			
76	411	2.85	14.84	1170	560	1170	560			
93	337	2.25	12.19	1170	580	1170	580			
119	263	2.85	9.52	1080	580	1080	580			

**F**

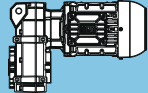
**P<sub>N</sub> = 0.50 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>sN</sub>	F <sub>rN</sub>	F <sub>sN</sub>			
rpm	lb-in			lb	lb	lb	lb			
22	1415	0.85	76.22	990	400	**	**	<b>FH022-11N-71-04F</b>	26	288
25	1274	0.95	68.62	1030	470	**	**			
27	1147	1.05	61.80	1060	450	1060	**			
30	1033	1.15	55.64	1080	490	1080	490			
35	904	1.30	48.69	1100	470	1100	470			
38	813	1.45	43.83	1120	520	1120	520			
45	696	1.70	37.52	1150	520	1150	520			
50	627	1.85	33.78	1150	540	1150	540			
53	590	0.80	31.79	**	**	**	**			
57	544	2.15	29.32	1150	540	1150	540			
64	490	2.35	26.39	1170	560	1170	560			
68	460	1.65	24.76	1170	560	1170	560			
77	406	2.85	21.89	1170	560	1170	560			
84	373	2.00	20.08	1170	580	1170	580			
86	366	3.15	19.70	1170	580	1170	580			
102	306	3.80	16.48	1150	560	1150	560			
107	294	2.55	15.82	1100	580	1100	580			
114	275	4.20	14.84	1080	580	1080	580			
138	226	3.30	12.19	1010	580	1010	580			
139	224	5.15	12.09	1010	580	1010	580			
155	202	5.70	10.89	970	580	970	580			
177	177	4.25	9.52	920	610	920	610			
237	132	5.65	7.11	830	610	830	610			
315	99	7.50	5.35	760	610	760	610			
429	73	8.75	3.93	670	610	670	610			

**F**

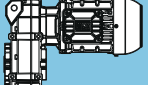
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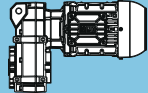
\*\* ... on request

<b>P<sub>N</sub> = 0.75 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.21</b>	197295	0.85	5407.29	11560	18910	**	**	<b>FH155-11N-80-06F</b>	1521	320
<b>0.24</b>	176079	0.95	4838.19	15110	25470	**	**			
<b>0.28</b>	147549	1.10	4085.50	18410	26080	18410	26080			
<b>0.29</b>	141328	1.15	3923.28	19000	26210	19000	26210			
<b>0.34</b>	119524	1.35	3343.64	20730	26680	20730	26680			
<b>0.35</b>	117100	1.40	3284.26	20880	26730	20880	26730			
<b>0.42</b>	95438	1.70	2711.35	22170	27200	22170	27200			
<b>0.43</b>	93692	1.75	2661.75	22260	27220	22260	27220			
<b>0.50</b>	78870	2.05	2269.72	22930	27540	22930	27540			
<b>0.62</b>	62450	2.60	1839.52	23540	27900	23540	27900			
<b>0.20</b>	207491	0.80	8582.99	**	**	**	**	<b>FH155-11N-80-04E</b>	1517	320
<b>0.22</b>	188666	0.85	7824.26	13350	22710	**	**			
<b>0.25</b>	168526	0.95	7024.85	16230	25650	**	**			
<b>0.29</b>	140735	1.15	5911.67	19130	26240	19130	26240			
<b>0.32</b>	128070	1.25	5407.29	20140	26500	20140	26500			
<b>0.36</b>	114004	1.40	4838.19	21130	26820	21130	26820			
<b>0.42</b>	95038	1.70	4085.50	22210	27200	22210	27200			
<b>0.44</b>	91030	1.80	3923.28	22410	27290	22410	27290			
<b>0.52</b>	76389	2.10	3343.64	23040	27610	23040	27610			
<b>0.53</b>	75032	2.15	3284.26	23110	27630	23110	27630			
<b>0.64</b>	60517	2.65	2711.35	23600	27940	23600	27940			
<b>0.65</b>	59409	2.70	2661.75	23650	27970	23650	27970			
<b>0.49</b>	83350	1.95	2318.30	22750	27450	22750	27450	<b>FH154-11N-80-06F</b>	1493	318
<b>0.57</b>	71051	2.25	1996.74	23250	27720	23250	27720			
<b>0.62</b>	64753	2.50	1834.90	23470	27850	23470	27850			
<b>0.66</b>	60697	2.65	1727.10	23580	27940	23580	27940			
<b>0.71</b>	55840	2.90	1602.16	23740	28030	23740	28030			
<b>0.72</b>	54967	2.90	1580.39	23760	28060	23760	28060			
<b>0.49</b>	84496	1.40	2307.03	17830	19810	17830	19810	<b>FH124-11N-80-06F</b>	937	314
<b>0.57</b>	73220	1.60	2011.51	18410	20100	18410	20100			
<b>0.64</b>	64302	1.80	1781.14	18790	20300	18790	20300			
<b>0.66</b>	62424	1.85	1732.67	18880	20370	18880	20370			
<b>0.73</b>	55604	2.10	1552.98	19130	20530	19130	20530			
<b>0.76</b>	53264	2.20	1493.78	19220	20590	19220	20590			
<b>0.85</b>	47305	2.45	1337.70	19400	20730	19400	20730			
<b>0.88</b>	45963	2.55	1302.43	19450	20770	19450	20770			
<b>0.97</b>	40944	2.85	1172.32	19580	20880	19580	20880			
<b>0.99</b>	40148	2.90	1151.94	19600	20910	19600	20910			
<b>1.0</b>	38939	3.00	1121.89	19630	20950	19630	20950			
<b>0.75</b>	54477	2.15	2307.03	19180	20570	19180	20570	<b>FH124-11N-80-04E</b>	933	314
<b>0.86</b>	46912	2.50	2011.51	19420	20750	19420	20750			
<b>0.97</b>	41111	2.80	1781.14	19580	20910	19580	20910			
<b>1.0</b>	39826	2.90	1732.67	19600	20930	19600	20930			
<b>0.50</b>	84941	0.85	2276.77	7850	13110	**	**	<b>FH104-11N-80-06F</b>	628	310
<b>0.58</b>	73432	1.00	1976.36	9760	13420	**	**			
<b>0.65</b>	65044	1.10	1757.78	10790	13670	10790	13670			
<b>0.67</b>	63057	1.15	1707.58	10990	13740	10990	13740			
<b>0.75</b>	56115	1.30	1525.85	11670	13940	11670	13940			
<b>0.77</b>	54104	1.35	1474.19	11850	13980	11850	13980			
<b>0.86</b>	48186	1.50	1318.33	12300	14160	12300	14160			
<b>0.89</b>	46677	1.55	1279.68	12410	14210	12410	14210			
<b>0.99</b>	41940	1.70	1156.94	12720	14340	12720	14340			
<b>1.0</b>	39998	1.80	1105.64	12840	14390	12840	14390			
<b>1.1</b>	36107	2.00	1004.29	13040	14500	13040	14500			
<b>1.3</b>	31772	2.25	892.89	13240	14640	13240	14640			
<b>1.5</b>	27239	2.60	775.08	13420	14770	13420	14770			

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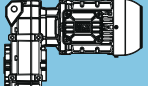
<b>P<sub>N</sub> = 0.75 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.76</b>	55335	1.30	2276.77	11760	13960	11760	13960	<b>FH104-11N-80-04E</b>	624	310
<b>0.87</b>	47641	1.50	1976.36	12360	14190	12360	14190			
<b>0.98</b>	42111	1.70	1757.78	12720	14340	12720	14340			
<b>1.0</b>	40824	1.75	1707.58	12790	14390	12790	14390			
<b>1.1</b>	36180	2.00	1525.85	13040	14500	13040	14500			
<b>1.2</b>	34883	2.05	1474.19	13110	14550	13110	14550			
<b>1.3</b>	30938	2.30	1318.33	13290	14660	13290	14660			
<b>1.5</b>	26815	2.65	1156.94	13440	14770	13440	14770			
<b>1.6</b>	25519	2.80	1105.64	13490	14810	13490	14810			
<b>0.87</b>	48747	0.85	1306.62	4050	6410	**	**	<b>FH094-11N-80-06F</b>	397	306
<b>0.90</b>	47193	0.85	1264.97	4520	7420	**	**			
<b>1.1</b>	39653	1.05	1069.42	6160	8750	6160	**			
<b>1.2</b>	35956	1.15	973.69	6740	8880	6740	8880			
<b>1.4</b>	30211	1.35	823.17	7490	9080	7490	9080			
<b>1.5</b>	26834	1.50	735.68	7820	9190	7820	9190			
<b>1.8</b>	22500	1.80	621.95	8180	9350	8180	9350			
<b>1.9</b>	21736	1.85	602.09	8230	9370	8230	9370			
<b>2.2</b>	18150	2.20	509.01	8480	9490	8480	9490			
<b>2.3</b>	17337	2.30	488.23	8520	9510	8520	9510			
<b>2.8</b>	14446	2.80	412.76	8660	9620	8660	9620			
<b>0.81</b>	52726	0.80	2134.14	**	**	**	**	<b>FH094-11N-80-04E</b>	392	306
<b>0.87</b>	49145	0.85	1993.28	4000	6320	**	**			
<b>1.0</b>	41378	1.00	1685.14	5890	8700	**	**			
<b>1.1</b>	37795	1.10	1545.54	6520	8830	6520	8830			
<b>1.3</b>	31757	1.30	1306.62	7330	9040	7330	9040			
<b>1.4</b>	30681	1.30	1264.97	7440	9060	7440	9060			
<b>1.6</b>	25726	1.55	1069.42	7940	9240	7940	9240			
<b>1.8</b>	23279	1.75	973.69	8140	9330	8140	9330			
<b>2.1</b>	19478	2.05	823.17	8390	9440	8390	9440			
<b>2.3</b>	17265	2.35	735.68	8520	9530	8520	9530			
<b>2.8</b>	14355	2.80	621.95	8660	9620	8660	9620			
<b>2.9</b>	13839	2.90	602.09	8680	9640	8680	9640			
<b>1.2</b>	34177	0.80	914.22	**	**	**	**	<b>FH084-11N-80-06F</b>	276	302
<b>1.4</b>	31197	0.90	836.22	2830	4410	**	**			
<b>1.5</b>	27800	1.00	748.21	3930	6770	**	**			
<b>1.6</b>	26830	1.00	723.59	4160	7240	4160	**			
<b>1.8</b>	23331	1.15	631.81	4880	8810	4880	1870			
<b>1.9</b>	22359	1.20	606.72	5040	9170	5040	1910			
<b>2.2</b>	18938	1.45	517.08	5530	9350	5530	2050			
<b>2.4</b>	17516	1.55	480.21	5710	9420	5710	2110			
<b>2.7</b>	15169	1.80	419.30	5930	9510	5930	2200			
<b>2.8</b>	14861	1.80	411.63	5980	9530	5980	2230			
<b>3.2</b>	12542	2.15	351.00	6160	9620	6160	2320			
<b>3.5</b>	11569	2.30	325.80	6230	9640	6230	2340			
<b>4.0</b>	9977	2.70	284.47	6340	9710	6340	2410			

<b>P<sub>N</sub> = 0.75 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
1.3	32726	0.85	1327.33	2200	3100	**	**	<b>FH084-11N-80-04E</b>	271	302
1.4	30613	0.90	1244.18	3120	5040	**	**			
1.6	26621	1.00	1086.37	4250	7440	4250	**			
1.8	23372	1.15	957.69	4900	8880	4900	1890			
1.9	22265	1.20	914.22	5080	9240	5080	1930			
2.1	20282	1.35	836.22	5370	9310	5370	2000			
2.3	18036	1.50	748.21	5670	9400	5670	2090			
2.4	17442	1.55	723.59	5730	9420	5730	2110			
2.7	15105	1.80	631.81	5960	9510	5960	2200			
2.8	14446	1.85	606.72	6020	9530	6020	2230			
2.9	14100	1.90	592.20	6050	9550	6050	2250			
3.3	12185	2.20	517.08	6200	9620	6200	2320			
3.4	11944	2.25	507.90	6200	9640	6200	2340			
3.6	11246	2.40	480.21	6270	9670	6270	2360			
4.1	9698	2.75	419.30	6360	9730	6360	2430			
4.2	9501	2.80	411.63	6360	9730	6360	2430			
4.3	9240	2.90	401.99	6380	9760	6380	2450			
3.2	14620	1.85	358.52	6000	9530	6000	2230	<b>FH083-11N-80-06F</b>	247	300
4.0	11572	2.30	283.76	6230	9640	6230	2340			
4.6	10104	2.65	247.77	6340	9710	6340	2410			
5.2	8929	3.00	218.97	6380	9760	6380	2450			
4.8	9662	2.75	358.52	6360	9730	6360	2430	<b>FH083-11N-80-04E</b>	243	300
3.0	15715	0.85	385.37	2860	3440	**	**	<b>FH073-11N-80-06F</b>	143	298
3.7	12455	1.10	305.42	3600	3620	3600	1080			
4.8	9671	1.40	237.15	4020	3750	4020	1240			
5.9	7935	1.70	194.58	4230	3840	4230	1330			
7.6	6145	2.20	150.69	4380	3960	4380	1420			
9.9	4674	2.85	114.62	4470	4020	4200	1510			
4.5	10386	1.30	385.37	3930	3730	3930	1190	<b>FH073-11N-80-04E</b>	139	298
5.6	8231	1.65	305.42	4200	3840	4200	1300			
7.3	6391	2.10	237.15	4360	3930	4360	1420			
8.9	5244	2.55	194.58	4450	4000	4380	1460			
5.5	8425	0.90	206.59	1420	2140	**	**	<b>FH063-11N-80-06F</b>	93	296
6.0	7725	0.95	189.44	1710	2770	**	**			
6.7	6895	1.10	169.09	1980	2860	1980	610			
7.4	6323	1.15	155.05	2140	2900	2140	650			
8.8	5307	1.40	130.15	2360	2990	2360	740			
9.6	4867	1.50	119.35	2430	3010	2430	790			
12	4010	1.85	98.34	2560	3100	2560	850			
13	3677	2.00	90.17	2610	3120	2610	880			
14	3282	2.25	80.48	2630	3150	2630	920			
15	3010	2.45	73.80	2680	3170	2680	940			
17	2661	2.75	65.26	2700	3210	2700	970			
19	2440	3.00	59.84	2720	3210	2720	990			
5.1	9094	0.80	337.44	**	**	**	**	<b>FH063-11N-80-04E</b>	88	296
5.6	8339	0.90	309.42	1480	2270	**	**			
6.5	7181	1.05	266.44	1910	2830	1910	**			
7.1	6584	1.15	244.32	2070	2880	2070	630			
8.3	5568	1.35	206.59	2320	2970	2320	720			
9.1	5105	1.45	189.44	2380	2990	2380	760			
10	4557	1.60	169.09	2470	3060	2470	810			
11	4179	1.75	155.05	2540	3080	2540	830			
13	3508	2.10	130.15	2610	3120	2610	900			
14	3216	2.30	119.35	2650	3150	2650	920			
18	2650	2.75	98.34	2700	3210	2700	970			
19	2430	3.00	90.17	2720	3210	2720	990			

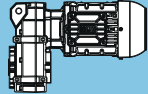
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$P_N = 0.75 \text{ hp}$

60 Hz		$f_B$	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{50}$	$T_2$			$F_{rN}$	$F_{sN}$	$F_{rN}$	$F_{sN}$			
rpm	lb-in			lb	lb	lb	lb			
6.7	6967	0.80	170.85	**	**	**	**	FH053-11N-80-06F	57	294
7.8	5958	0.90	146.10	990	1510	**	**			
8.5	5444	1.00	133.49	1260	2090	**	**			
10	4448	1.20	109.08	1640	2340	1640	830			
11	4064	1.35	99.66	1730	2380	1730	880			
12	3838	1.40	94.11	1800	2380	1800	880			
13	3507	1.55	85.99	1870	2410	1870	900			
14	3349	1.60	82.13	1890	2430	1890	920			
15	3060	1.75	75.04	1960	2450	1960	940			
19	2457	2.20	60.26	2050	2500	2050	990			
21	2245	2.40	55.06	2070	2520	2070	1010			
7.1	6540	0.85	242.67	470	430	**	**	FH053-11N-80-04E	53	294
7.8	5975	0.90	221.71	990	1510	**	**			
9.2	5040	1.10	187.00	1440	2290	1440	790			
10	4604	1.15	170.85	1600	2340	1600	830			
12	3937	1.35	146.10	1780	2380	1780	880			
13	3598	1.50	133.49	1840	2410	1840	900			
16	2940	1.85	109.08	1980	2470	1980	970			
17	2686	2.00	99.66	2000	2470	2000	970			
18	2536	2.10	94.11	2020	2500	2020	990			
20	2317	2.30	85.99	2050	2520	2050	1010			
21	2213	2.40	82.13	2070	2520	2070	1010			
23	2022	2.65	75.04	2090	2540	2090	1030			
13	3563	0.95	87.38	1840	2410	**	**	FH052-11N-80-06F	55	294
14	3256	0.95	79.84	1910	2430	**	**			
16	2914	1.55	71.46	1980	2470	1980	970			
17	2662	1.55	65.29	2000	2500	2000	990			
20	2301	2.35	56.42	2050	2520	2050	1010			
22	2102	2.55	51.55	2070	2540	2070	1030			
24	1964	0.95	48.15	2090	2470	**	**			
26	1784	3.00	43.75	2110	2560	2110	1060			
29	1606	1.55	39.38	2140	2520	2140	1010			
37	1268	2.55	31.09	2160	2560	2160	1060			
20	2355	1.40	87.38	2050	2520	2050	1010	FH052-11N-80-04E	51	294
22	2152	1.40	79.84	2070	2520	2070	1010			
24	1926	2.35	71.46	2090	2540	2090	1030			
26	1760	2.30	65.29	2110	2560	2110	1060			
36	1298	1.40	48.15	2160	2560	2160	1060			
44	1061	2.35	39.38	2160	2590	2160	1080			
9.9	4714	0.80	115.60	**	**	**	**	FH043-11N-80-06F	44	292
12	3858	0.95	94.61	560	760	**	**			
13	3520	1.05	86.31	830	1350	830	**			
14	3329	1.10	81.63	920	1530	920	560			
15	3036	1.20	74.46	1080	1870	1080	610			
16	2905	1.25	71.24	1120	1870	1120	610			
18	2650	1.35	64.98	1210	1890	1210	630			
22	2132	1.70	52.27	1350	1930	1350	670			
24	1944	1.85	47.68	1390	1960	1390	700			
11	4371	0.85	162.19	**	**	**	**	FH043-11N-80-04E	40	292
12	3988	0.90	147.96	430	490	**	**			
14	3415	1.05	126.72	900	1480	900	560			
15	3115	1.15	115.60	1030	1780	1030	580			
18	2550	1.40	94.61	1240	1910	1240	650			
20	2326	1.55	86.31	1300	1930	1300	670			
21	2200	1.65	81.63	1350	1930	1350	670			
23	2007	1.80	74.46	1390	1960	1390	700			
24	1920	1.85	71.24	1390	1960	1390	700			
27	1751	2.05	64.98	1440	1980	1440	720			
33	1409	2.55	52.27	1480	2000	1480	740			
36	1285	2.80	47.68	1510	2020	1510	760			

**P<sub>N</sub> = 0.75 hp**

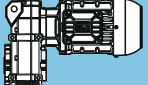
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
15	3091	0.95	75.79	1060	1820	**	**	FH042-11N-80-06F	44	292
16	2819	0.95	69.14	1150	1890	**	**			
18	2528	1.45	61.98	1260	1910	1260	650			
20	2306	1.55	56.54	1300	1930	1300	670			
23	1996	1.80	48.94	1390	1960	1390	700			
26	1820	1.95	44.64	1420	1980	1420	720			
28	1680	0.95	41.20	1440	1910	**	**			
30	1548	2.30	37.95	1460	2000	1460	740			
33	1412	2.55	34.62	1480	2000	1480	740			
34	1374	1.55	33.69	1480	1960	1480	700			
37	1267	2.80	31.06	1510	2020	1510	760			
43	1085	2.55	26.60	1530	2000	1530	740			
23	2043	1.40	75.79	1370	1960	1370	700	FH042-11N-80-04E	40	292
25	1863	1.40	69.14	1420	1960	1420	700			
28	1670	2.15	61.98	1440	1980	1440	720			
31	1524	2.35	56.54	1460	2000	1460	740			
35	1319	2.70	48.94	1510	2020	1510	760			
39	1203	2.95	44.64	1510	2020	1510	760			
42	1110	1.40	41.20	1530	2000	1530	740			
51	908	2.35	33.69	1550	2020	1550	760			
18	2595	0.80	63.63	**	**	**	**	FH032-11N-80-06F	40	290
20	2327	0.85	57.07	450	450	**	**			
22	2110	0.95	51.75	630	580	**	**			
25	1849	1.10	45.35	790	520	790	520			
28	1677	1.20	41.12	850	630	850	630			
33	1429	1.40	35.03	940	580	940	580			
36	1295	1.55	31.76	990	670	990	670			
41	1141	1.75	27.97	1030	630	1030	630			
45	1034	1.90	25.36	1060	700	1060	700			
51	918	1.45	22.50	1080	700	1080	700			
54	862	2.30	21.14	1080	670	1080	670			
59	782	2.50	19.17	1100	720	1100	720			
64	729	1.85	17.88	1100	720	1100	720			
71	655	3.00	16.06	1120	720	1120	720			
83	563	2.40	13.81	1120	740	1120	740			
103	450	3.00	11.03	1150	760	1150	760			
25	1891	1.05	70.17	760	520	760	**	FH032-11N-80-04E	35	290
27	1715	1.15	63.63	850	630	850	630			
30	1538	1.30	57.07	920	580	920	580			
33	1395	1.40	51.75	970	650	970	650			
38	1222	1.60	45.35	1010	630	1010	630			
42	1108	1.80	41.12	1030	700	1030	700			
49	944	2.10	35.03	1080	670	1080	670			
54	856	2.30	31.76	1080	720	1080	720			
62	754	2.60	27.97	1100	700	1100	700			
68	683	2.85	25.36	1120	740	1120	740			
77	606	2.15	22.50	1120	740	1120	740			
96	482	2.80	17.88	1150	760	1150	760			

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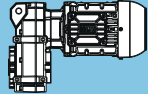
P <sub>N</sub> = 0.75 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
30	1530	0.80	37.52	**	**	**	**	<b>FH022-11N-80-06F</b>	35	288
34	1378	0.85	33.78	990	450	**	**			
39	1196	1.00	29.32	1060	430	**	**			
43	1076	1.10	26.39	1080	490	1080	490			
52	893	1.30	21.89	1100	470	1100	470			
57	819	0.95	20.08	1120	520	**	**			
58	803	1.45	19.70	1120	520	1120	520			
60	770	1.50	18.88	1120	490	1120	490			
67	693	1.70	17.00	1150	540	1150	540			
69	672	1.75	16.48	1150	520	1150	520			
72	645	1.20	15.82	1150	540	1150	540			
77	605	1.95	14.84	1150	540	1150	540			
94	493	2.35	12.09	1170	540	1170	540			
105	444	2.60	10.89	1150	560	1150	560			
120	388	1.95	9.52	1080	580	1080	580			
160	290	2.60	7.11	970	580	970	580			
186	250	3.00	6.13	920	580	920	580			
31	1499	0.80	55.64	**	**	**	**			
35	1312	0.90	48.69	1010	430	**	**			
39	1181	1.00	43.83	1060	490	**	**			
46	1011	1.15	37.52	1080	470	1080	470			
51	910	1.30	33.78	1100	520	1100	520			
59	790	1.50	29.32	1120	490	1120	490			
65	711	1.65	26.39	1150	540	1150	540			
70	667	1.15	24.76	1150	540	1150	540			
79	590	2.00	21.89	1150	520	1150	520			
86	541	1.40	20.08	1150	560	1150	560			
88	531	2.20	19.70	1150	560	1150	560			
91	509	2.30	18.88	1170	540	1170	540			
101	458	2.55	17.00	1170	560	1170	560			
105	444	2.60	16.48	1150	540	1150	540			
109	426	1.75	15.82	1120	560	1120	560			
116	400	2.90	14.84	1100	560	1100	560			
142	329	2.30	12.19	1010	580	1010	580			
143	326	3.55	12.09	1030	560	1030	560			
158	293	3.95	10.89	990	580	990	580			
181	257	2.90	9.52	940	580	940	580			
243	192	3.90	7.11	830	610	830	610			
281	165	4.55	6.13	790	610	790	610			
322	144	5.20	5.35	760	610	760	610			
439	106	6.05	3.93	670	610	670	610			

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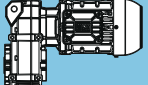
**P<sub>N</sub> = 1.0 hp**

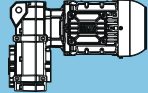
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.30</b>	190518	0.85	5911.67	13060	22100	**	**	<b>FH155-11P-L80-04F</b>	1534	320
<b>0.33</b>	173374	0.95	5407.29	15650	25560	**	**			
<b>0.36</b>	154731	1.05	4838.19	17800	25940	17800	**			
<b>0.43</b>	129326	1.25	4085.50	20050	26480	20050	26480			
<b>0.45</b>	123873	1.30	3923.28	20460	26590	20460	26590			
<b>0.53</b>	104761	1.55	3343.64	21690	27000	21690	27000			
<b>0.54</b>	102636	1.60	3284.26	21810	27040	21810	27040			
<b>0.65</b>	83433	1.95	2711.35	22770	27450	22770	27450			
<b>0.66</b>	81906	1.95	2661.75	22840	27490	22840	27490			
<b>0.78</b>	68591	2.35	2269.72	23340	27760	23340	27760			
<b>0.96</b>	54166	2.95	1839.52	23780	28080	23780	28080			
<b>0.28</b>	202903	0.80	4085.50	**	**	**	**	<b>FH155-11P-90S/L-06E</b>	1537	320
<b>0.29</b>	194349	0.85	3923.28	12360	20610	**	**			
<b>0.34</b>	164790	1.00	3343.64	16700	25740	**	**			
<b>0.35</b>	161450	1.00	3284.26	17090	25810	17090	**			
<b>0.42</b>	132266	1.25	2711.35	19830	26440	19830	26440			
<b>0.43</b>	129514	1.25	2661.75	20050	26480	20050	26480			
<b>0.50</b>	109591	1.50	2269.72	21400	26910	21400	26910			
<b>0.62</b>	87459	1.85	1839.52	22590	27380	22590	27380			
<b>0.76</b>	73014	2.20	2318.30	23180	27670	23180	27670	<b>FH154-11P-L80-04F</b>	1506	318
<b>0.88</b>	61981	2.60	1996.74	23560	27920	23560	27920			
<b>0.96</b>	56486	2.85	1834.90	23720	28030	23720	28030			
<b>0.49</b>	115280	1.40	2318.30	21040	26800	21040	26800	<b>FH154-11P-90S/L-06E</b>	1508	318
<b>0.57</b>	98476	1.65	1996.74	22030	27130	22030	27130			
<b>0.62</b>	89937	1.80	1834.90	22460	27310	22460	27310			
<b>0.66</b>	84479	1.90	1727.10	22730	27430	22730	27430			
<b>0.71</b>	77884	2.05	1602.16	23000	27580	23000	27580			
<b>0.72</b>	76667	2.10	1580.39	23040	27610	23040	27610			
<b>0.81</b>	68124	2.35	1415.96	23360	27790	23360	27790			
<b>0.83</b>	66253	2.45	1379.93	23430	27830	23430	27830			
<b>0.84</b>	65631	2.45	1366.97	23450	27830	23450	27830			
<b>0.94</b>	57829	2.80	1219.56	23690	28010	23690	28010			
<b>0.96</b>	56659	2.85	1197.38	23720	28030	23720	28030			
<b>0.76</b>	74174	1.60	2307.03	18390	20080	18390	20080	<b>FH124-11P-L80-04F</b>	950	314
<b>0.87</b>	64142	1.80	2011.51	18820	20320	18820	20320			
<b>0.99</b>	56329	2.05	1781.14	19130	20530	19130	20530			
<b>1.0</b>	54683	2.15	1732.67	19180	20570	19180	20570			
<b>1.1</b>	48608	2.40	1552.98	19380	20700	19380	20700			
<b>1.2</b>	46562	2.50	1493.78	19420	20770	19420	20770			
<b>1.3</b>	41266	2.80	1337.70	19580	20880	19580	20880			
<b>1.4</b>	40011	2.90	1302.43	19600	20930	19600	20930			
<b>0.50</b>	116140	1.00	2307.03	15600	19040	15600	**	<b>FH124-11P-90S/L-06E</b>	952	314
<b>0.57</b>	100849	1.15	2011.51	16820	19420	16820	19420			
<b>0.64</b>	88751	1.30	1781.14	17600	19720	17600	19720			
<b>0.66</b>	86336	1.35	1732.67	17740	19780	17740	19780			
<b>0.74</b>	76907	1.50	1552.98	18250	20010	18250	20010			
<b>0.77</b>	73823	1.60	1493.78	18410	20080	18410	20080			
<b>0.86</b>	65702	1.80	1337.70	18770	20280	18770	20280			
<b>0.88</b>	63838	1.85	1302.43	18840	20320	18840	20320			
<b>0.98</b>	56988	2.05	1172.32	19090	20500	19090	20500			
<b>0.99</b>	55998	2.10	1151.94	19130	20530	19130	20530			
<b>1.0</b>	54424	2.15	1121.89	19180	20570	19180	20570			
<b>1.1</b>	49177	2.35	1022.15	19360	20700	19360	20700			
<b>1.2</b>	46288	2.50	966.09	19450	20770	19450	20770			
<b>1.3</b>	43080	2.70	904.76	19510	20840	19510	20840			

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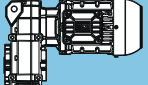


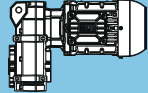
<b>P<sub>N</sub> = 1.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.77</b>	74719	0.95	2276.77	9640	13400	**	**	<b>FH104-11P-L80-04F</b>	642	310
<b>0.89</b>	64595	1.10	1976.36	10880	13690	10880	13690			
<b>1.0</b>	57098	1.25	1757.78	11620	13920	11620	13920			
<b>1.2</b>	49260	1.45	1525.85	12250	14140	12250	14140			
<b>1.3</b>	42212	1.70	1318.33	12720	14340	12720	14340			
<b>1.4</b>	40890	1.75	1279.68	12790	14370	12790	14370			
<b>1.5</b>	36740	1.95	1156.94	13020	14500	13020	14500			
<b>1.6</b>	34966	2.05	1105.64	13110	14550	13110	14550			
<b>1.8</b>	31564	2.25	1004.29	13260	14640	13260	14640			
<b>2.0</b>	27774	2.55	892.89	13420	14750	13420	14750			
<b>2.3</b>	23761	3.00	775.08	13560	14860	13560	14860			
<b>0.65</b>	89035	0.80	1757.78	**	**	**	**	<b>FH104-11P-90S/L-06E</b>	644	310
<b>0.67</b>	86492	0.85	1707.58	7640	12810	**	**			
<b>0.75</b>	76971	0.95	1525.85	9310	13330	**	**			
<b>0.78</b>	74365	1.00	1474.19	9690	13420	**	**			
<b>0.87</b>	66231	1.10	1318.33	10700	13650	10700	13650			
<b>0.89</b>	64158	1.15	1279.68	10930	13710	10930	13710			
<b>0.99</b>	57767	1.25	1156.94	11560	13890	11560	13890			
<b>1.0</b>	55092	1.30	1105.64	11780	13960	11780	13960			
<b>1.1</b>	49837	1.45	1004.29	12210	14120	12210	14120			
<b>1.3</b>	44036	1.65	892.89	12610	14280	12610	14280			
<b>1.5</b>	37912	1.90	775.08	12950	14460	12950	14460			
<b>1.6</b>	35976	2.00	738.55	13060	14520	13060	14520			
<b>1.7</b>	32419	2.20	669.67	13220	14610	13220	14610			
<b>1.8</b>	30908	2.30	641.10	13290	14660	13290	14660			
<b>2.1</b>	26320	2.70	553.91	13470	14790	13470	14790			
<b>1.1</b>	51034	0.80	1545.54	**	**	**	**	<b>FH094-11P-L80-04F</b>	410	306
<b>1.3</b>	42880	0.95	1306.62	5620	8660	**	**			
<b>1.4</b>	41514	1.00	1264.97	5890	8700	**	**			
<b>1.6</b>	34881	1.15	1069.42	6920	8920	6920	8920			
<b>1.8</b>	31629	1.30	973.69	7330	9040	7330	9040			
<b>2.1</b>	26520	1.55	823.17	7870	9220	7870	9220			
<b>2.4</b>	23556	1.70	735.68	8120	9310	8120	9310			
<b>2.8</b>	19669	2.05	621.95	8390	9440	8390	9440			
<b>2.9</b>	19002	2.10	602.09	8430	9460	8430	9460			
<b>3.5</b>	15833	2.55	509.01	8590	9580	8590	9580			
<b>3.6</b>	15124	2.65	488.23	8630	9600	8630	9600			
<b>1.2</b>	49319	0.85	973.69	3960	6230	**	**	<b>FH094-11P-90S/L-06E</b>	412	306
<b>1.4</b>	41525	1.00	823.17	5870	8700	**	**			
<b>1.6</b>	36960	1.10	735.68	6630	8860	6630	8860			
<b>1.8</b>	30991	1.30	621.95	7420	9060	7420	9060			
<b>1.9</b>	30001	1.35	602.09	7510	9080	7510	9080			
<b>2.2</b>	25155	1.60	509.01	7980	9260	7980	9260			
<b>2.3</b>	24029	1.70	488.23	8070	9280	8070	9280			
<b>2.8</b>	20106	2.00	412.76	8360	9420	8360	9420			
<b>3.3</b>	16590	2.45	345.53	8570	9550	8570	9550			
<b>3.5</b>	15838	2.55	331.24	8590	9580	8590	9580			
<b>4.0</b>	15973	2.50	288.50	8590	9580	8590	9580	<b>FH093-11P-90S/L-06E</b>	384	304
<b>4.7</b>	13504	2.95	243.90	8700	9640	8700	9640			

<b>P<sub>N</sub> = 1.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>1.8</b>	31558	0.85	957.69	2770	4270	**	**	<b>FH084-11P-L80-04F</b>	291	302
<b>1.9</b>	30064	0.90	914.22	3300	5420	**	**			
<b>2.1</b>	27443	1.00	836.22	4070	7040	**	**			
<b>2.4</b>	24454	1.10	748.21	4700	8430	4700	1840			
<b>2.8</b>	20481	1.30	631.81	5350	9310	5350	2000			
<b>2.9</b>	19627	1.40	606.72	5460	9330	5460	2020			
<b>3.0</b>	19158	1.40	592.20	5530	9350	5530	2050			
<b>3.4</b>	16591	1.65	517.08	5820	9460	5820	2160			
<b>3.5</b>	16296	1.65	507.90	5850	9460	5850	2160			
<b>3.7</b>	15344	1.75	480.21	5930	9510	5930	2200			
<b>4.2</b>	13288	2.00	419.30	6110	9600	6110	2290			
<b>4.3</b>	13018	2.05	411.63	6140	9600	6140	2290			
<b>4.4</b>	12687	2.10	401.99	6160	9620	6160	2320			
<b>5.0</b>	10963	2.45	351.00	6270	9690	6270	2380			
<b>5.4</b>	10092	2.65	325.80	6340	9710	6340	2410			
<b>1.8</b>	32002	0.85	631.81	2560	3840	**	**	<b>FH084-11P-90S/L-06E</b>	291	302
<b>1.9</b>	30669	0.90	606.72	3100	4990	**	**			
<b>2.2</b>	26031	1.05	517.08	4380	7730	4380	**			
<b>2.3</b>	25516	1.05	507.90	4500	7980	4500	1800			
<b>2.4</b>	24076	1.15	480.21	4770	8570	4770	1840			
<b>2.7</b>	20936	1.30	419.30	5280	9280	5280	1980			
<b>2.8</b>	20511	1.30	411.63	5350	9310	5350	2000			
<b>3.3</b>	17346	1.55	351.00	5730	9420	5730	2110			
<b>3.5</b>	16035	1.70	325.80	5870	9490	5870	2180			
<b>4.0</b>	13886	1.95	284.47	6070	9550	6070	2250			
<b>4.9</b>	12914	2.10	358.52	6140	9600	6140	2290	<b>FH083-11P-L80-04F</b>	262	300
<b>6.2</b>	10221	2.60	283.76	6320	9710	6320	2410			
<b>7.1</b>	8924	3.00	247.77	6410	9760	6410	2450			
<b>3.2</b>	19850	1.35	358.52	5440	9330	5440	2020	<b>FH083-11P-90S/L-06E</b>	262	300
<b>4.0</b>	15711	1.70	283.76	5910	9490	5910	2180			
<b>4.6</b>	13718	1.95	247.77	6070	9580	6070	2270			
<b>5.2</b>	12123	2.20	218.97	6200	9640	6200	2340			
<b>6.2</b>	10252	2.60	185.17	6320	9710	6320	2410			
<b>6.4</b>	9981	2.70	180.28	6340	9710	6340	2410			
<b>4.6</b>	13881	1.00	385.37	3330	3550	**	**	<b>FH073-11P-L80-04F</b>	157	298
<b>5.8</b>	11001	1.25	305.42	3840	3690	3840	1170			
<b>7.4</b>	8542	1.60	237.15	4160	3820	4160	1300			
<b>9.0</b>	7009	1.90	194.58	4320	3910	4320	1370			
<b>12</b>	5428	2.45	150.69	4430	3980	4020	1460			
<b>3.7</b>	16910	0.80	305.42	**	**	**	**	<b>FH073-11P-90S/L-06E</b>	159	298
<b>4.8</b>	13130	1.05	237.15	3480	3570	3480	**			
<b>5.9</b>	10773	1.25	194.58	3890	3710	3890	1170			
<b>7.6</b>	8343	1.60	150.69	4180	3840	4180	1300			
<b>10</b>	6346	2.10	114.62	4360	3930	4320	1420			
<b>12</b>	5233	2.55	94.52	4450	4000	4000	1460			
<b>6.6</b>	9597	0.80	266.44	**	**	**	**	<b>FH063-11P-L80-04F</b>	106	296
<b>7.2</b>	8800	0.85	244.32	1240	1730	**	**			
<b>8.5</b>	7441	1.00	206.59	1820	2810	1820	**			
<b>9.3</b>	6823	1.10	189.44	2020	2860	2020	610			
<b>10</b>	6090	1.20	169.09	2200	2920	2200	670			
<b>11</b>	5585	1.30	155.05	2320	2970	2320	720			
<b>14</b>	4688	1.55	130.15	2470	3030	2470	810			
<b>15</b>	4299	1.70	119.35	2520	3060	2520	830			
<b>18</b>	3542	2.05	98.34	2610	3120	2610	900			
<b>20</b>	3248	2.25	90.17	2650	3150	2650	920			
<b>22</b>	2899	2.55	80.48	2680	3190	2680	940			
<b>24</b>	2658	2.75	73.80	2700	3210	2630	970			

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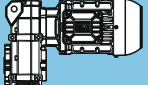
\*\* ... on request

<b>P<sub>N</sub> = 1.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
6.8	9362	0.80	169.09	**	**	**	**	<b>FH063-11P-90S/L-06E</b>	108	296
7.4	8584	0.85	155.05	1350	1980	**	**			
8.8	7206	1.05	130.15	1910	2830	1910	**			
9.6	6608	1.10	119.35	2070	2880	2070	630			
12	5445	1.35	98.34	2340	2970	2340	740			
13	4992	1.50	90.17	2410	3010	2410	760			
14	4456	1.65	80.48	2500	3060	2500	810			
16	4086	1.80	73.80	2540	3080	2540	850			
18	3613	2.05	65.26	2610	3120	2610	900			
19	3313	2.20	59.84	2630	3150	2630	920			
21	3025	2.40	54.63	2680	3170	2680	940			
23	2774	2.65	50.10	2700	3190	2680	970			
23	2750	2.65	49.67	2700	3190	2680	970	<b>FH062-11P-90S/L-06E</b>	106	296
25	2522	2.90	45.55	2720	3210	2590	990			
9.4	6736	0.80	187.00	**	**	**	**	<b>FH053-11P-L80-04F</b>	71	294
10	6154	0.90	170.85	880	1260	**	**			
12	5262	1.05	146.10	1350	2290	1350	**			
13	4808	1.10	133.49	1530	2320	1530	810			
16	3929	1.40	109.08	1780	2380	1780	880			
18	3590	1.50	99.66	1840	2410	1840	900			
19	3390	1.60	94.11	1890	2430	1890	920			
20	3097	1.75	85.99	1930	2450	1930	940			
21	2958	1.80	82.13	1960	2470	1960	970			
23	2703	2.00	75.04	2000	2470	2000	970			
29	2171	2.45	60.26	2070	2520	2070	1010			
32	1983	2.70	55.06	2090	2540	2090	1030			
10	6039	0.90	109.08	940	1420	**	**	<b>FH053-11P-90S/L-06E</b>	73	294
11	5518	1.00	99.66	1240	2020	**	**			
12	5210	1.05	94.11	1370	2290	1370	**			
13	4761	1.15	85.99	1550	2320	1550	810			
14	4547	1.20	82.13	1620	2340	1620	830			
15	4155	1.30	75.04	1710	2360	1710	850			
19	3336	1.60	60.26	1910	2430	1910	920			
21	3048	1.75	55.06	1960	2450	1960	940			
20	3147	1.05	87.38	1930	2450	1930	940	<b>FH052-11P-L80-04F</b>	71	294
22	2876	1.05	79.84	1980	2470	1980	970			
25	2574	1.75	71.46	2020	2500	2020	990			
27	2352	1.75	65.29	2050	2520	2050	1010			
31	2032	2.65	56.42	2090	2540	2090	1030			
34	1857	2.85	51.55	2110	2540	2110	1030			
37	1734	1.05	48.15	2110	2500	2110	990			
45	1418	1.75	39.38	2140	2540	2140	1030			
57	1120	2.85	31.09	2160	2560	2160	1060			
16	3956	1.15	71.46	1780	2380	1780	880	<b>FH052-11P-90S/L-06E</b>	71	294
18	3615	1.15	65.29	1840	2410	1840	900			
20	3124	1.75	56.42	1930	2450	1930	940			
22	2854	1.90	51.55	1980	2470	1980	970			
26	2422	2.20	43.75	2050	2520	2050	1010			
29	2213	2.40	39.97	2070	2520	2070	1010			
32	1983	2.70	35.81	2090	2540	2090	1030			
35	1812	2.95	32.72	2110	2560	2110	1060			
37	1721	1.90	31.09	2110	2500	2110	990			
47	1335	2.40	24.11	2140	2540	2140	1030			
58	1092	2.95	19.73	2160	2590	2160	1080			

<b>P<sub>N</sub> = 1.0 hp</b>													
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page			
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>						
rpm	lb-in			lb	lb	lb	lb						
14	4564	0.80	126.72	**	**	**	**	<b>FH043-11P-L80-04F</b>	57	292			
15	4164	0.90	115.60	**	**	**	**						
19	3408	1.05	94.61	900	1480	900	560						
20	3109	1.15	86.31	1060	1820	1060	580						
22	2940	1.25	81.63	1120	1870	1120	610						
24	2682	1.35	74.46	1210	1890	1210	630						
25	2566	1.40	71.24	1240	1890	1240	630						
27	2341	1.55	64.98	1300	1930	1300	670						
34	1883	1.90	52.27	1420	1960	1420	700						
37	1717	2.10	47.68	1440	1980	1440	720						
14	4519	0.80	81.63	**	**	**	**	<b>FH043-11P-90S/L-06E</b>	60	292			
15	4123	0.90	74.46	180	-20	**	**						
16	3944	0.90	71.24	490	630	**	**						
18	3598	1.00	64.98	790	1240	790	**						
22	2894	1.25	52.27	1120	1870	1120	610						
24	2640	1.35	47.68	1210	1890	1210	630						
23	2730	1.05	75.79	1190	1890	1190	630	<b>FH042-11P-L80-04F</b>	57	292			
25	2490	1.05	69.14	1260	1910	1260	650						
28	2232	1.60	61.98	1330	1930	1330	670						
31	2037	1.75	56.54	1370	1960	1370	700						
36	1763	2.05	48.94	1440	1980	1440	720						
39	1608	2.25	44.64	1460	1980	1460	720						
43	1484	1.05	41.20	1480	1930	1480	670						
46	1367	2.60	37.95	1480	2000	1480	740						
51	1247	2.85	34.62	1510	2020	1510	760						
52	1213	1.75	33.69	1510	1980	1510	720						
66	958	2.85	26.60	1530	2000	1530	740						
18	3432	1.05	61.98	900	1480	900	**				<b>FH042-11P-90S/L-06E</b>	60	292
20	3130	1.15	56.54	1030	1780	1030	580						
23	2710	1.35	48.94	1190	1890	1190	630						
26	2472	1.45	44.64	1260	1910	1260	650						
30	2101	1.70	37.95	1370	1930	1370	670						
33	1917	1.85	34.62	1390	1960	1390	700						
34	1865	1.15	33.69	1420	1890	1420	630						
37	1720	2.10	31.06	1440	1980	1440	720						
40	1569	2.30	28.33	1460	2000	1460	740						
43	1473	1.90	26.60	1480	1930	1480	670						
48	1324	2.70	23.91	1510	2020	1510	760						
52	1208	2.95	21.81	1510	2020	1510	760						
56	1142	2.40	20.63	1530	1980	1530	720						
68	935	2.95	16.88	1550	2020	1550	760						
25	2527	0.80	70.17	**	**	**	**	<b>FH032-11P-L80-04F</b>	55	290			
28	2292	0.85	63.63	490	560	**	**						
31	2056	0.95	57.07	670	490	**	**						
34	1864	1.05	51.75	790	610	790	610						
39	1633	1.20	45.35	880	560	880	560						
43	1481	1.35	41.12	940	650	940	650						
50	1262	1.55	35.03	1010	630	1010	630						
55	1144	1.75	31.76	1030	700	1030	700						
63	1007	1.95	27.97	1060	650	1060	650						
64	997	1.10	27.67	1060	700	1060	700						
69	913	2.15	25.36	1080	720	1080	720						
78	810	1.65	22.50	1100	720	1100	720						
83	761	2.60	21.14	1100	700	1100	700						
92	690	2.85	19.17	1120	740	1120	740						
98	644	2.10	17.88	1120	740	1120	740						
127	497	2.70	13.81	1120	760	1120	760						

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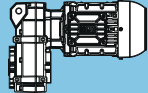
\*\* ... on request

<b>P<sub>N</sub> = 1.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
25	2511	0.80	45.35	**	**	**	**	<b>FH032-11P-90S/L-06E</b>	55	290
28	2277	0.90	41.12	490	560	**	**			
33	1939	1.05	35.03	740	520	740	**			
36	1758	1.15	31.76	830	630	830	630			
41	1549	1.30	27.97	920	580	920	580			
45	1404	1.40	25.36	970	650	970	650			
51	1246	1.05	22.50	1010	650	1010	650			
54	1170	1.70	21.14	1030	630	1030	630			
60	1061	1.85	19.17	1060	700	1060	700			
64	990	1.35	17.88	1060	700	1060	700			
71	889	2.20	16.06	1080	670	1080	670			
79	807	2.45	14.57	1100	720	1100	720			
83	765	1.75	13.81	1100	720	1100	720			
92	692	2.85	12.50	1120	720	1120	720			
104	611	2.20	11.03	1120	740	1120	740			
137	461	2.90	8.33	1150	760	1150	760			
47	1351	0.90	37.52	1010	400	**	**			
52	1217	0.95	33.78	1030	470	**	**			
60	1056	1.10	29.32	1080	450	1080	450			
67	951	1.25	26.39	1100	520	1100	520			
71	892	0.85	24.76	1100	520	**	**			
80	788	1.50	21.89	1120	490	1120	490			
88	723	1.05	20.08	1120	540	1120	**			
89	710	1.65	19.70	1150	540	1150	540			
93	680	1.70	18.88	1150	520	1150	520			
104	612	1.90	17.00	1150	540	1150	540			
107	594	1.95	16.48	1150	520	1150	520			
111	570	1.35	15.82	1150	560	1150	560			
119	535	2.20	14.84	1120	560	1120	560			
144	439	1.70	12.19	1030	560	1030	560			
146	435	2.65	12.09	1030	560	1030	560			
162	392	2.95	10.89	990	580	990	580			
185	343	2.20	9.52	940	580	940	580			
248	256	2.95	7.11	850	580	850	580			
287	221	3.40	6.13	810	580	810	580			
329	193	3.90	5.35	760	610	760	610			
448	142	4.55	3.93	670	610	670	610			
43	1461	0.80	26.39	**	**	**	**	<b>FH022-11P-90S/L-06E</b>	51	288
52	1212	0.95	21.89	1030	430	**	**			
58	1091	1.10	19.70	1080	490	1080	490			
61	1045	1.15	18.88	1080	450	1080	450			
67	941	1.25	17.00	1100	520	1100	520			
69	912	1.30	16.48	1100	470	1100	470			
72	876	0.85	15.82	1100	520	**	**			
77	822	1.45	14.84	1120	520	1120	520			
94	675	1.15	12.19	1150	540	1150	540			
95	669	1.75	12.09	1150	520	1150	520			
105	603	1.95	10.89	1150	540	1150	540			
120	527	1.45	9.52	1100	560	1100	560			
161	394	1.90	7.11	990	580	990	580			
187	339	2.20	6.13	940	580	940	580			
214	296	2.55	5.35	900	580	900	580			
291	218	2.95	3.93	790	580	790	580			

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\*\* ... on request

**P<sub>N</sub> = 1.5 hp**

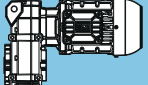
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.43</b>	193109	0.85	4085.50	12840	21630	**	**	<b>FH155-11P-90S/L-04E</b>	1532	320
<b>0.45</b>	184968	0.90	3923.28	14160	24440	**	**			
<b>0.53</b>	156835	1.05	3343.64	17690	25920	17690	**			
<b>0.54</b>	153656	1.05	3284.26	18030	25990	18030	25990			
<b>0.65</b>	125880	1.30	2711.35	20390	26570	20390	26570			
<b>0.66</b>	123261	1.30	2661.75	20570	26640	20570	26640			
<b>0.78</b>	104032	1.55	2269.72	21780	27040	21780	27040			
<b>0.96</b>	83021	1.95	1839.52	22820	27470	22820	27470			
<b>0.76</b>	109770	1.50	2318.30	21450	26910	21450	26910	<b>FH154-11P-90S/L-04E</b>	1504	318
<b>0.88</b>	93577	1.75	1996.74	22320	27270	22320	27270			
<b>0.96</b>	85638	1.90	1834.90	22680	27430	22680	27430			
<b>1.0</b>	80275	2.00	1727.10	22930	27540	22930	27540			
<b>1.1</b>	74007	2.20	1602.16	23180	27670	23180	27670			
<b>1.2</b>	64733	2.50	1415.96	23490	27850	23490	27850			
<b>1.3</b>	62955	2.55	1379.93	23540	27900	23540	27900			
<b>1.4</b>	54949	2.90	1219.56	23780	28080	23780	28080			
<b>1.5</b>	53837	3.00	1197.38	23810	28100	23810	28100			
<b>0.76</b>	110590	1.05	2307.03	16140	19200	16140	19200	<b>FH124-11P-90S/L-04E</b>	948	314
<b>0.87</b>	96029	1.20	2011.51	17200	19560	17200	19560			
<b>0.99</b>	84509	1.40	1781.14	17870	19830	17870	19830			
<b>1.0</b>	82041	1.45	1732.67	18010	19900	18010	19900			
<b>1.1</b>	73231	1.60	1552.98	18460	20120	18460	20120			
<b>1.2</b>	70150	1.65	1493.78	18590	20190	18590	20190			
<b>1.3</b>	62433	1.85	1337.70	18910	20370	18910	20370			
<b>1.4</b>	60661	1.90	1302.43	18970	20410	18970	20410			
<b>1.5</b>	54152	2.15	1172.32	19200	20590	19200	20590			
<b>1.6</b>	51716	2.25	1121.89	19290	20640	19290	20640			
<b>1.7</b>	46729	2.50	1022.15	19420	20770	19420	20770			
<b>1.8</b>	43892	2.65	966.09	19510	20840	19510	20840			
<b>1.9</b>	40850	2.85	904.76	19580	20910	19580	20910			
<b>2.0</b>	39670	2.95	880.46	19630	20930	19630	20930			
<b>1.0</b>	84954	0.85	1757.78	8070	13130	**	**	<b>FH104-11P-90S/L-04E</b>	639	310
<b>1.2</b>	73443	1.00	1525.85	9890	13470	**	**			
<b>1.3</b>	63066	1.15	1318.33	11080	13760	11080	13760			
<b>1.4</b>	61092	1.20	1279.68	11290	13800	11290	13800			
<b>1.5</b>	55006	1.30	1156.94	11820	13980	11820	13980			
<b>1.6</b>	52459	1.35	1105.64	12030	14050	12030	14050			
<b>1.8</b>	47455	1.50	1004.29	12390	14210	12390	14210			
<b>2.0</b>	41931	1.70	892.89	12750	14370	12750	14370			
<b>2.3</b>	36025	2.00	775.08	13060	14520	13060	14520			
<b>2.4</b>	34186	2.10	738.55	13150	14570	13150	14570			
<b>2.6</b>	30742	2.35	669.67	13310	14680	13310	14680			
<b>2.7</b>	29370	2.45	641.10	13350	14700	13350	14700			
<b>2.8</b>	28720	2.50	628.21	13380	14720	13380	14720			
<b>3.2</b>	25009	2.85	553.91	13510	14840	13510	14840			
<b>1.6</b>	51791	0.80	1069.42	**	**	**	**	<b>FH094-11P-90S/L-04E</b>	408	306
<b>1.8</b>	47059	0.85	973.69	4720	7850	**	**			
<b>2.1</b>	39540	1.05	823.17	6270	8770	6270	**			
<b>2.4</b>	35193	1.15	735.68	6920	8920	6920	8920			
<b>2.8</b>	29510	1.35	621.95	7600	9100	7600	9100			
<b>2.9</b>	28509	1.40	602.09	7690	9150	7690	9150			
<b>3.5</b>	23904	1.70	509.01	8090	9310	8090	9310			
<b>3.6</b>	22881	1.75	488.23	8160	9330	8160	9330			
<b>4.3</b>	19106	2.10	412.76	8430	9460	8430	9460			
<b>5.1</b>	15764	2.55	345.53	8610	9580	8610	9580			
<b>5.3</b>	15049	2.65	331.24	8630	9600	8630	9600			
<b>6.1</b>	15241	2.65	288.50	8630	9600	8630	9600	<b>FH093-11P-90S/L-04E</b>	379	304

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\*\* ... on request



**P<sub>N</sub> = 1.5 hp**

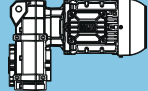
60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>			F <sub>rn</sub>	F <sub>sn</sub>	F <sub>rn</sub>	F <sub>sn</sub>			
rpm	lb-in			lb	lb	lb	lb			
2.4	35043	0.80	723.59	**	**	**	**	FH084-11P-90S/L-04E	287	302
2.8	30473	0.90	631.81	3260	5310	**	**			
2.9	29203	0.95	606.72	3640	6140	**	**			
3.0	28504	0.95	592.20	3840	6560	**	**			
3.4	24787	1.10	517.08	4680	8360	4680	1820			
3.5	24297	1.10	507.90	4770	8570	4770	1840			
3.7	22925	1.20	480.21	4990	9080	4990	1910			
4.2	19894	1.35	419.30	5440	9330	5440	2020			
4.3	19531	1.40	411.63	5490	9350	5490	2050			
4.4	19034	1.40	401.99	5550	9370	5550	2070			
5.0	16517	1.65	351.00	5850	9460	5850	2160			
5.4	15269	1.75	325.80	5960	9510	5960	2200			
6.2	13195	2.05	284.47	6140	9600	6140	2290			
4.9	18940	1.45	358.52	5580	9370	5580	2070	FH083-11P-90S/L-04E	258	300
6.2	14990	1.80	283.76	5980	9530	5980	2230			
7.1	13089	2.05	247.77	6140	9600	6140	2290			
8.0	11568	2.30	218.97	6250	9670	6250	2360			
9.5	9782	2.75	185.17	6360	9730	6320	2430			
9.8	9524	2.80	180.28	6360	9730	6250	2430			
5.8	16135	0.85	305.42	2790	3440	**	**	FH073-11P-90S/L-04E	154	298
7.4	12528	1.10	237.15	3620	3620	3620	1080			
9.0	10279	1.30	194.58	3960	3730	3960	1210			
12	7961	1.70	150.69	4230	3870	4230	1330			
15	6055	2.20	114.62	4380	3960	3820	1420			
19	4993	2.70	94.52	4450	4000	3480	1480			
10	8933	0.85	169.09	1190	1640	**	**	FH063-11P-90S/L-04E	104	296
11	8191	0.90	155.05	1570	2450	**	**			
14	6876	1.10	130.15	2020	2860	2020	630			
15	6305	1.20	119.35	2160	2900	2160	650			
18	5195	1.40	98.34	2380	2990	2380	760			
20	4763	1.55	90.17	2450	3030	2450	790			
22	4252	1.75	80.48	2540	3080	2540	830			
24	3899	1.90	73.80	2590	3100	2590	850			
27	3448	2.15	65.26	2630	3150	2630	900			
29	3161	2.30	59.84	2650	3170	2540	920			
32	2886	2.55	54.63	2680	3190	2450	940			
35	2647	2.75	50.10	2700	3210	2360	970			
35	2624	2.80	49.67	2700	3210	2360	970	FH062-11P-90S/L-04E	101	296
16	5762	0.95	109.08	1150	1840	**	**	FH053-11P-90S/L-04E	68	294
18	5265	1.05	99.66	1370	2270	1370	**			
19	4972	1.10	94.11	1480	2320	1480	810			
20	4543	1.20	85.99	1620	2340	1620	830			
21	4339	1.25	82.13	1690	2360	1690	850			
23	3964	1.35	75.04	1780	2380	1780	880			
29	3183	1.70	60.26	1930	2450	1930	940			
32	2909	1.85	55.06	1980	2470	1980	970			
25	3775	1.20	71.46	1820	2410	1820	900	FH052-11P-90S/L-04E	66	294
27	3449	1.20	65.29	1890	2430	1890	920			
31	2981	1.80	56.42	1960	2470	1960	970			
34	2723	1.95	51.55	2000	2470	2000	970			
40	2311	2.30	43.75	2070	2520	2070	1010			
44	2112	2.55	39.97	2090	2540	2090	1030			
45	2080	1.20	39.38	2090	2470	2090	970			
49	1892	2.85	35.81	2110	2540	2110	1030			
57	1642	1.95	31.09	2140	2520	2140	1010			
73	1274	2.55	24.11	2160	2560	2160	1060			

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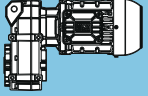
$P_N = 1.5 \text{ hp}$

60 Hz		$f_B$	$i$	Output shaft		Hollow shaft			$m$ lb	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
20	4560	0.80	86.31	**	**	**	**	FH043-11P-90S/L-04E	55	292
22	4312	0.85	81.63	**	**	**	**			
24	3934	0.95	74.46	540	720	**	**			
25	3763	0.95	71.24	700	1060	**	**			
27	3433	1.05	64.98	900	1480	900	560			
34	2761	1.30	52.27	1190	1890	1190	630			
37	2519	1.45	47.68	1260	1910	1260	650			
28	3274	1.10	61.98	990	1690	990	580	FH042-11P-90S/L-04E	55	292
31	2987	1.20	56.54	1100	1870	1100	610			
36	2585	1.40	48.94	1240	1890	1240	630			
39	2358	1.55	44.64	1300	1930	1300	670			
46	2005	1.80	37.95	1390	1960	1390	700			
51	1829	1.95	34.62	1420	1980	1420	720			
52	1780	1.20	33.69	1440	1910	1440	650			
57	1641	2.20	31.06	1460	1980	1460	720			
62	1497	2.40	28.33	1480	2000	1480	740			
66	1405	1.95	26.60	1480	1960	1480	700			
74	1263	2.85	23.91	1510	2020	1510	760			
85	1090	2.55	20.63	1530	2000	1530	740			
39	2396	0.85	45.35	400	430	**	**			
43	2172	0.90	41.12	610	560	**	**			
50	1851	1.10	35.03	790	520	790	520			
55	1678	1.20	31.76	880	630	880	630			
63	1478	1.35	27.97	940	580	940	580			
69	1340	1.50	25.36	990	670	990	670			
78	1189	1.10	22.50	1030	670	1030	670			
83	1117	1.75	21.14	1030	650	1030	650			
92	1013	1.95	19.17	1060	700	1060	700			
98	945	1.45	17.88	1080	700	1080	700			
110	848	2.30	16.06	1100	700	1100	700			
121	770	2.55	14.57	1100	740	1100	740			
127	730	1.85	13.81	1100	720	1100	720			
141	660	2.95	12.50	1120	720	1120	720			
160	583	2.30	11.03	1120	740	1120	740			
67	1394	0.85	26.39	990	470	**	**	FH022-11P-90S/L-04E	46	288
80	1156	1.00	21.89	1060	450	1060	**			
89	1041	1.15	19.70	1080	490	1080	490			
93	997	1.20	18.88	1100	470	1100	470			
104	898	1.30	17.00	1100	520	1100	520			
107	871	1.35	16.48	1120	490	1120	490			
111	836	0.90	15.82	1120	520	**	**			
119	784	1.50	14.84	1120	540	1120	540			
144	644	1.20	12.19	1060	540	1060	540			
146	639	1.85	12.09	1080	520	1080	520			
162	575	2.05	10.89	1010	560	1010	560			
185	503	1.50	9.52	970	560	970	560			
248	376	2.00	7.11	850	580	850	580			
287	324	2.30	6.13	810	580	810	580			
329	283	2.65	5.35	790	580	790	580			
448	208	3.10	3.93	700	580	700	580			

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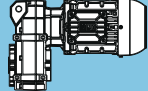
$P_N = 2.0 \text{ hp}$

60 Hz		$f_B$	$i$	Output shaft		Hollow shaft			$m$ lb	Dimension sheet see page
$n_{50}$	$T_2$			$F_{rN}$	$F_{sN}$	$F_{rN}$	$F_{sN}$			
rpm	lb-in									
<b>0.65</b>	174364	0.95	2711.35	15650	25560	**	**	<b>FH155-11P-90S/L-04F</b>	1534	320
<b>0.66</b>	171174	0.95	2661.75	16050	25630	**	**			
<b>0.77</b>	144846	1.10	2269.72	18840	26190	18840	26190			
<b>0.95</b>	116193	1.40	1839.52	21040	26770	21040	26770			
<b>0.76</b>	151973	1.05	2318.30	18190	26030	18190	26030	<b>FH154-11P-90S/L-04F</b>	1506	318
<b>0.88</b>	130091	1.25	1996.74	20080	26480	20080	26480			
<b>0.96</b>	119057	1.35	1834.90	20860	26730	20860	26730			
<b>1.0</b>	111832	1.45	1727.10	21310	26860	21310	26860			
<b>1.1</b>	101912	1.60	1580.39	21900	27090	21900	27090			
<b>1.2</b>	90560	1.80	1415.96	22460	27310	22460	27310			
<b>1.3</b>	88255	1.85	1379.93	22570	27360	22570	27360			
<b>1.4</b>	77198	2.10	1219.56	23040	27610	23040	27610			
<b>1.5</b>	75794	2.15	1197.38	23090	27630	23090	27630			
<b>1.7</b>	66085	2.45	1054.87	23450	27830	23450	27830			
<b>2.0</b>	55362	2.90	898.51	23760	28060	23760	28060			
<b>0.76</b>	152790	0.80	2307.03	**	**	**	**			
<b>0.87</b>	132674	0.90	2011.51	14050	18640	**	**			
<b>0.99</b>	117000	1.00	1781.14	15580	19040	15580	**			
<b>1.0</b>	113816	1.05	1732.67	15870	19110	15870	**			
<b>1.1</b>	101595	1.15	1552.98	16820	19400	16820	19400			
<b>1.2</b>	97522	1.20	1493.78	17090	19510	17090	19510			
<b>1.3</b>	86975	1.35	1337.70	17740	19760	17740	19760			
<b>1.5</b>	75598	1.55	1172.32	18340	20050	18340	20050			
<b>1.6</b>	72197	1.60	1121.89	18500	20140	18500	20140			
<b>1.7</b>	65373	1.80	1022.15	18790	20300	18790	20300			
<b>1.8</b>	61660	1.90	966.09	18930	20390	18930	20390			
<b>1.9</b>	57389	2.05	904.76	19090	20500	19090	20500			
<b>2.0</b>	55733	2.10	880.46	19150	20550	19150	20550			
<b>2.2</b>	49523	2.35	788.86	19360	20700	19360	20700			
<b>2.3</b>	47401	2.45	758.19	19420	20750	19420	20750			
<b>2.6</b>	42043	2.75	679.51	19560	20880	19560	20880			
<b>2.7</b>	40204	2.90	652.50	19600	20930	19600	20930			
<b>2.8</b>	39140	2.95	636.55	19630	20950	19630	20950			
<b>1.3</b>	87132	0.85	1318.33	7640	12810	**	**	<b>FH104-11P-90S/L-04F</b>	642	310
<b>1.4</b>	84577	0.85	1279.68	8140	13130	**	**			
<b>1.5</b>	76153	0.95	1156.94	9510	13380	**	**			
<b>1.6</b>	72627	1.00	1105.64	9980	13490	9980	**			
<b>1.7</b>	65835	1.10	1004.29	10790	13670	10790	13670			
<b>2.0</b>	58173	1.25	892.89	11560	13890	11560	13890			
<b>2.3</b>	50187	1.45	775.08	12210	14120	12210	14120			
<b>2.4</b>	47724	1.50	738.55	12390	14190	12390	14190			
<b>2.6</b>	43007	1.65	669.67	12680	14320	12680	14320			
<b>2.7</b>	41087	1.75	641.10	12790	14390	12790	14390			
<b>2.8</b>	40178	1.80	628.21	12840	14410	12840	14410			
<b>3.2</b>	35135	2.05	553.91	13110	14550	13110	14550			
<b>3.7</b>	29608	2.40	472.61	13350	14700	13350	14700			
<b>3.8</b>	28743	2.50	459.75	13380	14720	13380	14720			
<b>4.3</b>	25212	2.85	408.33	13510	14840	13510	14840			
<b>4.4</b>	24590	2.90	399.09	13530	14840	13530	14840			
<b>2.4</b>	48623	0.85	735.68	4270	6900	**	**	<b>FH094-11P-90S/L-04F</b>	410	306
<b>2.8</b>	40855	1.00	621.95	6050	8720	6050	**			
<b>2.9</b>	39550	1.05	602.09	6270	8770	6270	**			
<b>3.4</b>	33231	1.20	509.01	7170	8990	7170	8990			
<b>3.6</b>	31809	1.30	488.23	7350	9040	7350	9040			
<b>4.3</b>	26672	1.50	412.76	7870	9220	7870	9220			
<b>5.1</b>	22099	1.85	345.53	8230	9370	8230	9370			
<b>5.3</b>	21098	1.90	331.24	8300	9400	8300	9400			
<b>6.3</b>	17617	2.30	280.04	8500	9510	8500	9510			

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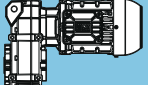
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**P<sub>N</sub> = 2.0 hp**

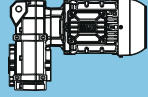
60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
6.1	20842	1.95	288.50	8320	9420	8320	9420	<b>FH093-11P-90S/L-04F</b>	381	304
7.2	17620	2.30	243.90	8500	9510	8500	9510			
8.3	15253	2.65	211.14	8630	9600	8630	9600			
9.4	13509	2.95	186.99	8700	9670	8700	9670			
3.4	34245	0.80	517.08	**	**	**	**	<b>FH084-11P-90S/L-04F</b>	291	302
3.5	33568	0.80	507.90	**	**	**	**			
3.7	31738	0.85	480.21	2770	4270	**	**			
4.2	27599	1.00	419.30	4070	7060	**	**			
4.3	27039	1.00	411.63	4200	7330	4200	**			
4.4	26406	1.05	401.99	4340	7640	4340	**			
5.0	22915	1.20	351.00	4990	9080	4990	1910			
5.4	21226	1.30	325.80	5260	9280	5260	1980			
6.2	18420	1.45	284.47	5620	9400	5620	2090			
4.9	25901	1.05	358.52	4450	7870	4450	**			
6.2	20500	1.30	283.76	5350	9310	5350	2000			
7.1	17900	1.50	247.77	5690	9420	5690	2110			
8.0	15819	1.70	218.97	5910	9490	5910	2180			
9.5	13377	2.00	185.17	6110	9580	6110	2270			
9.7	13024	2.05	180.28	6140	9600	6140	2290			
11	11499	2.35	159.17	6250	9670	6180	2360			
12	10308	2.60	142.69	6320	9710	5960	2410			
13	10038	2.65	138.95	6340	9710	5800	2410			
14	9001	2.95	124.59	6380	9760	5600	2450			
7.4	17132	0.80	237.15	**	**	**	**	<b>FH073-11P-90S/L-04F</b>	157	298
9.0	14057	0.95	194.58	3300	3530	**	**			
12	10886	1.25	150.69	3890	3710	3890	1170			
15	8281	1.65	114.62	4200	3840	4000	1300			
19	6828	1.95	94.52	4340	3910	3640	1390			
23	5601	2.40	77.53	4430	3980	3350	1440			
27	4759	2.80	65.88	4470	4020	3120	1480			
13	9402	0.80	130.15	**	**	**	**	<b>FH063-11P-90S/L-04F</b>	106	296
15	8622	0.85	119.35	1370	2020	**	**			
18	7104	1.05	98.34	1960	2830	1960	**			
19	6514	1.15	90.17	2110	2880	2110	650			
22	5814	1.25	80.48	2270	2940	2270	720			
24	5332	1.40	73.80	2360	2990	2360	740			
27	4715	1.55	65.26	2470	3030	2470	810			
29	4323	1.70	59.84	2520	3060	2520	830			
32	3947	1.85	54.63	2560	3100	2560	850			
35	3619	2.05	50.10	2610	3120	2470	880			
35	3588	2.05	49.67	2610	3120	2470	900	<b>FH062-11P-90S/L-04F</b>	104	296
39	3291	2.25	45.55	2650	3150	2360	920			
42	3010	2.45	41.66	2680	3170	2270	940			
46	2760	2.65	38.20	2700	3190	2200	970			
86	1480	2.55	20.49	2770	3260	1730	1030			
19	6799	0.80	94.11	**	**	**	**	<b>FH053-11P-90S/L-04F</b>	71	294
20	6212	0.90	85.99	850	1210	**	**			
21	5933	0.90	82.13	1030	1600	**	**			
23	5421	1.00	75.04	1300	2180	1300	**			
29	4353	1.25	60.26	1660	2360	1660	850			
32	3978	1.35	55.06	1780	2380	1780	880			

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<b>P<sub>N</sub> = 2.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
25	5163	0.90	71.46	1420	2290	**	**	<b>FH052-11P-90S/L-04F</b>	71	294
27	4717	0.90	65.29	1570	2320	**	**			
31	4076	1.35	56.42	1750	2380	1750	880			
34	3724	1.45	51.55	1820	2410	1820	900			
40	3161	1.70	43.75	1930	2450	1930	940			
44	2888	1.85	39.97	1980	2470	1980	970			
45	2845	0.90	39.38	1980	2380	**	**			
49	2587	2.10	35.81	2020	2500	2020	990			
54	2364	2.25	32.72	2050	2520	2050	1010			
56	2246	1.45	31.09	2070	2450	2070	940			
64	1991	2.70	27.56	2090	2540	2090	1030			
70	1819	2.95	25.18	2110	2560	2110	1060			
73	1742	1.85	24.11	2110	2500	2110	990			
89	1425	2.25	19.73	2140	2540	2070	1030			
116	1097	2.95	15.19	2160	2590	1870	1080			
27	4694	0.80	64.98	**	**	**	**			
34	3776	0.95	52.27	670	1010	**	**			
37	3445	1.05	47.68	900	1480	900	**			
28	4478	0.80	61.98	**	**	**	**	<b>FH042-11P-90S/L-04F</b>	57	292
31	4085	0.90	56.54	340	310	**	**			
36	3536	1.05	48.94	830	1350	830	**			
39	3225	1.10	44.64	1010	1730	1010	580			
46	2742	1.30	37.95	1190	1890	1190	630			
51	2501	1.45	34.62	1260	1910	1260	650			
52	2434	0.90	33.69	1280	1820	**	**			
57	2244	1.60	31.06	1330	1930	1330	670			
62	2047	1.75	28.33	1370	1960	1370	700			
66	1922	1.45	26.60	1390	1890	1390	630			
73	1727	2.05	23.91	1440	1980	1440	720			
80	1576	2.25	21.81	1460	2000	1460	740			
85	1490	1.85	20.63	1480	1930	1480	670			
97	1305	2.75	18.06	1510	2020	1510	760			
104	1219	2.25	16.88	1510	1980	1510	720			
106	1191	3.00	16.48	1510	2020	1510	760			
135	938	2.95	12.99	1550	2020	1440	760			
50	2531	0.80	35.03	**	**	**	**	<b>FH032-11P-90S/L-04F</b>	55	290
55	2294	0.85	31.76	490	560	**	**			
63	2021	1.00	27.97	700	490	**	**			
69	1832	1.10	25.36	810	610	810	610			
78	1625	0.85	22.50	900	610	**	**			
83	1527	1.30	21.14	920	580	920	580			
92	1385	1.45	19.17	970	650	970	650			
98	1292	1.05	17.88	990	650	990	**			
109	1160	1.70	16.06	1030	630	1030	630			
120	1053	1.85	14.57	1060	700	1060	700			
127	998	1.35	13.81	1060	700	1060	700			
140	903	2.20	12.50	1080	670	1080	670			
155	819	2.40	11.33	1100	720	1100	720			
159	797	1.70	11.03	1100	720	1100	720			
180	705	2.70	9.76	1100	720	1100	720			
198	639	2.80	8.85	1120	740	1120	740			
211	602	2.25	8.33	1120	740	1120	740			
277	457	2.85	6.33	1080	760	1080	760			

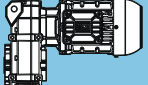
$P_N = 2.0 \text{ hp}$

60 Hz			i	Output shaft		Hollow shaft		 <b>FH022-11P-90S/L-04F</b>	m lb	Dimension sheet see page
$n_{60}$	$T_2$	$f_B$		$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
89	1423	0.85	19.70	990	450	**	**	49	288	
93	1364	0.85	18.88	1010	400	**	**			
103	1228	0.95	17.00	1030	470	**	**			
106	1191	1.00	16.48	1060	430	**	**			
118	1072	1.10	14.84	1080	490	1080	490			
144	881	0.85	12.19	1100	520	**	**			
145	873	1.35	12.09	1120	490	1120	490			
161	787	1.50	10.89	1060	540	1060	540			
184	688	1.10	9.52	990	540	990	540			
247	514	1.45	7.11	880	560	880	560			
286	443	1.70	6.13	830	560	830	560			
328	387	1.95	5.35	790	580	790	580			
447	284	2.25	3.93	700	580	700	580			

F

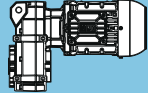
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<b>P<sub>N</sub> = 3.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
0.95	174944	0.95	1839.52	15470	25540	**	**	<b>FH155-11P-100L-04E</b>	1556	320
0.98	168265	0.95	1773.82	16320	25670	**	**			
0.87	194665	0.85	1996.74	12360	20610	**	**	<b>FH154-11P-100L-04E</b>	1528	318
0.95	178521	0.90	1834.90	14970	25450	**	**			
1.0	167690	1.00	1727.10	16390	25670	**	**			
1.1	155241	1.05	1602.16	17780	25940	17780	**			
1.2	136358	1.20	1415.96	19510	26350	19510	26350			
1.3	132888	1.20	1379.93	19810	26420	19810	26420			
1.4	116723	1.40	1219.56	20970	26750	20970	26750			
1.5	114237	1.40	1193.58	21130	26820	21130	26820			
1.7	100134	1.60	1054.87	21960	27110	21960	27110			
1.9	84591	1.90	898.51	22730	27450	22730	27450			
2.0	83808	1.95	892.03	22750	27450	22750	27450			
2.3	71960	2.25	773.88	23220	27700	23220	27700			
2.4	68739	2.35	742.31	23340	27760	23340	27760			
2.6	61473	2.60	669.37	23580	27920	23580	27920			
2.7	60044	2.70	655.17	23630	27970	23630	27970			
1.1	151712	0.80	1552.98	**	**	**	**	<b>FH124-11P-100L-04E</b>	972	314
1.2	145929	0.80	1493.78	**	**	**	**			
1.3	130148	0.90	1337.70	14250	18680	**	**			
1.5	113591	1.05	1172.32	15830	19110	15830	**			
1.6	108483	1.10	1121.89	16250	19220	16250	19220			
1.7	98434	1.20	1022.15	17000	19470	17000	19470			
1.8	92844	1.25	966.09	17360	19630	17360	19630			
1.9	86772	1.35	904.76	17740	19760	17740	19760			
2.0	84268	1.40	880.46	17870	19830	17870	19830			
2.2	75037	1.55	788.86	18340	20050	18340	20050			
2.3	71971	1.60	758.19	18500	20140	18500	20140			
2.6	64105	1.80	679.51	18840	20320	18840	20320			
2.7	61430	1.90	652.50	18930	20390	18930	20390			
3.0	54635	2.15	585.14	19180	20570	19180	20570			
3.1	52263	2.25	562.05	19270	20610	19270	20610			
3.2	51299	2.25	551.68	19290	20640	19290	20640			
3.6	44449	2.60	484.00	19490	20820	19490	20820			
3.7	43814	2.65	478.08	19510	20840	19510	20840			
3.9	40914	2.85	449.23	19580	20910	19580	20910			
2.0	87049	0.85	892.89	7580	12660	**	**	<b>FH104-11P-100L-04E</b>	664	310
2.3	75255	0.95	775.08	9580	13400	**	**			
2.4	71561	1.00	738.55	10070	13510	10070	**			
2.6	64755	1.10	669.67	10880	13690	10880	13690			
2.7	61865	1.15	641.10	11170	13780	11170	13780			
2.8	60497	1.20	628.21	11310	13830	11310	13830			
3.2	53123	1.35	553.91	11960	14030	11960	14030			
3.2	52192	1.40	545.32	12030	14050	12030	14050			
3.7	44955	1.60	472.61	12540	14250	12540	14250			
3.8	43642	1.65	459.75	12630	14300	12630	14300			
3.9	41997	1.70	443.33	12720	14340	12720	14340			
4.3	38443	1.85	408.33	12930	14460	12930	14460			
4.4	37573	1.90	399.09	12970	14480	12970	14480			
4.5	36082	2.00	384.84	13060	14520	13060	14520			
4.6	35510	2.00	378.74	13080	14520	13080	14520			
5.1	32063	2.25	344.81	13240	14640	13240	14640			
5.2	30854	2.30	332.50	13290	14660	13290	14660			
5.3	30445	2.35	328.77	13310	14680	13310	14680			
6.1	25979	2.75	284.06	13490	14810	13490	14810			

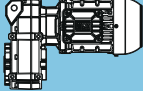
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<b>P<sub>N</sub> = 3.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rn</sub></b>	<b>F<sub>an</sub></b>	<b>F<sub>rn</sub></b>	<b>F<sub>an</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
3.4	49624	0.85	509.01	3890	6090	**	**	<b>FH094-11P-100L-04E</b>	432	306
3.6	47598	0.85	488.23	4520	7420	**	**			
4.2	39994	1.00	412.76	6160	8750	6160	**			
4.3	39602	1.05	408.71	6230	8770	6230	**			
5.1	33275	1.20	345.53	7150	8990	7150	8990			
5.3	31833	1.30	331.24	7330	9040	7330	9040			
5.5	30633	1.35	319.41	7460	9080	7460	9080			
6.2	26692	1.50	280.04	7850	9220	7850	9220			
6.5	25685	1.60	270.03	7940	9240	7940	9240			
6.0	30744	1.30	288.50	7440	9060	7440	9060	<b>FH093-11P-100L-04E</b>	403	304
7.2	25991	1.55	243.90	7910	9240	7910	9240			
8.3	22500	1.80	211.14	8180	9350	8180	9350			
9.3	19926	2.00	186.99	8360	9440	8360	9440			
11	17238	2.35	161.76	8520	9530	8520	9530			
12	15223	2.65	142.85	8630	9600	8630	9600			
13	14666	2.75	137.63	8660	9620	8660	9620			
5.0	34289	0.80	351.00	**	**	**	**	<b>FH084-11P-100L-04E</b>	313	302
5.4	31763	0.85	325.80	2700	4140	**	**			
5.6	30565	0.90	314.16	3170	5130	**	**			
6.1	27620	1.00	284.47	4020	6950	**	**			
6.4	26579	1.00	274.31	4270	7490	4270	**			
6.1	30239	0.90	283.76	3280	5370	**	**	<b>FH083-11P-100L-04E</b>	284	300
7.0	26403	1.05	247.77	4320	7580	4320	**			
8.0	23334	1.15	218.97	4900	8880	4900	1890			
9.4	19732	1.35	185.17	5440	9330	5440	2020			
9.7	19211	1.40	180.28	5510	9350	5510	2050			
11	16962	1.60	159.17	5780	9440	5780	2140			
12	15206	1.75	142.69	5960	9510	5960	2200			
13	14807	1.80	138.95	5980	9530	5980	2230			
14	13277	2.00	124.59	6110	9600	5930	2290			
15	12686	2.10	119.05	6160	9620	5780	2320			
16	11734	2.30	110.11	6230	9640	5600	2340			
17	10797	2.50	101.32	6290	9690	5420	2380			
19	9922	2.70	93.11	6340	9710	5190	2410			
21	9057	2.95	84.99	6380	9760	4970	2450			
12	16058	0.85	150.69	2790	3440	**	**	<b>FH073-11P-100L-04E</b>	179	298
15	12214	1.10	114.62	3660	3620	3660	1100			
18	10072	1.35	94.52	3980	3730	3980	1210			
23	8262	1.65	77.53	4200	3840	3570	1300			
26	7020	1.90	65.88	4320	3910	3350	1370			
32	5772	2.35	54.16	4410	3980	3060	1440			
33	5566	2.40	52.23	4430	3980	3010	1460			
39	4798	2.80	45.02	4470	4020	2810	1480			
19	9609	0.80	90.17	**	**	**	**	<b>FH063-11P-100L-04E</b>	128	296
22	8576	0.85	80.48	1370	2020	**	**			
27	6954	1.05	65.26	1980	2860	1980	610			
29	6377	1.15	59.84	2140	2900	2140	650			
32	5822	1.25	54.63	2270	2940	2270	700			
35	5339	1.40	50.10	2360	2970	2360	740			
35	5293	1.40	49.67	2360	2990	2360	740	<b>FH062-11P-100L-04E</b>	126	296
38	4854	1.50	45.55	2430	3010	2430	790			
42	4439	1.65	41.66	2500	3060	2430	830			
46	4071	1.80	38.20	2560	3080	2340	850			
53	3484	2.10	32.69	2630	3150	2180	900			
58	3195	2.30	29.98	2650	3170	2110	920			
69	2689	2.70	25.23	2700	3210	1960	970			
75	2466	2.95	23.14	2720	3210	1890	990			
85	2183	1.75	20.49	2740	3170	1820	940			
102	1831	2.80	17.18	2770	3210	1690	990			

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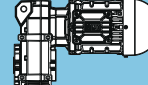
P <sub>N</sub> = 3.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>sN</sub>	F <sub>rN</sub>	F <sub>sN</sub>			
rpm	lb-in			lb	lb	lb	lb			
40	4662	1.15	43.75	1570	2340	1570	830	<b>FH052-11P-100L-04E</b>	93	294
44	4259	1.25	39.97	1690	2360	1690	850			
49	3816	1.40	35.81	1800	2410	1800	900			
53	3487	1.55	32.72	1870	2430	1870	920			
63	2937	1.85	27.56	1980	2470	1980	970			
69	2683	2.00	25.18	2000	2500	2000	990			
72	2569	1.25	24.11	2020	2410	2020	900			
84	2220	2.40	20.83	2070	2520	2070	1010			
88	2103	1.55	19.73	2090	2470	2090	970			
92	2028	2.65	19.03	2090	2540	2090	1030			
102	1816	2.95	17.04	2110	2560	2020	1060			
115	1619	2.00	15.19	2140	2520	1930	1010			
152	1223	2.65	11.48	2160	2560	1730	1060			
46	4044	0.90	37.95	360	340	**	**	<b>FH042-11P-100L-04E</b>	79	292
50	3689	1.00	34.62	720	1100	**	**			
56	3310	1.10	31.06	970	1620	970	560			
62	3019	1.20	28.33	1080	1870	1080	610			
73	2548	1.40	23.91	1260	1910	1260	650			
80	2324	1.55	21.81	1300	1930	1300	670			
85	2198	1.25	20.63	1350	1840	1350	580			
97	1925	1.85	18.06	1390	1960	1390	700			
103	1799	1.55	16.88	1420	1910	1420	650			
106	1756	2.05	16.48	1440	1980	1440	720			
118	1575	2.25	14.78	1460	2000	1460	740			
129	1436	2.50	13.48	1480	2000	1480	740			
134	1384	2.00	12.99	1480	1960	1480	700			
146	1278	2.70	11.99	1510	2020	1460	760			
160	1165	2.75	10.93	1530	2020	1390	760			
174	1069	2.90	10.03	1530	2050	1350	790			
178	1046	2.65	9.82	1530	2000	1350	740			
191	975	3.00	9.15	1530	2050	1300	790			
217	856	2.90	8.03	1550	2020	1240	760			
83	2253	0.90	21.14	540	470	**	**	<b>FH032-11P-100L-04E</b>	77	290
91	2043	1.00	19.17	670	580	**	**			
109	1711	1.15	16.06	850	540	850	540			
120	1553	1.30	14.57	920	650	920	650			
126	1472	0.95	13.81	940	630	**	**			
140	1332	1.50	12.50	990	610	990	610			
154	1207	1.65	11.33	1010	670	1010	670			
158	1175	1.15	11.03	1030	670	1030	670			
179	1040	1.85	9.76	1060	650	1060	650			
197	943	1.90	8.85	1080	720	1080	720			
209	888	1.50	8.33	1080	700	1080	700			
276	675	1.95	6.33	1100	740	1100	740			
354	525	2.15	4.93	1010	740	1010	740			
453	410	2.40	3.85	920	760	920	760			

Legend see page 187

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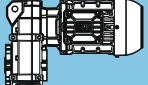
$P_N = 4.0 \text{ hp}$

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
$n_{60}$ rpm	$T_2$ lb-in	$f_B$		$F_{rN}$ lb	$F_{aN}$ lb	$F_{rN}$ lb	$F_{aN}$ lb			
1.1	211136	0.80		1580.39	**	**	**			
1.2	188782	0.85	1415.96	13600	23250	**	**			
1.3	183603	0.90	1379.93	14410	24980	**	**			
1.4	161602	1.00	1219.56	17200	25830	17200	**			
1.5	158663	1.05	1197.38	17540	25900	17540	**			
1.6	139208	1.15	1054.87	19360	26300	19360	26300			
1.7	135818	1.20	1031.30	19630	26370	19630	26370			
1.9	117604	1.40	898.51	20950	26750	20950	26750			
2.0	116756	1.40	892.03	21020	26770	21020	26770			
2.2	100462	1.60	773.88	21990	27110	21990	27110			
2.3	99933	1.60	769.81	22010	27130	22010	27130			
2.6	86181	1.85	669.37	22680	27430	22680	27430			
2.7	84179	1.90	655.17	22750	27450	22750	27450			
3.0	72927	2.20	573.49	23200	27700	23200	27700			
3.1	70177	2.30	553.01	23310	27740	23310	27740			
3.2	69745	2.30	549.60	23340	27760	23340	27760			
3.6	61173	2.65	488.09	23600	27940	23600	27940			
3.7	59205	2.70	473.37	23670	27990	23670	27990			
3.8	57805	2.80	463.14	23690	28010	23690	28010			
1.6	149882	0.80	1121.89	**	**	**	**	FH124-11P-L100L-04F	988	314
1.7	136278	0.85	1022.15	13670	18570	**	**			
1.8	128540	0.90	966.09	14500	18750	**	**			
1.9	120134	1.00	904.76	15330	18950	**	**			
2.0	116669	1.00	880.46	15620	19040	15620	**			
2.2	104103	1.15	788.86	16640	19360	16640	19360			
2.3	99851	1.20	758.19	16930	19470	16930	19470			
2.6	89122	1.30	679.51	17630	19720	17630	19720			
2.7	85404	1.35	652.50	17830	19810	17830	19810			
3.0	76273	1.55	585.14	18320	20030	18320	20030			
3.1	72963	1.60	562.05	18480	20120	18480	20120			
3.2	71617	1.65	551.68	18520	20140	18520	20140			
3.6	62315	1.85	484.00	18930	20390	18930	20390			
3.7	59856	1.95	465.86	19020	20440	19020	20440			
3.9	57481	2.05	449.23	19090	20500	19090	20500			
4.2	52688	2.20	414.33	19270	20610	19270	20610			
4.3	51653	2.25	406.19	19290	20640	19290	20640			
4.4	49602	2.35	391.68	19360	20700	19360	20700			
4.5	48501	2.40	383.78	19380	20730	19380	20730			
4.9	44810	2.60	356.79	19490	20820	19490	20820			
5.0	43851	2.65	349.88	19510	20840	19510	20840			
5.2	42110	2.75	337.39	19560	20880	19560	20880			
2.6	89284	0.80	669.67	**	**	**	**	FH104-11P-L100L-04F	679	310
2.7	85474	0.85	641.10	7980	13110	**	**			
2.8	83756	0.85	628.21	8320	13170	**	**			
3.1	73548	1.00	553.91	9870	13470	**	**			
3.2	72260	1.00	545.32	10050	13490	10050	**			
3.7	62369	1.15	472.61	11170	13780	11170	13780			
3.8	60547	1.20	459.75	11330	13830	11330	13830			
3.9	58265	1.25	443.33	11560	13890	11560	13890			
4.3	53555	1.35	408.33	11960	14030	11960	14030			
4.4	52236	1.40	399.09	12050	14070	12050	14070			
4.5	50267	1.45	384.84	12210	14120	12210	14120			
4.6	49471	1.45	378.74	12250	14140	12250	14140			
5.0	44762	1.60	344.81	12590	14280	12590	14280			
5.2	43075	1.65	332.50	12680	14320	12680	14320			
5.3	42592	1.70	328.77	12700	14340	12700	14340			
6.1	36422	1.95	284.06	13040	14520	13040	14520			

Legend see page 187

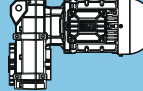
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<b>P<sub>N</sub> = 4.0 hp</b>										
<b>60 Hz</b>		<b>f<sub>B</sub></b>	<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b>	<b>Dimension sheet see page</b>
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>			<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
<b>rpm</b>	<b>lb-in</b>			<b>lb</b>	<b>lb</b>	<b>lb</b>	<b>lb</b>			
<b>5.0</b>	45974	0.90	345.53	5010	8480	**	**	<b>FH094-11P-L100L-04F</b>	448	306
<b>5.3</b>	44072	0.95	331.24	5440	8630	**	**			
<b>5.4</b>	42411	0.95	319.41	5780	8680	**	**			
<b>6.2</b>	37032	1.10	280.04	6680	8860	6680	8860			
<b>6.4</b>	35635	1.15	270.03	6880	8900	6880	8900			
<b>6.0</b>	42044	0.95	288.50	5850	8700	**	**	<b>FH093-11P-L100L-04F</b>	419	304
<b>7.1</b>	35544	1.15	243.90	6880	8900	6880	8900			
<b>8.2</b>	30770	1.30	211.14	7460	9080	7460	9080			
<b>9.3</b>	27250	1.50	186.99	7820	9190	7820	9190			
<b>11</b>	23574	1.70	161.76	8120	9310	8120	9310			
<b>11</b>	22733	1.80	155.99	8180	9350	8180	9350			
<b>12</b>	20818	1.95	142.85	8320	9420	8320	9420			
<b>13</b>	20057	2.00	137.63	8360	9440	8360	9440			
<b>14</b>	17600	2.30	120.77	8520	9510	8520	9510			
<b>15</b>	17070	2.35	117.13	8540	9530	8540	9530			
<b>17</b>	15235	2.65	104.54	8630	9600	8630	9600			
<b>19</b>	13493	3.00	92.59	8700	9670	8700	9670			
<b>7.9</b>	31911	0.85	218.97	2720	4180	**	**	<b>FH083-11P-L100L-04F</b>	298	300
<b>9.4</b>	26985	1.00	185.17	4230	7400	4230	**			
<b>9.7</b>	26273	1.05	180.28	4380	7730	4380	**			
<b>11</b>	23196	1.15	159.17	4970	9010	4970	1890			
<b>12</b>	20795	1.30	142.69	5330	9310	5330	2000			
<b>13</b>	20249	1.35	138.95	5400	9310	5400	2000			
<b>14</b>	18157	1.50	124.59	5670	9400	5670	2090			
<b>15</b>	17349	1.55	119.05	5760	9440	5760	2140			
<b>16</b>	16047	1.70	110.11	5890	9490	5890	2180			
<b>17</b>	14766	1.80	101.32	6000	9530	5730	2230			
<b>19</b>	13569	2.00	93.11	6090	9580	5460	2270			
<b>20</b>	12386	2.15	84.99	6180	9620	5310	2320			
<b>22</b>	11664	2.30	80.04	6250	9670	5100	2360			
<b>24</b>	10437	2.50	71.62	6320	9710	4900	2410			
<b>25</b>	10182	2.55	69.87	6340	9710	4810	2410			
<b>29</b>	8724	2.85	59.86	6410	9780	4520	2470			
<b>30</b>	8413	2.90	57.73	6430	9780	4450	2470			
<b>15</b>	16704	0.80	114.62	**	**	**	**	<b>FH073-11P-L100L-04F</b>	194	298
<b>18</b>	13775	1.00	94.52	3370	3550	**	**			
<b>22</b>	11299	1.20	77.53	3820	3690	3820	1150			
<b>26</b>	9601	1.40	65.88	4050	3780	3570	1240			
<b>32</b>	7893	1.70	54.16	4250	3870	3240	1330			
<b>33</b>	7612	1.75	52.23	4270	3870	3190	1350			
<b>39</b>	6561	2.05	45.02	4360	3930	2970	1390	<b>FH072-11P-L100L-04F</b>	192	298
<b>44</b>	5729	2.35	39.31	4410	3980	2790	1440			
<b>50</b>	5063	2.65	34.74	4450	4000	2650	1480			
<b>84</b>	3020	2.80	20.72	4540	4050	2160	1510			
<b>27</b>	9510	0.80	65.26	**	**	**	**	<b>FH063-11P-L100L-04F</b>	143	296
<b>29</b>	8721	0.85	59.84	1330	1930	**	**			
<b>32</b>	7961	0.95	54.63	1660	2680	**	**			
<b>35</b>	7301	1.00	50.10	1890	2810	1890	**			

Legend see page 187

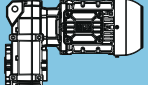
\*\* ... on request

P <sub>N</sub> = 4.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
35	7239	1.05	49.67	1910	2830	1910	**	FH062-11P-L100L-04F	141	296
38	6638	1.10	45.55	2070	2880	2070	630			
42	6071	1.20	41.66	2200	2920	2200	700			
46	5567	1.35	38.20	2320	2970	2320	720			
53	4764	1.55	32.69	2450	3030	2340	790			
58	4369	1.70	29.98	2520	3060	2230	830			
69	3677	2.00	25.23	2610	3120	2050	880			
75	3372	2.20	23.14	2630	3150	1980	900			
83	3041	2.40	20.87	2680	3170	1890	940			
85	2986	1.30	20.49	2680	3080	1930	850			
91	2789	2.65	19.14	2700	3190	1820	970			
98	2587	2.85	17.75	2700	3210	1750	970			
101	2504	2.05	17.18	2720	3150	1780	900			
129	1966	2.60	13.49	2740	3210	1600	970			
40	6376	0.85	43.75	720	940	**	**	FH052-11P-L100L-04F	106	294
44	5825	0.95	39.97	1100	1750	**	**			
49	5219	1.05	35.81	1390	2290	1390	**			
53	4768	1.15	32.72	1550	2320	1550	810			
63	4016	1.35	27.56	1750	2380	1750	880			
69	3670	1.45	25.18	1840	2410	1840	900			
72	3514	0.95	24.11	1870	2320	**	**			
84	3036	1.75	20.83	1960	2450	1960	940			
88	2875	1.15	19.73	1980	2380	1980	880			
91	2773	1.95	19.03	2000	2470	2000	970			
102	2483	2.15	17.04	2050	2500	2050	990			
112	2269	2.35	15.57	2070	2520	2020	1010			
115	2214	1.45	15.19	2070	2450	2020	940			
126	2014	2.65	13.82	2090	2540	1930	1030			
138	1841	2.90	12.63	2110	2560	1840	1060			
152	1673	1.95	11.48	2110	2520	1800	1010			
185	1368	2.35	9.39	2140	2540	1640	1030			
228	1110	2.90	7.62	2090	2590	1510	1080			
56	4526	0.80	31.06	**	**	**	**	FH042-11P-L100L-04F	93	292
61	4129	0.90	28.33	250	110	**	**			
73	3484	1.05	23.91	880	1440	880	**			
80	3178	1.15	21.81	1030	1780	1030	580			
84	3006	0.95	20.63	1100	1750	**	**			
96	2632	1.35	18.06	1240	1890	1240	630			
103	2460	1.15	16.88	1280	1820	1280	560			
106	2402	1.50	16.48	1300	1910	1300	650			
118	2154	1.65	14.78	1350	1930	1350	670			
129	1964	1.85	13.48	1390	1960	1390	700			
134	1893	1.45	12.99	1420	1890	1420	630			
145	1747	1.95	11.99	1440	1980	1440	720			
159	1593	2.05	10.93	1460	2000	1460	740			
173	1462	2.15	10.03	1480	2000	1420	740			
177	1431	1.95	9.82	1480	1960	1420	700			
190	1333	2.20	9.15	1510	2020	1350	760			
214	1185	2.35	8.13	1510	2020	1280	760			
217	1170	2.15	8.03	1530	1980	1300	720			
222	1143	2.40	7.84	1530	2020	1280	760			
235	1081	2.40	7.42	1530	2050	1240	790			
243	1042	2.45	7.15	1530	2050	1210	790			
267	950	2.35	6.52	1530	2020	1190	760			
319	794	2.50	5.45	1510	2020	1100	760			
394	644	2.70	4.42	1390	2050	1010	790			
408	621	2.75	4.26	1370	2050	990	790			

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**P<sub>N</sub> = 4.0 hp**

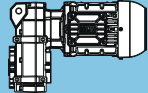
60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>108</b>	2340	0.85	16.06	450	450	**	**	<b>FH032-11P-L100L-04F</b>	90	290
<b>119</b>	2123	0.95	14.57	650	580	**	**			
<b>139</b>	1822	1.10	12.50	810	540	810	540			
<b>154</b>	1651	1.20	11.33	880	630	880	630			
<b>158</b>	1607	0.85	11.03	900	610	**	**			
<b>178</b>	1422	1.35	9.76	970	610	970	610			
<b>197</b>	1290	1.40	8.85	990	670	990	670			
<b>209</b>	1214	1.10	8.33	1010	650	1010	650			
<b>275</b>	922	1.40	6.33	1080	700	1080	700			
<b>353</b>	718	1.60	4.93	1030	720	1030	720			
<b>452</b>	561	1.80	3.85	940	740	940	740			

**F**

Legend see page 187

\*\* ... on request

**P<sub>N</sub> = 5.4 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>1.5</b>	211466	0.80	1197.38	**	**	**	**	<b>FH154-11P-112M-04E</b>	1545	318
<b>1.7</b>	185538	0.90	1054.87	14070	24230	**	**			
<b>2.0</b>	157390	1.05	898.51	17630	25920	17630	**			
<b>2.0</b>	156255	1.05	892.03	17740	25940	17740	**			
<b>2.3</b>	134728	1.20	773.88	19720	26390	19720	26390			
<b>2.4</b>	128967	1.25	742.31	20140	26500	20140	26500			
<b>2.6</b>	115818	1.40	669.37	21060	26800	21060	26800			
<b>2.7</b>	113128	1.45	655.17	21240	26840	21240	26840			
<b>3.1</b>	98415	1.65	573.49	22080	27160	22080	27160			
<b>3.2</b>	94706	1.70	553.01	22260	27220	22260	27220			
<b>3.6</b>	82901	1.95	488.09	22820	27470	22820	27470			
<b>3.7</b>	80235	2.00	473.37	22930	27540	22930	27540			
<b>3.8</b>	78339	2.05	463.14	23000	27580	23000	27580			
<b>4.3</b>	68543	2.35	409.44	23360	27790	23360	27790			
<b>4.4</b>	66641	2.40	398.90	23430	27830	23430	27830			
<b>5.1</b>	56809	2.85	345.03	23720	28030	23720	28030			
<b>2.2</b>	139034	0.85	788.86	13310	18480	**	**	<b>FH124-11P-112M-04E</b>	990	314
<b>2.3</b>	133356	0.90	758.19	13960	18640	**	**			
<b>2.6</b>	119272	1.00	679.51	15380	18970	**	**			
<b>2.7</b>	114297	1.05	652.50	15830	19090	15830	**			
<b>2.8</b>	111275	1.05	636.55	16070	19180	16070	19180			
<b>3.0</b>	102079	1.15	585.14	16770	19400	16770	19400			
<b>3.1</b>	97850	1.20	562.05	17060	19510	17060	19510			
<b>3.2</b>	96624	1.20	555.01	17150	19540	17150	19540			
<b>3.6</b>	83744	1.40	484.00	17920	19850	17920	19850			
<b>3.7</b>	82720	1.40	478.08	17980	19870	17980	19870			
<b>3.8</b>	80440	1.45	465.86	18100	19940	18100	19940			
<b>3.9</b>	77409	1.50	449.23	18250	20010	18250	20010			
<b>4.2</b>	71102	1.65	414.33	18550	20170	18550	20170			
<b>4.3</b>	70649	1.65	411.69	18570	20170	18570	20170			
<b>4.5</b>	66939	1.75	391.68	18730	20260	18730	20260			
<b>4.6</b>	65589	1.80	383.78	18790	20300	18790	20300			
<b>4.9</b>	60600	1.90	356.79	18970	20410	18970	20410			
<b>5.0</b>	59427	1.95	349.88	19020	20460	19020	20460			
<b>5.2</b>	57069	2.05	337.39	19110	20500	19110	20500			
<b>5.8</b>	50543	2.30	301.29	19310	20660	19310	20660			
<b>6.0</b>	48536	2.40	290.53	19380	20730	19380	20730			
<b>6.1</b>	48152	2.40	288.23	19400	20730	19400	20730			
<b>7.1</b>	40868	2.85	248.21	19580	20910	19580	20910			
<b>8.0</b>	42512	2.75	220.67	19540	20860	19540	20860	<b>FH123-11P-112M-04E</b>	937	312
<b>3.7</b>	83126	0.90	472.61	8390	13170	**	**	<b>FH104-11P-112M-04E</b>	681	310
<b>3.8</b>	80864	0.90	459.75	8790	13240	**	**			
<b>4.0</b>	77816	0.95	443.33	9260	13330	**	**			
<b>4.3</b>	71526	1.00	408.33	10120	13510	10120	**			
<b>4.4</b>	69908	1.05	399.09	10320	13560	10320	**			
<b>4.6</b>	67274	1.10	384.84	10630	13620	10630	13620			
<b>5.1</b>	60029	1.20	344.81	11380	13850	11380	13850			
<b>5.3</b>	57768	1.25	332.50	11580	13890	11580	13890			
<b>6.2</b>	49049	1.45	284.06	12270	14140	12270	14140			
<b>7.1</b>	47501	1.50	246.57	12390	14190	12390	14190	<b>FH103-11P-112M-04E</b>	628	308
<b>8.1</b>	41955	1.70	217.78	12750	14340	12750	14340			
<b>9.3</b>	36418	1.95	189.04	13040	14500	13040	14500			
<b>9.6</b>	35118	2.05	182.29	13110	14550	13110	14550			
<b>11</b>	31465	2.30	163.33	13260	14660	13260	14660			
<b>13</b>	26928	2.65	139.78	13440	14790	13440	14790			
<b>14</b>	23615	3.00	122.58	13560	14880	13560	14880	<b>FH094-11P-112M-04E</b>	450	306
<b>6.3</b>	49356	0.85	280.04	4050	6410	**	**			
<b>6.5</b>	47592	0.85	270.03	4560	7510	**	**			

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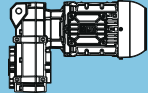
$P_N = 5.4 \text{ hp}$

60 Hz		$f_B$	$i$	Output shaft		Hollow shaft			$m$ lb	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
7.2	46987	0.85	243.90	4740	7890	**	**	FH093-11P-112M-04E	421	304
8.3	40676	1.00	211.14	6070	8750	6070	**			
9.4	36023	1.15	186.99	6810	8900	6810	8900			
11	31163	1.30	161.76	7420	9060	7420	9060			
12	27520	1.45	142.85	7780	9170	7780	9170			
13	26514	1.55	137.63	7870	9220	7870	9220			
15	23266	1.75	120.77	8140	9330	8140	9330			
17	20139	2.00	104.54	8360	9440	8360	9440			
19	17837	2.25	92.59	8500	9510	8500	9510			
22	15429	2.60	80.09	8610	9600	8610	9600			
23	14878	2.70	77.23	8630	9620	8630	9620			
9.7	34731	0.80	180.28	**	**	**	**	FH083-11P-112M-04E	300	300
11	30664	0.90	159.17	3170	5130	**	**			
12	27489	1.00	142.69	4090	7100	**	**			
13	26769	1.00	138.95	4250	7440	4250	**			
14	24002	1.15	124.59	4810	8680	4810	1870			
15	22935	1.20	119.05	4990	9080	4990	1910			
16	21213	1.30	110.11	5260	9280	5260	1980			
17	19519	1.40	101.32	5490	9350	5490	2050			
19	17938	1.50	93.11	5690	9400	5690	2090			
21	16373	1.65	84.99	5850	9460	5550	2160			
22	15420	1.75	80.04	5930	9510	5420	2200			
25	13798	1.90	71.62	6090	9580	5100	2270			
29	11532	2.15	59.86	6250	9670	4740	2360			
30	11122	2.20	57.73	6270	9670	4650	2360			
34	9815	2.40	50.95	6360	9730	4410	2430			
41	8234	2.70	42.74	6430	9800	4070	2500			
23	14936	0.90	77.53	3100	3480	**	**	FH073-11P-112M-04E	196	298
27	12692	1.05	65.88	3600	3620	3600	1080			
32	10434	1.30	54.16	3930	3730	3460	1190			
34	10062	1.35	52.23	4000	3750	3370	1210			
39	8673	1.55	45.02	4160	3820	3150	1280	FH072-11P-112M-04E	194	298
45	7573	1.80	39.31	4270	3870	2940	1350			
51	6693	2.00	34.74	4340	3910	2770	1390			
60	5660	2.35	29.38	4430	3980	2560	1440			
70	4864	2.75	25.25	4470	4020	2380	1480			
85	3992	2.10	20.72	4520	3980	2250	1440			
97	3485	2.85	18.09	4540	4000	2110	1480			
35	9652	0.80	50.10	**	**	**	**	FH063-11P-112M-04E	146	296
35	9569	0.80	49.67	**	**	**	**	FH062-11P-112M-04E	143	296
39	8775	0.85	45.55	1280	1820	**	**			
42	8026	0.95	41.66	1640	2610	**	**			
46	7359	1.00	38.20	1870	2810	1870	**			
54	6298	1.20	32.69	2160	2900	2160	670			
59	5776	1.30	29.98	2270	2940	2270	700			
70	4861	1.50	25.23	2450	3030	2180	790			
76	4458	1.65	23.14	2500	3060	2090	810			
84	4021	1.85	20.87	2560	3100	2000	850			
86	3947	0.95	20.49	2560	2990	**	**			
92	3687	2.00	19.14	2610	3120	1910	880			
99	3420	2.15	17.75	2630	3150	1840	900			
102	3310	1.55	17.18	2650	3060	1890	810			
108	3136	2.35	16.28	2650	3170	1780	920			
114	2963	2.45	15.38	2680	3190	1730	940			
124	2718	2.70	14.11	2700	3190	1660	970			
130	2599	1.95	13.49	2700	3120	1690	900			
135	2503	2.95	12.99	2720	3210	1600	990			
169	2005	2.55	10.41	2740	3190	1480	970			

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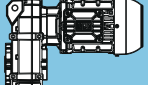
$P_N = 5.4 \text{ hp}$

60 Hz		$f_B$	$i$	Output shaft		Hollow shaft			$m$ lb	Dimension sheet see page
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$			
rpm	lb-in			lb	lb	lb	lb			
49	6899	0.80	35.81	**	**	**	**	FH052-11P-112M-04E	108	294
54	6303	0.85	32.72	790	1080	**	**			
64	5309	1.05	27.56	1350	2270	1350	**			
70	4851	1.10	25.18	1530	2320	1530	810			
84	4013	1.35	20.83	1750	2380	1750	880			
89	3801	0.85	19.73	1820	2270	**	**			
92	3666	1.45	19.03	1840	2410	1840	900			
103	3283	1.65	17.04	1910	2450	1910	940			
113	3000	1.80	15.57	1960	2450	1960	940			
116	2926	1.10	15.19	1980	2380	1980	880			
127	2662	2.00	13.82	2020	2500	2000	990			
139	2433	2.20	12.63	2050	2500	1930	990			
152	2229	2.40	11.57	2070	2520	1840	1010			
153	2212	1.45	11.48	2070	2450	1870	940			
166	2036	2.55	10.57	2090	2540	1780	1030			
187	1809	1.80	9.39	2110	2500	1710	990			
187	1807	2.80	9.38	2110	2560	1690	1060			
194	1742	2.85	9.04	2110	2560	1660	1060			
205	1651	2.95	8.57	2110	2560	1620	1060			
212	1591	3.05	8.26	2140	2560	1600	1060			
230	1468	2.20	7.62	2140	2540	1570	1030			
275	1229	2.60	6.38	2000	2560	1460	1060			
339	996	3.20	5.17	1840	2590	1330	1080			
352	959	3.35	4.98	1820	2590	1300	1080			

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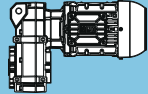
<b>P<sub>N</sub> = 7.5 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
2.3	186098	0.90	773.88	14120	24350	**	**	<b>FH154-11P-132S-04E</b>	1585	318
2.4	178506	0.90	742.31	15200	25490	**	**			
2.6	160308	1.00	669.37	17400	25880	17400	**			
2.7	158790	1.05	663.03	17560	25900	17560	**			
2.8	152806	1.05	639.35	18160	26030	18160	26030			
3.1	136504	1.20	573.49	19600	26370	19600	26370			
3.2	131360	1.25	553.01	20010	26480	20010	26480			
3.6	115464	1.40	488.09	21130	26820	21130	26820			
3.7	111751	1.45	473.37	21360	26890	21360	26890			
3.8	109112	1.50	463.14	21510	26930	21510	26930			
4.3	95867	1.70	409.44	22230	27220	22230	27220			
4.4	93207	1.75	398.90	22370	27270	22370	27270			
5.1	79792	2.00	345.03	22950	27560	22950	27560			
3.0	140999	0.85	585.14	13130	18460	**	**	<b>FH124-11P-132S-04E</b>	1030	314
3.1	135158	0.90	562.05	13830	18590	**	**			
3.2	133466	0.90	555.01	14030	18640	**	**			
3.6	115914	1.00	484.00	15740	19060	15740	**			
3.7	115198	1.00	481.01	15780	19090	15780	**			
3.8	111341	1.05	465.86	16100	19180	16100	19180			
3.9	107367	1.10	449.23	16410	19290	16410	19290			
4.3	98620	1.20	414.33	17040	19490	17040	19490			
4.5	93038	1.25	391.68	17400	19630	17400	19630			
4.6	91161	1.30	383.78	17510	19670	17510	19670			
4.9	84403	1.40	356.79	17890	19850	17890	19850			
5.0	82598	1.40	349.88	18010	19900	18010	19900			
5.2	79650	1.45	337.39	18160	19960	18160	19960			
5.3	78834	1.50	334.62	18190	19990	18190	19990			
5.9	70544	1.65	301.29	18590	20190	18590	20190			
6.1	67885	1.70	290.53	18700	20260	18700	20260			
7.1	57401	2.05	248.21	19110	20500	19110	20500			
8.0	58123	2.00	220.67	19090	20480	19090	20480	<b>FH123-11P-132S-04E</b>	977	312
9.2	50676	2.30	192.40	19330	20680	19330	20680			
9.5	48867	2.40	185.53	19380	20730	19380	20730			
11	43652	2.65	165.73	19510	20840	19510	20840			
4.6	92923	0.80	384.84	**	**	**	**	<b>FH104-11P-132S-04E</b>	721	310
4.7	91450	0.80	378.74	**	**	**	**			
5.1	82918	0.90	344.81	8500	13200	**	**			
5.3	79958	0.90	332.50	8990	13290	**	**			
5.4	79061	0.90	328.77	9130	13310	**	**			
6.2	67891	1.05	284.06	10590	13620	10590	13620			
7.2	64944	1.10	246.57	10930	13710	10930	13710	<b>FH103-11P-132S-04E</b>	668	308
8.1	57361	1.25	217.78	11650	13920	11650	13920			
9.3	49791	1.45	189.04	12250	14140	12250	14140			
9.7	48014	1.50	182.29	12360	14190	12360	14190			
11	43020	1.65	163.33	12700	14320	12700	14320			
13	36817	1.95	139.78	13040	14500	13040	14500			
14	32286	2.20	122.58	13240	14640	13240	14640			
15	31797	2.25	120.72	13260	14660	13260	14660			
16	28517	2.50	108.27	13400	14750	13400	14750			
19	24754	2.90	93.98	13530	14840	13530	14840			

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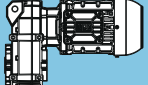


**P<sub>N</sub> = 7.5 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
9.4	49252	0.85	186.99	4160	6650	**	**	<b>FH093-11P-132S-04E</b>	461	304
11	42606	0.95	161.76	5760	8680	**	**			
12	37625	1.10	142.85	6610	8830	6610	8830			
13	36251	1.10	137.63	6810	8900	6810	8900			
15	31810	1.30	120.77	7350	9040	7350	9040			
17	27535	1.45	104.54	7800	9190	7800	9190			
19	24387	1.65	92.59	8070	9280	8070	9280			
22	21095	1.90	80.09	8300	9400	8300	9400			
23	20342	2.00	77.23	8340	9420	8340	9420			
26	17950	2.25	68.15	8500	9510	8500	9510			
30	15274	2.65	57.99	8630	9600	8630	9600			
14	32816	0.85	124.59	2360	3440	**	**	<b>FH083-11P-132S-04E</b>	342	300
15	31357	0.85	119.05	2990	4740	**	**			
16	29002	0.95	110.11	3730	6320	**	**			
17	26687	1.00	101.32	4290	7530	4290	**			
19	24524	1.10	93.11	4740	8520	4740	1840			
21	22386	1.20	84.99	5100	9240	5100	1930			
22	21082	1.30	80.04	5280	9280	5280	1980			
25	18864	1.40	71.62	5580	9370	5490	2070			
29	15767	1.60	59.86	5910	9490	5060	2180			
31	15206	1.60	57.73	5960	9510	4920	2200			
35	13420	1.75	50.95	6110	9600	4650	2290			
41	11257	2.00	42.74	6270	9670	4290	2360			
49	9487	2.25	36.02	6360	9730	3960	2430			
52	8921	2.80	33.87	6410	9760	3840	2450	<b>FH082-11P-132S-04E</b>	322	300
27	17352	0.80	65.88	**	**	**	**	<b>FH073-11P-132S-04E</b>	236	298
33	14265	0.95	54.16	3280	3530	**	**			
34	13757	1.00	52.23	3390	3550	3390	**			
39	11858	1.15	45.02	3730	3660	3420	1120	<b>FH072-11P-132S-04E</b>	234	298
45	10354	1.30	39.31	3960	3730	3170	1210			
51	9150	1.50	34.74	4110	3800	2990	1260			
60	7738	1.75	29.38	4250	3870	2740	1350			
70	6651	2.00	25.25	4340	3930	2540	1390			
80	5808	2.30	22.05	4410	3980	2380	1440			
85	5457	1.55	20.72	4430	3870	2380	1330			
93	4975	2.70	18.89	4450	4020	2230	1480			
97	4796	2.80	18.21	4470	4020	2180	1480			
98	4765	2.05	18.09	4470	3910	2230	1390			
110	4212	2.30	15.99	4500	3960	2110	1420			
131	3561	2.75	13.52	4540	4000	1960	1480			
54	8610	0.85	32.69	1390	2070	**	**	<b>FH062-11P-132S-04E</b>	183	296
59	7896	0.95	29.98	1710	2770	**	**			
70	6645	1.10	25.23	2090	2880	2090	650			
76	6095	1.20	23.14	2200	2920	2200	670			
85	5497	1.35	20.87	2340	2970	2160	740			
92	5041	1.45	19.14	2410	3010	2070	760			
99	4675	1.60	17.75	2470	3030	1980	810			
103	4525	1.15	17.18	2500	2920	2050	670			
108	4288	1.70	16.28	2520	3080	1910	830			
115	4051	1.80	15.38	2560	3100	1840	850			
125	3716	2.00	14.11	2610	3120	1780	880			
131	3553	1.45	13.49	2610	3030	1800	790			
136	3421	2.15	12.99	2630	3150	1690	900			
141	3300	2.20	12.53	2650	3150	1660	920			
148	3137	2.35	11.91	2650	3170	1620	920			
154	3026	2.40	11.49	2680	3170	1600	940			
165	2818	2.60	10.70	2700	3190	1550	970			
170	2742	1.85	10.41	2700	3120	1570	880			
180	2584	2.85	9.81	2700	3210	1480	970			
205	2268	2.25	8.61	2720	3170	1440	940			
241	1928	2.65	7.32	2740	3210	1350	970			

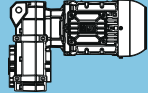
**F**

**P<sub>N</sub> = 7.5 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
70	6632	0.80	25.18	**	**	**	**	<b>FH052-11P-132S-04E</b>  150  294		
85	5486	1.00	20.83	1280	2140	1280	**			
93	5012	1.10	19.03	1480	2290	1480	790			
104	4488	1.20	17.04	1640	2340	1640	830			
113	4101	1.30	15.57	1750	2380	1750	880			
116	4001	0.80	15.19	**	**	**	**			
128	3640	1.50	13.82	1840	2410	1840	900			
140	3327	1.60	12.63	1910	2430	1910	920			
153	3047	1.75	11.57	1960	2450	1960	940			
154	3024	1.10	11.48	1960	2360	1960	850			
167	2784	1.90	10.57	2000	2470	1890	970			
188	2471	2.05	9.38	2050	2500	1780	990			
195	2381	2.10	9.04	2050	2520	1750	1010			
206	2257	2.20	8.57	2070	2520	1710	1010			
214	2176	2.25	8.26	2070	2520	1690	1010			
232	2007	1.60	7.62	2090	2470	1640	970			
277	1680	1.90	6.38	2070	2520	1510	1010			
341	1362	2.35	5.17	1890	2540	1370	1030			
354	1312	2.45	4.98	1870	2560	1350	1060			

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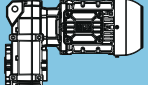
\*\* ... on request

<b>P<sub>N</sub> = 10 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>2.8</b>	209920	0.80	639.35	**	**	**	**	<b>FH154-11P-L132M-04F</b>	1616	318
<b>3.1</b>	187527	0.85	573.49	13800	23670	**	**			
<b>3.2</b>	180830	0.90	553.01	14810	25430	**	**			
<b>3.6</b>	158950	1.05	488.09	17490	25900	17490	**			
<b>3.7</b>	153841	1.05	473.37	18030	25990	18030	25990			
<b>3.8</b>	150516	1.10	463.14	18340	26060	18340	26060			
<b>4.3</b>	132520	1.25	409.44	19900	26440	19900	26440			
<b>4.4</b>	128844	1.25	398.90	20190	26530	20190	26530			
<b>5.1</b>	110759	1.45	345.03	21400	26910	21400	26910			
<b>3.8</b>	152957	0.80	465.86	**	**	**	**	<b>FH124-11P-L132M-04F</b>	1060	314
<b>3.9</b>	147497	0.80	449.23	**	**	**	**			
<b>4.3</b>	135483	0.85	414.33	13760	18570	**	**			
<b>4.4</b>	132821	0.90	406.19	14050	18640	**	**			
<b>4.5</b>	128077	0.90	391.68	14570	18770	**	**			
<b>4.6</b>	125237	0.95	383.78	14840	18840	**	**			
<b>5.0</b>	116191	1.00	356.79	15670	19060	15670	**			
<b>5.1</b>	113941	1.05	349.88	15870	19110	15870	**			
<b>5.2</b>	109649	1.05	337.39	16210	19220	16210	19220			
<b>5.3</b>	108748	1.10	334.62	16300	19240	16300	19240			
<b>5.9</b>	97516	1.20	301.29	17110	19510	17110	19510			
<b>6.1</b>	93840	1.25	290.53	17330	19600	17330	19600			
<b>7.1</b>	79679	1.45	248.21	18140	19960	18140	19960			
<b>8.0</b>	79034	1.50	220.67	18160	19960	18160	19960			
<b>9.2</b>	68909	1.70	192.40	18660	20210	18660	20210			
<b>9.5</b>	66449	1.75	185.53	18750	20280	18750	20280			
<b>11</b>	59357	1.95	165.73	19020	20460	19020	20460			
<b>12</b>	51116	2.30	142.72	19310	20660	19310	20660			
<b>14</b>	44651	2.60	124.67	19490	20820	19490	20820			
<b>15</b>	43272	2.70	120.82	19540	20860	19540	20860			
<b>17</b>	36381	3.00	101.58	19690	21020	19690	21020			
<b>6.2</b>	93266	0.80	284.06	**	**	**	**	<b>FH104-11P-L132M-04F</b>	752	310
<b>7.2</b>	88310	0.85	246.57	7420	12320	**	**	<b>FH103-11P-L132M-04F</b>	699	308
<b>8.1</b>	77999	0.95	217.78	9260	13330	**	**			
<b>9.4</b>	67706	1.05	189.04	10590	13620	10590	13620			
<b>9.7</b>	65288	1.10	182.29	10860	13690	10860	13690			
<b>11</b>	58497	1.25	163.33	11530	13890	11530	13890			
<b>13</b>	50063	1.45	139.78	12210	14120	12210	14120			
<b>14</b>	43903	1.65	122.58	12630	14300	12630	14300			
<b>15</b>	43236	1.65	120.72	12680	14320	12680	14320			
<b>16</b>	38777	1.85	108.27	12930	14460	12930	14460			
<b>19</b>	33659	2.15	93.98	13170	14590	13170	14590			
<b>20</b>	32460	2.20	90.63	13240	14640	13240	14640			
<b>22</b>	29082	2.45	81.20	13380	14720	13380	14720			
<b>25</b>	24888	2.85	69.49	13530	14840	13530	14840			
<b>49</b>	12869	3.00	35.93	13490	15170	13490	15170			
<b>95</b>	6669	3.00	18.62	10880	15330	10880	15330			
<b>12</b>	51162	0.80	142.85	**	**	**	**	<b>FH093-11P-L132M-04F</b>	492	304
<b>13</b>	49293	0.85	137.63	4090	6520	**	**			
<b>15</b>	43254	0.95	120.77	5600	8660	**	**			
<b>17</b>	37442	1.10	104.54	6610	8860	6610	8860			
<b>18</b>	36188	1.15	101.04	6790	8880	6790	8880			
<b>19</b>	33162	1.25	92.59	7190	8990	7190	8990			
<b>22</b>	28685	1.40	80.09	7690	9150	7690	9150			
<b>23</b>	27660	1.45	77.23	7780	9170	7780	9170			
<b>26</b>	24408	1.65	68.15	8050	9280	8050	9280			
<b>31</b>	20769	1.95	57.99	8320	9420	8320	9420			
<b>35</b>	17919	2.25	50.03	8500	9510	8500	9510			

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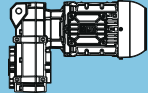
F

P <sub>N</sub> = 10 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
46	13843	2.80	38.65	8700	9640	8700	9640	<b>FH092-11P-L132M-04F</b>	461	304
62	10232	3.00	28.57	8810	9780	8810	9780			
93	6809	2.80	19.01	8790	9850	8790	9850			
126	5032	3.00	14.05	7940	9910	7940	9910			
19	33348	0.80	93.11	**	**	**	**	<b>FH083-11P-L132M-04F</b>	373	300
21	30440	0.90	84.99	3280	5370	**	**			
22	28667	0.95	80.04	3800	6470	**	**			
25	25651	1.05	71.62	4500	7980	4500	**			
30	21439	1.15	59.86	5240	9260	5240	1960			
31	20676	1.20	57.73	5350	9310	5350	2000			
35	18248	1.30	50.95	5640	9400	5010	2090			
41	15308	1.45	42.74	5960	9510	4610	2200			
49	12901	1.65	36.02	6160	9600	4230	2290			
52	12131	2.05	33.87	6200	9640	4090	2340	<b>FH082-11P-L132M-04F</b>	353	300
59	10745	2.50	30.00	6290	9690	3870	2380			
68	9294	2.90	25.95	6380	9760	3620	2450			
39	16124	0.85	45.02	2790	3440	**	**	<b>FH072-11P-L132M-04F</b>	265	298
45	14079	0.95	39.31	3300	3530	**	**			
51	12442	1.10	34.74	3640	3620	3260	1100			
60	10523	1.30	29.38	3930	3730	2990	1190			
70	9043	1.50	25.25	4110	3800	2740	1280			
80	7897	1.70	22.05	4250	3870	2560	1330			
85	7421	1.15	20.72	4290	3710	2590	1190			
94	6766	2.00	18.89	4340	3910	2380	1390			
97	6522	2.05	18.21	4360	3930	2340	1390			
98	6479	1.55	18.09	4360	3780	2410	1260			
110	5759	2.35	16.08	4410	3980	2200	1440			
111	5727	1.70	15.99	4410	3840	2250	1300			
131	4842	2.05	13.52	4470	3910	2090	1370			
152	4162	2.35	11.62	4500	3960	1930	1440			
175	3632	2.75	10.14	4520	4000	1820	1460			
211	3001	3.00	8.38	4540	4050	1660	1510			
70	9036	0.85	25.23	1150	1550	**	**	<b>FH062-11P-L132M-04F</b>	214	296
76	8288	0.90	23.14	1530	2360	**	**			
85	7475	1.00	20.87	1840	2810	1840	**			
92	6855	1.10	19.14	2020	2860	2020	610			
100	6357	1.15	17.75	2160	2900	2160	670			
103	6153	0.85	17.18	2200	2720	**	**			
109	5831	1.25	16.28	2270	2940	2070	700			
115	5508	1.35	15.38	2340	2970	2000	740			
125	5054	1.45	14.11	2410	3010	1930	760			
131	4832	1.05	13.49	2450	2880	1980	650			
136	4652	1.60	12.99	2470	3030	1840	810			
141	4488	1.65	12.53	2500	3060	1800	810			
149	4266	1.75	11.91	2540	3080	1750	830			
154	4115	1.80	11.49	2540	3080	1730	850			
165	3832	1.90	10.70	2590	3100	1660	880			
170	3728	1.40	10.41	2610	3010	1710	760			
180	3514	2.10	9.81	2630	3120	1600	900			
206	3084	1.65	8.61	2680	3080	1550	830			
242	2622	1.95	7.32	2700	3120	1440	900			
279	2274	2.25	6.35	2720	3170	1330	940			
330	1920	2.65	5.36	2740	3210	1240	970			
342	1852	2.75	5.17	2770	3210	1210	990			

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**P<sub>N</sub> = 10 hp**

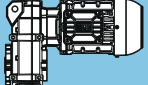
60 Hz			i	Output shaft		Hollow shaft		 <b>FH052-11P-L132M-04F</b>	m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
93	6816	0.80	19.03	**	**	**	**	181	294	
104	6103	0.90	17.04	940	1420	**	**			
114	5576	0.95	15.57	1240	2020	**	**			
128	4950	1.10	13.82	1480	2320	1480	810			
140	4524	1.20	12.63	1620	2340	1620	830			
153	4144	1.30	11.57	1730	2380	1730	880			
154	4112	0.80	11.48	**	**	**	**			
167	3786	1.40	10.57	1820	2410	1820	900			
188	3363	0.95	9.39	1910	2320	**	**			
189	3359	1.50	9.38	1910	2430	1890	920			
196	3238	1.55	9.04	1930	2450	1870	940			
207	3069	1.60	8.57	1960	2450	1820	940			
214	2958	1.65	8.26	1980	2470	1780	970			
232	2729	1.20	7.62	2000	2410	1730	900			
277	2285	1.40	6.38	2070	2450	1600	940			
342	1852	1.75	5.17	1960	2500	1440	990			
355	1784	1.80	4.98	1930	2500	1420	990			

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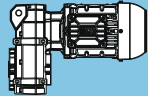
**P<sub>N</sub> = 12.5 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
3.6	196735	0.85	488.09	12210	20280	**	**	<b>FH154-11P-L132M-04G</b>	1627	318
3.7	190802	0.85	473.37	13260	22530	**	**			
3.8	186297	0.90	463.14	13980	24050	**	**			
4.3	164023	1.00	409.44	16930	25790	16930	**			
4.4	159801	1.00	398.90	17400	25880	17400	**			
5.1	137373	1.20	345.03	19510	26350	19510	26350			
4.9	143812	0.85	356.79	12720	18370	**	**	<b>FH124-11P-L132M-04G</b>	1071	314
5.0	141027	0.85	349.88	13080	18430	**	**			
5.2	135992	0.85	337.39	13690	18570	**	**			
5.3	134600	0.90	334.62	13850	18590	**	**			
5.9	120945	1.00	301.29	15240	18930	**	**			
6.1	116388	1.00	290.53	15650	19040	15650	**			
7.1	98824	1.20	248.21	17000	19490	17000	19490			
8.0	97223	1.20	220.67	17110	19510	17110	19510	<b>FH123-11P-L132M-04G</b>	1019	312
9.2	84768	1.40	192.40	17870	19830	17870	19830			
9.5	81741	1.45	185.53	18030	19900	18030	19900			
11	73018	1.60	165.73	18460	20120	18460	20120			
12	62880	1.85	142.72	18910	20370	18910	20370			
14	54927	2.10	124.67	19180	20570	19180	20570			
15	53231	2.20	120.82	19240	20610	19240	20610			
17	46411	2.50	105.34	19450	20770	19450	20770			
19	39978	2.90	90.74	19600	20930	19600	20930			
9.3	83288	0.90	189.04	8390	13170	**	**	<b>FH103-11P-L132M-04G</b>	710	308
9.7	80314	0.90	182.29	8880	13260	**	**			
11	71960	1.00	163.33	10070	13510	10070	**			
13	61584	1.15	139.78	11240	13800	11240	13800			
14	54006	1.35	122.58	11910	14010	11910	14010			
15	53187	1.35	120.72	11980	14030	11980	14030			
16	47702	1.50	108.27	12390	14190	12390	14190			
19	41406	1.75	93.98	12770	14370	12770	14370			
22	35775	2.00	81.20	13080	14520	13080	14520			
25	30616	2.35	69.49	13310	14680	13310	14680			
29	26444	2.70	60.02	13470	14790	13470	14790			
49	15830	2.45	35.93	13650	15110	13650	15110	<b>FH102-11P-L132M-04G</b>	653	308
95	8204	2.45	18.62	10970	15290	10970	15290			
15	51605	0.80	117.13	**	**	**	**	<b>FH093-11P-L132M-04G</b>	503	304
17	46058	0.90	104.54	4990	8430	**	**			
19	40793	1.00	92.59	6070	8720	6070	**			
22	35286	1.15	80.09	6920	8920	6920	8920			
23	34026	1.20	77.23	7080	8970	7080	8970			
26	30026	1.35	68.15	7530	9100	7530	9100			
30	25549	1.60	57.99	7960	9240	7960	9240			
35	22042	1.85	50.03	8230	9370	8230	9370			
46	17028	2.25	38.65	8540	9530	8540	9530	<b>FH092-11P-L132M-04G</b>	472	304
52	15037	2.65	34.13	8630	9600	8630	9600			
62	12587	2.45	28.57	8750	9690	8750	9690			
93	8375	2.25	19.01	8880	9800	8880	9800			
126	6190	2.45	14.05	8030	9870	8030	9870			
22	35264	0.80	80.04	**	**	**	**	<b>FH083-11P-L132M-04G</b>	384	300
25	31554	0.85	71.62	2860	4470	**	**			
29	26373	0.95	59.86	4360	7690	**	**			
31	25435	1.00	57.73	4540	8070	**	**			
35	22448	1.05	50.95	5080	9240	5080	1930			
41	18830	1.20	42.74	5580	9370	4880	2070			
49	15870	1.35	36.02	5890	9490	4450	2180			

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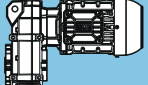
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**P<sub>N</sub> = 12.5 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
52	14922	1.70	33.87	5980	9530	4320	2230	<b>FH082-11P-L132M-04G</b>	364	300
59	13217	2.05	30.00	6140	9600	4050	2290			
68	11433	2.35	25.95	6250	9670	3780	2360			
80	9728	2.75	22.08	6360	9730	3480	2430			
124	6247	2.50	14.18	6520	9850	2920	2540			
144	5406	2.90	12.27	6540	9870	2720	2560			
45	17319	0.80	39.31	**	**	**	**	<b>FH072-11P-L132M-04G</b>	276	298
51	15306	0.90	34.74	3010	3460	**	**			
60	12944	1.05	29.38	3550	3600	2990	**			
70	11125	1.20	25.25	3840	3690	2940	1170			
80	9715	1.40	22.05	4050	3750	2720	1240			
85	9129	0.95	20.72	4110	3570	**	**			
93	8323	1.60	18.89	4200	3840	2520	1300			
97	8023	1.70	18.21	4230	3840	2470	1330			
98	7970	1.25	18.09	4230	3660	2560	1150			
110	7045	1.40	15.99	4320	3730	2410	1210			
131	5957	1.65	13.52	4410	3820	2180	1300			
152	5120	1.90	11.62	4450	3890	2020	1350			
155	5005	2.70	11.36	4450	4000	1960	1480			
174	4467	2.25	10.14	4500	3930	1890	1420			
203	3829	2.60	8.69	4520	3980	1750	1460			
211	3692	2.45	8.38	4520	4000	1730	1460			
85	9195	0.80	20.87	**	**	**	**	<b>FH062-11P-L132M-04G</b>	225	296
92	8433	0.90	19.14	1460	2230	**	**			
99	7820	0.95	17.75	1710	2770	**	**			
108	7173	1.05	16.28	1930	2830	1930	**			
115	6776	1.10	15.38	2050	2880	2050	630			
125	6217	1.20	14.11	2180	2900	2020	670			
131	5943	0.90	13.49	2250	2770	**	**			
136	5723	1.30	12.99	2290	2940	1960	720			
141	5520	1.35	12.53	2320	2970	1910	740			
148	5247	1.40	11.91	2380	2990	1870	740			
154	5062	1.45	11.49	2410	3010	1840	760			
165	4714	1.55	10.70	2470	3030	1750	810			
170	4586	1.15	10.41	2500	2900	1840	670			
180	4322	1.70	9.81	2520	3060	1690	830			
205	3793	1.35	8.61	2590	2990	1660	760			
241	3225	1.60	7.32	2650	3060	1530	830			
278	2798	1.85	6.35	2700	3100	1420	880			
329	2362	2.15	5.36	2720	3170	1300	920			
341	2278	2.25	5.17	2720	3170	1280	940			
400	1943	2.65	4.41	2740	3210	1170	970			
113	6860	0.80	15.57	**	**	**	**	<b>FH052-11P-L132M-04G</b>	192	294
128	6089	0.90	13.82	940	1420	**	**			
140	5565	0.95	12.63	1240	2020	**	**			
153	5098	1.05	11.57	1440	2290	1440	790			
167	4657	1.15	10.57	1600	2340	1600	830			
188	4133	1.25	9.38	1730	2380	1730	880			
195	3983	1.25	9.04	1780	2380	1780	880			
206	3776	1.30	8.57	1820	2410	1820	900			
214	3639	1.35	8.26	1840	2410	1840	900			
232	3357	0.95	7.62	1910	2320	**	**			
277	2811	1.15	6.38	2000	2380	1660	880			
341	2278	1.40	5.17	2020	2450	1510	940			
354	2194	1.50	4.98	1980	2450	1480	940			

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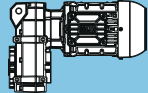
P <sub>N</sub> = 15 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
4.3	196211	0.85	409.44	12340	20570	**	**	<b>FH154-22P-160M-04E</b>	1764	318
4.4	191160	0.85	398.90	13240	22480	**	**			
4.7	181597	0.90	379.72	14720	25430	**	**			
5.1	164332	1.00	345.03	16910	25790	16910	**			
5.4	155769	1.05	327.05	17830	25970	17830	**			
6.3	133910	1.20	282.89	19810	26420	19810	26420			
6.8	136092	1.20	259.81	19630	26370	19630	26370	<b>FH153-22P-160M-04E</b>	1662	316
7.9	117214	1.40	223.77	21000	26770	21000	26770			
9.2	101384	1.60	193.55	21940	27090	21940	27090			
10	89431	1.80	170.73	22530	27360	22530	27360			
12	76807	2.10	146.63	23070	27610	23070	27610			
14	65199	2.45	124.47	23470	27850	23470	27850			
15	63905	2.50	122.00	23520	27880	23520	27880			
16	56394	2.85	107.66	23740	28030	23740	28030			
5.9	144384	0.80	301.29	**	**	**	**	<b>FH124-22P-160M-04E</b>	1208	314
6.2	138125	0.85	288.23	13440	18520	**	**			
7.2	118219	1.00	248.21	15510	19000	15510	**			
8.0	115590	1.00	220.67	15740	19060	15740	**	<b>FH123-22P-160M-04E</b>	1155	312
9.2	100782	1.15	192.40	16880	19450	16880	19450			
11	86812	1.35	165.73	17760	19780	17760	19780			
12	74759	1.55	142.72	18390	20080	18390	20080			
14	65304	1.80	124.67	18790	20300	18790	20300			
15	63287	1.85	120.82	18880	20370	18880	20370			
16	56410	2.05	107.69	19130	20530	19130	20530			
17	55179	2.10	105.34	19180	20570	19180	20570			
20	47531	2.45	90.74	19420	20750	19420	20750			
23	40931	2.85	78.14	19580	20910	19580	20910			
24	38385	3.00	73.28	19650	20970	19650	20970			
11	85555	0.85	163.33	7980	13110	**	**	<b>FH103-22P-160M-04E</b>	847	308
13	73219	1.00	139.78	9940	13470	9940	**			
15	63235	1.15	120.72	11080	13760	11080	13760			
16	56713	1.25	108.27	11690	13940	11690	13940			
17	53471	1.35	102.08	11960	14030	11960	14030			
19	49228	1.45	93.98	12270	14140	12270	14140			
21	43634	1.65	83.30	12660	14300	12660	14300			
22	42534	1.70	81.20	12720	14340	12720	14340			
26	36400	1.95	69.49	13060	14520	13060	14520			
30	31439	2.30	60.02	13290	14660	13290	14660			
35	26584	2.70	50.75	13470	14790	13470	14790			
42	22388	2.55	42.74	13600	14900	13600	14900			
80	11597	2.55	22.14	11740	15170	11740	15170			
18	52926	0.80	101.04	**	**	**	**	<b>FH093-22P-160M-04E</b>	639	304
19	48500	0.85	92.59	4340	7040	**	**			
21	44399	0.90	84.76	5370	8610	**	**			
22	41952	0.95	80.09	5870	8700	**	**			
26	36101	1.15	68.92	6810	8900	6810	8900			
31	30376	1.35	57.99	7510	9080	7510	9080			
33	28228	1.45	53.89	7730	9150	7730	9150			
35	26206	1.55	50.03	7910	9240	7910	9240			
42	21984	1.80	41.97	8230	9370	8230	9370			
52	17873	2.10	34.12	8500	9510	8500	9510			
67	13975	2.50	26.68	8680	9640	8680	9640			
52	17878	2.25	34.13	8500	9510	8500	9510			
60	15521	2.60	29.63	8610	9600	8610	9600			
69	13410	3.00	25.60	8700	9670	8700	9670			
106	8795	2.70	16.79	8660	9780	8660	9780			
								<b>FH092-22P-160M-04E</b>	608	304

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**P<sub>N</sub> = 15 hp**

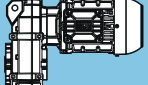
60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>30</b>	31356	0.80	59.86	**	**	**	**	<b>FH083-22P-160M-04E</b>	520	300
<b>35</b>	26688	0.90	50.95	4290	7530	**	**			
<b>42</b>	22388	1.00	42.74	5080	9240	5080	**			
<b>49</b>	18868	1.15	36.02	5580	9370	4700	2070			
<b>60</b>	15468	1.30	29.53	5930	9510	4200	2200			
<b>59</b>	15714	1.70	30.00	5910	9490	4250	2180	<b>FH082-22P-160M-04E</b>	500	300
<b>68</b>	13593	2.00	25.95	6090	9580	3930	2270			
<b>80</b>	11566	2.30	22.08	6250	9670	3640	2360			
<b>94</b>	9842	2.70	18.79	6360	9730	3350	2430			
<b>125</b>	7428	2.10	14.18	6470	9780	3010	2470			
<b>145</b>	6427	2.45	12.27	6500	9820	2810	2520			
<b>170</b>	5469	2.90	10.44	6540	9870	2610	2560			
<b>80</b>	11550	1.15	22.05	3780	3660	2740	1150	<b>FH072-22P-160M-04E</b>	412	298
<b>94</b>	9895	1.35	18.89	4020	3750	2650	1240			
<b>110</b>	8423	1.60	16.08	4180	3820	2430	1300			
<b>132</b>	7066	1.90	13.49	4320	3910	2200	1370			
<b>156</b>	5951	2.25	11.36	4410	3960	2020	1440			
<b>175</b>	5311	1.90	10.14	4450	3870	1980	1350			
<b>190</b>	4882	2.75	9.32	4470	4020	1840	1480			
<b>204</b>	4552	2.20	8.69	4470	3930	1820	1390			
<b>240</b>	3876	2.55	7.40	4520	3980	1690	1460			
<b>115</b>	8056	0.95	15.38	1620	2560	**	**	<b>FH062-22P-160M-04E</b>	362	296
<b>126</b>	7391	1.00	14.11	1870	2810	1870	**			
<b>137</b>	6804	1.10	12.99	2050	2860	1870	630			
<b>149</b>	6239	1.20	11.91	2180	2900	1870	670			
<b>166</b>	5605	1.30	10.70	2320	2970	1870	720			
<b>181</b>	5139	1.45	9.81	2410	2990	1780	760			
<b>280</b>	3326	1.55	6.35	2630	3060	1480	810			
<b>331</b>	2808	1.85	5.36	2700	3100	1350	880			
<b>402</b>	2310	2.20	4.41	2720	3170	1210	920			

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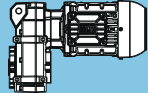
F

P <sub>N</sub> = 20 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
6.3	184485	0.90	282.89	14210	24530	**	**	FH154-22P-160L-04F	1814	318
6.8	185580	0.90	259.81	14030	24140	**	**			
7.9	159837	1.00	223.77	17360	25850	17360	**			
9.2	138251	1.20	193.55	19400	26330	19400	26330			
10	121951	1.35	170.73	20640	26660	20640	26660			
12	104737	1.55	146.63	21740	27020	21740	27020			
14	88908	1.80	124.47	22550	27360	22550	27360			
15	87144	1.85	122.00	22620	27380	22620	27380			
16	76901	2.10	107.66	23040	27610	23040	27610			
18	72308	2.25	101.23	23220	27700	23220	27700			
19	67836	2.35	94.97	23380	27790	23380	27790			
22	58258	2.75	81.56	23690	27990	23690	27990			
9.2	137430	0.85	192.40	13490	18520	**	**	FH123-22P-160L-04F	1206	312
11	118380	1.00	165.73	15440	19000	15440	**			
12	101944	1.15	142.72	16770	19400	16770	19400			
14	89051	1.30	124.67	17600	19720	17600	19720			
15	86301	1.35	120.82	17780	19780	17780	19780			
16	76922	1.50	107.69	18280	20010	18280	20010			
17	75244	1.55	105.34	18340	20050	18340	20050			
20	64815	1.80	90.74	18820	20320	18820	20320			
23	55815	2.10	78.14	19150	20550	19150	20550			
24	52343	2.20	73.28	19270	20610	19270	20610			
26	48758	2.40	68.26	19380	20700	19380	20700			
30	42115	2.75	58.96	19560	20880	19560	20880			
44	28557	2.40	39.98	19850	21220	19850	21220	FH122-22P-160L-04F	1116	312
93	13700	2.40	19.18	16660	21540	16660	21540			
15	86229	0.85	120.72	7800	13080	**	**	FH103-22P-160L-04F	897	308
16	77336	0.95	108.27	9330	13350	**	**			
17	72915	1.00	102.08	9940	13470	9940	**			
19	67129	1.10	93.98	10630	13620	10630	13620			
21	59501	1.20	83.30	11420	13850	11420	13850			
22	58001	1.25	81.20	11560	13890	11560	13890			
26	49636	1.45	69.49	12230	14140	12230	14140			
30	42872	1.70	60.02	12680	14320	12680	14320			
35	36250	2.00	50.75	13060	14520	13060	14520			
43	29579	2.40	41.41	13350	14700	13350	14700			
53	24000	2.95	33.60	13560	14860	13560	14860			
42	30529	1.90	42.74	13310	14680	13310	14680	FH102-22P-160L-04F	840	308
48	26615	2.40	37.26	13470	14790	13470	14790			
80	15814	1.90	22.14	12000	15040	12000	15040			
92	13786	2.40	19.30	11420	15110	11420	15110			
26	49229	0.85	68.92	4070	6470	**	**	FH093-22P-160L-04F	690	304
31	41422	1.00	57.99	5930	8700	**	**			
33	38493	1.05	53.89	6430	8810	6430	8810			
35	35736	1.15	50.03	6830	8900	6830	8900			
42	29979	1.35	41.97	7530	9100	7530	9100			
52	24372	1.55	34.12	8050	9280	8050	9280			
67	19057	1.85	26.68	8430	9460	8430	9460			
52	24379	1.65	34.13	8050	9280	8050	9280			
60	21164	1.90	29.63	8300	9400	8300	9400	FH092-22P-160L-04F	659	304
69	18286	2.20	25.60	8480	9490	8480	9490			
81	15650	2.55	21.91	8610	9580	8610	9580			
94	13514	2.95	18.92	8700	9670	8700	9670			
106	11993	2.00	16.79	8770	9670	8770	9670			
122	10407	2.30	14.57	8480	9710	8480	9710			
141	8993	2.65	12.59	8030	9780	8030	9780			
49	25729	0.85	36.02	4470	7940	**	**	FH083-22P-160L-04F	571	300
60	21093	0.95	29.53	5280	9280	**	**			

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**P<sub>N</sub> = 20 hp**

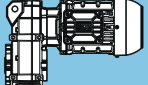
60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page			
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>						
rpm	lb-in			lb	lb	lb	lb						
<b>59</b>	21429	1.25	30.00	5220	9260	4700	1960	<b>FH082-22P-160L-04F</b>	551	300			
<b>68</b>	18536	1.45	25.95	5620	9370	4340	2070						
<b>80</b>	15772	1.70	22.08	5910	9490	3960	2180						
<b>94</b>	13422	2.00	18.79	6110	9580	3640	2270						
<b>110</b>	11579	2.30	16.21	6250	9670	3370	2360						
<b>125</b>	10129	1.55	14.18	6340	9670	3260	2360						
<b>131</b>	9714	2.75	13.60	6360	9730	3080	2430						
<b>145</b>	8764	1.80	12.27	6410	9710	3010	2410						
<b>170</b>	7457	2.10	10.44	6470	9780	2790	2470						
<b>200</b>	6343	2.50	8.88	6520	9820	2590	2520						
<b>232</b>	5471	2.90	7.66	6540	9870	2410	2560						
<b>80</b>	15750	0.85	22.05	2900	3440	**	**				<b>FH072-22P-160L-04F</b>	463	298
<b>94</b>	13493	1.00	18.89	3440	3570	2320	**						
<b>110</b>	11486	1.20	16.08	3800	3660	2340	1150						
<b>132</b>	9636	1.40	13.49	4050	3780	2320	1240						
<b>156</b>	8114	1.65	11.36	4230	3840	2200	1330						
<b>175</b>	7243	1.40	10.14	4290	3730	2160	1190						
<b>190</b>	6657	2.00	9.32	4340	3930	2000	1390						
<b>204</b>	6207	1.60	8.69	4380	3800	2000	1280						
<b>240</b>	5286	1.90	7.40	4450	3870	1840	1350						
<b>286</b>	4436	2.25	6.21	4410	3930	1660	1420						
<b>339</b>	3736	2.65	5.23	4160	3980	1530	1460						
<b>137</b>	9279	0.80	12.99	**	**	**	**	<b>FH062-22P-160L-04F</b>	412	296			
<b>149</b>	8507	0.90	11.91	1420	2110	**	**						
<b>166</b>	7643	0.95	10.70	1780	2790	**	**						
<b>181</b>	7007	1.05	9.81	1980	2830	1600	610						
<b>280</b>	4536	1.15	6.35	2500	2920	1460	670						
<b>331</b>	3829	1.35	5.36	2590	2990	1460	760						
<b>402</b>	3150	1.65	4.41	2650	3080	1350	830						

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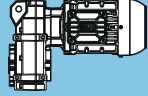
**P<sub>N</sub> = 25 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
7.9	197133	0.85	223.77	12160	20190	**	**	FH153-22P-180M-04E	1744	316
9.2	170510	0.95	193.55	16190	25650	**	**			
10	150406	1.10	170.73	18370	26080	18370	26080			
12	129175	1.25	146.63	20170	26500	20170	26500			
14	109653	1.50	124.47	21470	26930	21470	26930			
15	107477	1.50	122.00	21580	26980	21580	26980			
16	94844	1.70	107.66	22280	27250	22280	27250			
18	89180	1.80	101.23	22550	27360	22550	27360			
19	83665	1.95	94.97	22800	27470	22800	27470			
21	74371	2.15	84.42	23160	27670	23160	27670			
22	71851	2.25	81.56	23250	27720	23250	27720			
24	63923	2.50	72.56	23520	27880	23520	27880			
26	59782	2.70	67.86	23650	27970	23650	27970			
11	146002	0.80	165.73	**	**	**	**	FH123-22P-180M-04E	1237	312
12	125731	0.95	142.72	14790	18820	**	**			
14	109829	1.05	124.67	16210	19220	16210	19220			
16	94871	1.25	107.69	17270	19580	17270	19580			
17	92800	1.25	105.34	17400	19630	17400	19630			
20	79938	1.45	90.74	18140	19940	18140	19940			
23	68838	1.70	78.14	18660	20230	18660	20230			
24	64557	1.80	73.28	18840	20320	18840	20320			
26	60134	1.95	68.26	19000	20440	19000	20440			
29	53069	2.20	60.24	19240	20610	19240	20610			
30	51941	2.25	58.96	19290	20640	19290	20640			
35	45052	2.50	51.14	19490	20820	19490	20820			
36	42956	2.55	48.76	19540	20860	19540	20860			
44	35344	2.90	40.12	19720	21040	19720	21040			
44	35221	1.95	39.98	19720	21040	19720	21040	FH122-22P-180M-04E	1146	312
52	30331	2.95	34.43	19810	21180	19810	21180			
93	16897	1.95	19.18	16840	21450	16840	21450			
107	14553	2.95	16.52	16050	21510	16050	21510			
17	89928	0.80	102.08	**	**	**	**	FH103-22P-180M-04E	928	308
19	82793	0.90	93.98	8500	13200	**	**			
21	73384	1.00	83.30	9910	13470	**	**			
22	71534	1.00	81.20	10140	13510	10140	**			
26	61218	1.20	69.49	11290	13800	11290	13800			
30	52875	1.35	60.02	12000	14050	12000	14050			
33	47537	1.50	53.96	12390	14210	12390	14210			
35	44709	1.60	50.75	12590	14280	12590	14280			
43	36481	1.95	41.41	13040	14520	13040	14520			
53	29600	2.40	33.60	13350	14700	13350	14700			
66	23636	2.80	26.83	12990	14880	12990	14880			
48	32825	1.95	37.26	13220	14610	13220	14610	FH102-22P-180M-04E	871	308
55	28279	2.55	32.10	13400	14750	13400	14750			
64	24350	2.95	27.64	13150	14860	13150	14860			
92	17003	1.95	19.30	11620	15020	11620	15020			
107	14650	2.95	16.63	11020	15080	11020	15080			
60	26103	1.55	29.63	7910	9240	7910	9240	FH092-22P-180M-04E	690	304
69	22553	1.80	25.60	8210	9350	8210	9350			
81	19302	2.10	21.91	8410	9460	8410	9460			
94	16668	2.40	18.92	8570	9550	8570	9550			
111	14095	2.85	16.00	8680	9640	8680	9640			
122	12836	1.85	14.57	8680	9620	8680	9620			
141	11091	2.15	12.59	8210	9690	8210	9690			
165	9497	2.50	10.78	7730	9760	7730	9760			
191	8202	2.90	9.31	7330	9800	7330	9800			

Legend see page 187

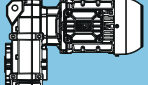
\*\* ... on request

**P<sub>N</sub> = 25 hp**

60 Hz			i	Output shaft		Hollow shaft		 <b>FH082-22P-180M-04E</b>	m lb	Dimension sheet see page 300
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>68</b>	22861	1.20	25.95	5010	9130	4340	1910	582	300	
<b>80</b>	19452	1.40	22.08	5510	9350	4250	2050			
<b>94</b>	16553	1.65	18.79	5820	9460	3890	2160			
<b>110</b>	14280	1.90	16.21	6050	9550	3570	2250			
<b>131</b>	11981	2.25	13.60	6230	9640	3260	2340			
<b>145</b>	10809	1.45	12.27	6290	9620	3190	2320			
<b>160</b>	9743	2.75	11.06	6360	9730	2920	2430			
<b>170</b>	9197	1.70	10.44	6380	9710	2940	2410			
<b>200</b>	7823	2.00	8.88	6450	9760	2700	2450			
<b>232</b>	6748	2.35	7.66	6500	9820	2520	2520			
<b>276</b>	5665	2.80	6.43	6290	9870	2320	2560			

**F**

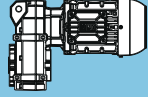
Legend see page 187

P <sub>N</sub> = 30 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
9.2	202769	0.80	193.55	**	**	**	**	FH153-22P-180L-04F	1790	316
10	178862	0.90	170.73	15110	25470	**	**			
12	153614	1.05	146.63	18050	26010	18050	26010			
14	130398	1.25	124.47	20080	26480	20080	26480			
15	127811	1.25	122.00	20260	26550	20260	26550			
16	112788	1.45	107.66	21270	26860	21270	26860			
18	106051	1.55	101.23	21670	27000	21670	27000			
19	99493	1.65	94.97	22030	27130	22030	27130			
21	88441	1.85	84.42	22570	27360	22570	27360			
22	85445	1.90	81.56	22710	27430	22710	27430			
24	76016	2.10	72.56	23090	27630	23090	27630			
26	71092	2.25	67.86	23270	27740	23270	27740			
32	58992	2.75	56.31	23670	27990	23670	27990			
12	149518	0.80	142.72	**	**	**	**	FH123-22P-180L-04F	1283	312
14	130608	0.90	124.67	14300	18700	**	**			
16	112819	1.05	107.69	15960	19130	15960	**			
17	110357	1.05	105.34	16160	19200	16160	19200			
20	95062	1.25	90.74	17270	19580	17270	19580			
23	81862	1.45	78.14	18030	19900	18030	19900			
24	76770	1.50	73.28	18300	20030	18300	20030			
26	71511	1.65	68.26	18550	20170	18550	20170			
29	63109	1.85	60.24	18880	20370	18880	20370			
30	61768	1.90	58.96	18950	20390	18950	20390			
35	53576	2.10	51.14	19220	20590	19220	20590			
36	51082	2.15	48.76	19310	20660	19310	20660			
44	42031	2.45	40.12	19560	20880	19560	20880			
54	34551	2.80	32.98	19740	21060	19740	21060			
44	41884	1.65	39.98	19560	20880	19560	20880	FH122-22P-180L-04F	1193	312
52	36070	2.50	34.43	19690	21020	19690	21020			
93	20094	1.65	19.18	17020	21360	17020	21360			
107	17307	2.50	16.52	16210	21420	16210	21420			
21	87268	0.85	83.30	7640	12810	**	**	FH103-22P-180L-04F	974	308
22	85067	0.85	81.20	8070	13130	**	**			
26	70809	1.00	67.59	10230	13530	10230	**			
30	62879	1.15	60.02	11130	13760	11130	13760			
33	56530	1.30	53.96	11710	13940	11710	13940			
35	53167	1.35	50.75	11980	14030	11980	14030			
43	43382	1.65	41.41	12660	14320	12660	14320			
53	35200	2.00	33.60	13110	14550	13110	14550			
66	28108	2.35	26.83	13240	14750	13240	14750			
48	39035	1.65	37.26	12900	14430	12900	14430	FH102-22P-180L-04F	917	308
55	33629	2.15	32.10	13170	14590	13170	14590			
64	28956	2.45	27.64	13380	14720	13380	14720			
74	25290	2.80	24.14	12700	14840	12700	14840			
92	20219	1.65	19.30	11820	14900	11820	14900			
107	17422	2.45	16.63	11170	14990	11170	14990			
60	31041	1.30	29.63	7440	9060	7440	9060	FH092-22P-180L-04F	736	304
69	26819	1.50	25.60	7850	9220	7850	9220			
81	22954	1.75	21.91	8160	9330	8160	9330			
94	19821	2.05	18.92	8390	9440	8390	9440			
111	16762	2.40	16.00	8570	9550	8570	9550			
122	15264	1.60	14.57	8630	9530	8630	9530			
136	13682	2.95	13.06	8360	9640	8360	9640			
141	13190	1.80	12.59	8390	9620	8390	9620			
165	11293	2.10	10.78	7890	9690	7890	9690			
191	9753	2.45	9.31	7460	9730	7460	9730			
226	8245	2.90	7.87	6990	9800	6990	9800			

Legend see page 187

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**P<sub>N</sub> = 30 hp**

60 Hz			i	Output shaft		Hollow shaft		 <b>FH082-22P-180L-04F</b>	m lb	Dimension sheet see page 300
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb			
68	27186	1.00		25.95	4180	7280	3960			
80	23132	1.15	22.08	4970	9010	3980	1890			
94	19685	1.35	18.79	5490	9330	3960	2020			
110	16982	1.60	16.21	5800	9440	3780	2140			
131	14248	1.90	13.60	6050	9550	3440	2250			
145	12854	1.25	12.27	6160	9530	3370	2230			
160	11587	2.30	11.06	6250	9670	3080	2360			
170	10937	1.45	10.44	6290	9620	3100	2320			
200	9303	1.70	8.88	6380	9690	2830	2380			
205	9062	2.95	8.65	6380	9760	2700	2450			
232	8025	1.95	7.66	6450	9760	2630	2450			
276	6736	2.35	6.43	6380	9820	2410	2520			
339	5479	2.85	5.23	5910	9870	2180	2560			

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Legend see page 187

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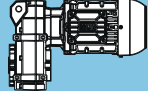
P <sub>N</sub> = 40 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
12	208885	0.80	146.63	**	**	**	**	FH153-22P-200L-04E	1918	316
15	173798	0.95	122.00	15870	25580	**	**			
17	153369	1.05	107.66	18140	26010	18140	26010			
18	144209	1.15	101.23	18970	26210	18970	26210			
19	135292	1.20	94.97	19740	26390	19740	26390			
21	120262	1.35	84.42	20820	26710	20820	26710			
22	116188	1.40	81.56	21090	26800	21090	26800			
25	103367	1.55	72.56	21850	27070	21850	27070			
26	96671	1.65	67.86	22190	27200	22190	27200			
28	89449	1.80	62.79	22550	27360	22550	27360			
32	80218	2.00	56.31	22950	27540	22950	27540			
38	66898	2.40	46.96	23430	27830	23430	27830			
44	57496	2.80	40.36	23720	28030	23720	28030			
49	52054	2.65	36.54	23850	28150	23850	28150	FH152-22P-200L-04E	1834	316
103	24716	2.65	17.35	24370	28640	24370	28640			
17	153412	0.80	107.69	**	**	**	**	FH123-22P-200L-04E	1411	312
20	126872	0.95	89.06	14750	18820	**	**			
23	111316	1.05	78.14	16120	19200	16120	19200			
24	104393	1.15	73.28	16660	19360	16660	19360			
26	97241	1.20	68.26	17150	19540	17150	19540			
30	85816	1.35	60.24	17830	19810	17830	19810			
35	72853	1.55	51.14	18480	20140	18480	20140			
37	69462	1.60	48.76	18640	20210	18640	20210			
41	62183	1.75	43.65	18930	20390	18930	20390			
44	57154	1.80	40.12	19110	20530	19110	20530			
54	46982	2.05	32.98	19420	20770	19420	20770			
64	39888	2.30	28.00	19630	20930	19630	20930			
74	34047	2.60	23.90	18680	21090	18680	21090			
60	42424	2.65	29.78	19560	20880	19560	20880	FH122-22P-200L-04E	1321	312
125	20357	2.65	14.29	15690	21330	15690	21330			
30	85503	0.85	60.02	8050	13130	**	**	FH103-22P-200L-04E	1102	308
33	76870	0.95	53.96	9460	13380	**	**			
35	72297	1.00	50.75	10090	13510	10090	**			
43	58992	1.25	41.41	11510	13870	11510	13870			
53	47866	1.50	33.60	12390	14190	12390	14190			
66	38221	1.75	26.83	12970	14480	12970	14480			
64	39375	1.80	27.64	12900	14430	12900	14430	FH102-22P-200L-04E	1045	308
74	34389	2.10	24.14	13150	14570	13150	14570			
85	29717	2.40	20.86	12480	14700	12480	14700			
103	24574	2.90	17.25	11580	14860	11580	14860			
124	20400	2.35	14.32	10930	14900	10930	14900			
142	17821	2.70	12.51	10390	14990	10390	14990			
81	31212	1.30	21.91	7440	9060	7440	9060	FH092-22P-200L-04E	864	304
94	26953	1.50	18.92	7850	9220	7850	9220			
111	22793	1.75	16.00	8180	9350	8180	9350			
136	18605	2.15	13.06	8450	9490	8450	9490			
165	15357	1.55	10.78	8230	9530	8230	9530			
168	15086	2.65	10.59	8030	9600	8030	9600			
191	13263	1.80	9.31	7760	9620	7760	9620			
210	12052	2.95	8.46	7350	9710	7350	9710			
226	11211	2.15	7.87	7260	9690	7260	9690			
277	9146	2.60	6.42	6700	9780	6700	9780			

Legend see page 187

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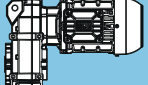
**P<sub>N</sub> = 50 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
17	188943	0.85	107.66	13690	23430	**	**	FH153-22P-200L-04F	1978	316
18	177659	0.90	101.23	15330	25520	**	**			
19	166672	1.00	94.97	16700	25740	**	**			
21	148157	1.10	84.42	18610	26120	18610	26120			
22	143138	1.15	81.56	19060	26240	19060	26240			
25	127343	1.30	72.56	20320	26570	20320	26570			
26	119094	1.35	67.86	20880	26730	20880	26730			
28	110196	1.45	62.79	21450	26910	21450	26910			
32	98824	1.65	56.31	22080	27160	22080	27160			
38	82415	1.95	46.96	22840	27490	22840	27490			
44	70832	2.25	40.36	23290	27740	23290	27740			
51	61302	2.60	34.93	23600	27940	23600	27940			
49	64128	2.15	36.54	23520	27880	23520	27880	FH152-22P-200L-04F	1894	316
103	30449	2.15	17.35	24280	28510	24280	28510			
23	137136	0.85	78.14	13620	18550	**	**	FH123-22P-200L-04F	1470	312
24	128606	0.90	73.28	14550	18770	**	**			
26	119796	1.00	68.26	15400	18970	**	**			
30	105721	1.10	60.24	16550	19330	16550	19330			
35	89751	1.25	51.14	17600	19720	17600	19720			
37	85574	1.30	48.76	17850	19830	17850	19830			
41	76606	1.40	43.65	18300	20030	18300	20030			
44	70411	1.45	40.12	18590	20190	18590	20190			
54	57880	1.70	32.98	19090	20500	19090	20500			
64	49140	1.90	28.00	19380	20700	19380	20700			
75	41945	2.10	23.90	19020	20880	19020	20880			
60	52264	2.15	29.78	19270	20640	19270	20640	FH122-22P-200L-04F	1380	312
68	46104	2.50	26.27	19470	20790	19470	20790			
79	39593	2.90	22.56	18640	20950	18640	20950			
125	25079	2.15	14.29	15960	21200	15960	21200			
141	22131	2.95	12.61	15290	21290	15290	21290			
64	48508	1.50	27.64	12340	14160	12340	14160	FH102-22P-200L-04F	1105	308
74	42366	1.70	24.14	12720	14340	12720	14340			
85	36609	1.95	20.86	12860	14500	12860	14500			
103	30274	2.35	17.25	11910	14680	11910	14680			
124	25132	1.90	14.32	11220	14750	11220	14750			
126	24903	2.85	14.19	10990	14840	10990	14840			
142	21955	2.20	12.51	10630	14860	10630	14860			
153	20481	3.45	11.67	10210	14970	10210	14970			
165	18954	2.55	10.80	10050	14950	10050	14950			
180	17392	3.90	9.91	9600	15060	9600	15060			
199	15690	3.10	8.94	9350	15060	9350	15060			
211	14830	4.40	8.45	9060	15130	9060	15130			
242	12899	3.75	7.35	8700	15150	8700	15150			
295	10600	4.55	6.04	8120	15220	8120	15220			
347	9003	5.35	5.13	7640	14990	7640	14990			
407	7687	6.25	4.38	7240	14230	7240	14230			

**F**

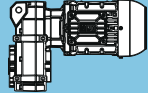
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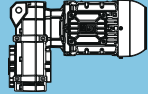
\*\* ... on request

P <sub>N</sub> = 60 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
19	202710	0.80	94.97	**	**	**	**	<b>FH153-22P-225S/M-04F</b>	2280	316
21	180191	0.90	84.42	14990	25450	**	**			
22	174087	0.95	81.56	15800	25580	**	**			
25	154876	1.05	72.56	17960	25990	17960	25990			
26	144844	1.10	67.86	18910	26190	18910	26190			
28	134023	1.20	62.79	19810	26420	19810	26420			
32	120191	1.35	56.31	20820	26710	20820	26710			
38	100234	1.60	46.96	22010	27130	22010	27130			
44	86147	1.85	40.36	22680	27430	22680	27430			
51	74557	2.15	34.93	23160	27670	23160	27670			
49	77993	1.75	36.54	23020	27580	23020	27580	<b>FH152-22P-225S/M-04F</b>	2196	316
64	59445	2.70	27.85	23650	27990	23650	27990			
103	37033	1.75	17.35	24190	28350	24190	28350			
26	145698	0.80	68.26	**	**	**	**	<b>FH123-22P-225S/M-04F</b>	1773	312
30	128580	0.90	60.24	14550	18770	**	**			
35	109156	1.05	51.14	16280	19240	16280	**			
37	104076	1.05	48.76	16660	19360	16660	19360			
41	93169	1.15	43.65	17400	19630	17400	19630			
44	85635	1.20	40.12	17850	19810	17850	19810			
54	70394	1.40	32.98	18590	20190	18590	20190			
64	59765	1.55	28.00	19020	20460	19020	20460			
75	51014	1.75	23.90	19310	20660	19310	20660			
60	63564	1.75	29.78	18880	20370	18880	20370			
68	56072	2.10	26.27	19150	20550	19150	20550			
79	48153	2.40	22.56	19060	20730	19060	20730			
95	40064	2.75	18.77	17760	20930	17760	20930			
125	30501	1.75	14.29	16280	21040	16280	21040			
141	26916	2.45	12.61	15560	21150	15560	21150			
165	23116	2.80	10.83	14700	21270	14700	21270			
64	58996	1.25	27.64	11510	13870	11510	13870	<b>FH102-22P-225S/M-04F</b>	1407	308
74	51526	1.40	24.14	12120	14100	12120	14100			
85	44525	1.60	20.86	12610	14300	12610	14300			
103	36819	1.95	17.25	12270	14500	12270	14500			
124	30565	1.55	14.32	11560	14590	11560	14590			
126	30288	2.35	14.19	11310	14680	11310	14680			
142	26702	1.80	12.51	10950	14700	10950	14700			
153	24909	2.80	11.67	10450	14840	10450	14840			
165	23052	2.10	10.80	10300	14810	10300	14810			
180	21153	3.20	9.91	9820	14950	9820	14950			
199	19082	2.55	8.94	9580	14950	9580	14950			
211	18036	3.65	8.45	9240	15040	9240	15040			
242	15688	3.10	7.35	8880	15060	8880	15060			
295	12892	3.75	6.04	8250	15150	8250	15150			
347	10950	4.40	5.13	7780	15200	7780	15200			
407	9349	5.15	4.38	7350	14410	7350	14410			

Legend see page 187

\*\* ... on request

<b>P<sub>N</sub> = 75 hp</b>										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
22	212415	0.80	81.56	**	**	**	**	<b>FH153-22P-225S/M-04G</b>	2385	316
25	188975	0.85	72.56	13620	23290	**	**			
26	176735	0.95	67.86	15420	25520	**	**			
28	163530	1.00	62.79	17020	25810	17020	**			
32	146654	1.10	56.31	18730	26150	18730	26150			
38	122303	1.35	46.96	20660	26660	20660	26660			
44	105114	1.55	40.36	21740	27020	21740	27020			
51	90972	1.80	34.93	22460	27310	22460	27310			
64	72533	2.20	27.85	23220	27700	23220	27700	<b>FH152-22P-225S/M-04G</b>	2302	316
76	60891	2.65	23.38	23600	27940	23600	27940			
135	34430	2.55	13.22	23810	28420	23810	28420			
35	133189	0.85	51.14	14030	18640	**	**	<b>FH123-22P-225S/M-04G</b>	1878	312
37	126991	0.90	48.76	14680	18790	**	**			
41	113682	0.95	43.65	15920	19130	**	**			
44	104489	1.00	40.12	16610	19360	16610	**			
54	85893	1.15	32.98	17830	19810	17830	19810			
64	72923	1.30	28.00	18480	20120	18480	20120			
75	62245	1.45	23.90	18930	20390	18930	20390			
68	68418	1.70	26.27	18680	20230	18680	20230	<b>FH122-22P-225S/M-04G</b>	1788	312
79	58755	1.95	22.56	19060	20480	19060	20480			
95	48885	2.25	18.77	18210	20730	18210	20730			
115	40577	2.60	15.58	16930	20930	16930	20930			
137	33831	3.00	12.99	15830	21090	15830	21090			
142	32841	2.00	12.61	15870	20970	15870	20970			
160	29091	3.35	11.17	14930	21200	14930	21200			
165	28206	2.30	10.83	14990	21110	14990	21110			
185	25159	3.75	9.66	14160	21290	14160	21290			
198	23466	3.10	9.01	14010	21240	14010	21240			
239	19455	3.70	7.47	13080	21360	13080	21360			
287	16225	4.50	6.23	12250	21450	12250	21450			
333	13960	5.20	5.36	11620	21510	11620	21510			
385	12084	5.65	4.64	11060	21580	11060	21580			

<b>P<sub>N</sub> = 100 hp</b>										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
32	200544	0.80	56.31	**	**	**	**	<b>FH153-22P-250S/M-04F</b>	2615	316
38	167245	1.00	46.96	16660	25740	**	**			
44	143739	1.15	40.36	19020	26210	19020	26210			
51	124401	1.30	34.93	20550	26620	20550	26620			
64	99186	1.65	27.85	22080	27160	22080	27160	<b>FH152-22P-250S/M-04F</b>	2531	316
76	83266	1.95	23.38	22820	27490	22820	27490			
93	68522	2.35	19.24	23380	27790	23380	27790			
109	58301	2.75	16.37	23690	28010	23690	28010			
135	47082	1.85	13.22	23990	28100	23990	28100			
160	39532	2.50	11.10	22950	28280	22950	28280			
195	32551	3.00	9.14	21400	28460	21400	28460			

Legend see page 187

\*\* ... on request



# Selection tables - Gear units

## Structure of the selection tables

Type	i	T <sub>2max</sub> [lb-in]	n <sub>2</sub> [rpm]	i <sub>exact</sub>	n <sub>1max</sub> [rpm]	IEC motor frame size <b>7</b>													
						63	71	80	90	100	112	132	160	180	200	225	250	-	
						IEC adapter <b>8</b>													
						I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280	
NEMA adapter <b>9</b>																			
						N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-			
<b>F022</b>																			
2 stages	<b>10</b>																		
n <sub>1</sub> =1750 rpm	<b>11</b>																		
Maximum torque 1151 lb-in	<b>12</b>																		

Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub> [rpm]	Adapter size <b>14</b>									n <sub>1max</sub> [rpm]	Input shaft <b>16</b> [mm]								
			S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	19x40	24x50	28x60	38x80	42x110	48x110	55x110	

- 1** Type of gear unit
- 2** Total ratio
- 3** Permissible output torque at S1 operation ( $f_b = 1.0$ )
- 4** Output speed (gear unit) at  $n_1 = 1750$  rpm
- 5** Exact mathematical ratio
- 6** Maximum permissible input speed gear unit, valid for direct mounting and IEC / NEMA adapter  
Max. perm. input speed IEC / NEMA adapter: I63 - I132 / N56 - N213 = 3000 rpm, I160 - I280 / N254 - N364 = 2500 rpm  
Max. perm. motor speed (Direct mounting): motor frame size 63 - 180 = 3000 rpm, 200 - 250 = 2500 rpm, higher motor speed on request
- 7** Possible motor frame sizes (Direct mounting)
- 8** Possible IEC adapter sizes
- 9** Possible NEMA adapter sizes
- 10** Number of gear stages
- 11** Motor speed
- 12** Maximum torque
- 13** Maximum input speed - SERVO adapter
- 14** Possible SERVO adapter sizes
- 15** Maximum input speed - input unit (higher input speeds on request)
- 16** Possible input shafts of the input unit

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size												
						63	71	80	90	100	-	-	-	-	-	-	-	-
						IEC adapter												
		163	171			180	190	1100	-	-	-	-	-	-	-	-		
		NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	-	-	-	-	-	-	-	-		
<b>F022</b>	97.85	1151	18	1957/20	6000													
	88.09	1151	20	969/11	6000													
	76.22	1151	23	3811/50	6000													
	68.62	1151	26	3774/55	6000													
	61.80	1151	28	309/5	6000													
	55.64	1151	31	612/11	6000													
	48.69	1151	36	2678/55	6000													
	43.83	1151	40	5304/121	6000													
	37.52	1151	47	5253/140	6000													
	33.78	1151	52	2601/77	6000													
	31.79	469	55	1653/52	6000													
	29.32	1151	60	3811/130	6000													
	26.39	1151	66	3774/143	6000													
	24.76	743	71	3219/130	6000													
	21.89	1151	80	1751/80	6000													
	20.08	743	87	261/13	6000													
	19.70	1151	89	867/44	6000													
	18.88	1151	93	1133/60	6000													
	17.00	1151	103	17/1	6000													
	16.48	1151	106	412/25	6000													
	15.82	743	111	174/11	6000													
	14.84	1151	118	816/55	6000													
	12.19	743	144	4437/364	6000													
	12.09	1151	145	2781/230	6000													
	10.89	1151	161	2754/253	6000													
	9.52	743	184	3219/338	6000													
	7.11	743	246	1479/208	6000													
	6.13	743	285	319/52	6000													
	5.35	743	327	348/65	6000													
	3.93	637	446	2349/598	6000													
	<b>F032</b>	70.17	1947	25	7719/110	6000												
		63.63	1947	28	1909/30	6000												
	57.07	1947	31	2511/44	6000													
	51.75	1947	34	207/4	6000													
	45.35	1947	39	5487/121	6000													
	41.12	1947	43	1357/33	6000													
	35.03	1947	50	2697/77	6000													
	31.76	1947	55	667/21	6000													
	27.97	1947	63	3999/143	6000													
	27.67	1053	63	83/3	6000													
	25.36	1947	69	989/39	6000													
	22.50	1301	78	45/2	6000													
	21.14	1947	83	465/22	6000													
	19.17	1947	91	115/6	6000													
	17.88	1328	98	590/33	6000													
	16.06	1947	109	1767/110	6000													
	14.57	1947	120	437/30	6000													
	13.81	1328	127	290/21	6000													
	12.50	1947	140	3162/253	6000													
	11.33	1947	154	34/3	6000													
	11.03	1328	159	430/39	6000													
	9.76	1876	179	1395/143	6000													
	8.85	1788	198	115/13	6000													
	8.33	1328	210	25/3	6000													
	6.33	1283	276	19/3	6000													
	4.93	1124	355	340/69	6000													
	3.85	982	455	50/13	6000													

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>F022</b>	97.85	5000													-							
	88.09	5000													-							
	76.22	5000													3000							
	68.62	5000													3000							
	61.80	5000													3000							
	55.64	5000													3000							
	48.69	5000													3000							
	43.83	5000													3000							
	37.52	5000													3000							
	33.78	5000													3000							
	31.79	5000													-							
	29.32	5000													3000							
	26.39	5000													3000							
	24.76	5000													3000							
	21.89	5000													3000							
	20.08	5000													3000							
	19.70	5000													3000							
	18.88	4700													3000							
	17.00	4700													3000							
	16.48	4200													3000							
	15.82	5000													3000							
	14.84	4200													3000							
	12.19	5000													3000							
	12.09	3700													3000							
	10.89	3700													3000							
	9.52	5000													3000							
	7.11	5000													3000							
	6.13	4700													3000							
	5.35	4200													3000							
	3.93	3700													3000							
<b>F032</b>	70.17	5000													3000							
	63.63	5000													3000							
	57.07	5000													3000							
	51.75	5000													3000							
	45.35	5000													3000							
	41.12	5000													3000							
	35.03	5000													3000							
	31.76	5000													3000							
	27.97	5000													3000							
	27.67	5000													3000							
	25.36	5000													3000							
	22.50	5000													3000							
	21.14	5000													3000							
	19.17	5000													3000							
	17.88	5000													3000							
	16.06	4600													3000							
	14.57	4600													3000							
	13.81	5000													3000							
	12.50	4000													3000							
	11.33	4000													3000							
	11.03	5000													3000							
	9.76	3500													3000							
	8.85	3500													3000							
	8.33	5000													3000							
	6.33	4600													3000							
	4.93	4000													3000							
	3.85	3500													3000							

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	-	-	-	-	-	-	-
		IEC adapter															
		163	171	180	190	1100	-	-	-	-	-	-	-				
		NEMA adapter															
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	-	-	-	-	-	-	-		
<b>F042</b>	75.79	2850	23	1819/24	6000												
	69.14	2593	25	4494/65	6000												
	61.98	3540	28	2975/48	6000												
	56.54	3505	31	735/13	6000												
	48.94	3540	36	1615/33	6000												
	44.64	3540	39	6384/143	6000												
	41.20	1549	42	8239/200	6000												
	37.95	3540	46	2125/56	6000												
	34.62	3540	51	450/13	6000												
	33.69	2089	52	539/16	6000												
	31.06	3540	56	1615/52	6000												
	28.33	3540	62	4788/169	6000												
	26.60	2726	66	133/5	6000												
	23.91	3540	73	765/32	6000												
	21.81	3540	80	567/26	6000												
	20.63	2726	85	165/8	6000												
2 stages	18.06	3540	97	289/16	6000												
n <sub>1</sub> =1750 rpm	16.88	2726	104	4389/260	6000												
	16.48	3540	106	1071/65	6000												
Maximum torque	14.78	3540	118	340/23	6000												
3540 lb-in	13.48	3540	130	4032/299	6000												
	12.99	2726	135	2079/160	6000												
	11.99	3399	146	935/78	6000												
	10.93	3195	160	1848/169	6000												
	10.03	3080	174	1445/144	5600												
	9.82	2726	178	3927/400	6000												
	9.15	2894	191	119/13	5600												
	8.13	2744	215	2635/324	5000												
	8.03	2478	218	924/115	6000												
	7.84	2691	223	2635/336	4800												
	7.42	2576	236	868/117	5000												
	7.15	2522	245	93/13	4800												
	6.52	2186	269	847/130	6000												
	5.45	1965	321	1309/240	5600												
	4.42	1735	396	2387/540	5000												
	4.26	1699	411	341/80	4800												
<b>F043</b>	422.98	3540	4.1	17765/42	6000												
	385.85	3540	4.5	5016/13	6000												
	329.48	3540	5.3	6919/21	6000												
	300.55	3540	5.8	19536/65	6000												
	267.14	3540	6.6	1870/7	6000												
	243.69	3540	7.2	3168/13	6000												
	210.48	3540	8.3	4420/21	6000												
	192.00	3540	9.1	192/1	6000												
3 stages	162.19	3540	11	15895/98	6000												
n <sub>1</sub> =1750 rpm	147.96	3540	12	13464/91	6000												
	126.72	3540	14	34595/273	6000												
Maximum torque	115.60	3540	15	19536/169	6000												
3540 lb-in	94.61	3540	18	15895/168	6000												
	86.31	3540	20	1122/13	6000												
	81.63	3540	21	10285/126	6000												
	74.46	3540	24	968/13	6000												
	71.24	3540	25	1496/21	6000												
	64.98	3540	27	4224/65	6000												
	52.27	3540	33	8415/161	6000												
	47.68	3540	37	14256/299	6000												

Legend see page 253



Type	i	SERVO adapter										Input unit																			
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]																	
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110									
<b>F042</b>	75.79	5000																				3000									
	69.14	5000																					3000								
	61.98	5000																					3000								
	56.54	5000																					3000								
	48.94	5000																					3000								
	44.64	5000																					3000								
	41.20	5000																					3000								
	37.95	5000																					3000								
	34.62	5000																					3000								
	33.69	5000																					3000								
	31.06	5000																					3000								
	28.33	5000																					3000								
	26.60	5000																					3000								
	23.91	5000																					3000								
	21.81	5000																					3000								
	20.63	5000																					3000								
	18.06	4900																					3000								
	16.88	5000																					3000								
	16.48	4900																					3000								
	14.78	4300																					3000								
	13.48	4300																					3000								
	12.99	5000																					3000								
	11.99	3800																					3000								
	10.93	3800																					3000								
	10.03	3400																					3000								
	9.82	4900																					3000								
	9.15	3400																					3000								
	8.13	3000																					3000								
	8.03	4300																					3000								
	7.84	2900																					-								
	7.42	3000																					3000								
	7.15	2900																					-								
	6.52	3800																					3000								
	5.45	3400																					3000								
	4.42	3000																					3000								
	4.26	2900																					-								
<b>F043</b>	422.98	5000																					-								
	385.85	5000																					-								
	329.48	5000																					3000								
	300.55	5000																					3000								
	267.14	5000																					3000								
	243.69	5000																					3000								
	210.48	5000																					3000								
	192.00	5000																					3000								
	162.19	5000																					3000								
	147.96	5000																					3000								
	126.72	5000																					3000								
	115.60	5000																					3000								
	94.61	5000																					3000								
	86.31	5000																					3000								
	81.63	5000																					3000								
	74.46	5000																					3000								
	71.24	4900																					3000								
	64.98	4900																					3000								
	52.27	4300																					3000								
	47.68	4300																					3000								

Legend see page 253



Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171	180	190	1100	1112	1132	-	-	-	-				
		NEMA adapter														
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
<b>F052</b>  2 stages n <sub>1</sub> =1750 rpm  Maximum torque 5310 lb-in	87.38	3284	20	5243/60	6000											
	79.84	3000	22	10379/130	6000											
	71.46	4434	24	1715/24	6000											
	65.29	4045	27	3395/52	6000											
	56.42	5310	31	1862/33	6000											
	51.55	5284	34	7372/143	6000											
	48.15	1806	36	963/20	6000											
	43.75	5310	40	175/4	6000											
	39.97	5284	44	7275/182	6000											
	39.38	2443	44	315/8	6000											
	35.81	5310	49	931/26	6000											
	32.72	5284	53	5529/169	6000											
	31.09	3186	56	342/11	6000											
	27.56	5310	63	441/16	6000											
	25.18	5284	69	2619/104	6000											
	24.11	3186	73	675/28	6000											
	20.83	5310	84	833/40	6000											
	19.73	3186	89	513/26	6000											
	19.03	5284	92	4947/260	6000											
	17.04	5310	103	392/23	6000											
	15.57	5284	112	4656/299	6000											
	15.19	3186	115	243/16	6000											
	13.82	5310	127	539/39	6000											
	12.63	5284	139	2134/169	6000											
	11.57	5310	151	833/72	5600											
	11.48	3186	153	459/40	6000											
	10.57	5169	166	1649/156	5600											
	9.39	3186	186	216/23	6000											
	9.38	4992	187	1519/162	5000											
	9.04	4939	194	217/24	4800											
	8.57	4859	204	3007/351	5000											
	8.26	4806	212	3007/364	4800											
	7.62	3186	230	99/13	6000											
	6.38	3186	275	51/8	5600											
	5.17	3186	339	31/6	5000											
4.98	3186	351	279/56	4800												
<b>F053</b>  3 stages n <sub>1</sub> =1750 rpm  Maximum torque 5310 lb-in	487.67	5310	3.6	1463/3	6000											
	445.56	5284	3.9	40546/91	6000											
	379.87	5310	4.6	5698/15	6000											
	347.07	5284	5.0	157916/455	6000											
	308.00	5310	5.7	308/1	6000											
	281.41	5284	6.2	25608/91	6000											
	242.67	5310	7.2	728/3	6000											
	221.71	5284	7.9	1552/7	6000											
	187.00	5310	9.4	187/1	6000											
	170.85	5284	10	108834/637	6000											
	146.10	5310	12	5698/39	6000											
	133.49	5284	13	157916/1183	6000											
	109.08	5310	16	1309/12	6000											
	99.66	5284	18	18139/182	6000											
	94.11	5310	19	847/9	6000											
	85.99	5284	20	23474/273	6000											
	82.13	5310	21	1232/15	6000											
75.04	5284	23	34144/455	6000												
60.26	5310	29	1386/23	6000												
55.06	5284	32	115236/2093	6000												

Legend see page 253

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
F052	87.38	5000												3000								
	79.84	5000												3000								
	71.46	5000												3000								
	65.29	5000												3000								
	56.42	5000												3000								
	51.55	5000												3000								
	48.15	5000												3000								
	43.75	5000												3000								
	39.97	5000												3000								
	39.38	5000												3000								
	35.81	5000												3000								
	32.72	5000												3000								
	31.09	5000												3000								
	27.56	5000												3000								
	25.18	5000												3000								
	24.11	5000												3000								
	20.83	5000												3000								
	19.73	5000												3000								
	19.03	5000												3000								
	17.04	4600												3000								
	15.57	4600												3000								
	15.19	5000												3000								
	13.82	4100												3000								
	12.63	4100												3000								
	11.57	3700												3000								
	11.48	5000												3000								
	10.57	3700												3000								
	9.39	4600												3000								
	9.38	3300												3000								
	9.04	3200												3000								
	8.57	3300												3000								
	8.26	3200												3000								
	7.62	4100												3000								
6.38	3700												3000									
5.17	3300												3000									
4.98	3200												3000									
F053	487.67	5000												-								
	445.56	5000												-								
	379.87	5000												3000								
	347.07	5000												3000								
	308.00	5000												3000								
	281.41	5000												3000								
	242.67	5000												3000								
	221.71	5000												3000								
	187.00	5000												3000								
	170.85	5000												3000								
	146.10	5000												3000								
	133.49	5000												3000								
	109.08	5000												3000								
	99.66	5000												3000								
	94.11	5000												3000								
	85.99	5000												3000								
	82.13	5000												3000								
	75.04	5000												3000								
	60.26	4600												3000								
	55.06	4600												3000								

Legend see page 253



Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	1132	-	-	-	-	-	
NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
F062	49.67	7258	35	4520/91	6000											
	45.55	7258	38	8927/196	6000											
	41.66	7258	42	7040/169	6000											
	38.20	7258	46	3476/91	6000											
	32.69	7258	54	425/13	6000											
	29.98	7258	58	6715/224	6000											
	25.23	7258	69	328/13	6000											
	23.14	7258	76	3239/140	6000											
	20.87	7258	84	480/23	6000											
	20.49	3735	85	3729/182	6000											
	19.14	7258	91	3081/161	6000											
	17.75	7258	99	3000/169	6000											
	17.18	5054	102	2904/169	6000											
	16.28	7258	108	5925/364	6000											
	15.38	7258	114	200/13	5600											
	14.11	7258	124	395/28	5600											
	13.49	5054	130	2805/208	6000											
	12.99	7258	135	1520/117	5000											
	12.53	7258	140	1140/91	4800											
	11.91	7258	147	1501/126	5000											
	11.49	7258	152	4503/392	4800											
	10.70	7258	164	3200/299	4400											
	10.41	5054	168	1353/130	6000											
	9.81	7258	178	1580/161	4400											
	8.61	5054	203	198/23	6000											
	7.32	5054	239	2475/338	6000											
	6.35	5054	276	165/26	5600											
	5.36	5054	327	209/39	5000											
5.17	5054	339	1881/364	4800												
4.41	5054	396	1320/299	4400												
F063	412.64	7258	4.2	80464/195	6000											
	378.37	7258	4.6	397291/1050	6000											
	337.44	7258	5.2	13160/39	6000											
	309.42	7258	5.7	3713/12	6000											
	266.44	7258	6.6	114304/429	6000											
	244.32	7258	7.2	282188/1155	6000											
	206.59	7258	8.5	18800/91	6000											
	189.44	7258	9.2	18565/98	6000											
	169.09	7258	10	28576/169	6000											
	155.05	7258	11	70547/455	6000											
	130.15	7258	13	1692/13	6000											
	119.35	7258	15	33417/280	6000											
	98.34	7258	18	6392/65	6000											
	90.17	7258	19	63121/700	6000											
	80.48	7258	22	24064/299	6000											
	73.80	7258	24	59408/805	6000											
	65.26	7258	27	33088/507	6000											
	59.84	7258	29	81686/1365	6000											
54.63	7258	32	6392/117	5600												
50.10	7258	35	63121/1260	5600												

Legend see page 253

Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]									
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110	
<b>F062</b>	49.67	5000													2500								
	45.55	5000													2500								
	41.66	5000													2500								
	38.20	5000													2500								
	32.69	5000													2500								
	29.98	5000													2500								
	25.23	5000													2500								
	23.14	5000													2500								
	20.87	4900													2500								
	20.49	5000													2500								
	19.14	4900													2500								
	17.75	4300													2500								
	17.18	5000													2500								
	16.28	4300													2500								
	15.38	3900													2500								
	14.11	3900													2500								
	13.49	5000													2500								
	12.99	3500													2500								
	12.53	3300													2500								
	11.91	3500													2500								
	11.49	3300													2500								
	10.70	3000													2500								
	10.41	5000													2500								
	9.81	3000													2500								
	8.61	4900													2500								
	7.32	4300													2500								
	6.35	3900													2500								
	5.36	3500													2500								
	5.17	3300													2500								
	4.41	3000													2500								
<b>F063</b>	412.64	5000													3000								
	378.37	5000													3000								
	337.44	5000													3000								
	309.42	5000													3000								
	266.44	5000													3000								
	244.32	5000													3000								
	206.59	5000													2500								
	189.44	5000													2500								
	169.09	5000													2500								
	155.05	5000													2500								
	130.15	5000													2500								
	119.35	5000													2500								
	98.34	5000													2500								
	90.17	5000													2500								
	80.48	4900													2500								
	73.80	4900													2500								
	65.26	4300													2500								
	59.84	4300													2500								
	54.63	3900													2500								
	50.10	3900													2500								

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size												
						63	71	80	90	100	112	132	160	-	-	-	-	-
		IEC adapter																
		163	171			180	190	1100	1112	1132	-	-	-	-	-	-		
NEMA adapter																		
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	-		
F072	2 stages	45.02	13276	39	5763/128	6000												
		39.31	13276	45	629/16	6000												
		34.74	13276	50	5559/160	6000												
		29.38	13276	60	2703/92	6000												
		25.25	13276	69	5253/208	6000												
		22.05	13276	79	1411/64	5600												
		20.72	8311	84	1243/60	6000												
		18.89	13276	93	170/9	5000												
		18.21	13276	96	255/14	4800												
		18.09	9762	97	814/45	6000												
	Maximum torque 13276 lb-in	16.08	13276	109	1479/92	4400												
		15.99	9683	109	1199/75	6000												
		13.52	9762	129	4664/345	6000												
		13.49	13276	130	2805/208	3900												
		11.62	9603	151	2266/195	6000												
		11.36	13276	154	2091/184	3500												
		10.14	9869	173	913/90	5600												
		9.32	13276	188	969/104	3100												
		8.69	9869	201	704/81	5000												
		8.38	8904	209	176/21	4800												
7.40	9869	237	2552/345	4400														
6.21	9869	282	242/39	3900														
5.23	9869	335	1804/345	3500														
4.29	9568	408	836/195	3100														
F073	3 stages	385.37	13276	4.5	61659/160	6000												
		305.42	13276	5.7	26877/88	6000												
		237.15	13276	7.4	4743/20	6000												
		194.58	13276	9.0	12648/65	6000												
		150.69	13276	12	96441/640	6000												
	Maximum torque 13276 lb-in	114.62	13276	15	45849/400	6000												
		94.52	13276	19	17391/184	6000												
		77.53	13276	23	80631/1040	6000												
		65.88	13276	27	527/8	5600												
		54.16	13276	32	19499/360	5000												
52.23	13276	34	58497/1120	4800														

Legend see page 253

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>F072</b>	45.02	5000												2500								
	39.31	5000												2500								
	34.74	5000												2500								
	29.38	5000												2500								
	25.25	4800												2500								
	22.05	4300												2500								
	20.72	5000												2500								
	18.89	3800												2500								
	18.21	3700												2500								
	18.09	5000												2500								
	16.08	3400												2500								
	15.99	5000												2500								
	13.52	5000												2500								
	13.49	3000												2500								
	11.62	4800												2500								
	11.36	2700												2500								
	10.14	4300												2500								
	9.32	-												2400								
	8.69	3800												2500								
	8.38	3700												2500								
	7.40	3400												2500								
	6.21	3000												2500								
	5.23	2700												2500								
	4.29	-												2400								
<b>F073</b>	385.37	5000												3000								
	305.42	5000												3000								
	237.15	5000												2500								
	194.58	5000												2500								
	150.69	5000												2500								
	114.62	5000												2500								
	94.52	5000												2500								
	77.53	4800												2500								
	65.88	4300												2500								
	54.16	3800												2500								
	52.23	3700												2500								

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	-	-	-
		IEC adapter															
		163	171	180	190	1100	1112	1132	1160	1180	-	-	-	-			
		NEMA adapter															
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-	
<b>F082</b>	33.87	24649	52	6165/182	6000												
2 stages n <sub>1</sub> =1750 rpm	30.00	26552	58	30/1	5600												
	25.95	26552	67	545/21	5000												
	22.08	26552	79	3555/161	4400												
	18.79	26552	93	1710/91	3900												
	16.21	26552	108	2610/161	3500												
	16.01	14577	109	10823/676	6000												
	14.18	15595	123	553/39	5600												
	13.60	26552	129	2475/182	3100												
	12.27	15595	143	8611/702	5000												
	11.06	26552	158	387/35	2700												
	Maximum torque 26552 lb-in	10.44	15595	168	6241/598	4400											
		8.88	15595	197	1501/169	3900											
		8.65	26552	202	1755/203	2300											
		7.66	15595	228	2291/299	3500											
		6.43	15595	272	4345/676	3100											
5.23		15595	335	3397/650	2700												
4.09		13843	428	237/58	2300												
<b>F083</b>	358.52	26552	4.9	32625/91	6000												
3 stages n <sub>1</sub> =1750 rpm	283.76	26552	6.2	127125/448	6000												
	247.77	26552	7.1	13875/56	6000												
	218.97	26552	8.0	24525/112	6000												
	185.17	26552	9.5	59625/322	6000												
	180.28	26552	9.7	114840/637	6000												
	159.17	26552	11	115875/728	6000												
	142.69	26552	12	55935/392	6000												
	138.95	26552	13	31125/224	5600												
	124.59	26552	14	6105/49	6000												
	119.05	26552	15	2500/21	5000												
	114.80	26552	15	5625/49	4800												
	110.11	26552	16	10791/98	6000												
	101.32	26552	17	32625/322	4400												
	Maximum torque 26552 lb-in	93.11	26552	19	104940/1127	6000											
		84.99	26552	21	61875/728	3900											
80.04		26552	22	50985/637	6000												
71.62		26083	24	46125/644	3500												
69.87		25694	25	13695/196	5600												
59.86		24525	29	8800/147	5000												
58.72		24579	30	21375/364	3100												
57.73		24260	30	19800/343	4800												
50.95		23366	34	57420/1127	4400												
42.74		22171	41	27225/637	3900												
36.02	21056	49	40590/1127	3500													
29.53	19843	59	18810/637	3100													

Legend see page 253



Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>F082</b>	33.87	5000												2500								
	30.00	4500												2500								
	25.95	4000												2500								
	22.08	3600												2500								
	18.79	3100												2500								
	16.21	2800												2500								
	16.01	5000												2500								
	14.18	4500												2500								
	13.60	-												2500								
	12.27	4000												2500								
	11.06	-												2200								
	10.44	3600												2500								
	8.88	3100												2500								
	8.65	-												1900								
	7.66	2800												2500								
	6.43	-												2500								
	5.23	-												2200								
	4.09	-												1900								
<b>F083</b>	358.52	5000												2500								
	283.76	5000												2500								
	247.77	5000												2500								
	218.97	5000												2500								
	185.17	5000												2500								
	180.28	5000												2500								
	159.17	5000												2500								
	142.69	5000												2500								
	138.95	4500												2500								
	124.59	5000												2500								
	119.05	4000												2500								
	114.80	3900												2500								
	110.11	5000												2500								
	101.32	3600												2500								
	93.11	5000												2500								
	84.99	3100												2500								
	80.04	5000												2500								
	71.62	2800												2500								
	69.87	4500												2500								
	59.86	4000												2500								
	58.72	-												2500								
	57.73	3900												2500								
	50.95	3600												2500								
	42.74	3100												2500								
	36.02	2800												2500								
	29.53	-												2500								

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171		180	190	1100	1112	1132	-	-	-	-			
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
F084  4 stages n <sub>1</sub> =1750 rpm  Maximum torque 26552 lb-in	3836.13	26552	0.5	698175/182	6000											
	3137.02	26552	0.6	163125/52	6000											
	3036.24	26552	0.6	2720475/896	6000											
	2651.12	26552	0.7	296925/112	6000											
	2482.91	26552	0.7	635625/256	6000											
	2477.02	26552	0.7	2479500/1001	6000											
	2167.97	26552	0.8	69375/32	6000											
	1960.53	26552	0.9	2415375/1232	6000											
	1920.62	26552	0.9	2446875/1274	6000											
	1711.85	26552	1.0	263625/154	6000											
	1571.96	26552	1.1	1859625/1183	6000											
	1520.15	26552	1.2	9534375/6272	6000											
	1327.33	26552	1.3	1040625/784	6000											
	1244.18	26552	1.4	7246125/5824	6000											
	1209.99	26552	1.4	880875/728	6000											
	1086.37	26552	1.6	790875/728	6000											
	957.69	26552	1.8	3432375/3584	6000											
	914.22	26552	1.9	332775/364	6000											
	836.22	26552	2.1	374625/448	6000											
	748.21	26552	2.3	1566000/2093	6000											
	723.59	26552	2.4	1296675/1792	6000											
	631.81	26552	2.8	141525/224	6000											
	606.72	26552	2.9	717750/1183	6000											
	592.20	26552	3.0	381375/644	6000											
	517.08	26552	3.4	83250/161	6000											
	507.90	26552	3.4	184875/364	5600											
	480.21	26552	3.6	1398375/2912	6000											
	419.30	26552	4.2	152625/364	6000											
	411.63	26552	4.3	112375/273	5000											
	401.99	26552	4.4	720375/1792	5600											
	396.93	26552	4.4	1011375/2548	4800											
	351.00	26552	5.0	78625/224	5600											
	325.80	26552	5.4	437875/1344	5000											
	314.16	26552	5.6	3940875/12544	4800											
	284.47	26552	6.2	143375/504	5000											
274.31	26552	6.4	430125/1568	4800												

Legend see page 253

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]										
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>F084</b>	3836.13	5000													3000									
	3137.02	5000													3000									
	3036.24	5000													3000									
	2651.12	5000													3000									
	2482.91	5000													3000									
	2477.02	5000													3000									
	2167.97	5000													3000									
	1960.53	5000													3000									
	1920.62	5000													3000									
	1711.85	5000													3000									
	1571.96	5000													3000									
	1520.15	5000													3000									
	1327.33	5000													3000									
	1244.18	5000													3000									
	1209.99	5000													3000									
	1086.37	5000													3000									
	957.69	5000													3000									
	914.22	5000													3000									
	836.22	5000													3000									
	748.21	5000													3000									
	723.59	5000													3000									
	631.81	5000													3000									
	606.72	5000													3000									
	592.20	5000													3000									
	517.08	5000													3000									
	507.90	4500													3000									
	480.21	5000													3000									
	419.30	5000													3000									
	411.63	4000													3000									
	401.99	4500													3000									
	396.93	3900													3000									
	351.00	4500													3000									
	325.80	4000													3000									
	314.16	3900													3000									
	284.47	4000													3000									
	274.31	3900													3000									

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	-	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-	
F092	38.65	38288	45	2512/65	6000												
	34.13	39828	51	512/15	5600												
	29.63	39828	59	800/27	5000												
	28.57	30358	61	200/7	4800												
	25.60	39828	68	128/5	4400												
	21.91	39828	80	1424/65	3900												
	19.01	18834	92	13345/702	6000												
	18.92	39828	92	2176/115	3500												
	16.79	23685	104	1360/81	5600												
	16.00	39828	109	16/1	3100												
	14.57	23685	120	10625/729	5000												
	14.05	14931	125	10625/756	4800												
	13.06	39828	134	1632/125	2700												
	12.59	23685	139	340/27	4400												
	10.78	23685	162	7565/702	3900												
	10.59	39828	165	1536/145	2300												
	9.31	23685	188	5780/621	3500												
	8.46	35456	207	296/35	2100												
7.87	23685	222	425/54	3100													
6.42	23685	272	289/45	2700													
5.21	22808	336	1360/261	2300													
4.16	20215	421	3145/756	2100													
F093	288.50	39828	6.1	165888/575	6000												
	243.90	39828	7.2	129024/529	6000												
	211.14	39828	8.3	315648/1495	6000												
	186.99	39828	9.4	21504/115	5600												
	161.76	39828	11	55808/345	5000												
	155.99	39828	11	125568/805	4800												
	142.85	39828	12	17856/125	6000												
	137.63	39828	13	364032/2645	4400												
	120.77	39828	14	13888/115	6000												
	117.13	39828	15	175104/1495	3900												
	104.54	39828	17	33976/325	6000												
	101.04	39828	17	267264/2645	3500												
	92.59	39828	19	6944/75	5600												
	84.76	39828	21	25344/299	3100												
	80.09	39828	22	54064/675	5000												
	77.23	39828	23	13516/175	4800												
	68.92	39828	25	198144/2875	2700												
	68.15	39828	26	39184/575	4400												
	57.99	39828	30	18848/325	3900												
	53.89	39828	32	179712/3335	2300												
	50.03	39828	35	28768/575	3500												
41.97	39457	42	2728/65	3100													
34.12	37076	51	21328/625	2700													
26.68	34438	66	19344/725	2300													

Legend see page 253

Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
<b>F092</b>	38.65	5000												2500							
	34.13	4800												2500							
	29.63	4200												2500							
	28.57	4100												2500							
	25.60	3700												2500							
	21.91	3300												2500							
	19.01	5000												2500							
	18.92	3000												2500							
	16.79	4800												2500							
	16.00	-												2500							
	14.57	4200												2500							
	14.05	4100												2500							
	13.06	-												2300							
	12.59	3700												2500							
	10.78	3300												2500							
	10.59	-												2000							
	9.31	3000												2500							
	8.46	-												1800							
	7.87	-												2500							
	6.42	-												2300							
	5.21	-												2000							
	4.16	-												1800							
<b>F093</b>	288.50	5000												2500							
	243.90	5000												2500							
	211.14	5000												2500							
	186.99	4800												2500							
	161.76	4200												2500							
	155.99	4100												2500							
	142.85	5000												2500							
	137.63	3700												2500							
	120.77	5000												2500							
	117.13	3300												2500							
	104.54	5000												2500							
	101.04	3000												2500							
	92.59	4800												2500							
	84.76	-												2500							
	80.09	4200												2500							
	77.23	4100												2500							
	68.92	-												2300							
	68.15	3700												2500							
	57.99	3300												2500							
	53.89	-												2000							
	50.03	3000												2500							
	41.97	-												2500							
	34.12	-												2300							
	26.68	-												2000							

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size																		
						IEC adapter																		
		NEMA adapter																						
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-										
<b>F094</b>	3086.96	39828	0.6	8875008/2875	6000																			
4 stages n <sub>1</sub> =1750 rpm	2609.75	39828	0.7	6902784/2645	6000																			
	2524.38	39828	0.7	290304/115	6000																			
	2134.14	39828	0.8	1128960/529	6000																			
	1993.28	39828	0.9	12607488/6325	6000																			
	1685.14	39828	1.0	9805824/5819	6000																			
	1545.54	39828	1.1	248832/161	6000																			
	1306.62	39828	1.3	691200/529	6000																			
	1264.97	39828	1.4	9455616/7475	6000																			
	1069.42	39828	1.6	7354368/6877	6000																			
	973.69	39828	1.8	559872/575	6000																			
	823.17	39828	2.1	435456/529	6000																			
	735.68	39828	2.4	2115072/2875	6000																			
	621.95	39828	2.8	1645056/2645	6000																			
	Maximum torque 39828 lb-in	602.09	39828	2.9	7962624/13225	6000																		
		509.01	39828	3.4	6193152/12167	6000																		
		488.23	39828	3.6	3649536/7475	6000																		
412.76		39828	4.2	2838528/6877	6000																			
408.71		39828	4.3	235008/575	5600																			
345.53		39828	5.1	182784/529	5600																			
331.24		39828	5.3	190464/575	5000																			
319.41		39828	5.5	1285632/4025	4800																			
280.04	39828	6.2	444416/1587	5000																				
270.03	39828	6.5	142848/529	4800																				

Legend see page 253

Type	i	SERVO adapter										Input unit								
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]						
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110
<b>F094</b>	3086.96	5000											3000							
	2609.75	5000											3000							
	2524.38	5000											3000							
	2134.14	5000											3000							
	1993.28	5000											3000							
	1685.14	5000											3000							
	1545.54	5000											3000							
	1306.62	5000											3000							
	1264.97	5000											3000							
	1069.42	5000											3000							
	973.69	5000											3000							
	823.17	5000											3000							
	735.68	5000											3000							
	621.95	5000											3000							
	602.09	5000											3000							
	509.01	5000											3000							
	488.23	5000											3000							
	412.76	5000											3000							
	408.71	4800											3000							
	345.53	4800											3000							
	331.24	4200											3000							
	319.41	4100											3000							
	280.04	4200											3000							
	270.03	4100											3000							

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	225	-
		IEC adapter															
		163	171	180	190	1100	1112	1132	1160	1180	1200	1225	-	-			
		NEMA adapter															
[lb-in]		[rpm]		[rpm]		N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-	
<b>F102</b>  2 stages n <sub>1</sub> =1750 rpm  Maximum torque 70806 lb-in	42.74	56724	41	7693/180	5600												
	37.26	62681	47	15092/405	5000												
	35.93	38164	49	539/15	4800												
	32.10	70806	55	11074/345	4400												
	27.64	70806	63	1078/39	3900												
	24.14	70806	72	1666/69	3500												
	22.14	29384	79	1727/78	5600												
	20.86	70806	84	4067/195	3100												
	19.30	32473	91	6776/351	5000												
	18.62	19773	94	242/13	4800												
	17.25	70806	101	2156/125	2700												
	16.63	42661	105	4972/299	4400												
	14.32	47334	122	2420/169	3900												
	14.19	70806	123	2058/145	2300												
	12.51	47927	140	3740/299	3500												
	11.67	69700	150	35/3	2100												
	10.80	47927	162	1826/169	3100												
	9.91	67345	177	4606/465	1900												
	8.94	47927	196	2904/325	2700												
	8.45	65150	207	2156/255	1700												
	7.35	47927	238	2772/377	2300												
	6.04	47927	290	550/91	2100												
5.13	47927	341	2068/403	1900													
4.38	47927	400	968/221	1700													
<b>F103</b>  3 stages n <sub>1</sub> =1750 rpm  Maximum torque 70806 lb-in	246.57	70806	7.1	38465/156	6000												
	217.78	70806	8.0	1960/9	5600												
	189.04	70806	9.3	30625/162	5000												
	182.29	70806	9.6	4375/24	4800												
	163.33	70806	11	490/3	4400												
	139.78	70806	13	21805/156	3900												
	122.58	70806	14	31871/260	6000												
	120.72	70806	14	8330/69	3500												
	108.27	70806	16	1624/15	5600												
	102.08	70806	17	1225/12	3100												
	93.98	70806	19	5075/54	5000												
	90.63	70806	19	725/8	4800												
	83.30	70806	21	833/10	2700												
	81.20	70806	22	406/5	4400												
	69.49	70806	25	18067/260	3900												
	67.59	70806	26	1960/29	2300												
	60.02	70806	29	6902/115	3500												
	53.96	70806	32	1295/24	2100												
	50.75	70806	34	203/4	3100												
	41.41	70806	42	10353/250	2700												
	33.60	69708	52	168/5	2300												
	26.83	65150	65	1073/40	2100												

Legend see page 253



Type	i	SERVO adapter											Input unit								
		n <sub>1max</sub>	Adapter size									n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180		S189	S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
<b>F102</b>	42.74	5000											2500								
	37.26	4500											2500								
	35.93	4400											2500								
	32.10	4000											2500								
	27.64	3500											2500								
	24.14	3200											1800								
	22.14	5000											2500								
	20.86	-											1800								
	19.30	4500											2500								
	18.62	4400											2500								
	17.25	-											1800								
	16.63	4000											2500								
	14.32	3500											2500								
	14.19	-											1800								
	12.51	3200											1800								
	11.67	-											1800								
	10.80	-											1800								
	9.91	-											1700								
	8.94	-											1800								
	8.45	-											1500								
	7.35	-											1800								
	6.04	-											1800								
	5.13	-											1700								
	4.38	-											1500								
<b>F103</b>	246.57	5000											2500								
	217.78	5000											2500								
	189.04	4500											2500								
	182.29	4400											2500								
	163.33	4000											2500								
	139.78	3500											2500								
	122.58	5000											2500								
	120.72	3200											1800								
	108.27	5000											2500								
	102.08	-											1800								
	93.98	4500											2500								
	90.63	4400											2500								
	83.30	-											1800								
	81.20	4000											2500								
	69.49	3500											2500								
	67.59	-											1800								
	60.02	3200											1800								
	53.96	-											1800								
	50.75	-											1800								
	41.41	-											1800								
	33.60	-											1800								
	26.83	-											1800								

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	1132	1160	-	-	-	-	-
NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-
F104	2276.77	70806	0.8	225400/99	6000											
	1976.36	70806	0.9	3521875/1782	6000											
	1757.78	70806	1.0	15820/9	6000											
	1707.58	70806	1.0	56350/33	6000											
	1525.85	70806	1.1	494375/324	6000											
	1474.19	70806	1.2	172480/117	6000											
	1318.33	70806	1.3	3955/3	6000											
	1279.68	70806	1.4	1347500/1053	6000											
	1156.94	70806	1.5	20825/18	6000											
	1105.64	70806	1.6	43120/39	6000											
	1004.29	70806	1.7	2603125/2592	6000											
	892.89	70806	2.0	8036/9	6000											
	867.71	70806	2.0	20825/24	6000											
	775.08	70806	2.3	251125/324	6000											
	738.55	70806	2.4	50960/69	6000											
	669.67	70806	2.6	2009/3	6000											
	641.10	70806	2.7	398125/621	6000											
	628.21	70806	2.8	24500/39	6000											
	Maximum torque	553.91	70806	3.2	12740/23	6000										
	70806 lb-in	545.32	70806	3.2	765625/1404	6000										
		544.44	70806	3.2	4900/9	5600										
		472.61	70806	3.7	153125/324	5600										
		471.15	70806	3.7	6125/13	6000										
		459.75	70806	3.8	37240/81	5000										
		443.33	70806	3.9	1330/3	4800										
		408.33	70806	4.3	1225/3	5600										
		399.09	70806	4.4	581875/1458	5000										
		384.84	70806	4.5	83125/216	4800										
		378.74	70806	4.6	78400/207	4400										
		344.81	70806	5.1	9310/27	5000										
		332.50	70806	5.3	665/2	4800										
		328.77	70806	5.3	612500/1863	4400										
	284.06	70806	6.2	19600/69	4400											

Legend see page 253

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>F104</b>	2276.77	5000												3000										
	1976.36	5000												3000										
	1757.78	5000												2500										
	1707.58	5000												3000										
	1525.85	5000												2500										
	1474.19	5000												2500										
	1318.33	5000												2500										
	1279.68	5000												2500										
	1156.94	5000												2500										
	1105.64	5000												2500										
	1004.29	5000												2500										
	892.89	5000												2500										
	867.71	5000												2500										
	775.08	5000												2500										
	738.55	5000												2500										
	669.67	5000												2500										
	641.10	5000												2500										
	628.21	5000												2500										
	553.91	5000												2500										
	545.32	5000												2500										
	544.44	5000												2500										
	472.61	5000												2500										
	471.15	5000												2500										
	459.75	4500												2500										
	443.33	4400												2500										
	408.33	5000												2500										
	399.09	4500												2500										
	384.84	4400												2500										
	378.74	4000												2500										
	344.81	4500												2500										
	332.50	4400												2500										
	328.77	4000												2500										
	284.06	4000												2500										

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size													
						63	71	80	90	100	112	132	160	180	200	225	-	-	
						IEC adapter													
						63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	-	
						NEMA adapter													
N56	N143/145		N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-								
	[lb-in]	[rpm]		[rpm]															
<b>F122</b>	39.98	67239	44	16192/405	5000														
	34.43	88375	51	792/23	4400														
	29.78	111015	59	1936/65	3900														
	26.27	115060	67	9064/345	3500														
	22.56	114316	78	880/39	3100														
	19.18	32261	91	13984/729	5000														
	18.77	109439	93	1408/75	2700														
	16.52	42404	106	380/23	4400														
	15.58	104704	112	6776/435	2300														
	14.29	53264	122	1672/117	3900														
	12.99	100297	135	1364/105	2100														
	12.61	64779	139	7828/621	3500														
	11.17	96765	157	5192/465	1900														
	10.83	63805	162	3800/351	3100														
	9.66	93508	181	2464/255	1700														
	9.01	72249	194	1216/135	2700														
	7.47	71629	234	5852/783	2300														
	6.23	72249	281	1178/189	2100														
5.36	72249	327	4484/837	1900															
4.64	67682	377	2128/459	1700															
<b>F123</b>	220.67	115060	7.9	39721/180	5600														
	192.40	115060	9.1	77924/405	5000														
	185.53	115060	9.4	2783/15	4800														
	165.73	115060	11	2486/15	4400														
	142.72	115060	12	5566/39	3900														
	124.67	115060	14	374/3	3500														
	120.82	115060	14	29359/243	5600														
	107.69	115060	16	20999/195	3100														
	105.34	115060	17	230384/2187	5000														
	101.58	107891	17	8228/81	4800														
	90.74	115060	19	169048/1863	4400														
	89.06	115060	20	11132/125	2700														
	78.14	115060	22	82280/1053	3900														
	73.28	115060	24	10626/145	2300														
	68.26	115060	26	127160/1863	3500														
	60.24	115060	29	1265/21	2100														
	58.96	114431	30	62084/1053	3100														
	51.14	111599	34	23782/465	1900														
	48.76	108094	36	32912/675	2700														
	43.65	106421	40	11132/255	1700														
	40.12	101952	44	10472/261	2300														
32.98	96128	53	18700/567	2100															
28.00	91526	62	70312/2511	1900															
23.90	87277	73	1936/81	1700															

Legend see page 253

Type	i	SERVO adapter											Input unit														
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]													
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110					
<b>F122</b>	39.98	4800												2500													
	34.43	4200												2500													
	29.78	3700												2500													
	26.27	3400												1800													
	22.56	-												1800													
	19.18	4800												2500													
	18.77	-												1800													
	16.52	4200												2500													
	15.58	-												1800													
	14.29	3700												2500													
	12.99	-												1800													
	12.61	3400												1800													
	11.17	-												1800													
	10.83	-												1800													
	9.66	-												1600													
	9.01	-												1800													
	7.47	-												1800													
	6.23	-												1800													
	5.36	-												1800													
	4.64	-												1600													
<b>F123</b>	220.67	5000												2500													
	192.40	4800												2500													
	185.53	4600												2500													
	165.73	4200												2500													
	142.72	3700												2500													
	124.67	3400												1800													
	120.82	5000												2500													
	107.69	-												1800													
	105.34	4800												2500													
	101.58	4600												2500													
	90.74	4200												2500													
	89.06	-												1800													
	78.14	3700												2500													
	73.28	-												1800													
	68.26	3400												1800													
	60.24	-												1800													
	58.96	-												1800													
	51.14	-												1800													
	48.76	-												1800													
	43.65	-												1600													
	40.12	-												1800													
	32.98	-												1800													
	28.00	-												1800													
	23.90	-												1600													



Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	160	-	-	-
		IEC adapter														
		163	171			180	190	1100	1112	1132	1160	-	-	-	-	-
NEMA adapter																
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-
F124	2307.03	115060	0.8	83053/36	6000											
	2011.51	115060	0.9	162932/81	6000											
	1781.14	115060	1.0	4488473/2520	6000											
	1732.67	115060	1.0	5198/3	6000											
	1552.98	115060	1.1	628958/405	6000											
	1493.78	115060	1.2	873862/585	6000											
	1492.05	115060	1.2	58190/39	6000											
	1337.70	115060	1.3	140459/105	6000											
	1302.43	115060	1.3	6857312/5265	6000											
	1172.32	115060	1.5	675257/576	6000											
	1151.94	115060	1.5	314479/273	6000											
	1121.89	115060	1.6	218768/195	6000											
	1022.15	115060	1.7	331177/324	6000											
	966.09	115060	1.8	489808/507	6000											
	904.76	115060	1.9	1628561/1800	6000											
	880.46	115060	2.0	21131/24	6000											
	788.86	115060	2.2	1597442/2025	6000											
	758.19	115060	2.3	236555/312	6000											
	748.37	115060	2.3	22451/30	6000											
	679.51	115060	2.6	50963/75	6000											
	652.50	115060	2.7	88088/135	6000											
	636.55	115060	2.7	198605/312	6000											
	585.14	115060	3.0	114103/195	6000											
	562.05	115060	3.1	64636/115	6000											
	555.01	115060	3.2	194810/351	6000											
	551.68	115060	3.2	39721/72	5600											
	484.00	115060	3.6	484/1	6000											
	481.01	115060	3.6	38962/81	5600											
	478.08	115060	3.7	6215/13	6000											
	465.86	115060	3.8	754699/1620	5000											
	449.23	115060	3.9	754699/1680	4800											
	414.33	115060	4.2	1243/3	5600											
	411.69	115060	4.3	69575/169	6000											
	406.19	115060	4.3	1480556/3645	5000											
	391.68	115060	4.5	52877/135	4800											
	383.78	115060	4.6	3454/9	4400											
	356.79	115060	4.9	13915/39	5600											
	349.88	115060	5.0	47234/135	5000											
	337.39	115060	5.2	23617/70	4800											
	334.62	115060	5.2	27104/81	4400											
301.29	115060	5.8	105754/351	5000												
290.53	115060	6.0	52877/182	4800												
288.23	115060	6.1	19888/69	4400												
248.21	115060	7.1	9680/39	4400												

Legend see page 253

Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub> [rpm]	Adapter size									n <sub>1max</sub> [rpm]	Input shaft [mm]								
			S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	19x40	24x50	28x60	38x80	42x110	48x110	55x110	
F124	2307.03	5000											3000								
	2011.51	5000											3000								
	1781.14	5000											2500								
	1732.67	5000											3000								
	1552.98	5000											2500								
	1493.78	5000											2500								
	1492.05	5000											3000								
	1337.70	5000											2500								
	1302.43	5000											2500								
	1172.32	5000											2500								
	1151.94	5000											2500								
	1121.89	5000											2500								
	1022.15	5000											2500								
	966.09	5000											2500								
	904.76	5000											2500								
	880.46	5000											2500								
	788.86	5000											2500								
	758.19	5000											2500								
	748.37	5000											2500								
	679.51	5000											2500								
	652.50	5000											2500								
	636.55	5000											2500								
	585.14	5000											2500								
	562.05	5000											2500								
	555.01	5000											2500								
	551.68	5000											2500								
	484.00	5000											2500								
	481.01	5000											2500								
	478.08	5000											2500								
	465.86	4800											2500								
	449.23	4600											2500								
	414.33	5000											2500								
	411.69	5000											2500								
	406.19	4800											2500								
	391.68	4600											2500								
	383.78	4200											2500								
	356.79	5000											2500								
	349.88	4800											2500								
	337.39	4600											2500								
	334.62	4200											2500								
301.29	4800											2500									
290.53	4600											2500									
288.23	4200											2500									
248.21	4200											2500									

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size																	
						63	71	80	90	100	112	132	160	180	200	225	250	-					
		IEC adapter																					
		163	171	180	190	1100	1112	1132	1160	1180	1200	1225	1250	1280									
		NEMA adapter																					
N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-													
[lb-in]	[rpm]	[rpm]	[rpm]																				
<b>F152</b>	36.54	136461	48	1023/28	3900																		
2 stages	27.85	159313	63	10137/364	3100																		
	23.38	159313	75	4092/175	2700																		
	19.24	159313	91	558/29	2300																		
	17.35	64787	101	451/26	3900																		
	16.37	159313	107	6417/392	2100																		
	14.14	159313	124	99/7	1900																		
Maximum torque 159313 lb-in	13.22	86782	132	4469/338	3100																		
	12.31	159313	142	837/68	1700																		
	11.10	97695	158	3608/325	2700																		
	9.14	97137	192	3444/377	2300																		
	7.77	97695	225	2829/364	2100																		
	6.71	97695	261	2706/403	1900																		
	5.84	97695	299	2583/442	1700																		
<b>F153</b>	259.81	159313	6.7	5456/21	5000																		
3 stages	223.77	159313	7.8	828630/3703	4400																		
	193.55	159313	9.0	405108/2093	3900																		
	170.73	159313	10	632214/3703	3500																		
	146.63	159313	12	306900/2093	3100																		
	144.52	159313	12	118358/819	5000																		
	124.47	159313	14	1042065/8372	4400																		
n <sub>1</sub> =1750 rpm	122.00	159313	14	98208/805	2700																		
	107.66	159313	16	254727/2366	3900																		
	101.23	159313	17	67518/667	2300																		
	94.97	159313	18	795057/8372	3500																		
Maximum torque 159313 lb-in	84.42	159313	21	95139/1127	2100																		
	81.56	159313	21	192975/2366	3100																		
	72.56	159313	24	11682/161	1900																		
	67.86	159313	26	30876/455	2700																		
	62.79	159313	28	24552/391	1700																		
	56.31	159313	31	84909/1508	2300																		
	46.96	159313	37	239289/5096	2100																		
40.36	159313	43	14691/364	1900																			
34.93	159313	50	7719/221	1700																			

Legend see page 253



Type	i	SERVO adapter										Input unit									
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110
F152	36.54	-												2500							
	27.85	-												1800							
	23.38	-												1800							
	19.24	-												1800							
	17.35	-												2500							
	16.37	-												1800							
	14.14	-												1800							
	13.22	-												1800							
	12.31	-												1700							
	11.10	-												1800							
	9.14	-												1800							
	7.77	-												1800							
	6.71	-												1800							
5.84	-												1700								
F153	259.81	-												2500							
	223.77	-												2500							
	193.55	-												2500							
	170.73	-												1800							
	146.63	-												1800							
	144.52	-												2500							
	124.47	-												2500							
	122.00	-												1800							
	107.66	-												2500							
	101.23	-												1800							
	94.97	-												1800							
	84.42	-												1800							
	81.56	-												1800							
	72.56	-												1800							
	67.86	-												1800							
	62.79	-												1700							
	56.31	-												1800							
46.96	-												1800								
40.36	-												1800								
34.93	-												1700								

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		63	171	180	190	1100	1112	1132	1160	1180	1200	-	-	-			
NEMA adapter																	
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	-	-	-	
<b>F154</b>	2318.30	159313	0.8	632896/273	6000												
	1996.74	159313	0.9	96121080/48139	6000												
	1834.90	159313	1.0	38533/21	6000												
	1727.10	159313	1.0	46992528/27209	6000												
	1602.16	159313	1.1	100936/63	6000												
	1580.39	159313	1.1	46817595/29624	6000												
	1415.96	159313	1.2	148676/105	6000												
	1379.93	159313	1.3	5109885/3703	6000												
	1366.97	159313	1.3	11444301/8372	6000												
	1219.56	159313	1.4	9032067/7406	6000												
	1197.38	159313	1.5	578336/483	6000												
	1193.58	159313	1.5	2498166/2093	6000												
	1054.87	159313	1.7	11039193/10465	6000												
	1031.30	159313	1.7	87834780/85169	6000												
	1029.25	159313	1.7	280984/273	6000												
	898.51	159313	1.9	56606/63	5600												
	892.03	159313	2.0	42941448/48139	6000												
4 stages	886.48	159313	2.0	42674445/48139	6000												
n <sub>1</sub> =1750 rpm	773.88	159313	2.3	11462715/14812	5600												
	769.81	159313	2.3	436480/567	5000												
	766.77	159313	2.3	20863062/27209	6000												
Maximum torque 159313 lb-in	742.31	159313	2.4	109120/147	4800												
	669.37	159313	2.6	2801997/4186	5600												
	663.03	159313	2.6	2455200/3703	5000												
	655.17	159313	2.7	316448/483	4400												
	639.35	159313	2.7	16572600/25921	4800												
	573.49	159313	3.1	1200320/2093	5000												
	564.30	159313	3.1	48060540/85169	4400												
	553.01	159313	3.2	8102160/14651	4800												
	549.60	159313	3.2	150040/273	3900												
	488.09	159313	3.6	23496264/48139	4400												
	473.37	159313	3.7	22787325/48139	3900												
	463.14	159313	3.8	223696/483	3500												
	409.44	159313	4.3	11140470/27209	3900												
	398.90	159313	4.4	33973830/85169	3500												
	379.72	159313	4.6	103664/273	3100												
	345.03	159313	5.1	16609428/48139	3500												
	327.05	159313	5.4	15743970/48139	3100												
	282.89	159313	6.2	7697052/27209	3100												

Legend see page 253

Type	i	SERVO adapter										Input unit								
		n <sub>1max</sub> [rpm]	Adapter size									n <sub>1max</sub> [rpm]	Input shaft [mm]							
			S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>F154</b>	2318.30	5000											2500							
	1996.74	5000											2500							
	1834.90	5000											2500							
	1727.10	5000											2500							
	1602.16	5000											2500							
	1580.39	5000											2500							
	1415.96	5000											2500							
	1379.93	5000											2500							
	1366.97	5000											2500							
	1219.56	5000											2500							
	1197.38	5000											2500							
	1193.58	5000											2500							
	1054.87	5000											2500							
	1031.30	5000											2500							
	1029.25	5000											2500							
	898.51	5000											2500							
	892.03	5000											2500							
	886.48	5000											2500							
	773.88	5000											2500							
	769.81	4900											2500							
	766.77	5000											2500							
	742.31	4700											2500							
	669.37	5000											2500							
	663.03	4900											2500							
	655.17	4300											2500							
	639.35	4700											2500							
	573.49	4900											2500							
	564.30	4300											2500							
	553.01	4700											2500							
	549.60	3800											2500							
	488.09	4300											2500							
	473.37	3800											2500							
	463.14	3500											2500							
	409.44	3800											2500							
	398.90	3500											2500							
	379.72	-											2500							
	345.03	3500											2500							
	327.05	-											2500							
	282.89	-											2500							

F

Legend see page 253

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size																
						IEC adapter																
		NEMA adapter																				
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-								
<b>F155</b>	24805.81	159313	0.1	33859936/1365	6000																	
	20285.13	159313	0.1	791120/39	6000																	
5 stages n <sub>1</sub> =1750 rpm	17143.10	159313	0.1	5400076/315	6000																	
	16017.35	159313	0.1	4372736/273	6000																	
	14018.89	159313	0.1	126170/9	6000																	
	12419.47	159313	0.1	7911200/637	6000																	
	11069.46	159313	0.2	697376/63	6000																	
	10164.86	159313	0.2	12025024/1183	6000																	
	8582.99	159313	0.2	1261700/147	6000																	
	7824.26	159313	0.2	712008/91	6000																	
	7024.85	159313	0.2	1917784/273	6000																	
	5911.67	159313	0.3	2689808/455	6000																	
	5407.29	159313	0.3	37851/7	6000																	
	4838.19	159313	0.4	10126336/2093	6000																	
	Maximum torque 159313 lb-in	4085.50	159313	0.4	428978/105	6000																
		3923.28	159313	0.4	13923712/3549	6000																
3343.64		159313	0.5	1614976/483	6000																	
3284.26		159313	0.5	2689808/819	5600																	
2711.35		159313	0.6	2220592/819	6000																	
2661.75		159313	0.7	19619776/7371	5000																	
2566.69		159313	0.7	4904944/1911	4800																	
2269.72		159313	0.8	428978/189	5600																	
1839.52	159313	1.0	3129016/1701	5000																		
1773.82	159313	1.0	782254/441	4800																		

Legend see page 253

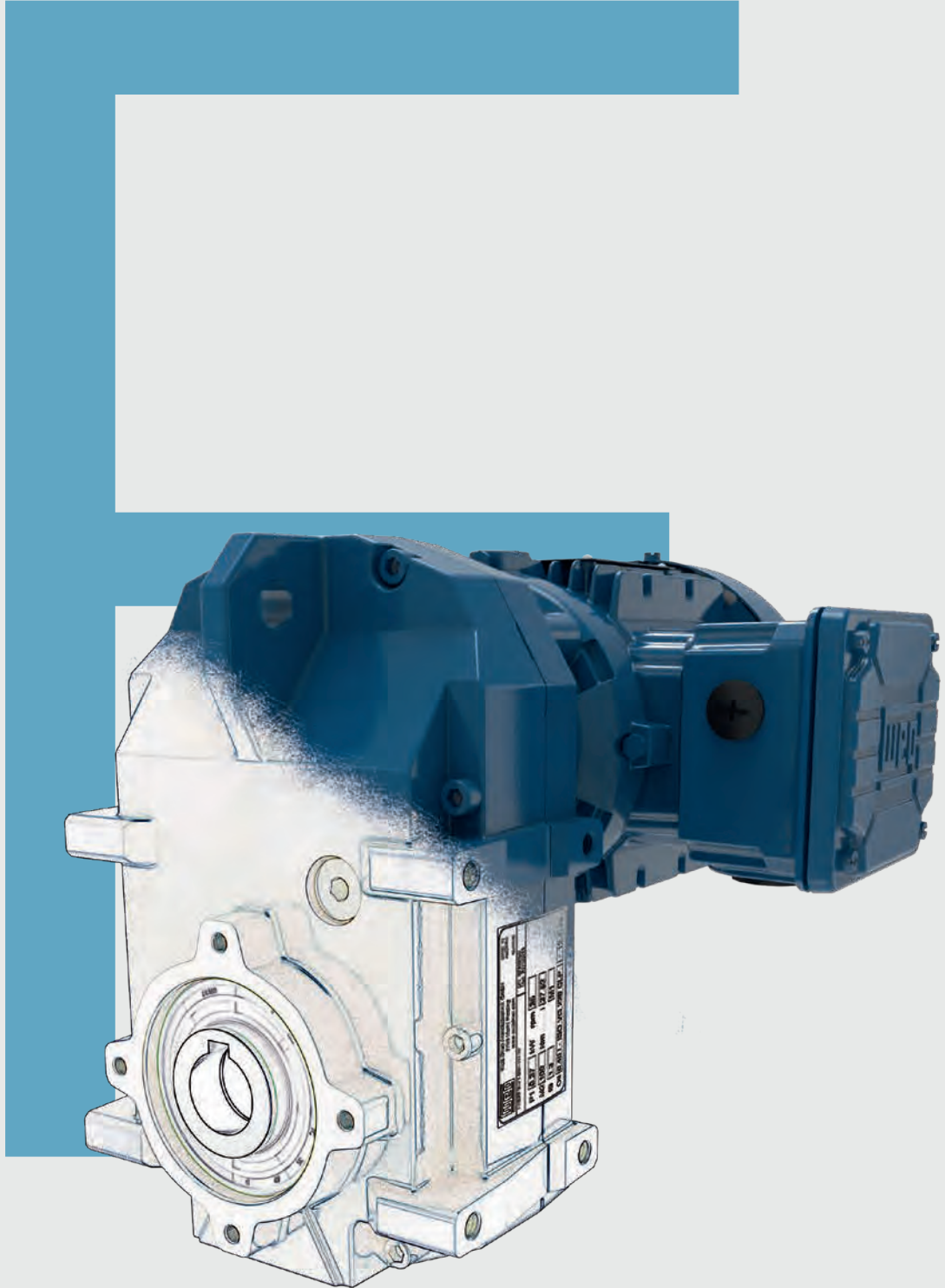
Type	i	SERVO adapter										Input unit																				
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]																		
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110										
<b>F155</b>	24805.81	5000																				3000										
	20285.13	5000																				3000										
	17143.10	5000																				3000										
	16017.35	5000																				3000										
	14018.89	5000																				3000										
	12419.47	5000																				3000										
	11069.46	5000																				3000										
	10164.86	5000																				3000										
	8582.99	5000																				3000										
	7824.26	5000																				3000										
	7024.85	5000																				3000										
	5911.67	5000																				3000										
	5407.29	5000																				3000										
	4838.19	5000																				3000										
	4085.50	5000																				3000										
	3923.28	5000																				3000										
	3343.64	5000																				3000										
	3284.26	5000																				3000										
	2711.35	5000																				3000										
	2661.75	4900																				3000										
	2566.69	4700																				3000										
	2269.72	5000																				3000										
	1839.52	4900																				3000										
	1773.82	4700																				3000										



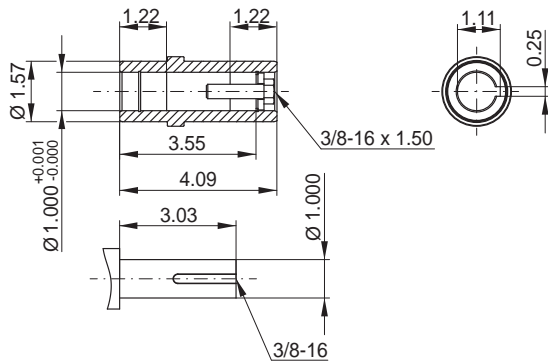
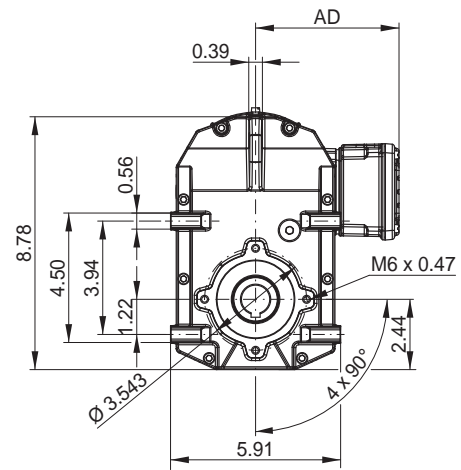
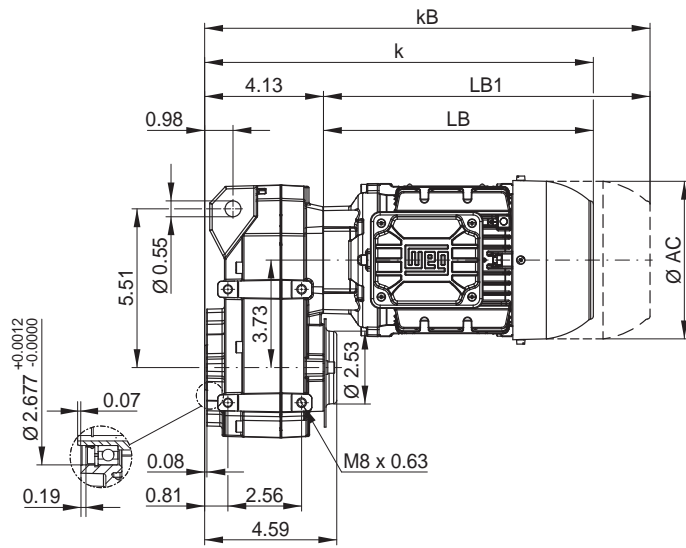
Legend see page 253



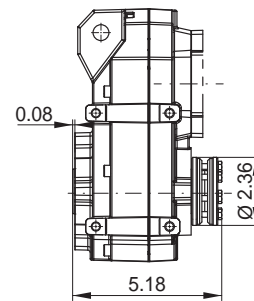
# Dimension sheets - Geared motors



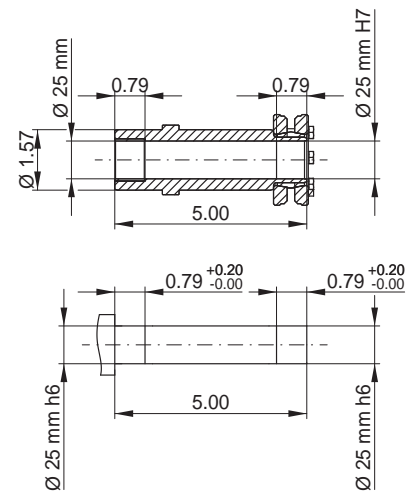
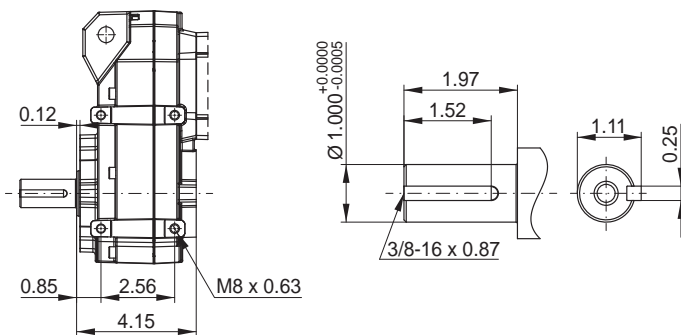
## FH02 - Hollow shaft



## FD02 - Shrink disc \*



## FS02 - Output shaft



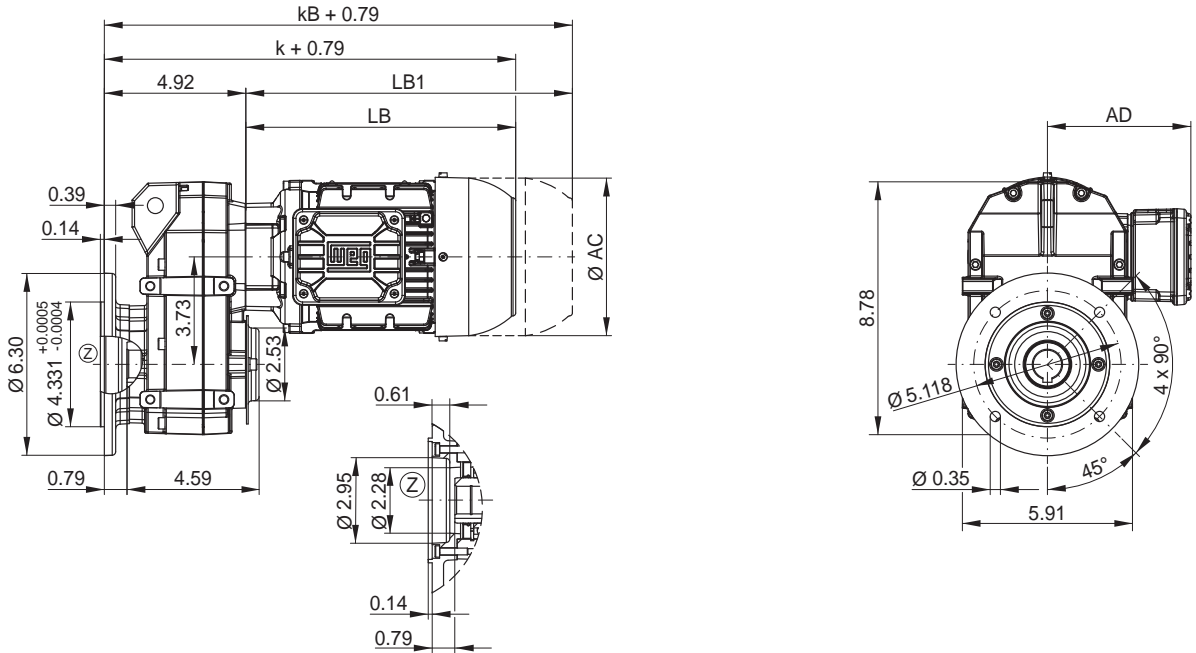
Motor fr.	63	71	80	L80	90S/L
AC	4.96	5.55	6.26	6.26	7.01
AD	5.04	5.35	5.71	5.71	6.10
k	12.17	13.50	13.82	14.76	15.47
kB	13.90	15.43	16.10	17.05	18.35
LB	8.03	9.37	9.69	10.63	11.34
LB1	9.76	11.30	11.97	12.91	14.21

Motor dimension sheets see page 488

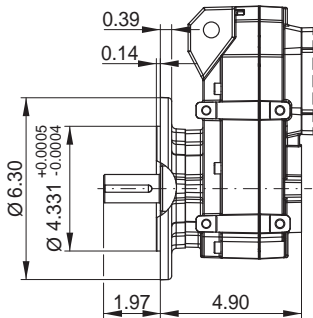
Description of motor lengths LB and LB1 see page 492



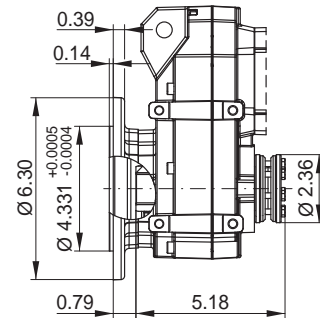
**FO02 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft**



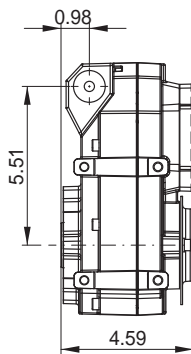
**FF02 - Flange execution Ø 6.30 in (Ø 160 mm) with output shaft**



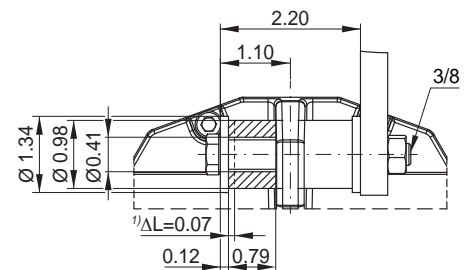
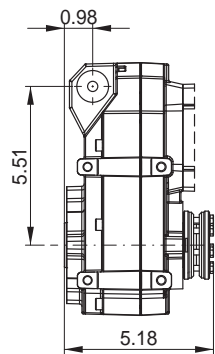
**FP02 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft and shrink disc \***



**FT02 - Hollow shaft with rubber buffer**



**FU02 - Hollow shaft with shrink disc \* and rubber buffer**

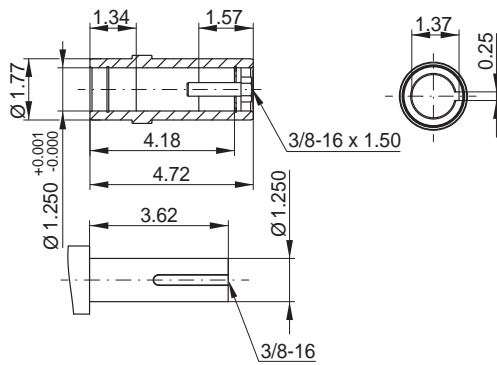
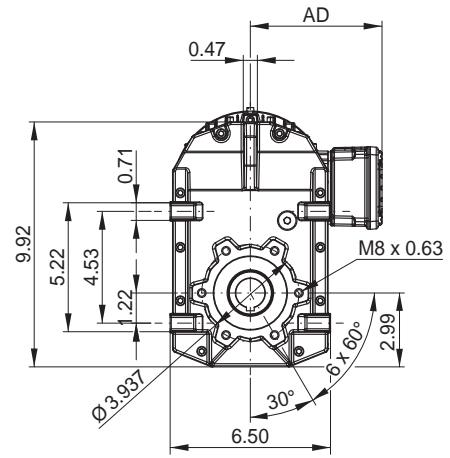
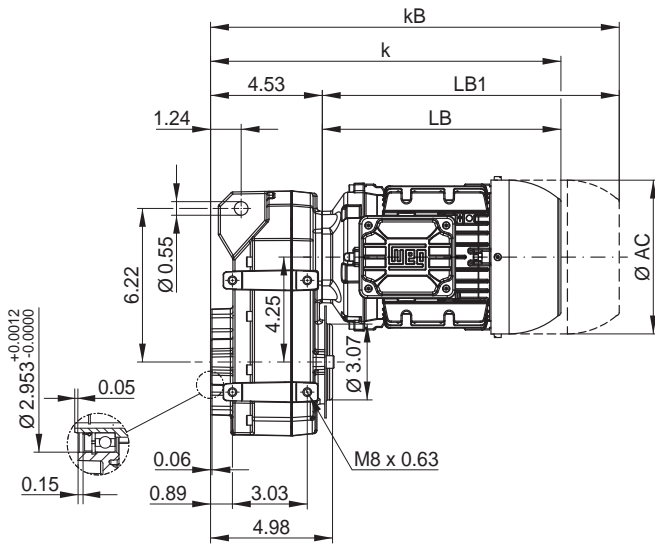


Dimensions in inch.

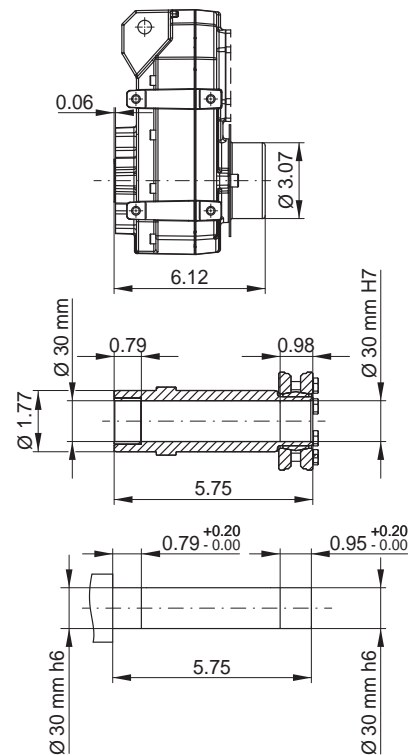
\* Shrink disc only in combination with motor frame sizes 63 and 71  
Protection cap for shrink disc never possible

1) Preloaded state

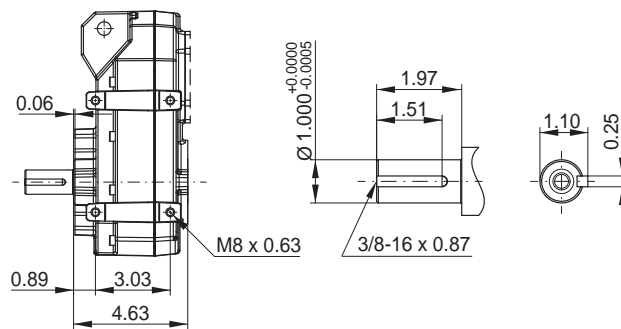
### FH03 - Hollow shaft



### FD03 - Shrink disc \*



### FS03 - Output shaft

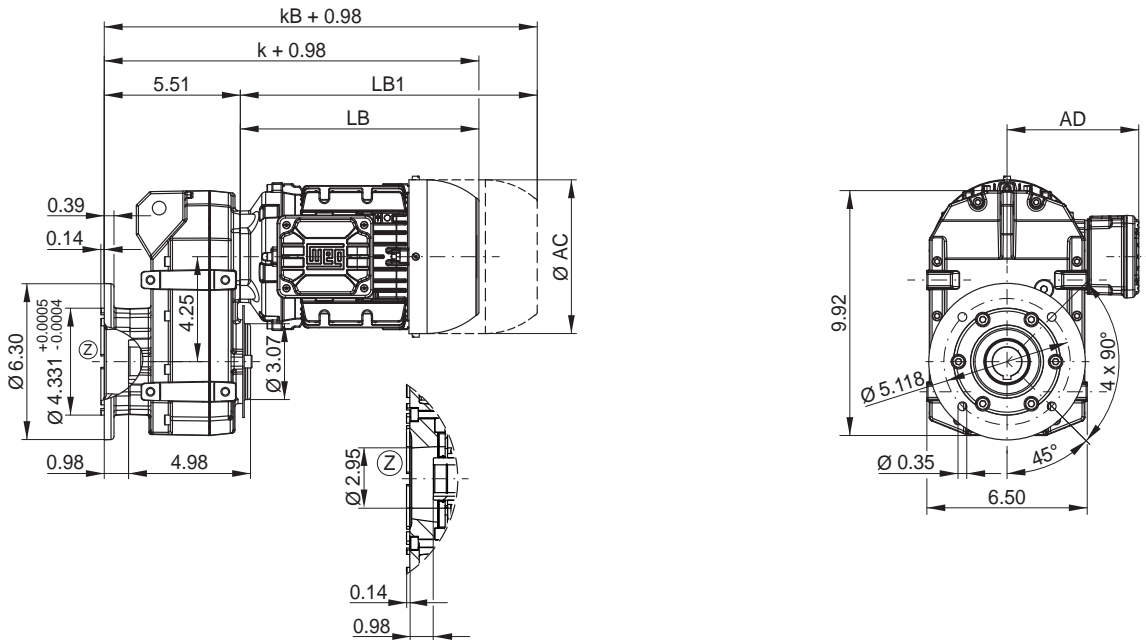


Motor fr.	63	71	80	L80	90S/L	100L	L100L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50
k	12.56	13.90	14.21	15.16	15.87	17.83	19.33
kB	14.29	15.83	16.50	17.44	18.74	21.14	22.64
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11

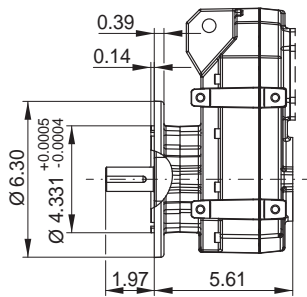
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

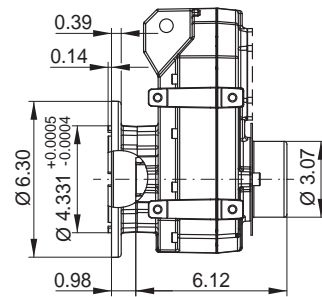
**FO03 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft**



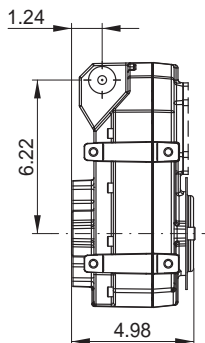
**FF03 - Flange execution Ø 6.30 in (Ø 160 mm) with output shaft**



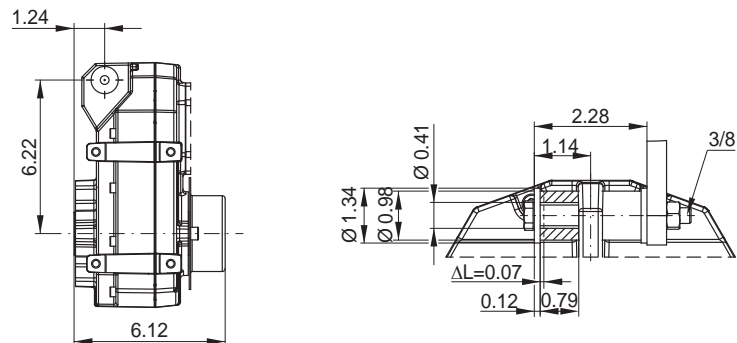
**FP03 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft and shrink disc \***



**FT03 - Hollow shaft with rubber buffer**



**FU03 - Hollow shaft with shrink disc \* and rubber buffer**

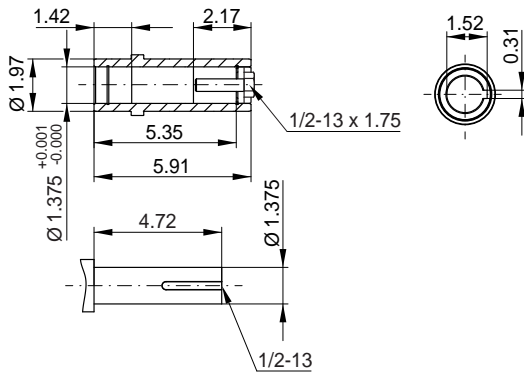
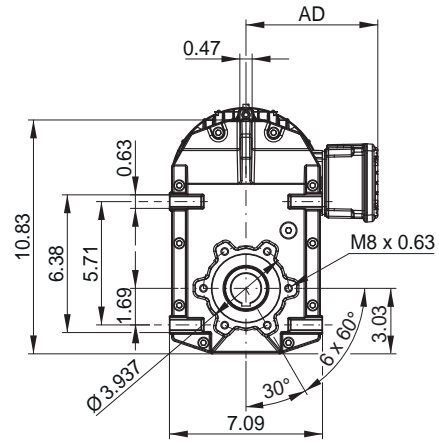
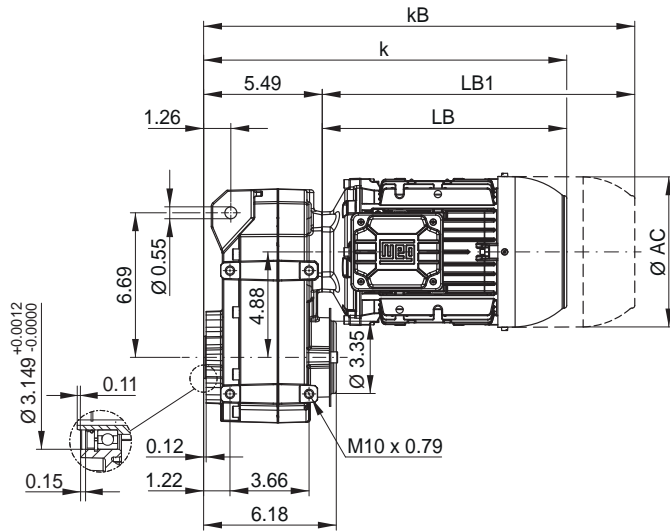


Dimensions in inch.

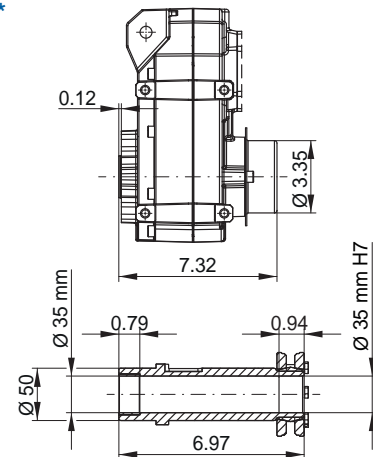
\* Shrink disc only in combination with motor frame sizes 63 and 71

1) Preloaded state

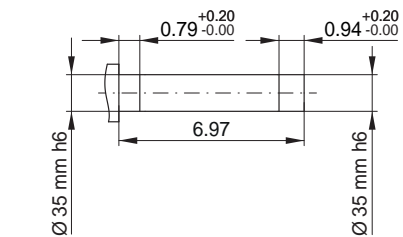
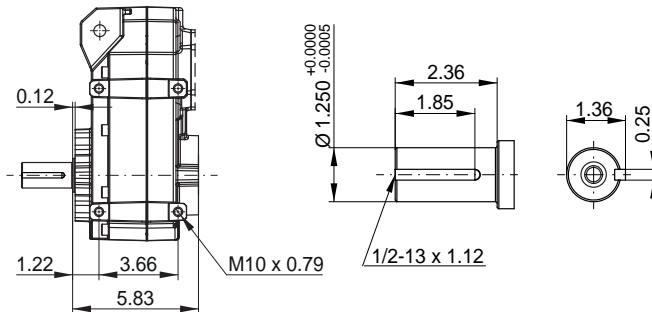
### FH04 - Hollow shaft



### FD04 - Shrink disc \*



### FS04 - Output shaft

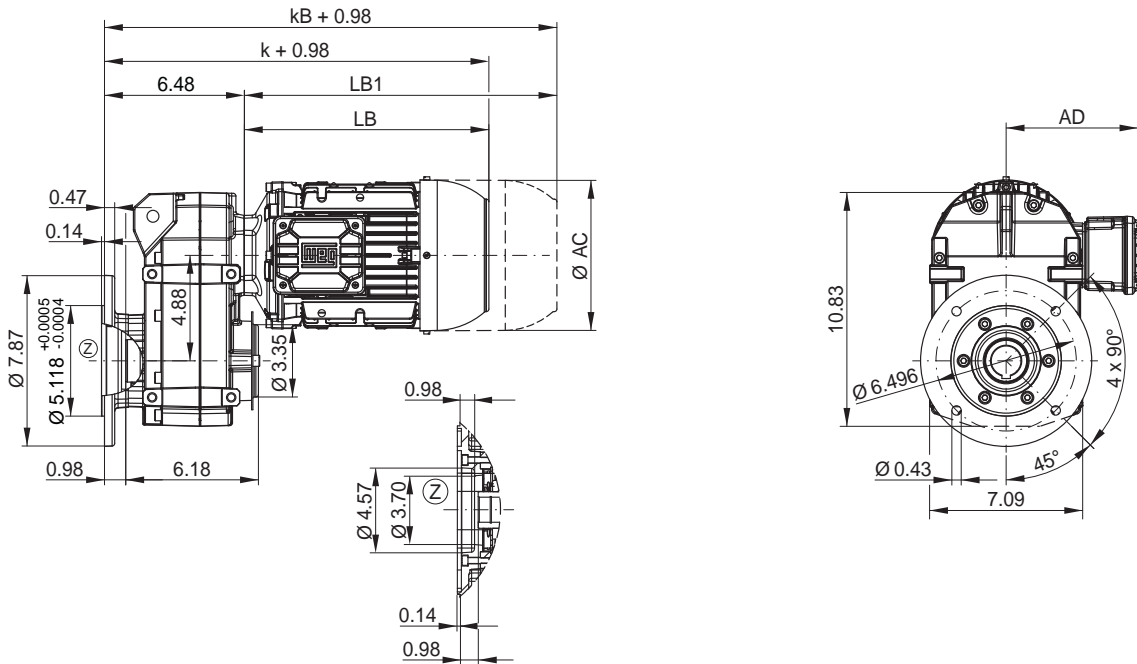


Motor fr.	63	71	80	L80	90S/L	100L	L100L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50
k	13.54	14.88	15.20	16.12	16.85	18.82	20.31
kB	15.28	16.81	17.48	18.41	19.72	22.13	23.62
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11

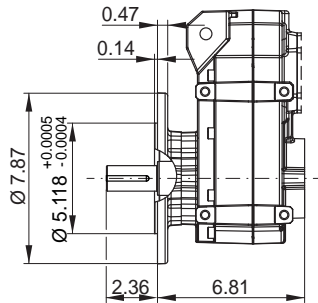
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

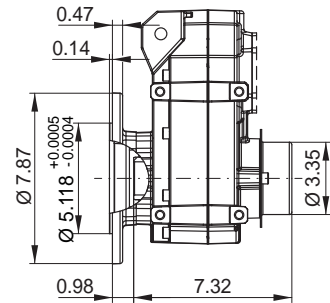
**FO04 - Flange execution  $\varnothing$  7.87 in ( $\varnothing$  200 mm) with hollow shaft**



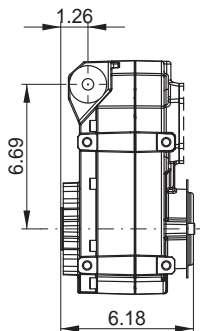
**FF04 - Flange execution  $\varnothing$  7.87 in ( $\varnothing$  200 mm) with output shaft**



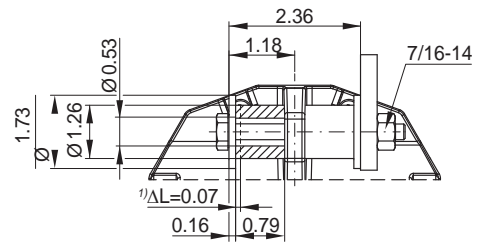
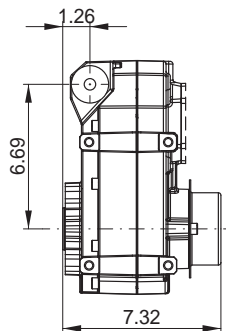
**FP04 - Flange execution  $\varnothing$  7.87 in ( $\varnothing$  200 mm) with hollow shaft and shrink disc \***



**FT04 - Hollow shaft with rubber buffer**



**FU04 - Hollow shaft with shrink disc \* and rubber buffer**

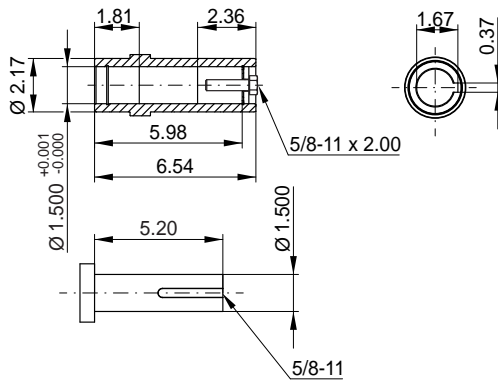
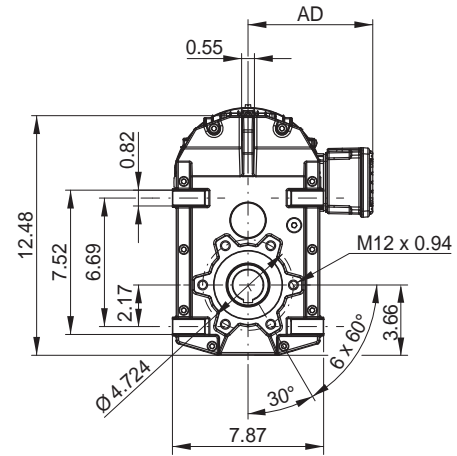
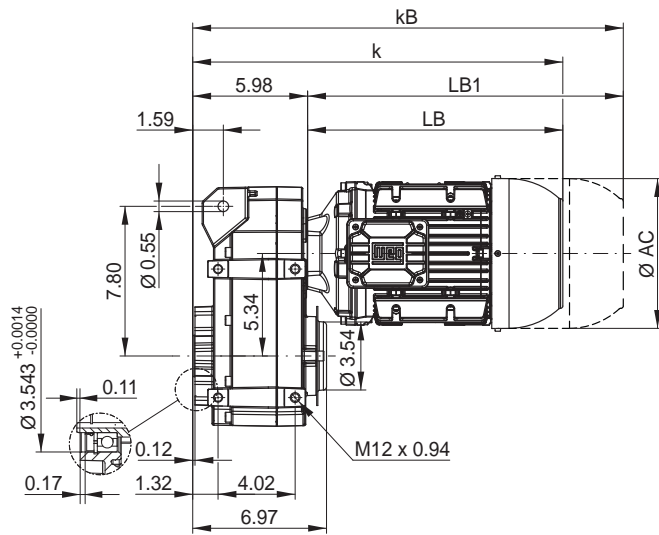


Dimensions in inch.

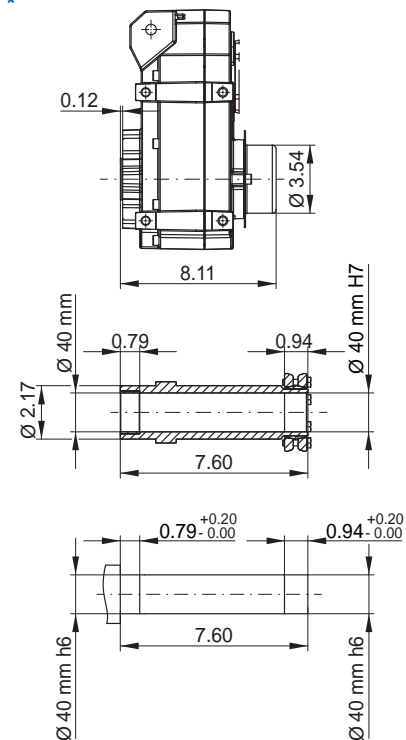
\* Shrink disc only in combination with motor frame sizes 63, 71 and 80

1) Preloaded state

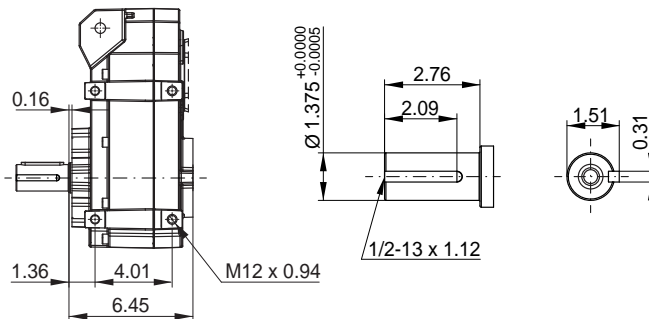
### FH05 - Hollow shaft



### FD05 - Shrink disc \*



### FS05 - Output shaft

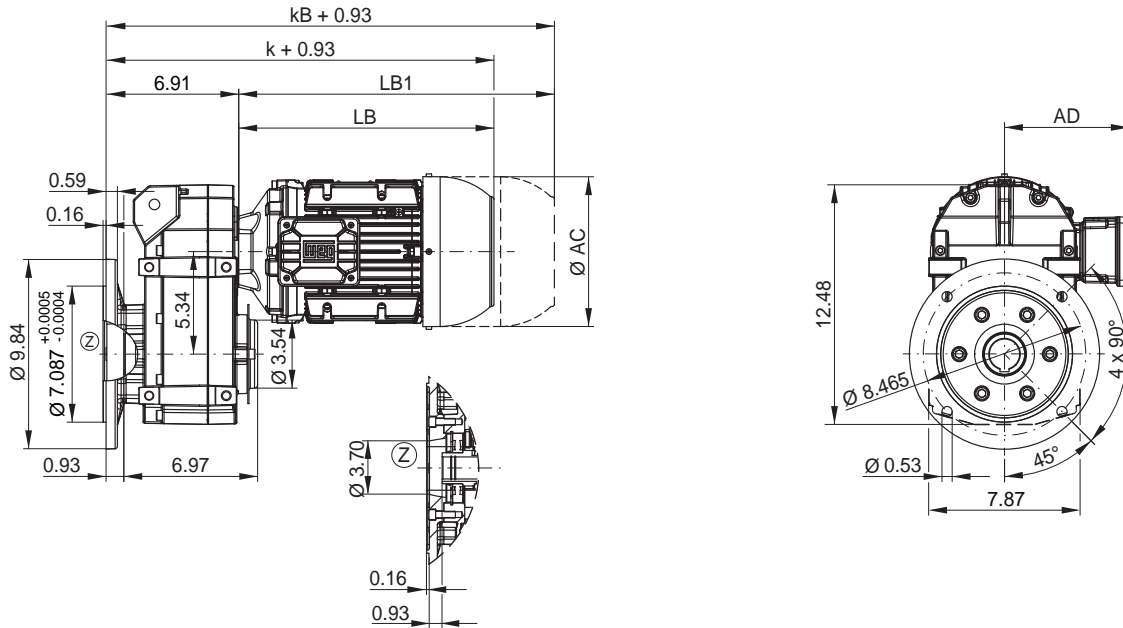


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	14.02	15.35	15.67	16.61	17.32	19.29	20.79	19.69	22.24	23.74
kB	15.75	17.28	17.95	18.90	20.20	22.60	24.09	23.11	26.89	28.39
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

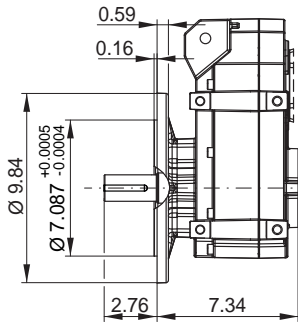
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

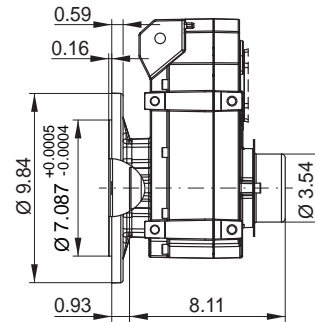
**FO05 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft**



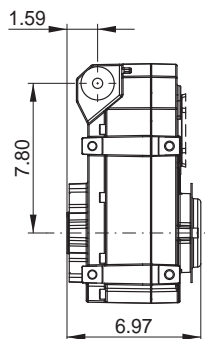
**FF05 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with output shaft**



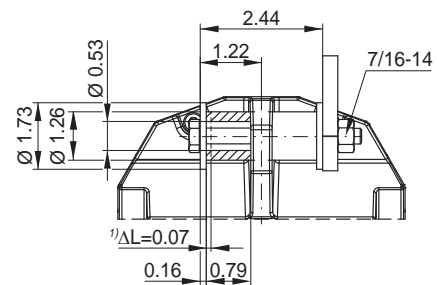
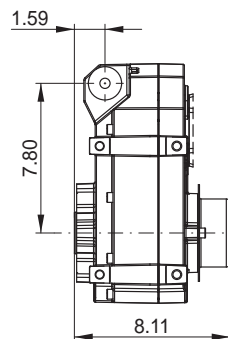
**FP05 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft and shrink disc \***



**FT05 - Hollow shaft with rubber buffer**



**FU05 - Hollow shaft with shrink disc \* and rubber buffer**

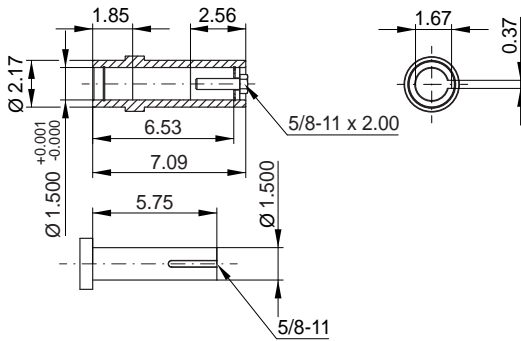
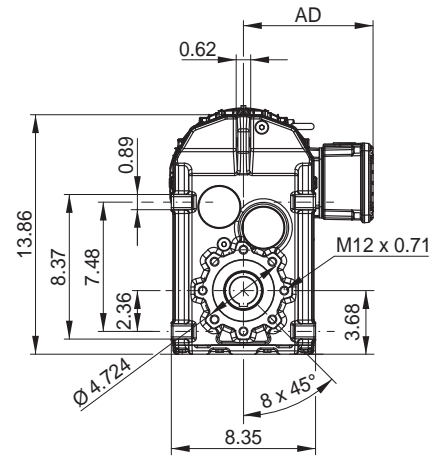
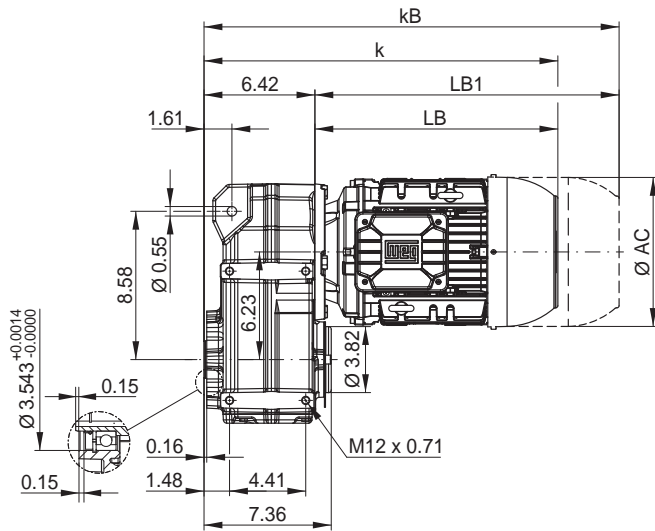


Dimensions in inch.

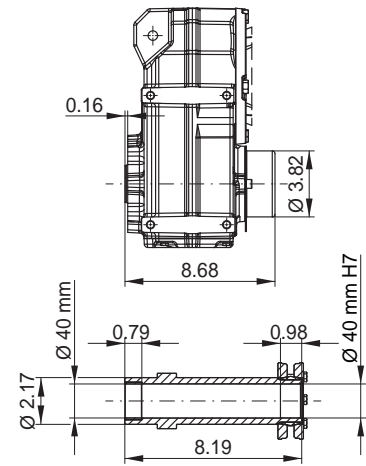
\* Shrink disc only in combination with motor frame sizes 63, 71, 80 and 90

1) Preloaded state

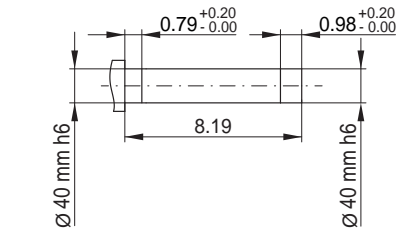
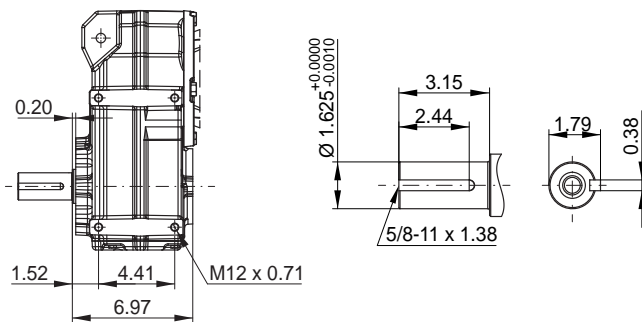
### FH06 - Hollow shaft



### FD06 - Shrink disc \*



### FS06 - Output shaft



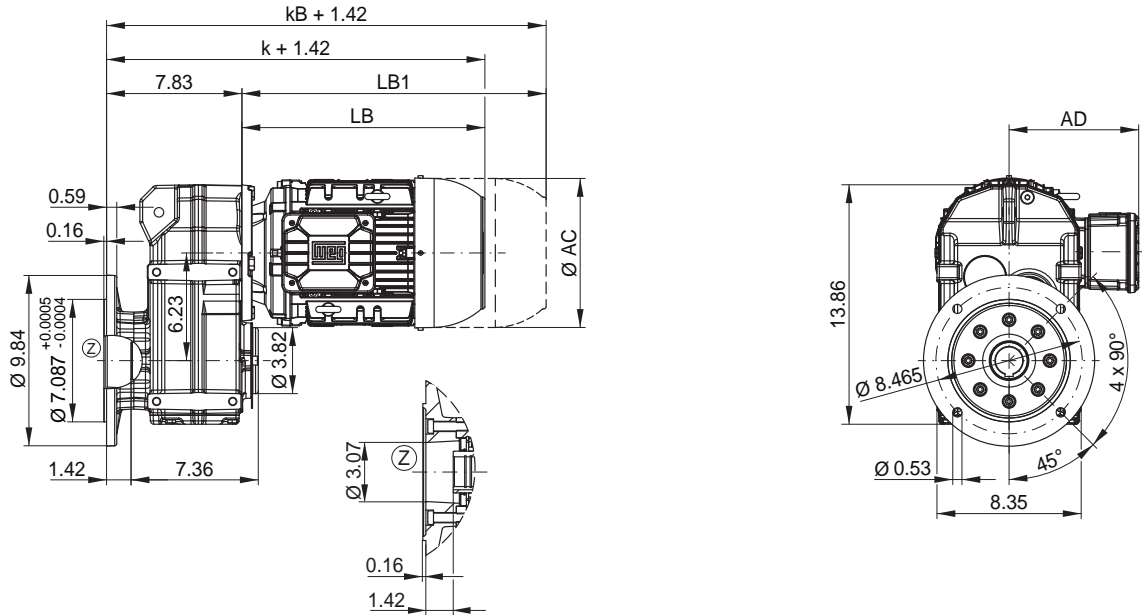
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	14.45	15.79	16.10	17.05	17.76	19.72	21.22	20.12	22.68	24.17	27.87	29.61
kB	16.18	17.72	18.39	19.33	20.63	23.03	24.53	23.54	27.32	28.82	32.76	34.49
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

Motor dimension sheets see page 488

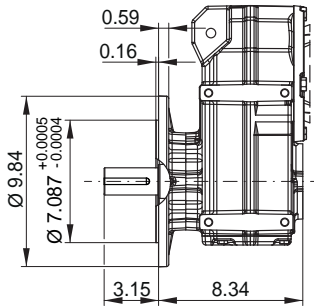
Description of motor lengths LB and LB1 see page 492



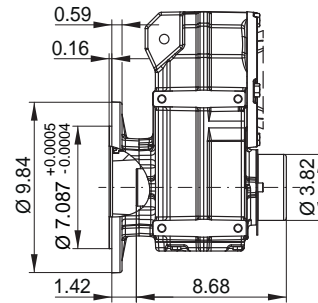
**FO06 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft**



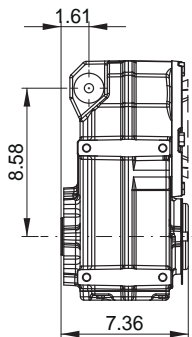
**FF06 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with output shaft**



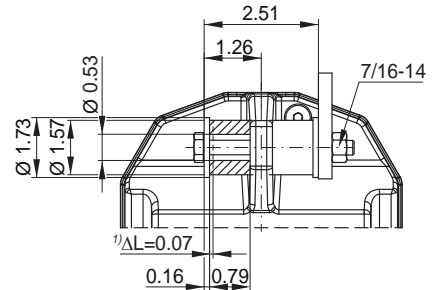
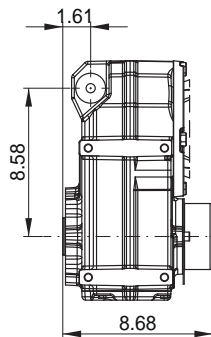
**FP06 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft and shrink disc \***



**FT06 - Hollow shaft with rubber buffer**



**FU06 - Hollow shaft with shrink disc \* and rubber buffer**

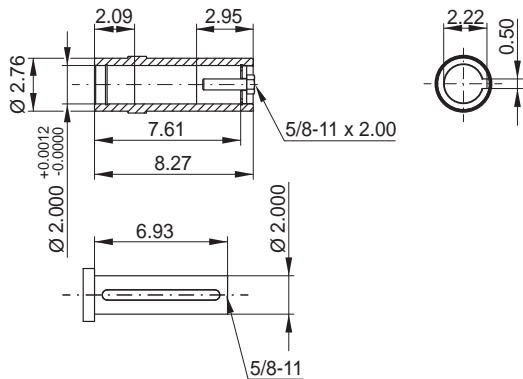
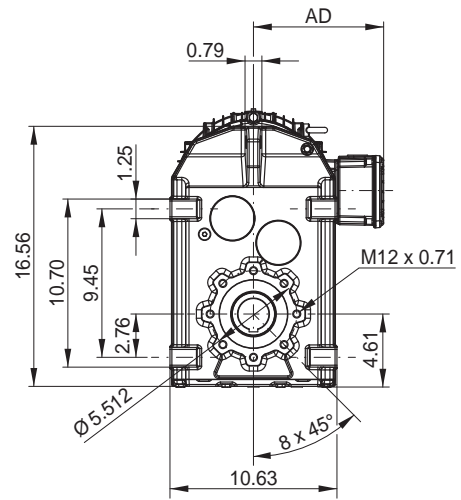
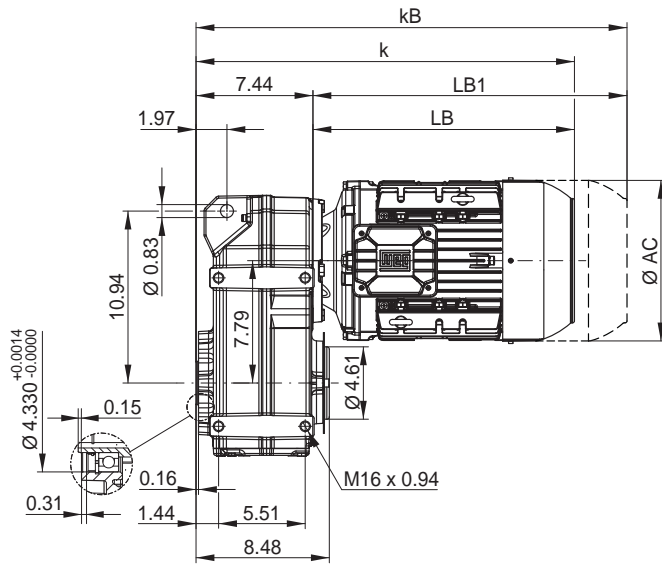


Dimensions in inch.

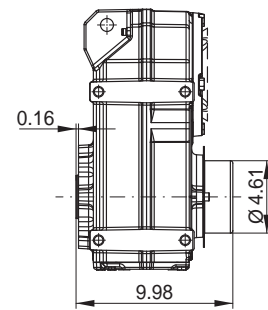
\* Shrink disc only in combination with motor frame sizes 63, 71, 80, 90, 100 and 112

1) Preloaded state

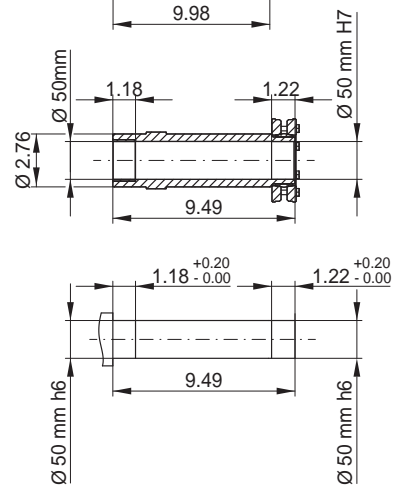
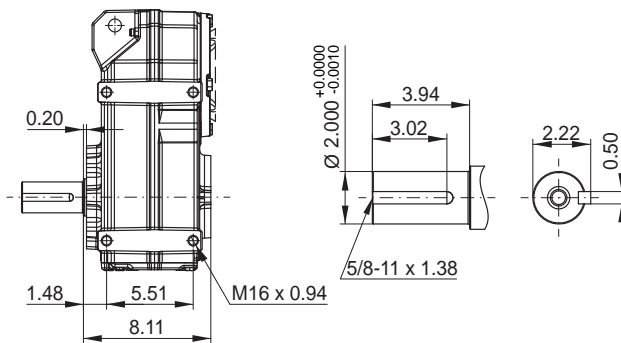
### FH07 - Hollow shaft



### FD07 - Shrink disc \*



### FS07 - Output shaft

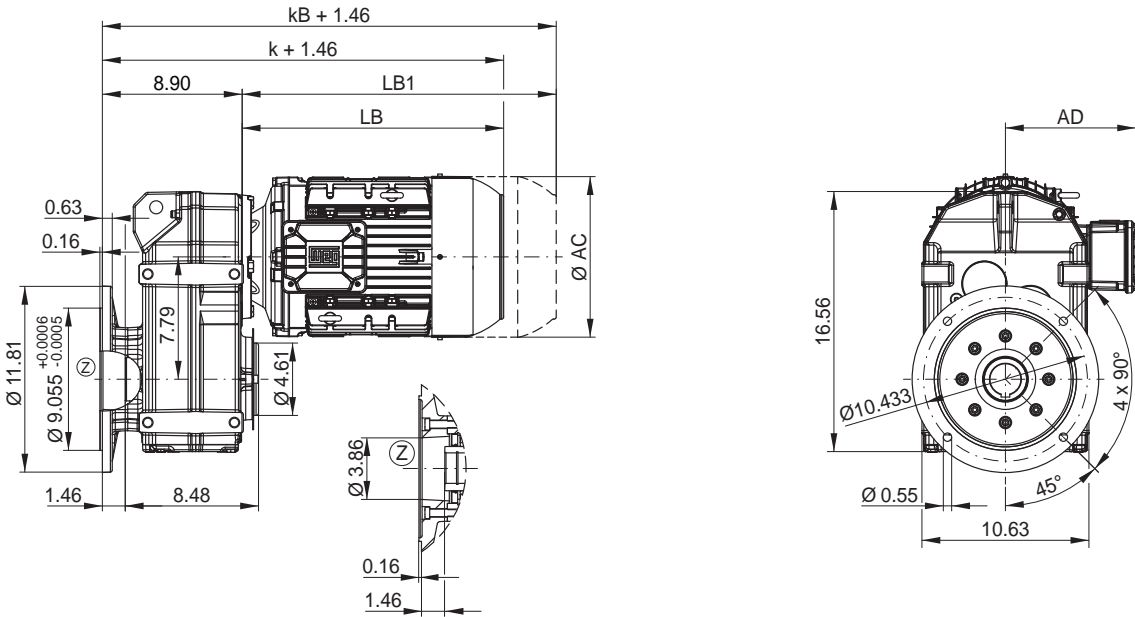


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	15.47	16.81	17.13	18.07	18.78	20.75	22.24	21.14	23.70	25.20	28.90	30.63
kB	17.20	18.74	19.41	20.35	21.65	24.06	25.55	24.57	28.35	29.84	33.78	35.51
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

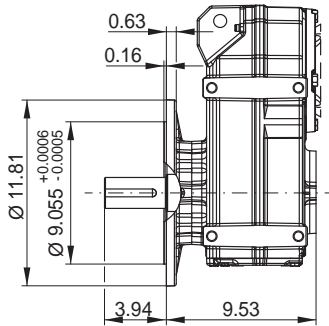
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

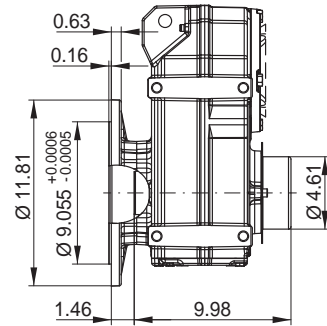
**FO07 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with hollow shaft**



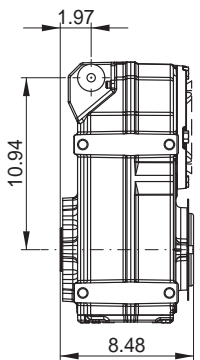
**FF07 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with output shaft**



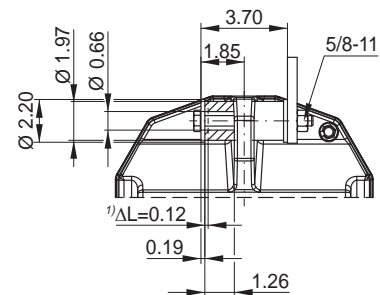
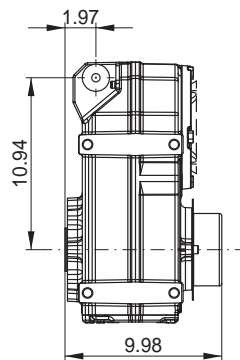
**FP07 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with hollow shaft and shrink disc \***



**FT07 - Hollow shaft with rubber buffer**



**FU07 - Hollow shaft with shrink disc \* and rubber buffer**

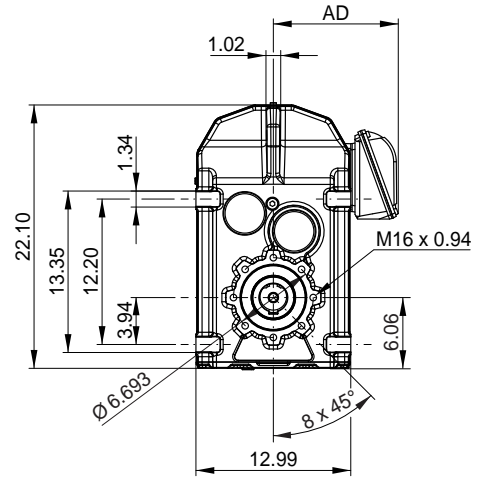
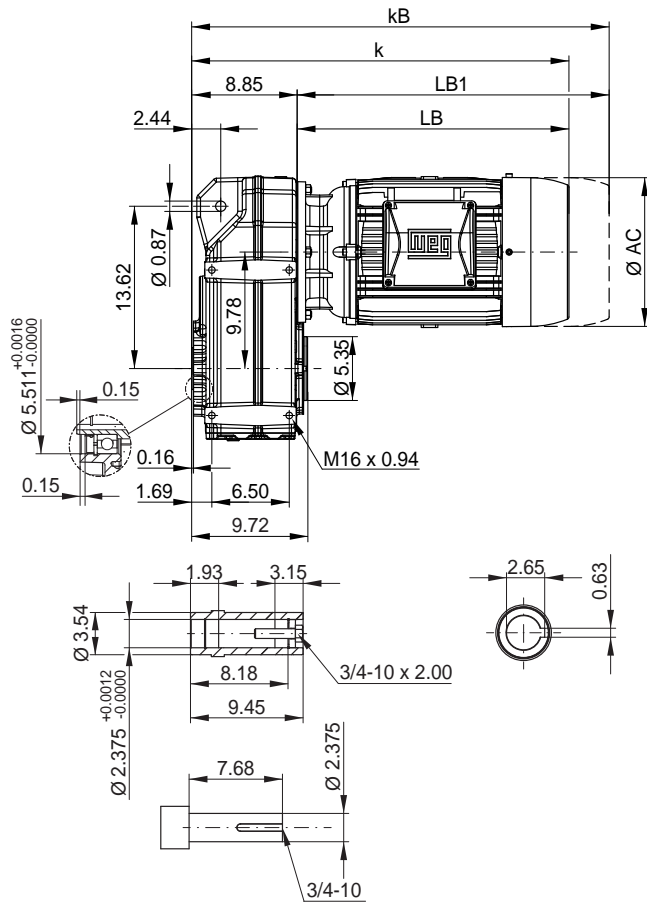


Dimensions in inch.

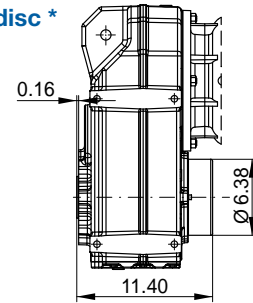
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

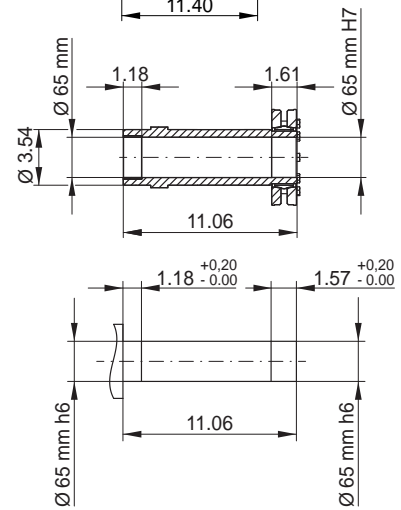
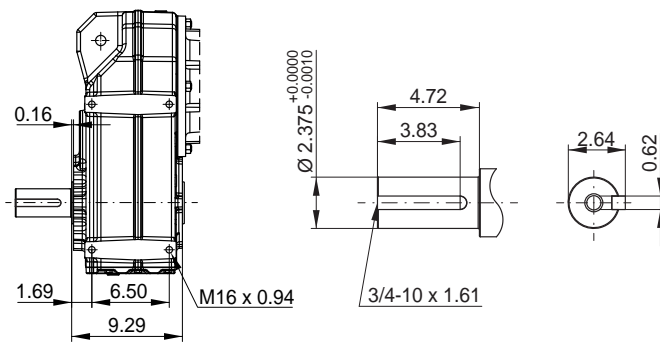
### FH082 / FH083 - Hollow shaft



### FD082 / FD083 - Shrink disc \*



### FS082 / FS083 - Output shaft

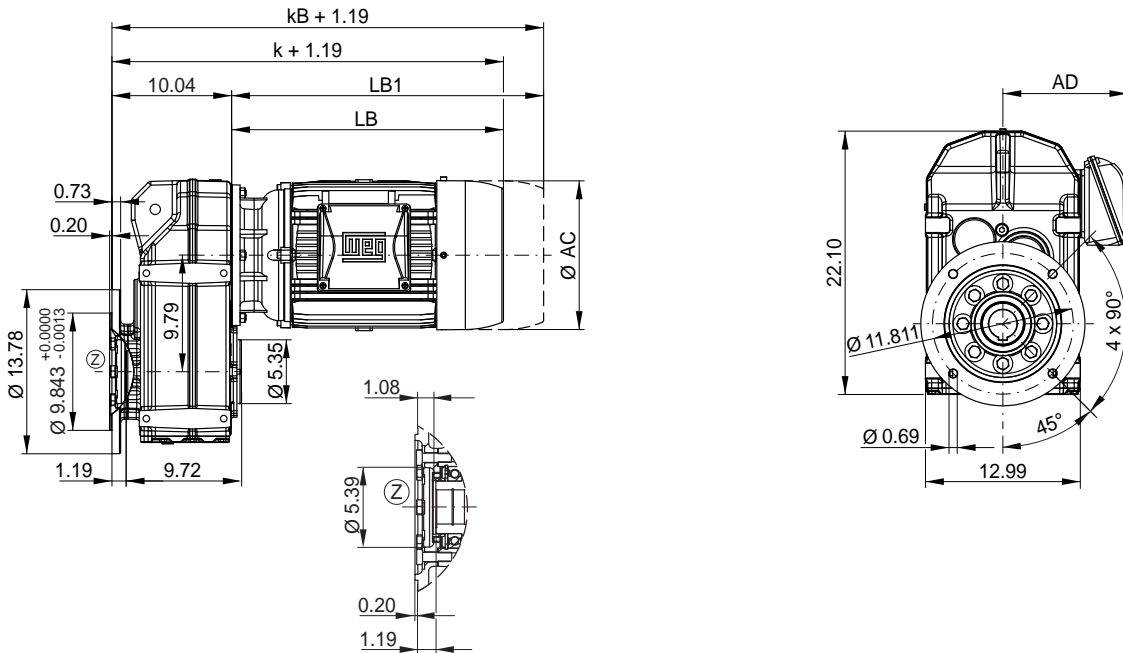


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06
k	16.89	18.23	18.54	19.47	20.20	22.17	23.66	22.56	25.12	26.61	29.92	31.65	32.60	34.09
kB	18.62	20.16	20.83	21.75	23.07	25.47	26.97	25.98	29.76	31.26	34.80	36.54	37.24	38.74
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88

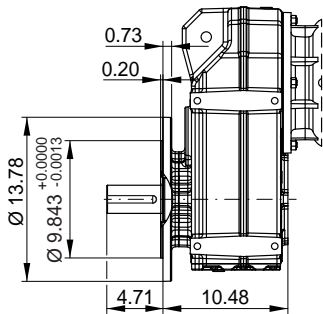
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

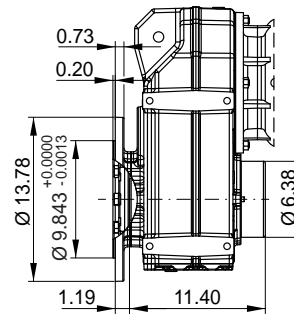
**FO082 / FO083 - Flange execution Ø 13.78 in (Ø 350 mm) with hollow shaft**



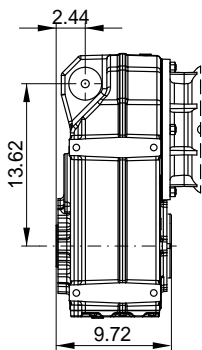
**FF082 / FF083 - Flange execution Ø 13.78 in (Ø 350 mm) with output shaft**



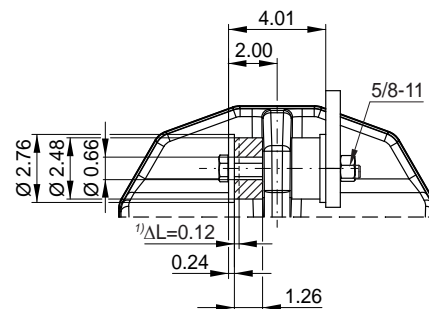
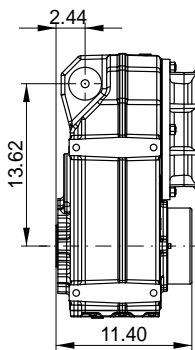
**FP082 / FP083 - Flange execution Ø 13.78 in (Ø 350 mm) with hollow shaft and shrink disc \***



**FT082 / FT083 - Hollow shaft with rubber buffer**



**FU082 / FU083 - Hollow shaft with shrink disc \* and rubber buffer**

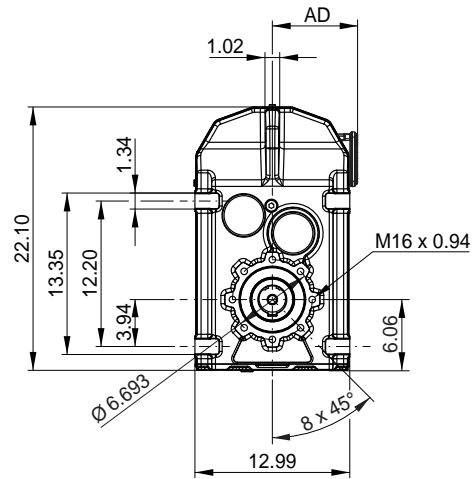
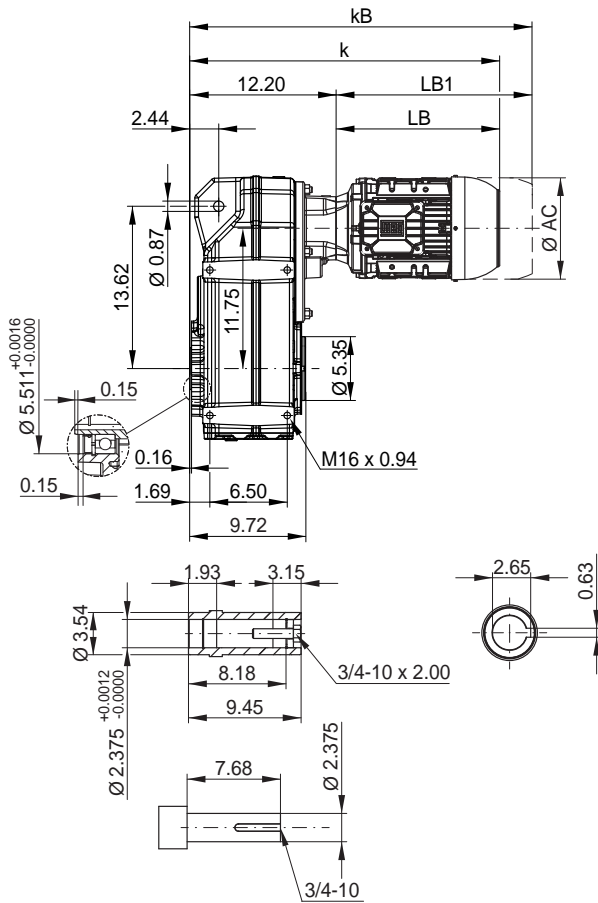


Dimensions in inch.

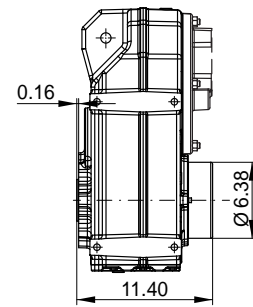
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

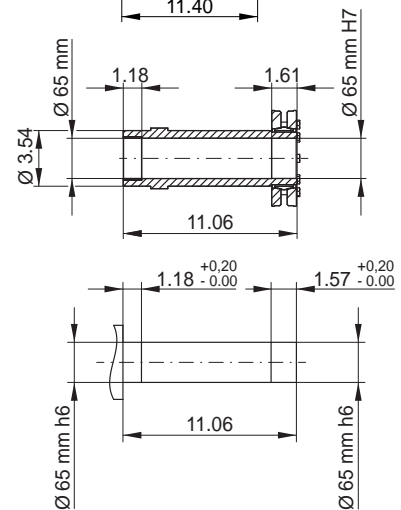
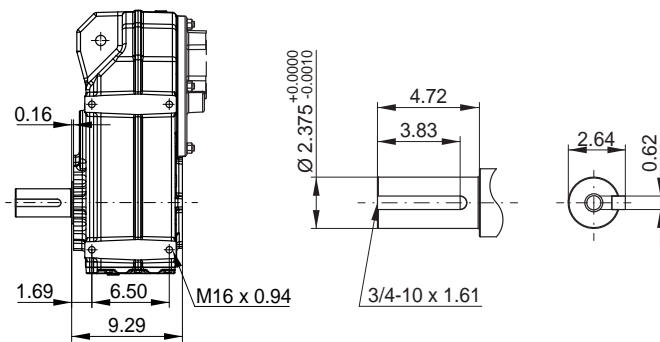
### FH084 - Hollow shaft



### FD084 - Shrink disc \*



### FS084 - Output shaft

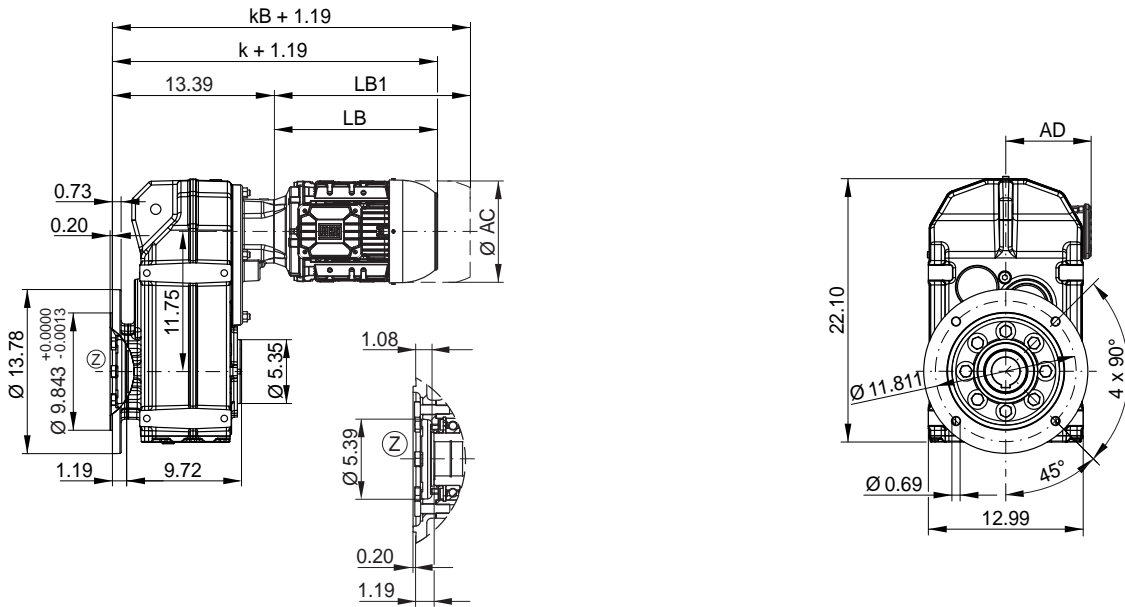


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	20.24	21.57	21.89	22.83	23.54	25.51	27.01	25.91	28.46	29.96
kB	21.97	23.50	24.17	25.12	26.42	28.82	30.31	29.33	33.11	34.61
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

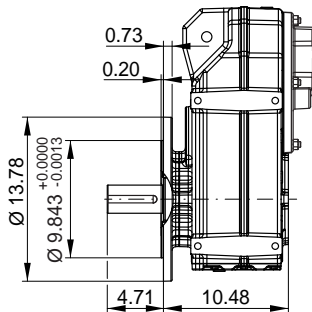
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

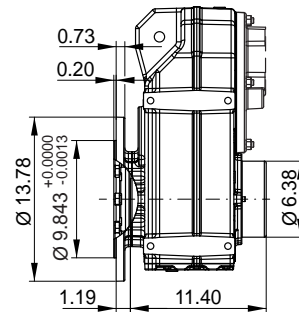
**FO084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft**



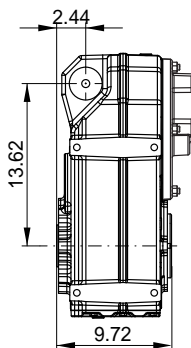
**FF084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with output shaft**



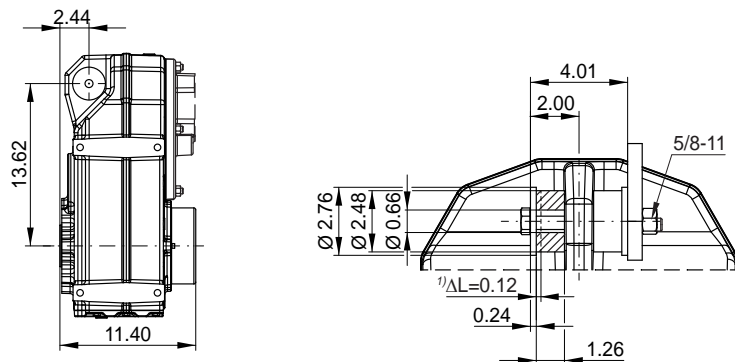
**FP084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft and shrink disc \***



**FT084 - Hollow shaft with rubber buffer**



**FU084 - Hollow shaft with shrink disc \* and rubber buffer**

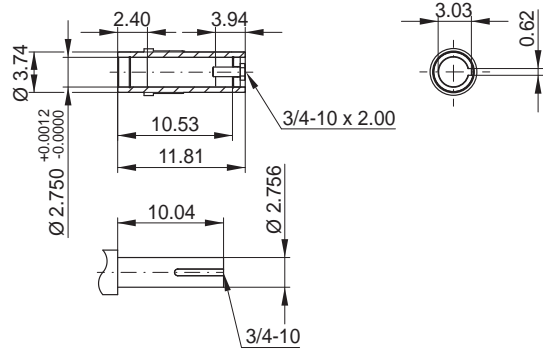
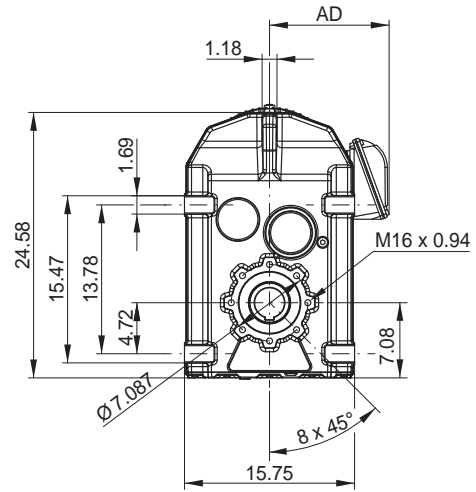
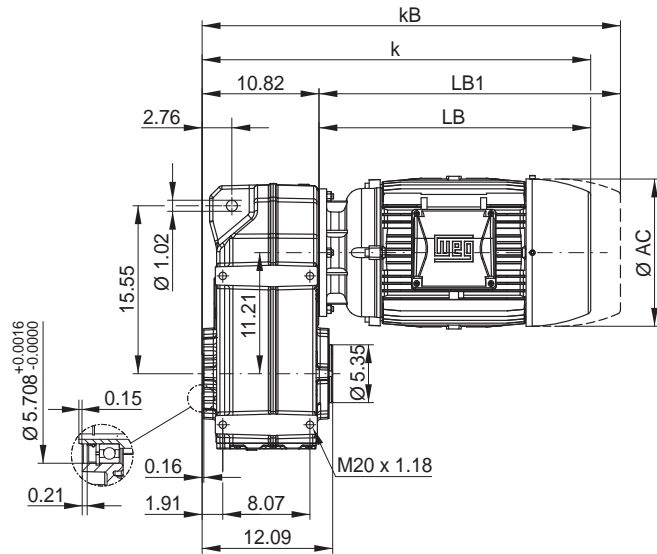


Dimensions in inch.

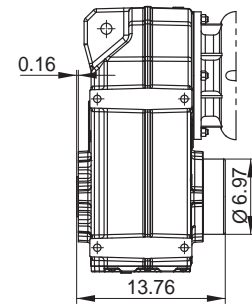
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

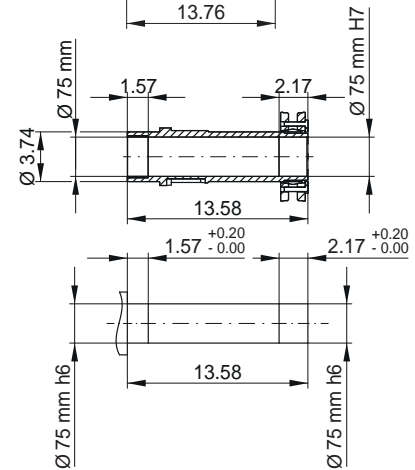
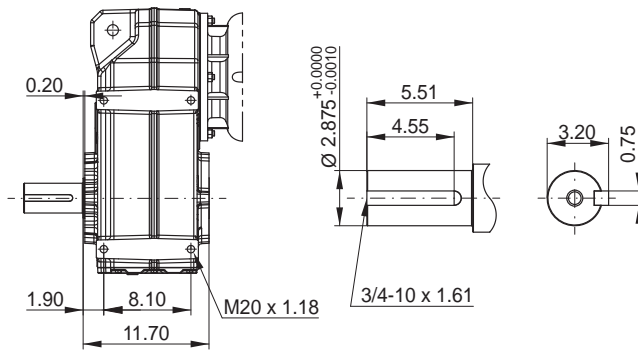
### FH092 / FH093 - Hollow shaft



### FD092 / FD093 - Shrink disc \*



### FS092 / FS093 - Output shaft



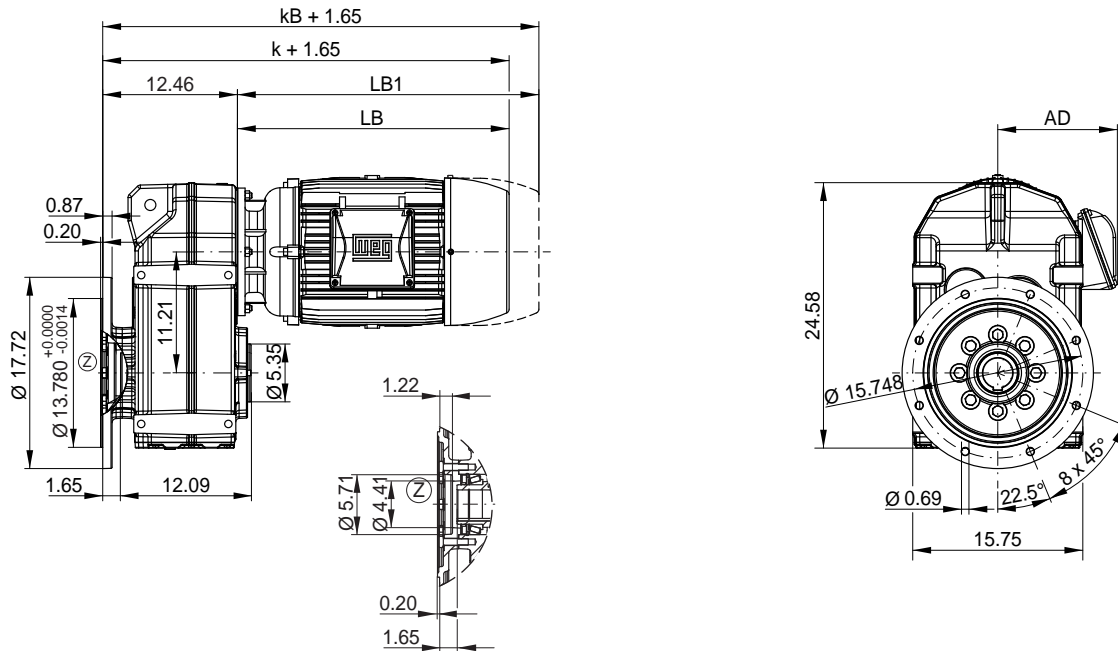
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	18.86	20.20	20.51	21.44	22.17	24.13	25.63	24.53	27.09	28.58	31.89	33.62	34.57	36.06	39.69
kB	20.59	22.13	22.80	23.72	25.04	27.44	28.94	27.95	31.73	33.23	36.77	38.50	39.21	40.71	44.65
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

Motor dimension sheets see page 488

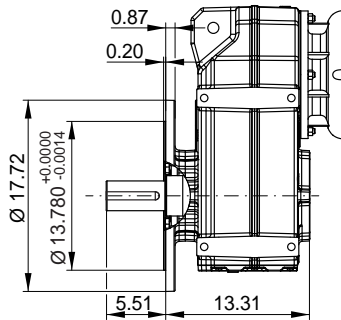
Description of motor lengths LB and LB1 see page 492



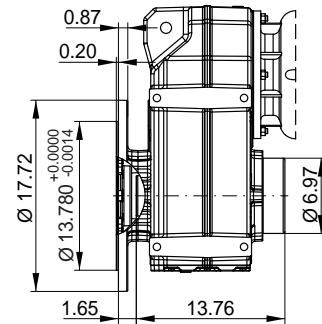
**FO092 / FO93 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with hollow shaft**



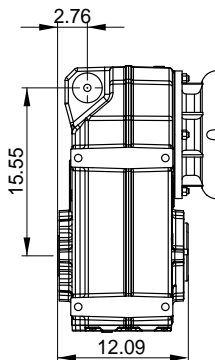
**FF092 / FF093 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with output shaft**



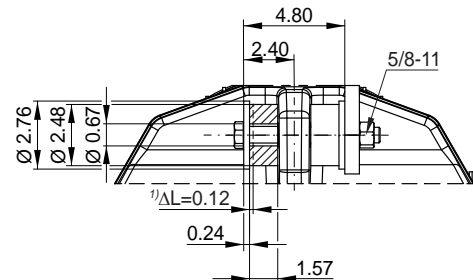
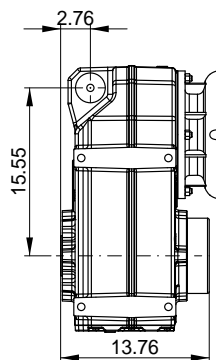
**FP092 / FP093 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with hollow shaft and shrink disc \***



**FT092 / FT093 - Hollow shaft with rubber buffer**



**FU092 / FU093 - Hollow shaft with shrink disc \* and rubber buffer**

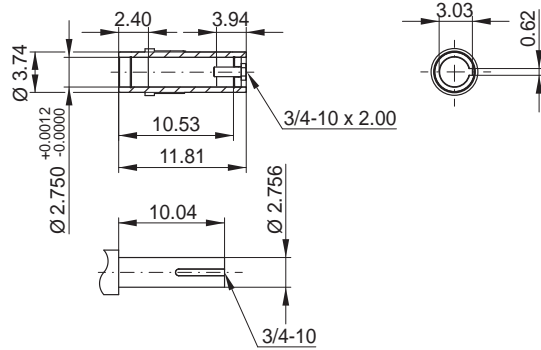
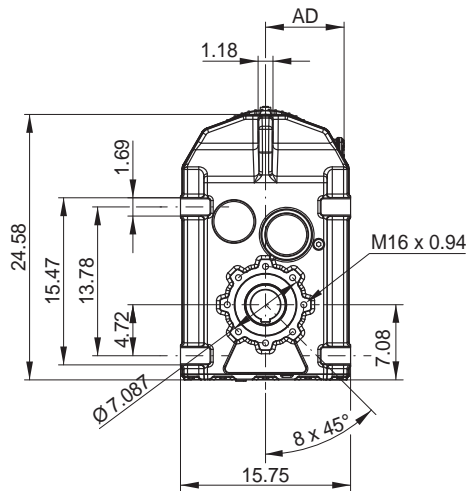
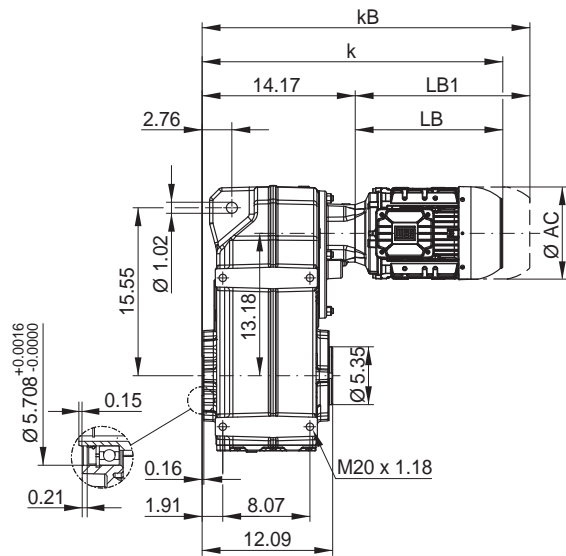


Dimensions in inch.

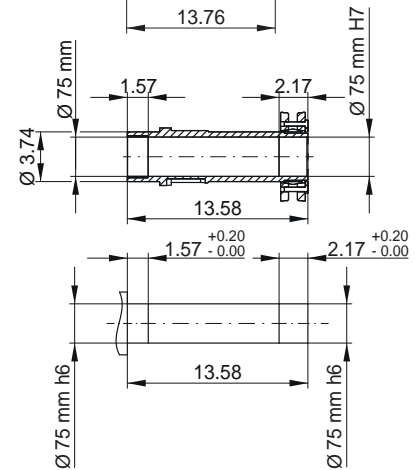
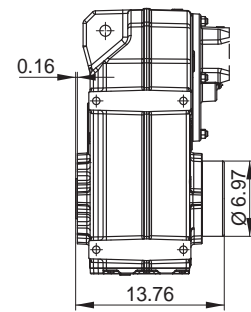
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

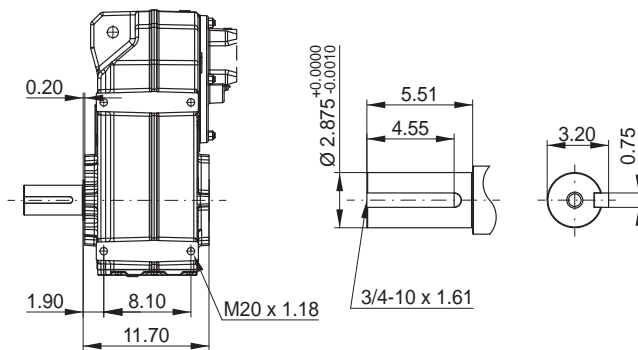
### FH094 - Hollow shaft



### FD094 - Shrink disc \*



### FS094 - Output shaft

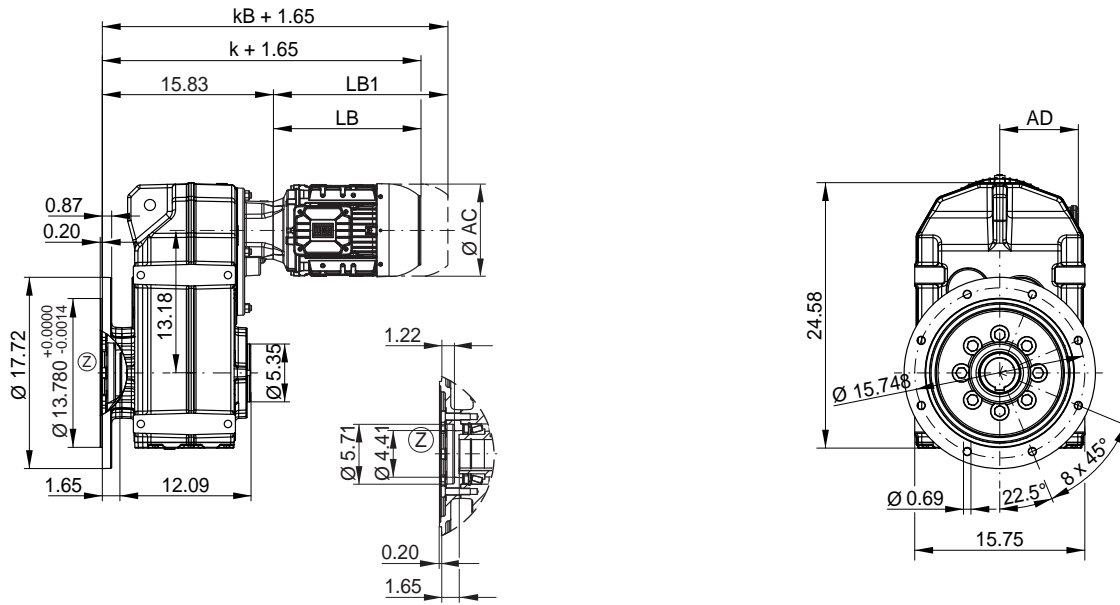


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	22.20	23.54	23.86	24.80	25.51	27.48	28.98	27.87	30.43	31.93
kB	23.94	25.47	26.14	27.09	28.39	30.79	32.28	31.30	35.08	36.57
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

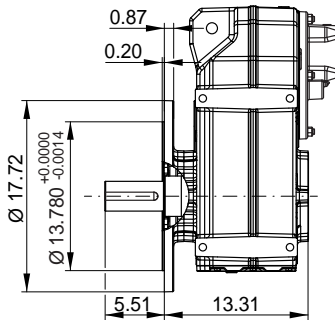
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

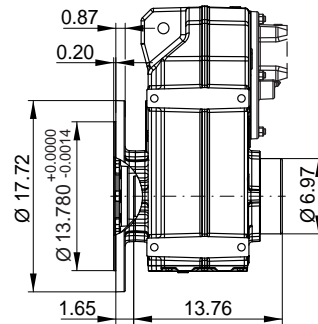
**FO094 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with hollow shaft**



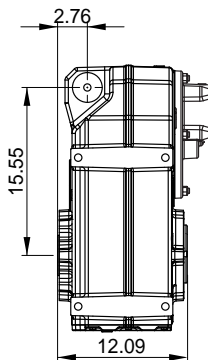
**FF094 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with output shaft**



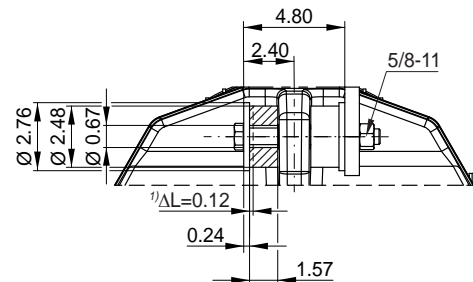
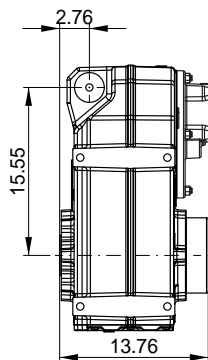
**FP094 - Flange execution  $\varnothing$  17.72 in ( $\varnothing$  450 mm) with hollow shaft and shrink disc \***



**FT094 - Hollow shaft with rubber buffer**



**FU094 - Hollow shaft with shrink disc \* and rubber buffer**

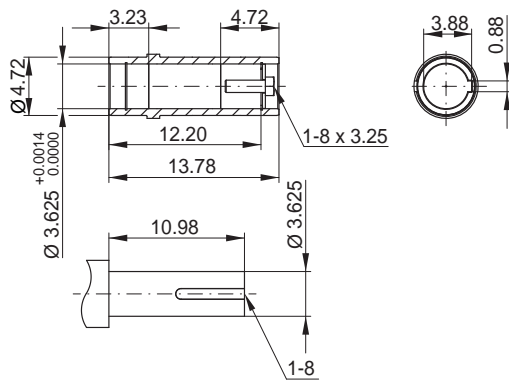
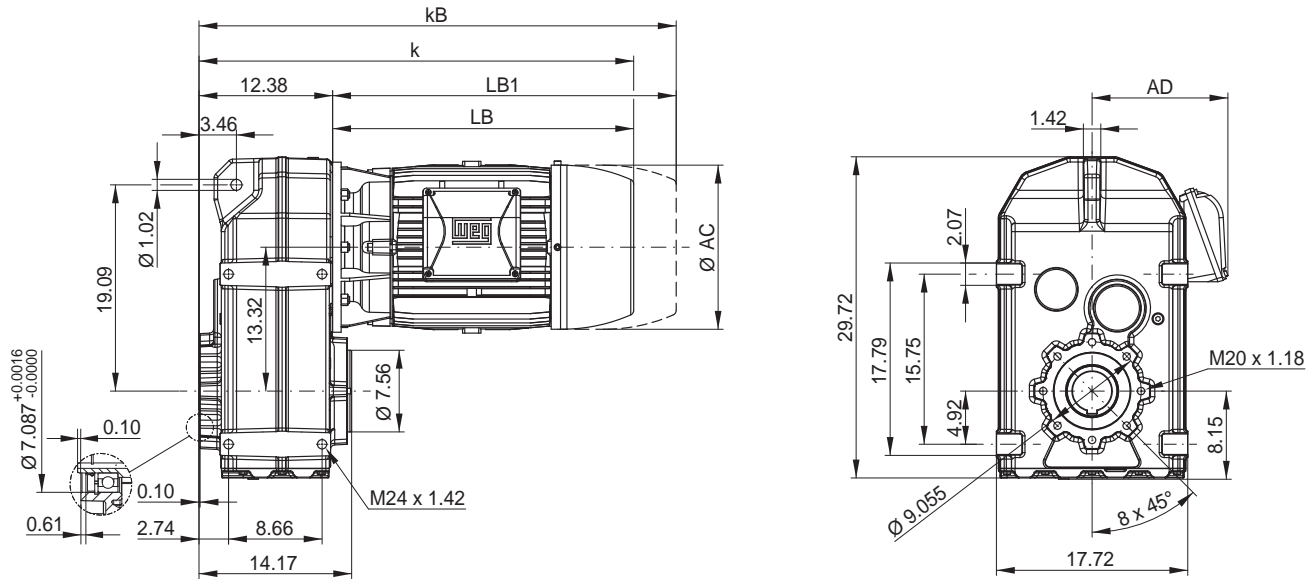


Dimensions in inch.

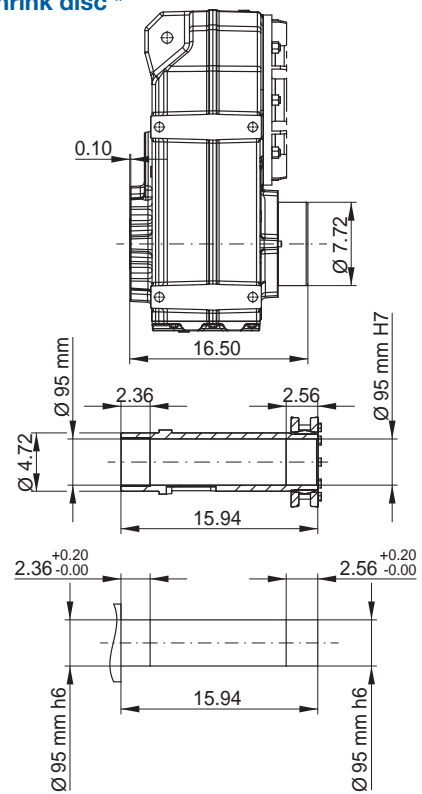
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

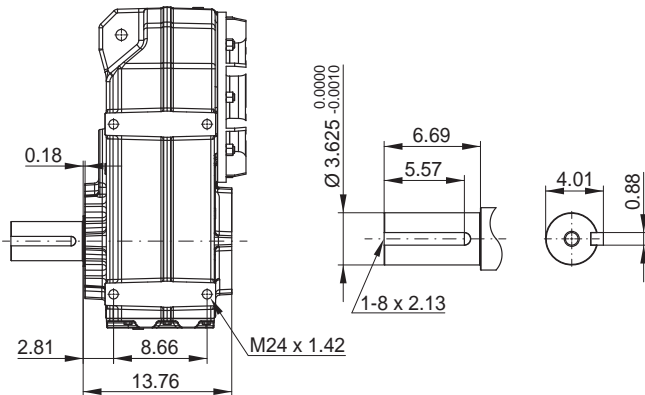
### FH102 / FH103 - Hollow shaft



### FD102 / FD103 - Shrink disc \*



### FS102 / FS103 - Output shaft

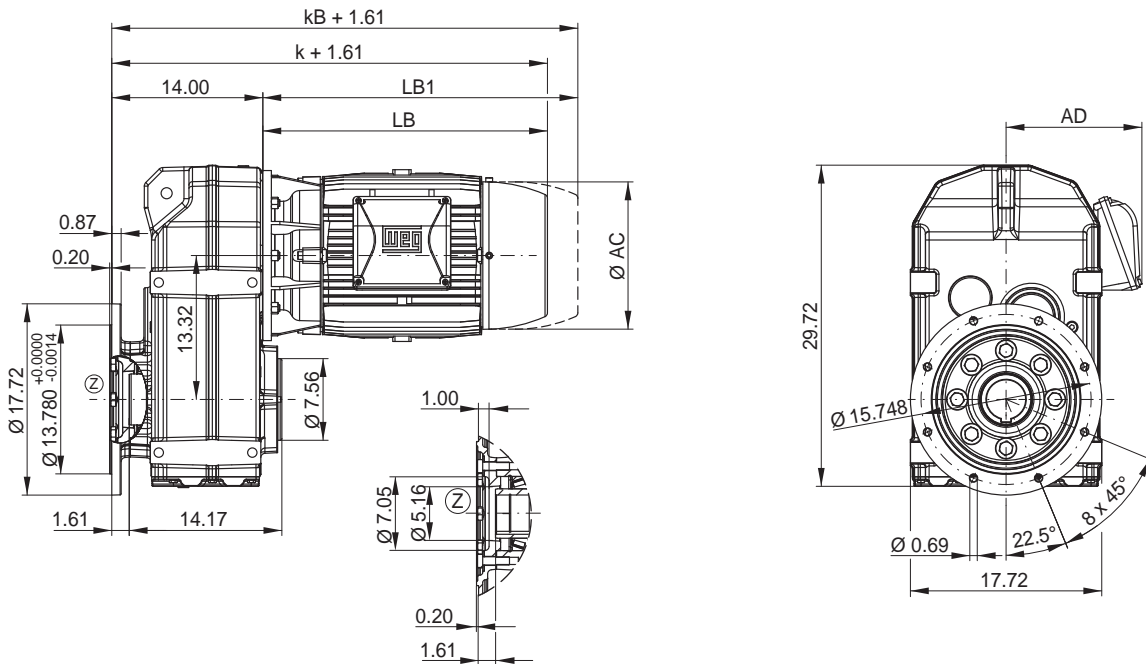


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	26.10	28.66	30.16	32.95	34.69	35.63	37.13	40.75	45.00
kB	-	-	-	-	-	-	-	29.53	33.31	34.80	37.83	39.57	40.28	41.77	45.71	49.65
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

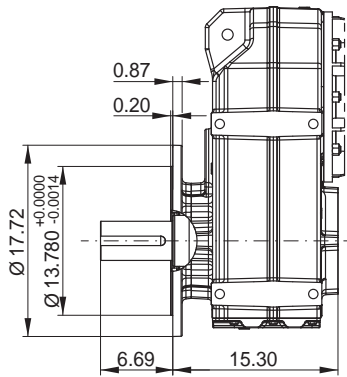
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

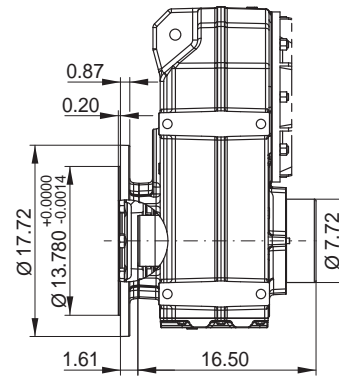
**FO102 / FO103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft**



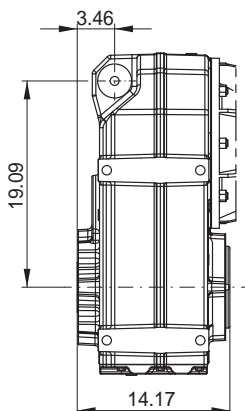
**FF102 / FF103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with output shaft**



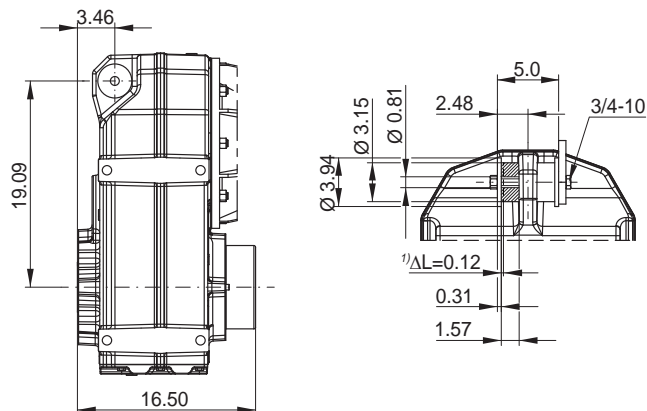
**FP102 / FP103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft and shrink disc \***



**FT102 / FT103 - Hollow shaft with rubber buffer**



**FU102 / FU103 - Hollow shaft with shrink disc \* and rubber buffer**

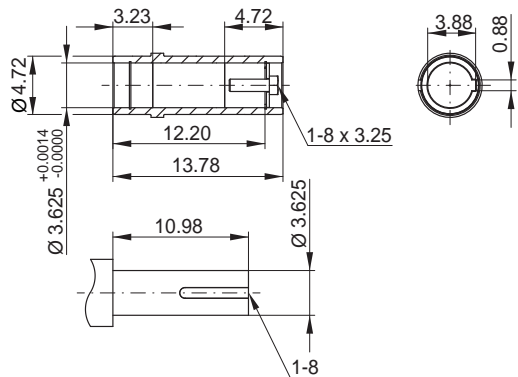
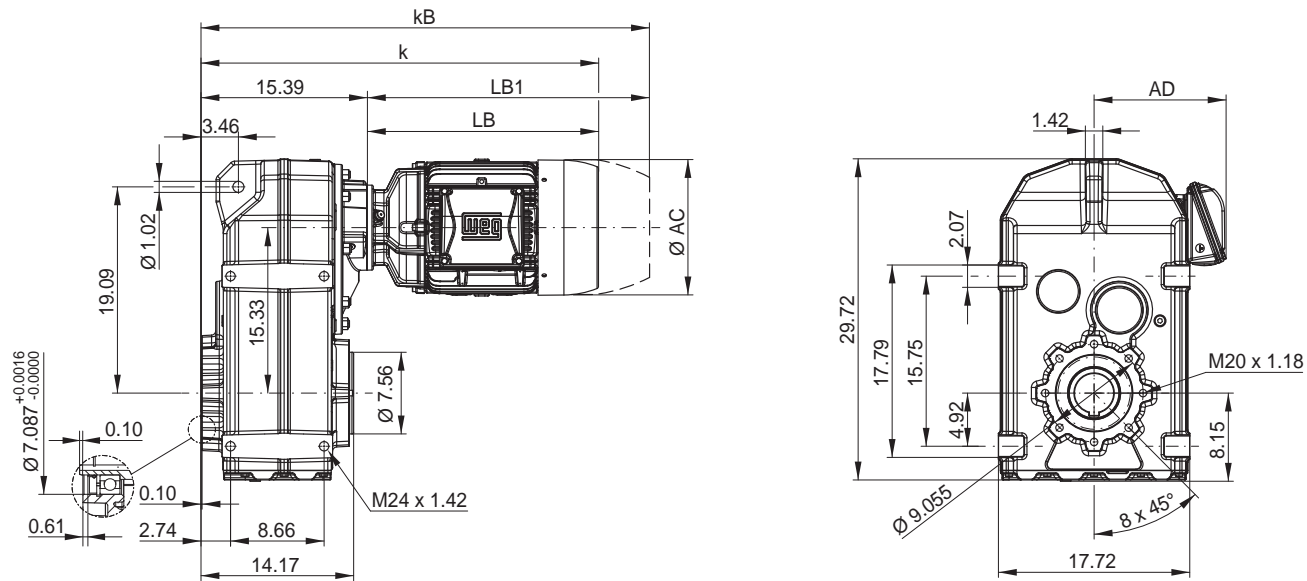


Dimensions in inch.

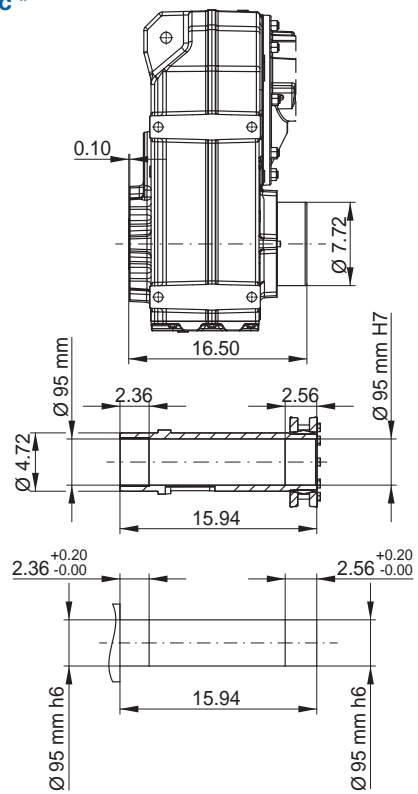
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

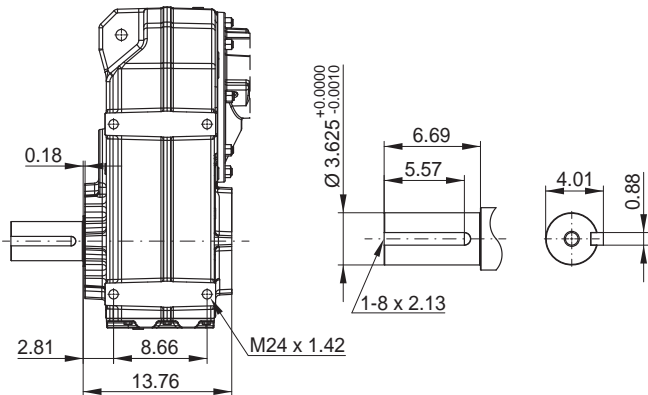
## FH104 - Hollow shaft



## FD104 - Shrink disc \*



## FS104 - Output shaft

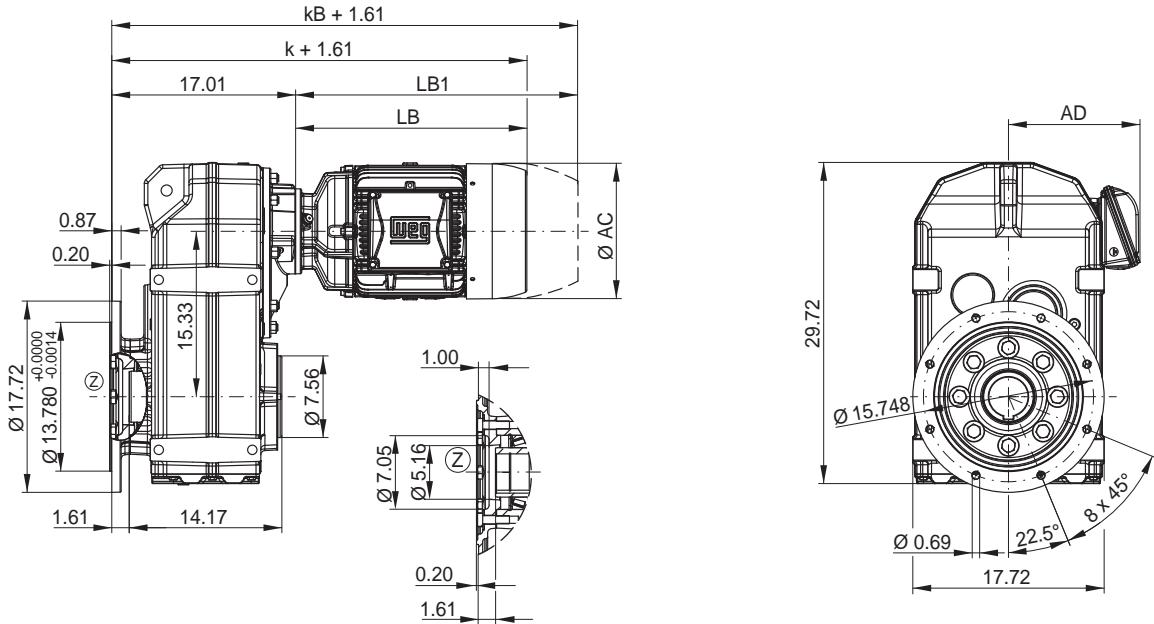


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	23.43	24.76	25.08	26.02	26.73	28.70	30.20	29.09	31.65	33.15	36.85	38.58
kB	25.16	26.69	27.36	28.31	29.61	32.01	33.50	32.52	36.30	37.80	41.73	43.46
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

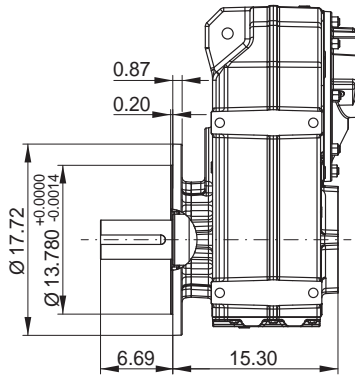
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

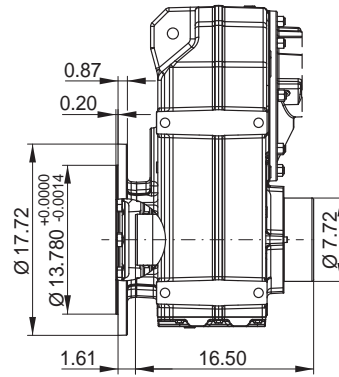
**FO104 - Flange execution Ø 17.72 in (Ø 450 mm) with hollow shaft**



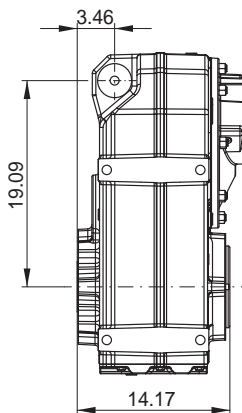
**FF104 - Flange execution Ø 17.72 in (Ø 450 mm) with output shaft**



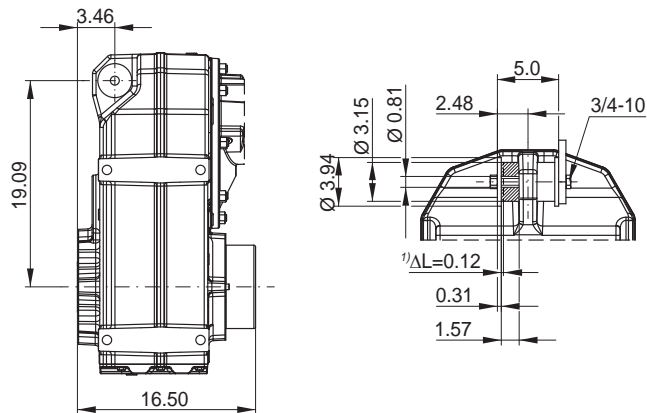
**FP104 - Flange execution Ø 17.72 in (Ø 450 mm) with hollow shaft and shrink disc \***



**FT104 - Hollow shaft with rubber buffer**



**FU104 - Hollow shaft with shrink disc \* and rubber buffer**

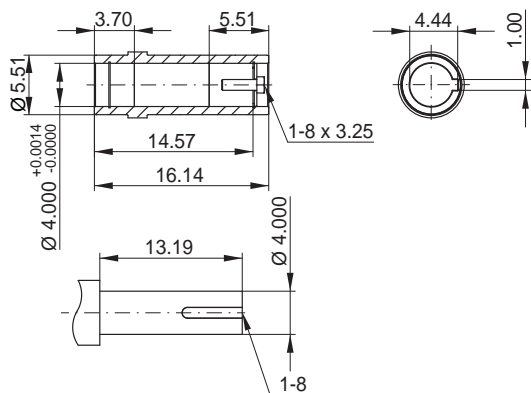
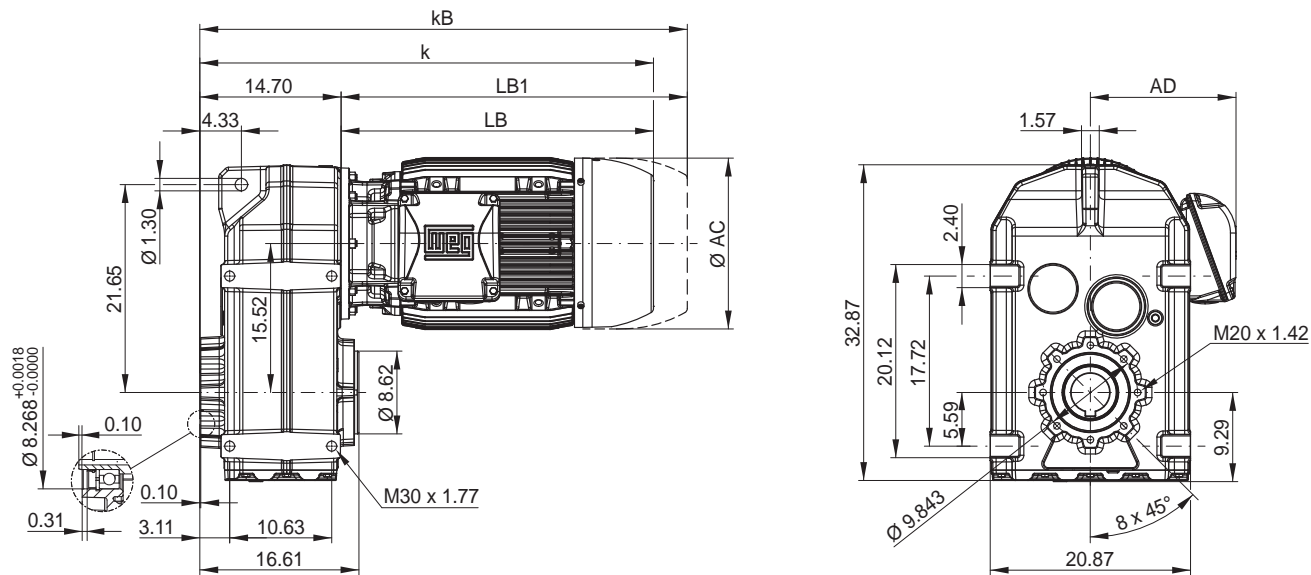


Dimensions in inch.

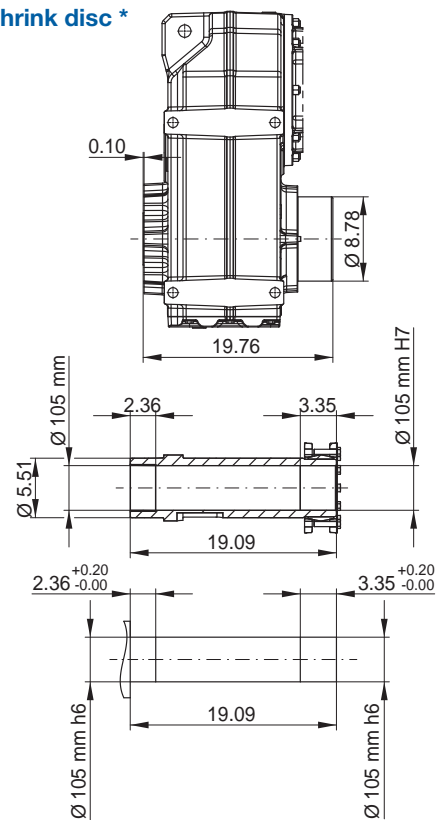
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

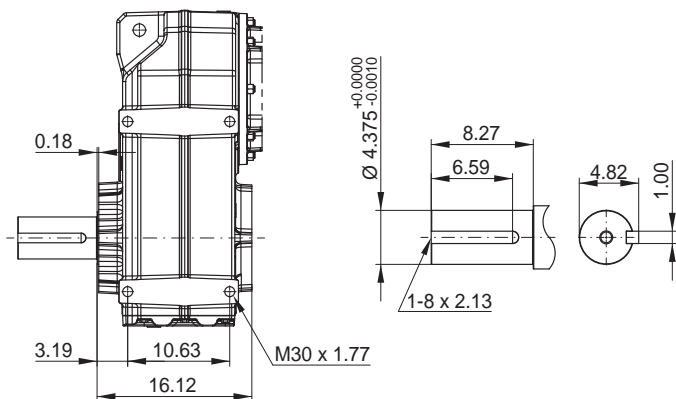
### FH122 / FH123 - Hollow shaft



### FD122 / FD123 - Shrink disc \*



### FS122 / FS123 - Output shaft



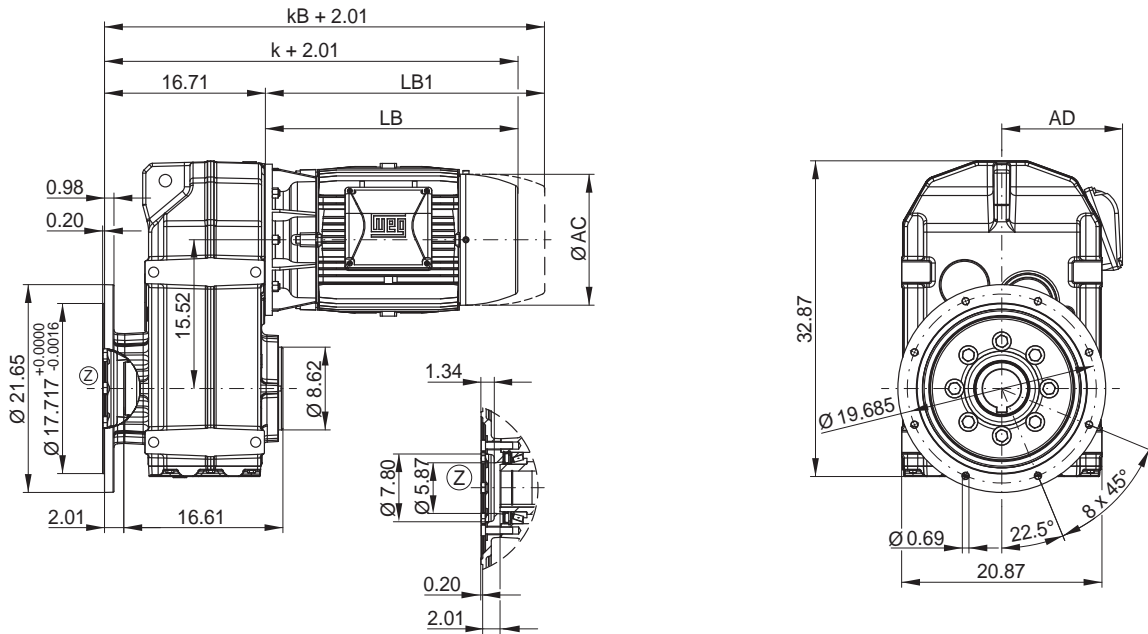
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	28.43	30.98	32.48	35.28	37.01	37.95	39.45	43.07	47.32
kB	-	-	-	-	-	-	-	31.85	35.63	37.13	40.16	41.89	42.60	44.09	48.03	51.97
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

Motor dimension sheets see page 488

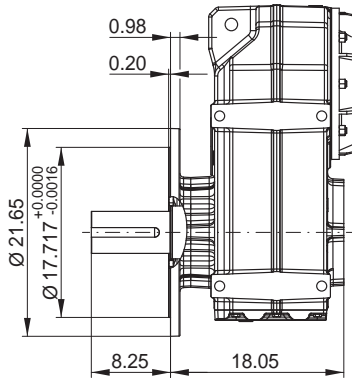
Description of motor lengths LB and LB1 see page 492



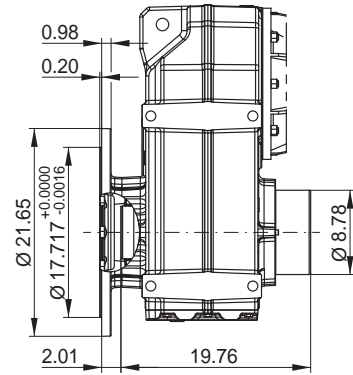
**FO122 / FO123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft**



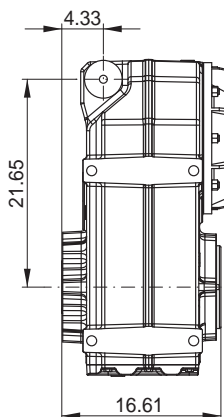
**FF122 / FF123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with output shaft**



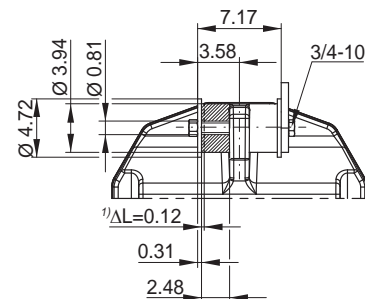
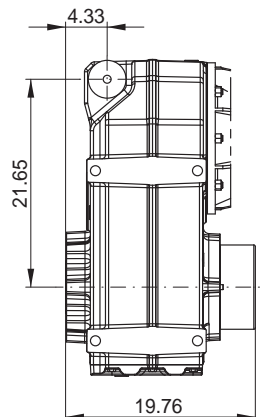
**FP122 / FP123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft and shrink disc \***



**FT122 / FT123 - Hollow shaft with rubber buffer**



**FU122 / FU123 - Hollow shaft with shrink disc \* and rubber buffer**

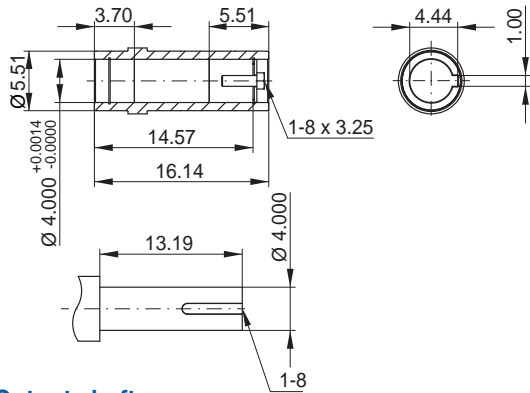
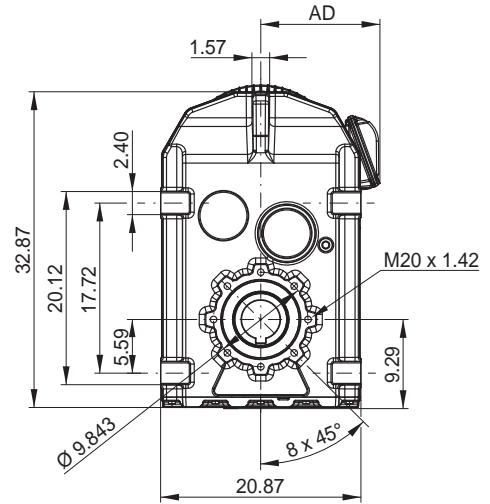
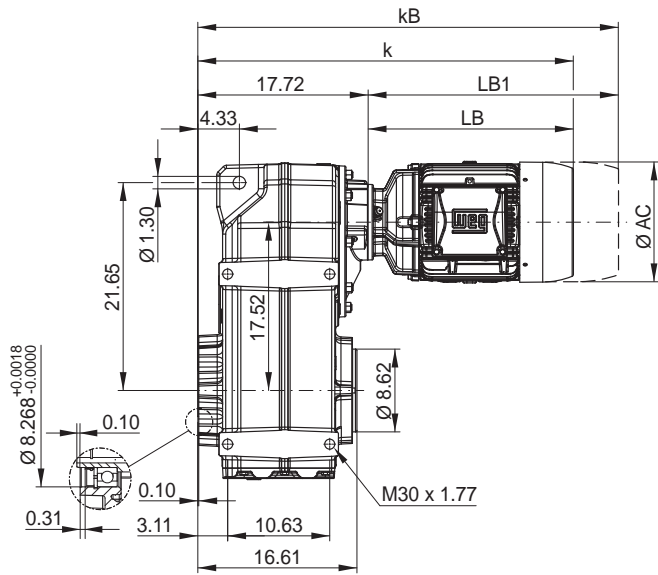


Dimensions in inch.

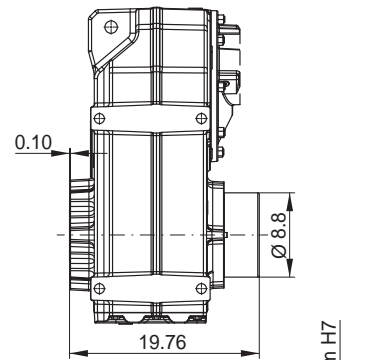
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

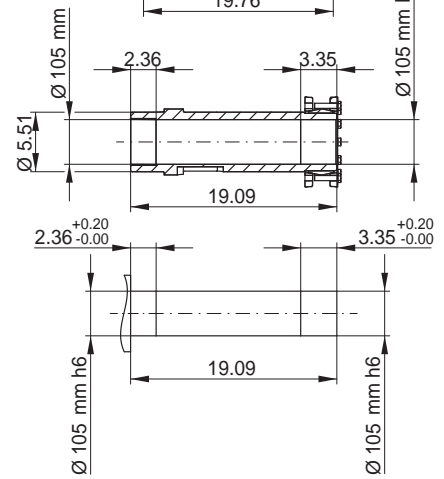
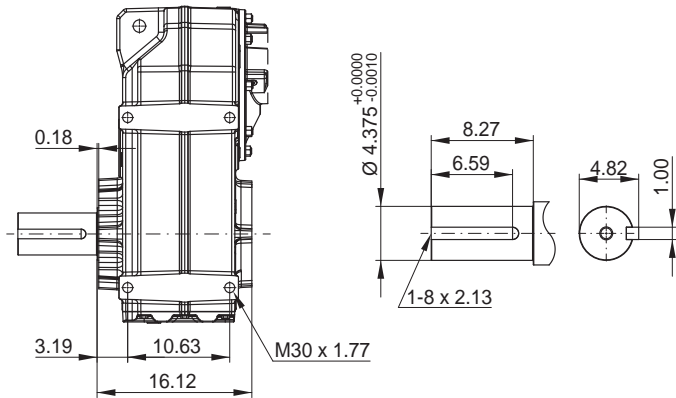
### FH124 - Hollow shaft



### FD124 - Shrink disc \*



### FS124 - Output shaft

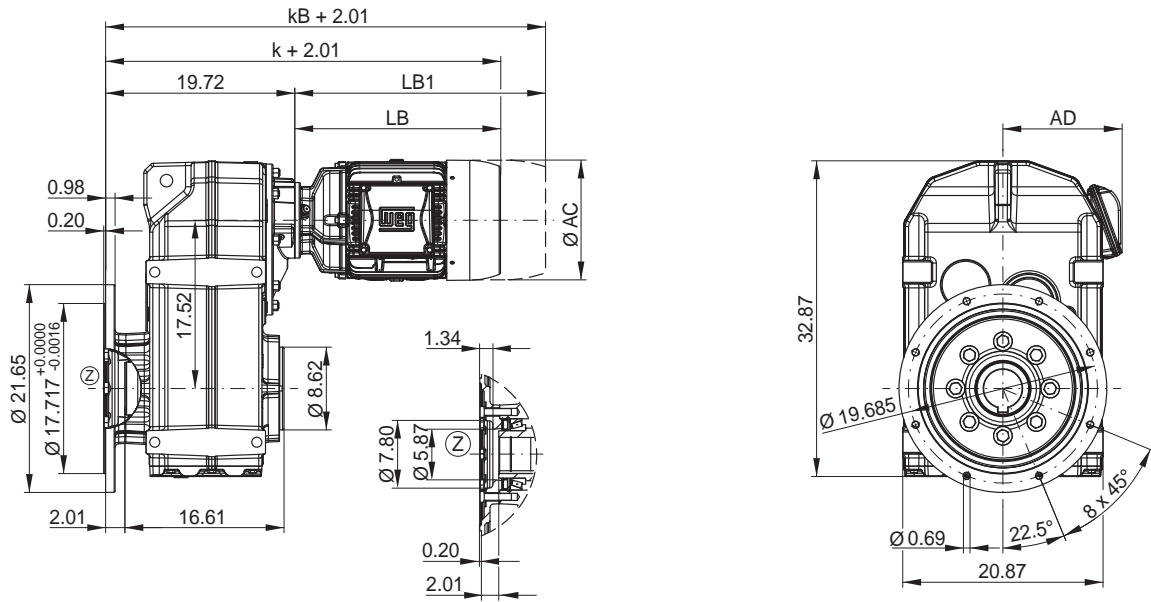


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	25.75	27.09	27.40	28.35	29.06	31.02	32.52	31.42	33.98	35.47	39.17	40.91
kB	27.48	29.02	29.69	30.63	31.93	34.33	35.83	34.84	38.62	40.12	44.06	45.79
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

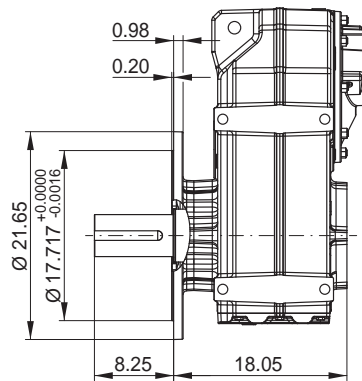
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

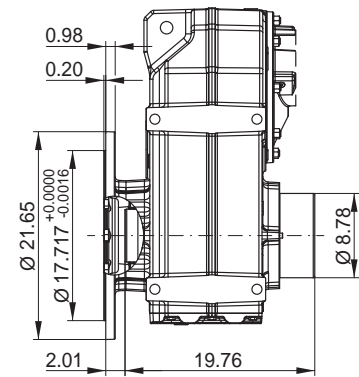
**FO124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft**



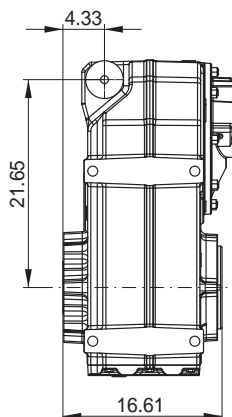
**FF124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with output shaft**



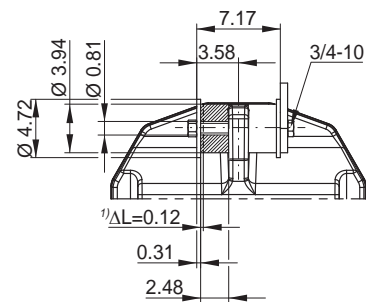
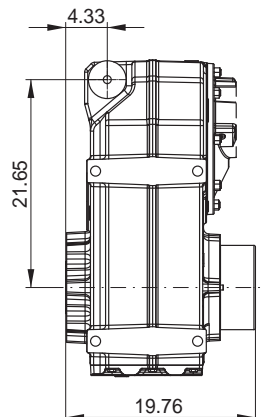
**FP124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft and shrink disc \***



**FT124 - Hollow shaft with rubber buffer**



**FU124 - Hollow shaft with shrink disc \* and rubber buffer**

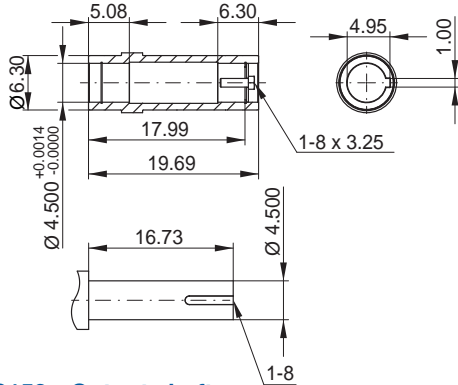
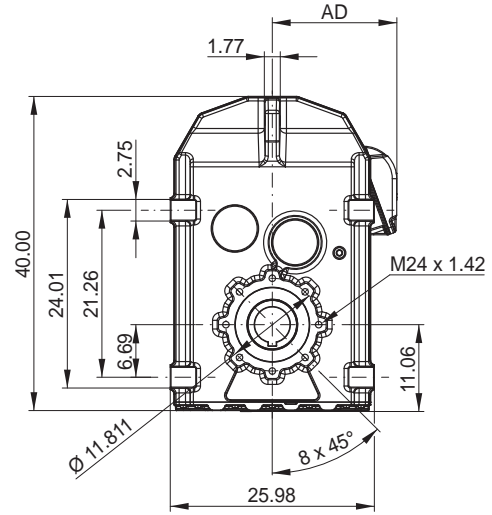
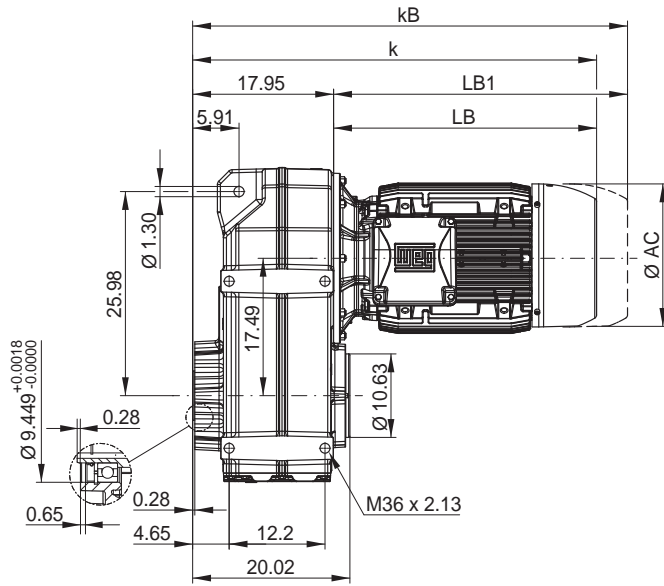


Dimensions in inch.

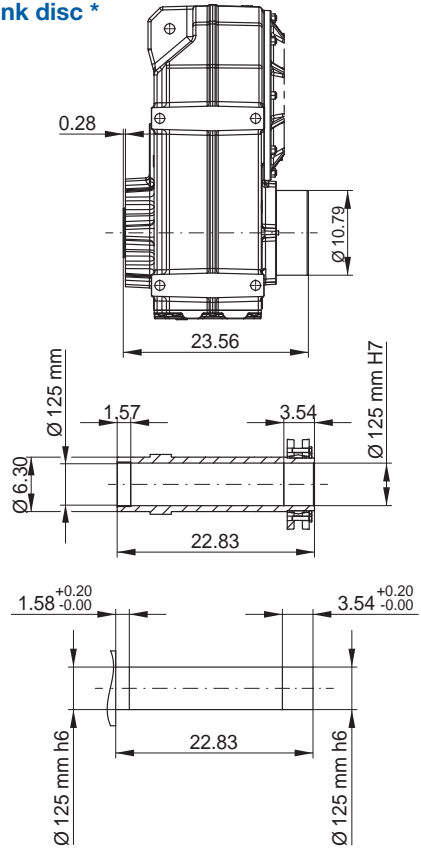
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

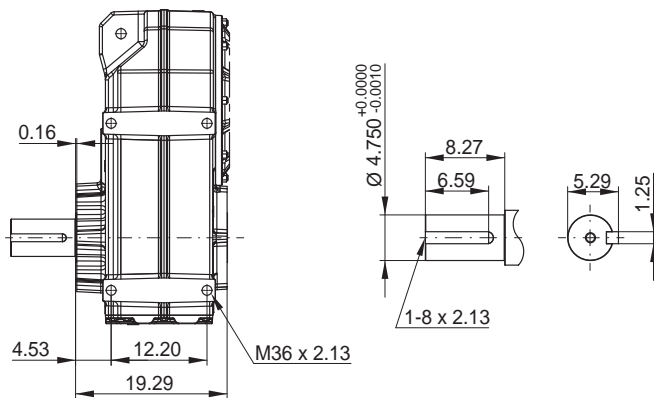
### FH152 / FH153 - Hollow shaft



### FD152 / FD153 - Shrink disc \*



### FS152 / FS153 - Output shaft

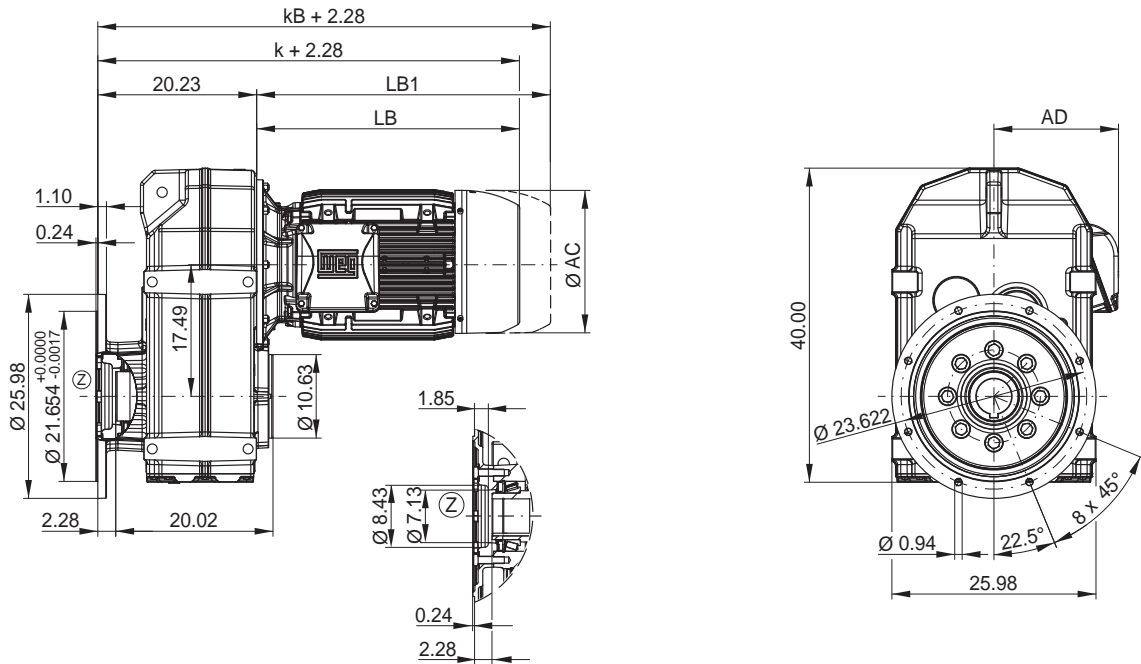


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L	225S/M	250S/M
AC	-	-	-	-	-	-	-	-	-	-	12.95	12.95	13.66	13.66	15.20	17.83	18.98
AD	-	-	-	-	-	-	-	-	-	-	10.47	10.47	11.06	11.06	12.48	15.16	15.87
k	-	-	-	-	-	-	-	-	-	-	37.87	39.61	40.55	42.05	45.67	49.92	51.46
kB	-	-	-	-	-	-	-	-	-	-	42.76	44.49	45.20	46.69	50.63	54.57	56.10
LB	-	-	-	-	-	-	-	-	-	-	19.92	21.65	22.60	24.09	27.72	31.97	33.50
LB1	-	-	-	-	-	-	-	-	-	-	24.80	26.54	27.24	28.74	32.68	36.61	38.15

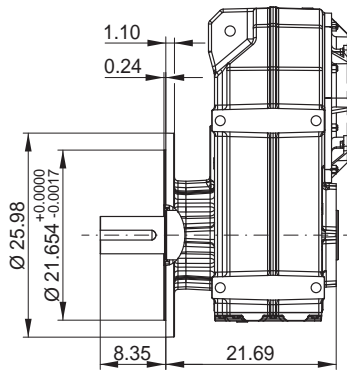
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

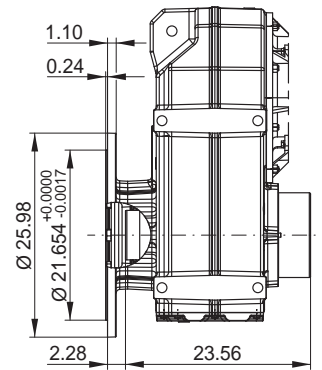
**FO152 / FO153 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with hollow shaft**



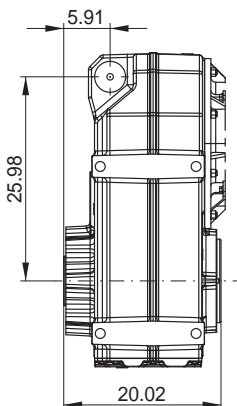
**FF152 / FF153 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with output shaft**



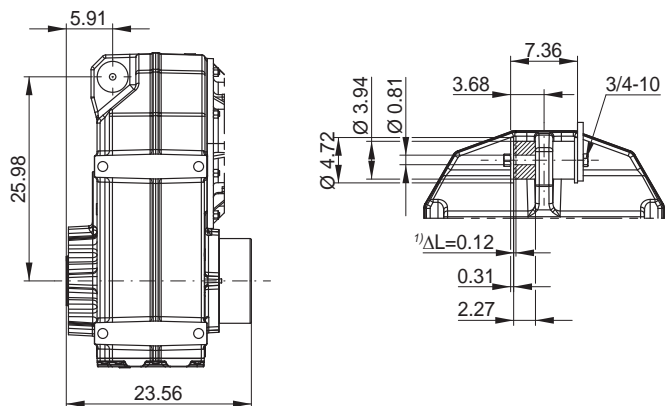
**FP152 / FP153 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with hollow shaft and shrink disc \***



**FT152 / FT153 - Hollow shaft with rubber buffer**



**FU152 / FU153 - Hollow shaft with shrink disc \* and rubber buffer**

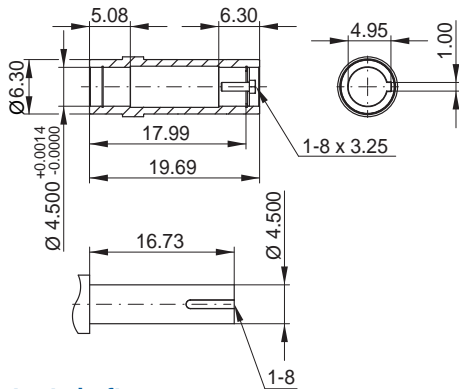
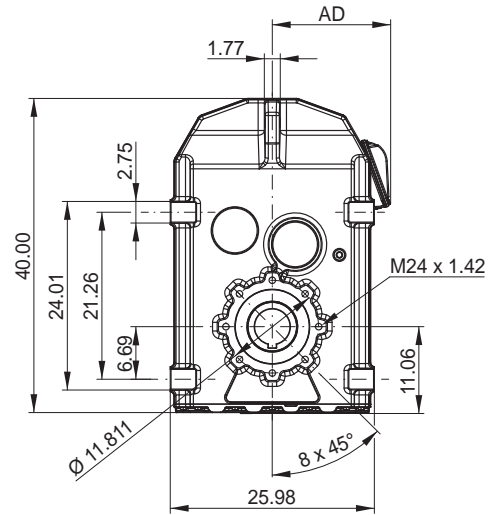
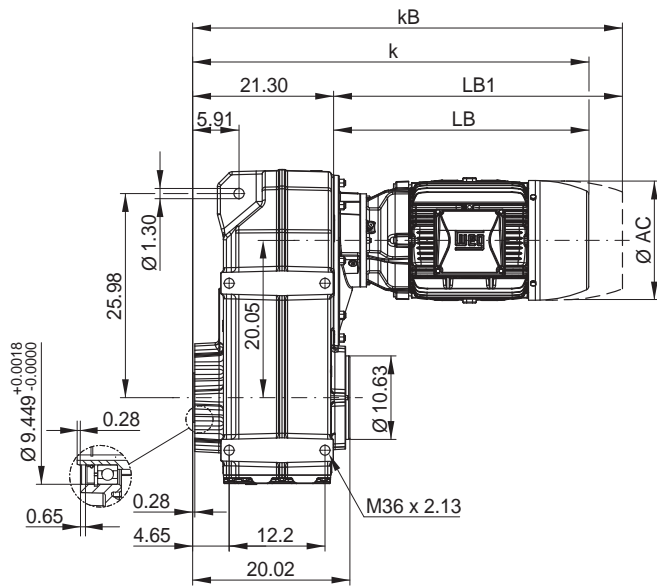


Dimensions in inch.

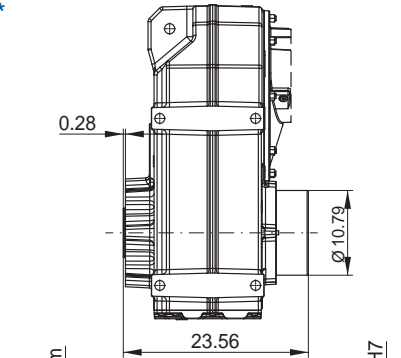
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

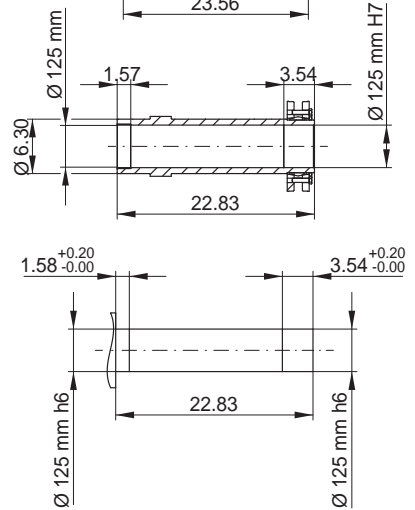
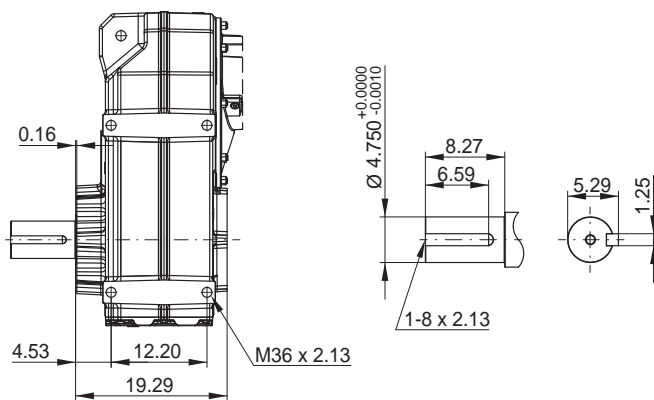
### FH154 - Hollow shaft



### FD154 - Shrink disc \*



### FS154 - Output shaft

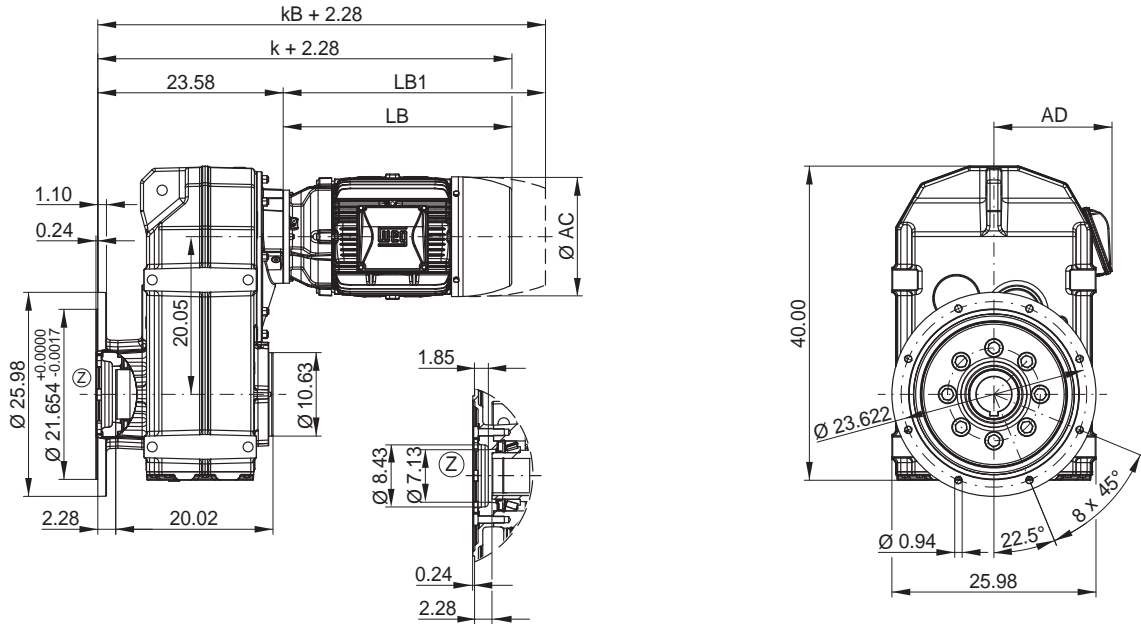


Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	29.33	30.67	30.98	31.93	32.64	34.61	36.10	35.00	37.56	39.06	42.36	44.09	45.04	46.54	50.16
kB	31.06	32.60	33.27	34.21	35.51	37.91	39.41	38.43	42.20	43.70	47.24	48.98	49.69	51.18	55.12
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

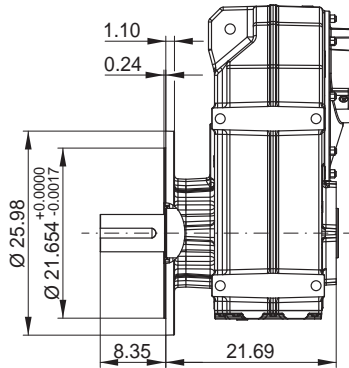
Motor dimension sheets see page 488

Description of motor lengths LB and LB1 see page 492

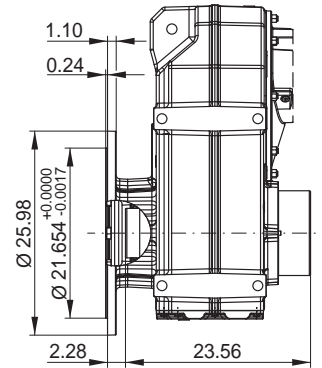
**FO154 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with hollow shaft**



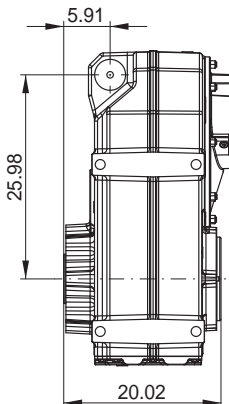
**FF154 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with output shaft**



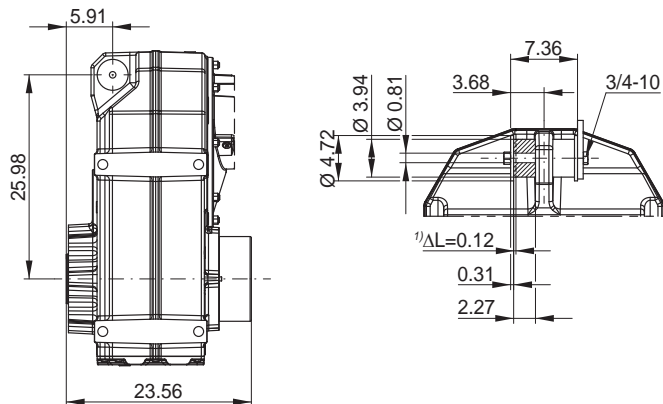
**FP154 - Flange execution  $\varnothing$  25.98 in ( $\varnothing$  660 mm) with hollow shaft and shrink disc \***



**FT154 - Hollow shaft with rubber buffer**



**FU154 - Hollow shaft with shrink disc \* and rubber buffer**

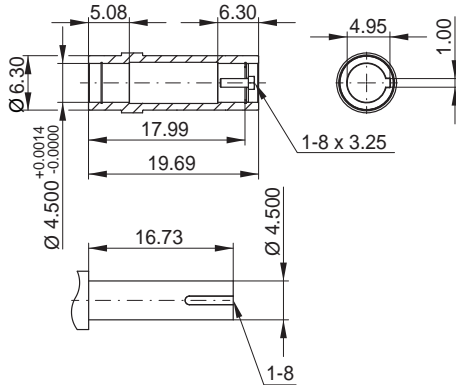
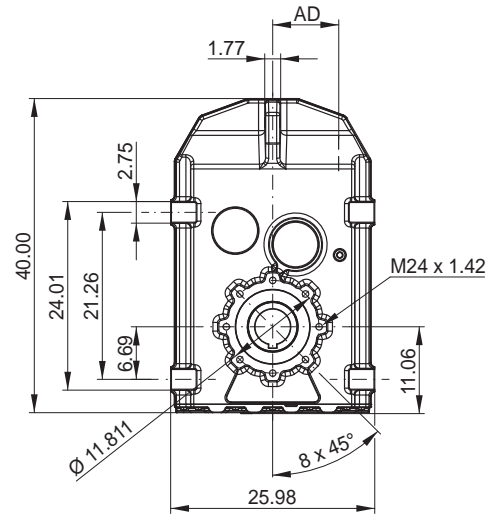
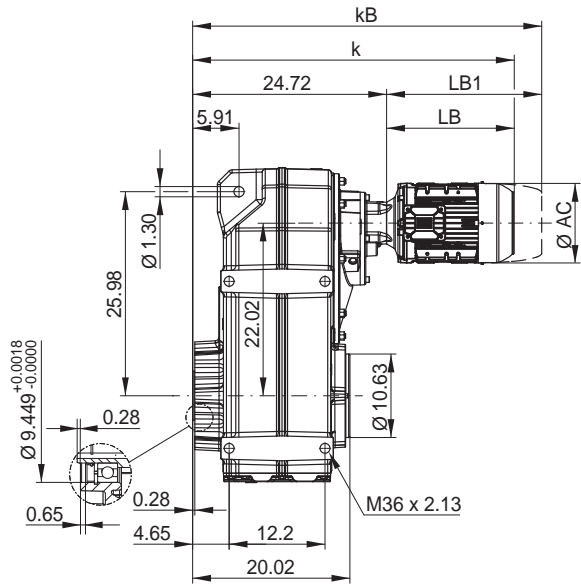


Dimensions in inch.

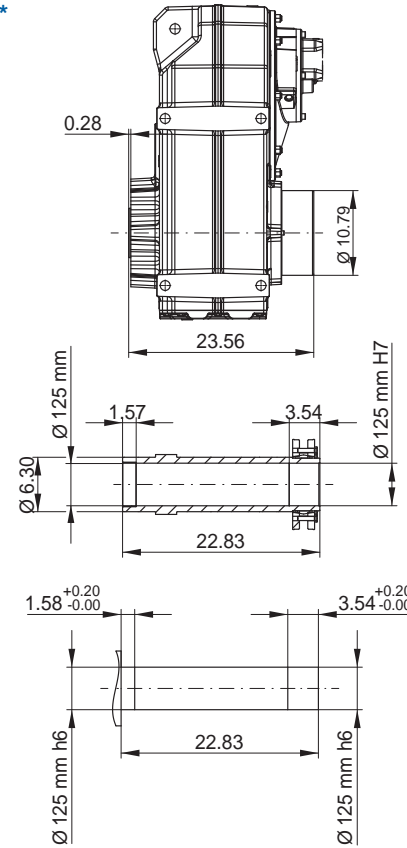
\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

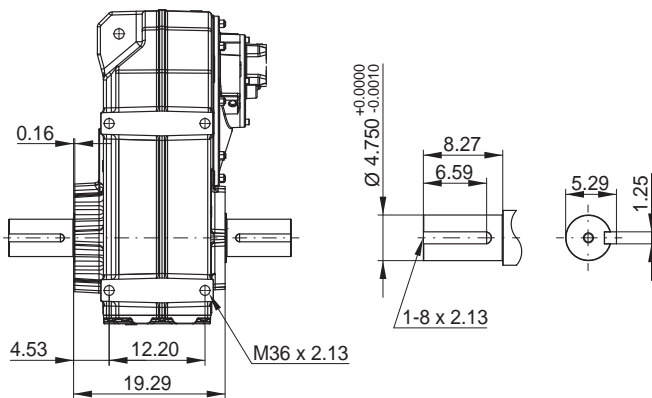
## FH155 - Hollow shaft



## FD155 - Shrink disc \*



## FS155 - Output shaft



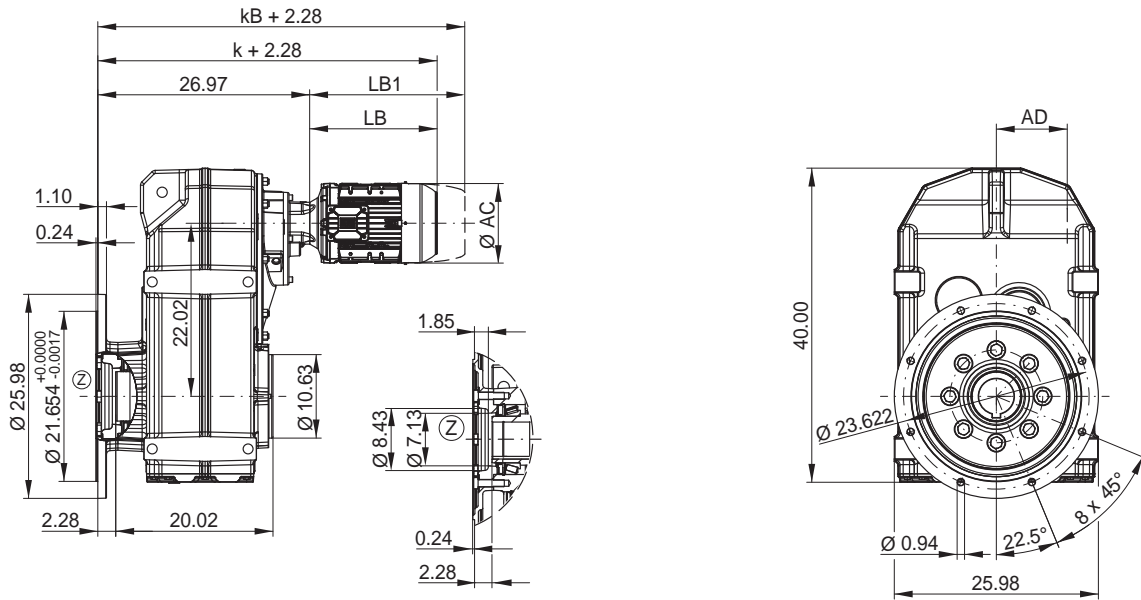
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	32.76	34.09	34.41	35.35	36.06	38.03	39.53	38.43	40.98	42.48
kB	34.49	36.02	36.69	37.64	38.94	41.34	42.83	41.85	45.63	47.13
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see page 488

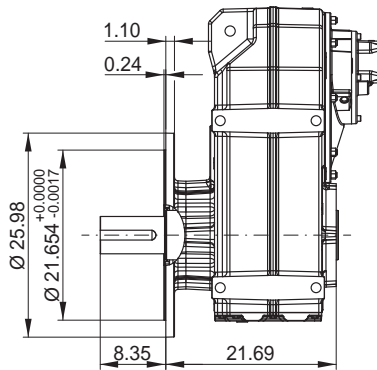
Description of motor lengths LB and LB1 see page 492



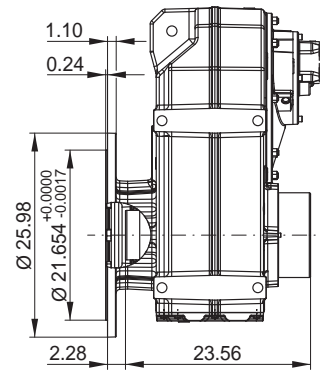
**FO155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft**



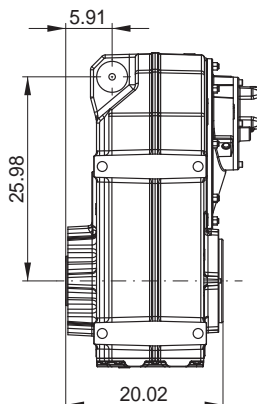
**FF155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with output shaft**



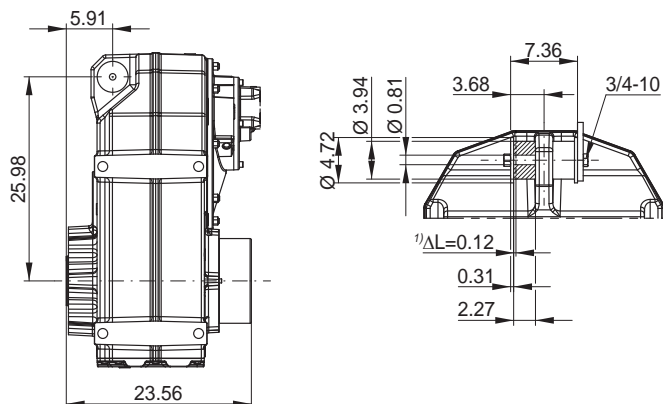
**FP155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft and shrink disc \***



**FT155 - Hollow shaft with rubber buffer**



**FU155 - Hollow shaft with shrink disc \* and rubber buffer**



Dimensions in inch.

\* Shrink disc and protection cap possible with all mountable motors.

1) Preloaded state

# EasyLock

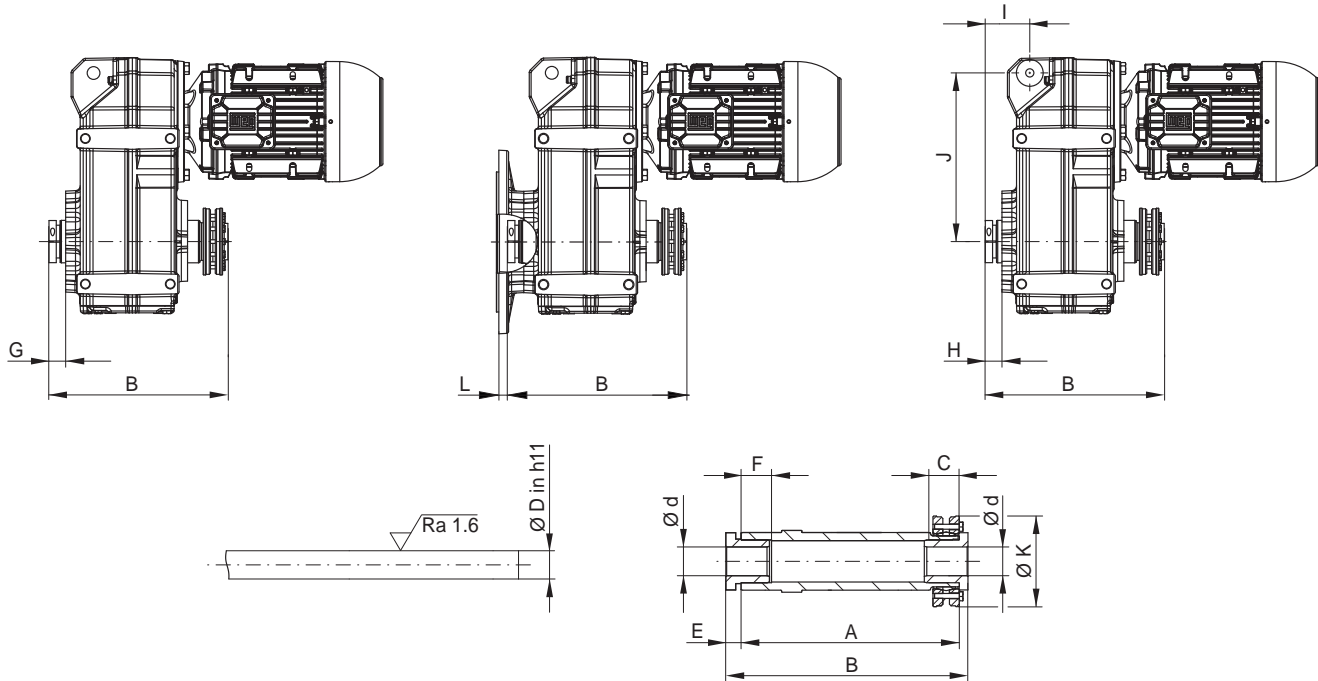
F



**FE... - Hollow shaft with EasyLock**

**FQ... - Flange execution with EasyLock**

**FV... - Hollow shaft with rubber buffer and EasyLock**



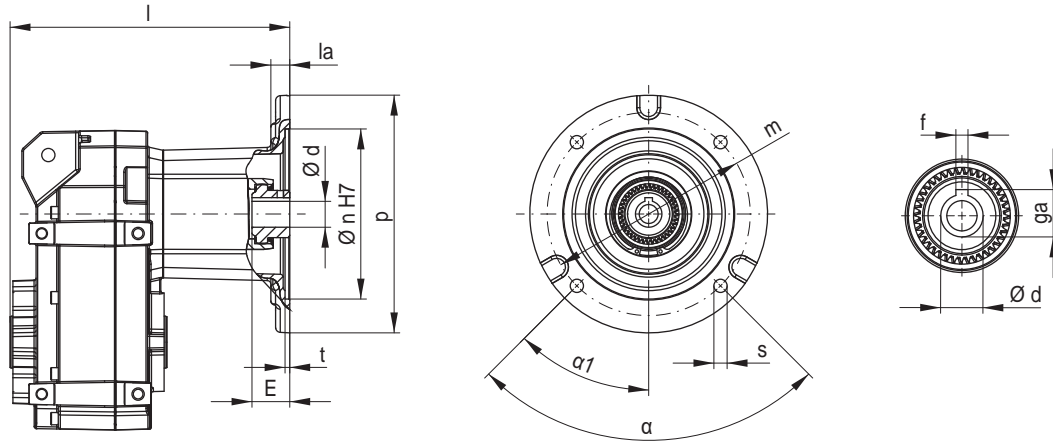
Dimension \ Gear unit size	F03.		F04.		F05.		F06.		F07.		F08.		F09.	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
A	5.73		7.05		7.99		8.50		10.43		12.09		14.49	
B	6.73		8.19		9.13		9.65		11.57		13.23		15.63	
C	1.40		1.42		1.42		1.42		1.46		1.57		1.89	
d, D	1.0000	25	1.1875	30	1.1875	35	1.1875	35	1.6250	40	1.9375	45	2.3750	55
	1.1250	30	1.2500	32	1.2500	38	1.2500	38	1.7500	45	2.0000	50	2.4375	60
	1.1875	35	1.3750	35	1.3750	40	1.3750	40	1.9375	48	2.3750	55	2.7500	65
	1.2500	32	1.4375	38	1.4375	42	1.4375	42	1.9375	50	2.3750	60	2.7500	70
			1.4375	40	1.5000	45	1.5000	45	2.0000	55	2.4375	65	2.9375	75
E	0.71		0.71		0.71		0.71		0.73		0.71		0.71	
F	1.30		1.42		1.42		1.42		1.46		1.57		1.89	
G	0.73		0.87		0.91		0.94		0.94		1.18		1.18	
H	0.73		0.87		0.91		0.94		0.94		1.18		1.18	
I	1.95		1.97		2.30		2.32		2.91		3.15		3.46	
J	6.22		6.69		7.80		8.58		10.94		13.62		15.55	
K	3.15		3.54		3.54		3.54		4.33		6.10		6.10	
L	0.39		0.47		0.59		0.59		0.63		0.73		0.87	

Gear unit dimension sheets see from page 287

# Dimension sheets - Input types



## IEC Adapter I63 to I280



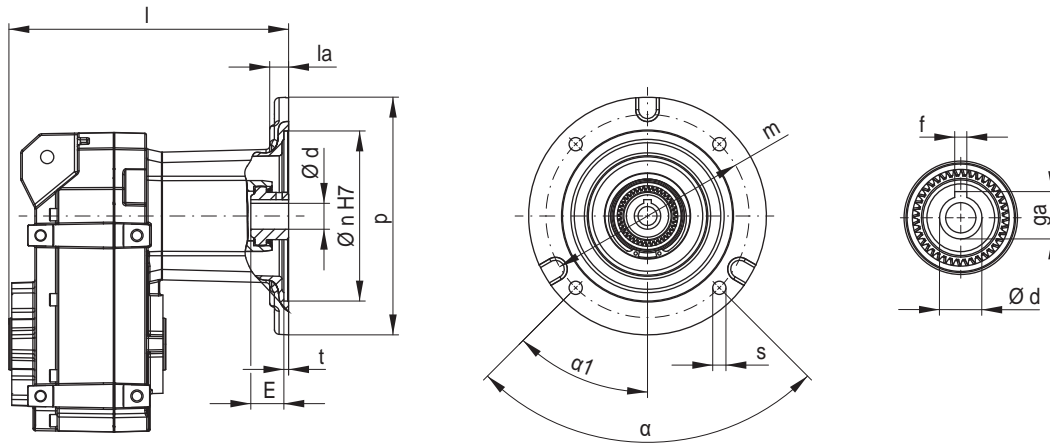
Type	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
$p$	6.30	6.30	7.87	7.87	9.84	9.84	11.81	13.78	13.78	15.75	17.72	21.65	21.65
$n$	3.74	4.33	5.12	5.12	7.09	7.09	9.06	9.84	9.84	11.81	13.78	17.72	17.72
$la$	0.89	0.39	0.51	0.51	0.59	0.79	0.59	1.38	1.38	0.79	0.79	0.79	0.79
$m$	4.53	5.12	6.50	6.50	8.46	8.46	10.43	11.81	11.81	13.78	15.75	19.69	19.69
$t$	0.18	0.18	0.18	0.18	0.20	0.20	0.20	0.20	0.20	0.22	0.20	0.20	0.20
$s$	M8 x 0.63	M8 x 0.39	0.47	0.47	0.55	0.55	0.55	0.75	0.75	0.75	0.75	0.75	0.75
$\alpha$	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	1.77	1.77	1.77
$\alpha_1$	1.38	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
$d$	0.43	0.55	0.75	0.94	1.10	1.10	1.50	1.65	1.89	2.17	2.36	2.56	2.95
$f$	0.16	0.20	0.24	0.31	0.31	0.31	0.39	0.47	0.55	0.63	0.71	0.71	0.79
$ga$	0.50	0.64	0.86	1.07	1.23	1.23	1.63	1.78	2.04	2.33	2.54	2.73	3.15
$E^1)$	0.98	1.26	1.69	1.87	2.48	3.94	3.37	4.39	4.39	4.51	5.51	5.75	5.75

<sup>1)</sup> Maximum motor shaft length for motors with key

Gear unit size	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
	$l$												
F02	5.39	5.39	6.50	6.50	-	-	-	-	-	-	-	-	-
F03	5.79	5.79	6.89	6.89	8.11	-	-	-	-	-	-	-	-
F04	6.75	6.75	7.85	7.85	9.07	-	-	-	-	-	-	-	-
F05	7.24	7.24	8.35	8.35	9.57	11.65	12.09	-	-	-	-	-	-
F06	7.70	7.70	8.80	8.80	10.02	12.11	12.54	15.93	-	-	-	-	-
F07	8.72	8.72	9.82	9.82	11.04	13.13	13.56	16.95	-	-	-	-	-
F08	9.78	9.78	10.89	10.89	12.11	14.19	14.63	17.95	17.95	-	-	-	-
F09	11.75	11.75	12.85	12.85	14.07	16.16	16.59	19.92	19.92	21.04	-	-	-
F10	-	-	-	-	-	17.32	17.76	20.98	20.98	22.11	23.29	-	-
F12	-	-	-	-	-	19.67	20.10	23.33	23.33	24.45	25.63	29.13	29.13
F15	-	-	-	-	-	-	-	25.94	25.94	27.07	28.25	31.75	31.75

Dimensions in inch.

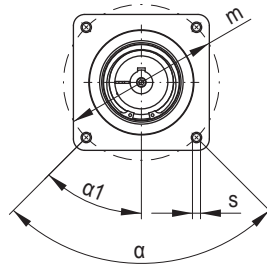
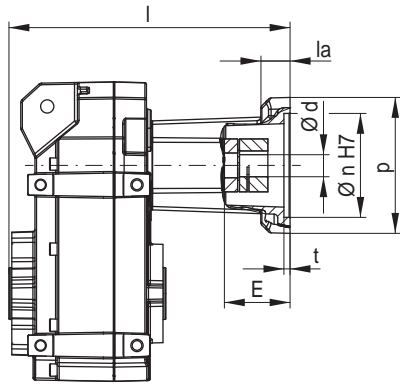
## NEMA Adapter N56 to N364



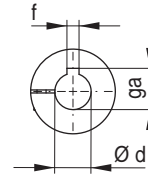
Type	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
$p$	6.69	6.69	9.84	9.84	11.81	8.86	11.02	13.78	15.75
$n$	4.50	4.50	8.50	8.50	8.50	8.50	10.50	12.50	12.50
$la$	0.51	0.51	0.39	0.66	0.39	1.18	1.38	0.59	0.59
$m$	5.88	5.88	7.25	7.25	7.25	7.25	9.00	11.00	11.00
$t$	0.18	0.18	0.20	0.13	0.20	0.20	0.12	0.20	0.20
$s$	0.43	0.43	0.55	0.55	0.55	0.55	0.55	0.75	0.75
$\alpha$	90°	90°	90°	90°	90°	90°	90°	90°	90°
$\alpha_1$	45°	45°	45°	45°	45°	45°	45°	45°	45°
$d$	0.63	0.88	1.13	1.13	1.38	1.63	1.88	2.13	2.38
$f$	0.19	0.19	0.25	0.25	0.31	0.38	0.50	0.50	0.63
$ga$	0.71	0.96	1.24	1.24	1.52	1.80	2.10	2.35	2.65
$E$	2.17	2.17	2.66	3.81	3.17	4.15	4.39	4.31	4.31

Gear unit size	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
	$l$								
F02	6.50	6.50	-	-	-	-	-	-	-
F03	6.89	6.89	8.11	-	-	-	-	-	-
F04	7.85	7.85	9.07	-	-	-	-	-	-
F05	8.35	8.35	9.57	11.65	12.09	-	-	-	-
F06	8.80	8.80	10.02	12.11	12.54	15.93	-	-	-
F07	9.82	9.82	11.04	13.13	13.56	16.95	-	-	-
F08	10.89	10.89	12.11	14.19	14.63	17.95	18.07	-	-
F09	12.85	12.85	14.07	16.16	16.59	19.92	20.04	21.91	-
F10	-	-	-	17.32	17.76	20.98	21.10	22.97	23.58
F12	-	-	-	19.67	20.10	23.33	23.44	25.31	25.93
F15	-	-	-	-	-	25.94	26.06	28.54	28.54

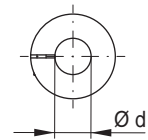
## SERVO Adapter S92 to S190



Shaft with key



Smooth shaft



Type	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190
p	3.98	5.67	5.67	5.67	5.67	5.67	5.67	7.76	7.76	7.76
n	3.15	3.74	3.74	4.33	4.33	4.33	5.12	4.50	5.12	7.09
la	0.69	1.22	1.22	1.22	1.22	1.22	1.22	1.38	1.26	1.50
m	3.94	4.53	5.12	5.12	5.71	6.50	6.50	7.87	8.46	8.46
t	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
s	M6x0.47	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x16	0.53	0.59	0.59
α	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°
α <sub>1</sub>	45°	45°	45°	45°	45°	45°	45°	45°	45°	45°
d <sup>1)</sup>	0.55   0.63   0.75	0.75	0.75   0.94	0.94	0.75   0.87   0.94   1.10	0.94	0.94   1.26	1.38	1.26   1.50	1.50
f	0.20   0.20   0.24	0.24	0.24   0.31	0.31	0.24   0.24   0.31   0.31	0.31	0.31   0.39	0.39	0.39   0.39	0.39
ga	0.64   0.72   0.86	0.86	0.86   1.07	1.07	0.86   0.98   1.07   1.23	1.07	1.07   1.39	1.51	1.39   1.39	1.63
E <sup>2)</sup>	1.87	2.74	2.74   2.11	2.11	2.97   2.97   2.46   2.46	2.62	2.46   2.46	2.58	2.89   2.34	3.41
E <sup>3)</sup>	1.87	2.74	2.74   2.62	2.62	2.97   2.97   2.97   2.46	2.11	2.97   2.46	3.41	2.89   2.34	3.41

<sup>1)</sup> Other shaft diameters on request

<sup>2)</sup> Maximum motor shaft length for motors with key

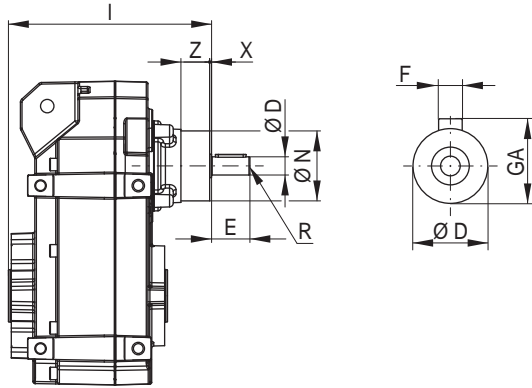
<sup>3)</sup> Maximum motor shaft length for motors with smooth shaft

Gear unit size	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190
	l									
F02	7.97	9.86	9.86	9.86	9.86	9.86	9.86	-	-	-
F03	8.37	10.26	10.26	10.26	10.26	10.26	10.26	-	-	-
F04	9.33	11.22	11.22	11.22	11.22	11.22	11.22	-	-	-
F05	9.82	11.71	11.71	11.71	11.71	11.71	11.71	14.49	14.25	15.31
F06	10.28	12.17	12.17	12.17	12.17	12.17	12.17	14.94	14.70	15.77
F07	11.30	13.19	13.19	13.19	13.19	13.19	13.19	15.96	15.73	16.79
F08	12.36	14.25	14.25	14.25	14.25	14.25	14.25	17.03	16.79	17.85
F09	14.33	16.22	16.22	16.22	16.22	16.22	16.22	19.00	18.76	19.82
F10	-	-	-	-	-	-	-	20.16	19.92	20.98
F12	-	-	-	-	-	-	-	22.50	22.26	23.33
F15	-	-	-	-	-	-	-	-	-	-

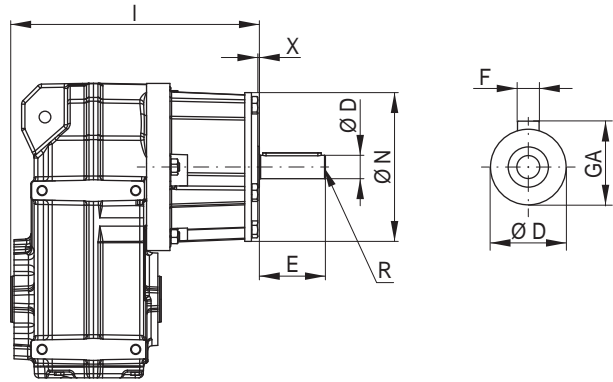
Dimensions in inch.

Dimensions in mm.

### Input Unit U2, U3



### Input Unit U5, U6, U7



Type	Input shaft						
	19x40*	24x50*	28x60*	38x80*	42x110*	48x110*	55x110*
	U2	U3	U5			U6	U7
D	0.75	0.94	1.10	1.50	1.65	1.89	2.17
F	0.24	0.31	0.31	0.39	0.47	0.55	0.63
GA	0.85	1.06	1.22	1.61	1.77	2.03	2.32
E	1.57	1.97	2.36	3.15	4.33	4.33	4.33
N	2.87	3.98	7.01			9.25	11.42
X	0.08	0.10	0.07			0.26	0.16
Z	0.12	1.38	-			-	-
R	M6	M10	M10	M12	M16	M16	M20

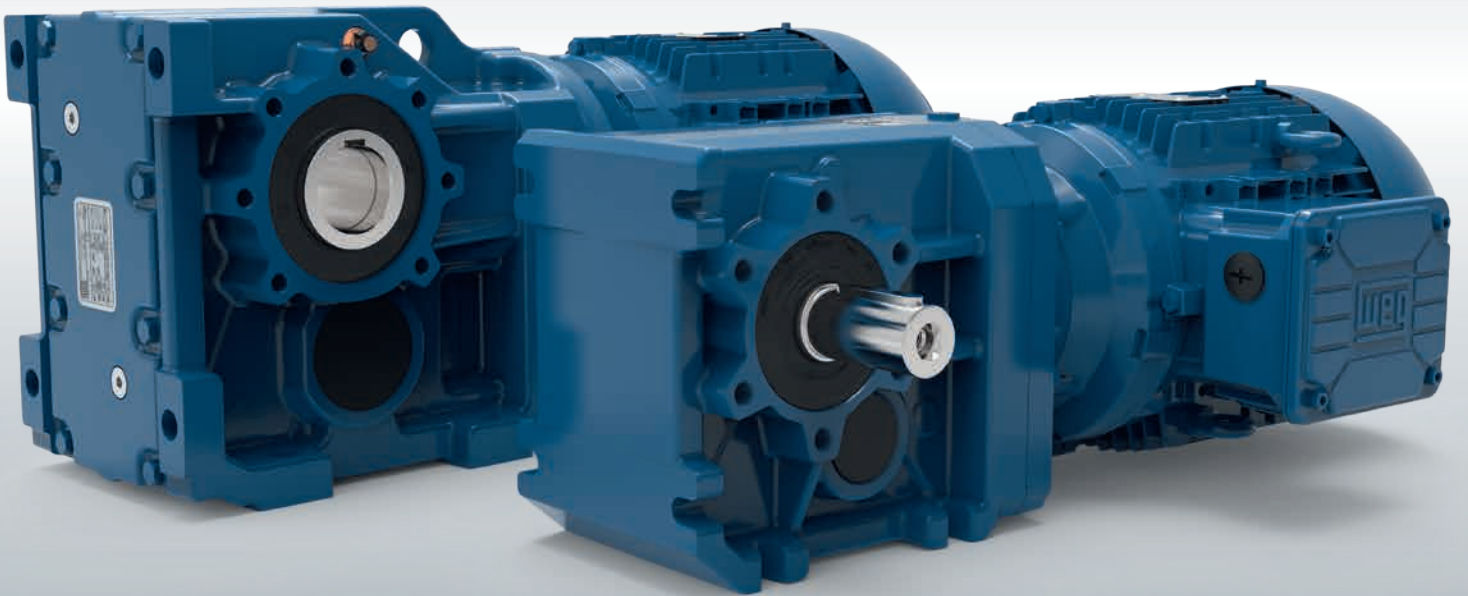
Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
D	< Ø 55 mm (2.17 in)	k6
	≥ Ø 55 mm (2.17 in)	m6

Gear unit size	Input shaft				
	19x40*	24x50*	28x60* 38x80* 42x110*	48x110*	55x110*
	U2	U3	U5	U6	U7
	I				
F02	6.50	-	-	-	-
F03	6.89	-	-	-	-
F04	7.85	-	-	-	-
F05	8.35	9.61	-	-	-
F06	8.80	10.06	11.73	-	-
F07	9.82	11.08	12.76	-	-
F08	10.89	12.15	13.76	14.63	-
F09	12.85	14.11	15.73	16.59	-
F10	-	15.28	16.79	17.66	20.37
F12	-	17.62	19.13	20.00	22.72
F15	-	-	21.75	22.62	25.33

\* Shaft sizes in mm.







## Helical bevel geared motors K

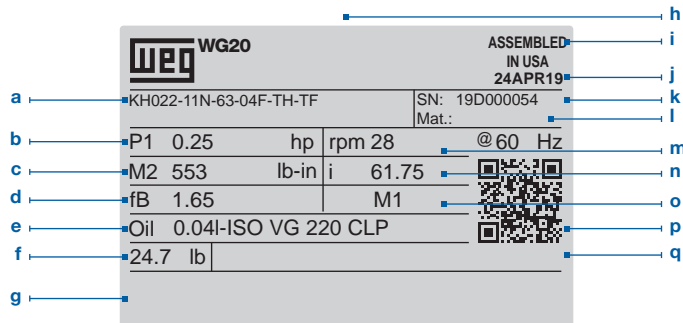


# Technical data

Size		K02	K03	K04	K05	K06	K07	K08	K09	K10	K12	K15
Power	[hp]	0.16 - 2.0	0.16 - 4.0	0.16 - 5.5	0.16 - 12.5	0.16 - 12.5	0.16 - 20	0.16 - 30	0.16 - 50	0.16 - 75	0.16 - 75	0.16 - 100
Torque	[lb-in]	970	1770	3540	5310	7260	13700	26600	39800	70800	115000	159000
Ratio		3.82 68.88	4.17 217.88	4.87 277.79	4.27 245.7	4.94 198	7.91 256.14	7.45 2205.52	6.94 1810.95	6.64 1301.54	6.60 1579.81	8.61 14005.40
Number of stages		2	3	3	3	3	3	3 / 4	3 / 4	3 / 4	3 / 4	3 / 4 / 5
Housing material		aluminium					cast iron					
Solid shaft	Type	with key acc. to DIN 6885.1 and threaded hole acc. to DIN 332 sheet 2										
	Tolerance	< Ø 55 mm (2.165 in): k6 / ≥ Ø 55 mm (2.165 in): m6										
	Material	standard: C45E (1.1191) / stainless steel on request										
Hollow shaft	Type	with key acc. to DIN 6885.1										
	Tolerance	H7										
	Material	standard: C45E (1.1191) / stainless steel on request										
Flanges	Tolerance	centering ≤ 250 mm (9.842 in): j6 / > 250 mm (9.842 in): h6 acc. to DIN EN 50347										
	Material	cast iron										
Gear wheels	Type	honed										
	Material	16MnCr5 (1.7131) case hardened – minimum 58HRC										
Shaft seals	Type	type AS acc. to DIN 3760										
	Material	standard NBR / special FKM										
Bearing		standard / reinforced										
Lubricants	Type	standard CLP 220 / special CLP HC 220										
	Quantity	depending on mounting position										
Shaft height		acc. to DIN 747: ≤ 50 mm (1.968 in): -0.4 mm (-0.016 in) > 50 mm (1.968 in) to ≤ 250 mm (9.842 in): -0.5 mm (0.020 in) > 250 mm (9.842 in): -1 mm (0.040 in) for foot-mounted gear motors, the motor may extend below the mounting surface										

# General information

## 1. Nameplate



a	Type code	j	Production date
b	Motor power	k	Serial number
c	Output torque	l	Material number
d	Service factor	m	Output speed and Frequency
e	Type and quantity of lubricant	n	Total gear ratio
f	Weight	o	Mounting position
g	Space for ATEX code (if applicable)	p	QR-Code linked online to additional information
h	Production company	q	Space for additional information
i	Production country		

## 2. Type code

**KH073-EX-11P-90S/L-04F ...**

1 2 3 4 5 6 7 8 9 10

**KH073-EX-I112-HT**

1 2 3 4 5 11 12

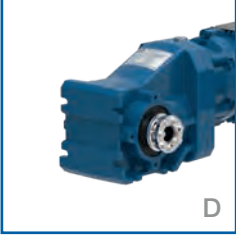
<b>1</b>	Type:	K = Helical bevel gear unit										
<b>2</b>	Design:	D = Hollow shaft with shrink disc E = Hollow shaft with EasyLock F = B5 flange execution with output shaft H = Hollow shaft O = B5 flange execution with hollow shaft P = B5 flange execution with hollow shaft and shrink disc					Q = B5 flange execution with EasyLock S = Output shaft T = Hollow shaft with torque arm U = Hollow shaft with shrink disc and torque arm V = Hollow shaft and torque arm with EasyLock					
<b>3</b>	Size:	02	03	04	05	06	07	08	09	10	12	15
<b>4</b>	Number of stages:	2 = 2 gear stages			3 = 3 gear stages			4 = 4 gear stages			5 = 5 gear stages	
<b>5</b>	ATEX execution:	when operated in explosive atmospheres, see page 482										
<b>6</b>	Motor type:	11N = Integral motor aluminium IE1 11P = Integral motor aluminium IE3					22P = Integral motor cast iron IE3					
<b>7</b>	Motor frame size:	63 L132M	71 160M	80 160L	L80 180M	90S/L 180L	100L 200L	L100L 225S/M	112M 250S/M	132S		
<b>8</b>	Number of poles:	04 = 4 poles				06 = 6 poles						
<b>9</b>	Power indicator:	E	F	G								
<b>10</b>	Motor modules:	see from page 493										
<b>11</b>	Adapters, Input unit:	IEC Adapter		I63 I160	I71 I180	I80 I200	I90 I225	I100 I250	I112 I280	I132		
		NEMA Adapter		N56 N254	N143 N284	N182 N324	N184 N364	N213				
		SERVO Adapter		S92 S141	S105 S142	S114 S180	S115 S189	S130 S190				
		Input unit		U2	U3	U5	U6	U7				
	Direct Mounting (IEC):	IEC63 IEC132	IEC71 IEC160	IEC80 IEC180	IEC90 IEC200	IEC100 IEC225	IEC112 IEC250					
<b>12</b>	High/Low temperature execution:	HT    LT										

Type code Motor see page 475

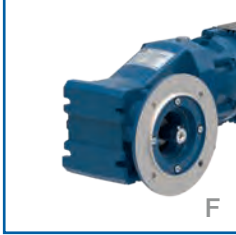
### 3. Range

Size	K02	K03	K04	K05	K06	K07	K08	K09	K10	K12	K15
Housing material	Aluminium					Cast iron					


### 4. Design



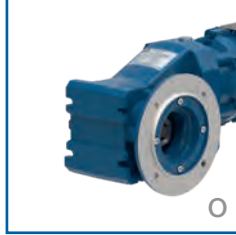
D




F




H




O




P




S




T




U



E



Q



V

D	Hollow shaft with shrink disc
F	B5 flange execution with output shaft
H	Hollow shaft
O	B5 flange execution with hollow shaft
P	B5 flange exec. with hollow s. and shrink disc
S	Output shaft
T	Hollow shaft with torque arm
U	Hollow shaft with shrink disc and torque arm
<b>Executions using EasyLock</b>	
E	Hollow shaft with EasyLock
Q	B5 flange execution with EasyLock
V	Hollow shaft and torque arm with EasyLock

### 5. Venting the gear unit





The helical bevel gear unit sizes K02 to K05 are neither equipped with a vent plug nor an oil drain plug. They are supplied with lifetime-lubrication.

By default, the helical bevel gear units from K06 are equipped with vent plugs with a safety strap for transportation (see illustration). The rubber strap (a) of the vent plug must be removed entirely before the initial startup. The vent plug is placed accordingly to the mounting position (see chapter Mounting positions, page 335)



### 6. Overhung and axial loads

The overhung loads ( $F_{rN}$ ) indicated in the respective selection tables apply to gear units with the force acting on the shaft center ( $x=l/2$ ). The permissible overhung loads listed are based on the least favorable loading direction and calculated for standard shafts and standard bearings. Other load directions and action can be calculated with equations Q1 and Q2. If transmission elements are placed on the output shaft, an appropriate factor ( $f_z$ ) has to be taken into consideration when determining the overhung load.

Gear wheels	Sprockets		V-belts	Flat belts
				
$f_z=1.1$ ( $z \leq 17$ )	$f_z=1.2$ ( $z \leq 13$ )	$f_z=1.1$ ( $z > 13$ )	$f_z=1.8$	$f_z=2.5$

Use the following equations Q1 and Q2 to calculate the permissible radial loads on the output shaft. Q3 is to calculate the real existing shaft loads for your application. The results are to be compared by using the equation Q4.

<b>Q1</b>	$F_{zL} = F_{rN} \cdot a_1$
<b>Q2</b>	$F_{zW} = F_W \cdot a_2$
<b>Q3</b>	$F_{Qvorh} = \frac{0.6691062 \cdot T_2}{d_0} \cdot f_z$
<b>Q4</b>	$F_{Qvorh} \leq F_{zL}$
	$F_{Qvorh} \leq F_{zW}$

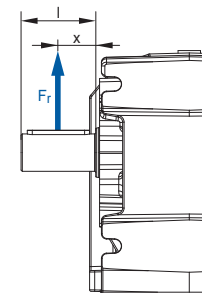
Variable	Unit	Description
a1		Load action factor - output shaft bearing from table 1
a2		Load action factor - output shaft from table 1
d0	[lb]	Effective diameter of the transmission element
T2	[lb-in]	G geared motor output torque (from selection tables) or required calculated output torque
FzL	[lb]	Permissible overhung load for output shaft bearings
FzW	[lb]	Permissible overhung load for output shaft
FrN	[lb]	Permissible overhung load from selection tables
FW	[lb]	Permissible overhung load - Output shaft x=l/2 from table 2
FQvorh	[lb]	Existing overhung load at gear shaft
fz		Factor for transmission element
Tmax	[lb-in]	Highest possible output torque for coupling operation (table 2)



Always use both equations Q1 and Q2 for your calculations.

x / l						
0	0.25	0.5	0.75	1	1.5	2
a1 → Equation Q1						
1.39	1.18	1.00	0.85	0.73	0.52	0.38
a2 → Equation Q2						
2.00	2.00	1.00	0.55	0.38	0.23	0.17

Table 1: Load action factors a1, a2



Intermediate values can be interpolated linearly. Combined load ( $F_r \neq 0$ ;  $F_a = 0$ ) on request.

	Tmax at Fr = 0	Output torque T2 [lb-in]												
		440	890	1770	2660	3540	5310	7260	13700	26600	39800	70800	115000	159000
		FW [lb] at x/l = 0.5 → Equation Q2												
Ø 0.750x1.57	1220	650	490											
Ø 1.000x1.97	2820	1380	1350	1150										
Ø 1.250x2.36	5300		2020	1960	1800	1570								
Ø 1.375x2.76	7040			2470	2470	2250	1840							
Ø 1.625x3.15	11400				3370	3370	3150	2810						
Ø 2.000x3.94	20900					5620	5620	5620	4950					
Ø 2.125x3.94	24100						6070	6070	5400					
Ø 2.375x4.72	33600							7190	6740	5400				
Ø 2.875x5.51	58800								11470	10790	8090			
Ø 3.625x6.69	111000									17310	16860	15060		
Ø 4.375x8.27	189000										17760	16640	13490	
Ø 4.750x8.27	240000											29450	27880	25180

Table 2: Permissible overhung load - output shaft x = l/2

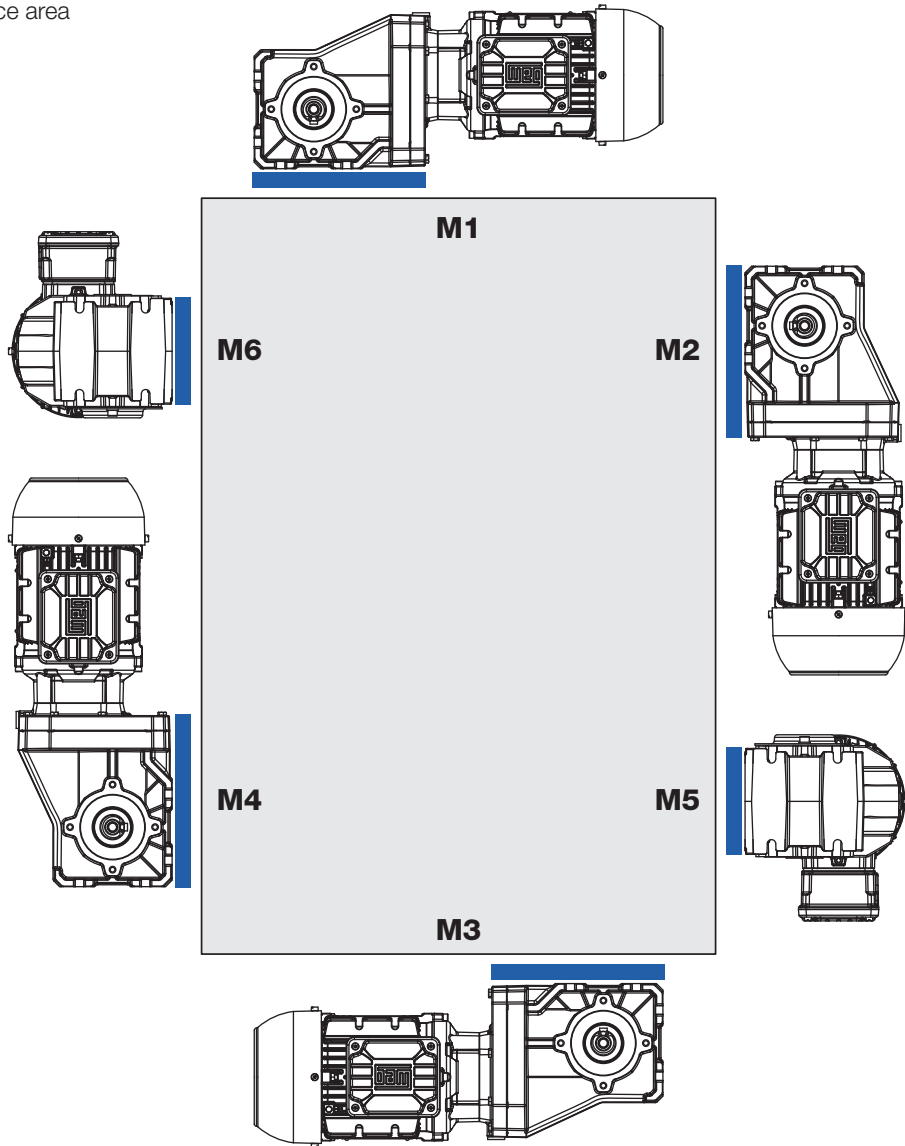
The axial loads ( $F_{aN}$ ) for the respective execution (output shaft or hollow shaft), given in the following selection tables, are valid at radial force  $F_{rN} = 0$ . If there are axial loads or radial and axial components acting on the drive which are extraordinarily high, we recommend to contact the manufacturer.

## 7. Mounting positions, Position of the terminal box and Cable entry

### Mounting positions - Sizes K02 to K05

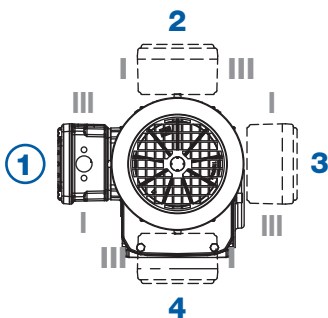
Gear units K02 to K05 are not vented and supplied with lifetime lubrication.

Reference area



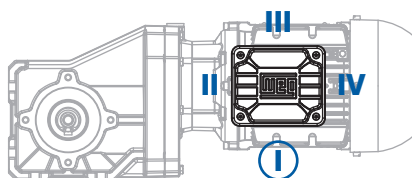
### Position of the terminal box

Standard: Position 1

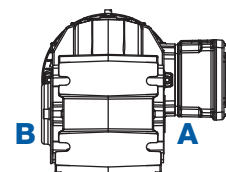


### Cable entry






Standard: Position I

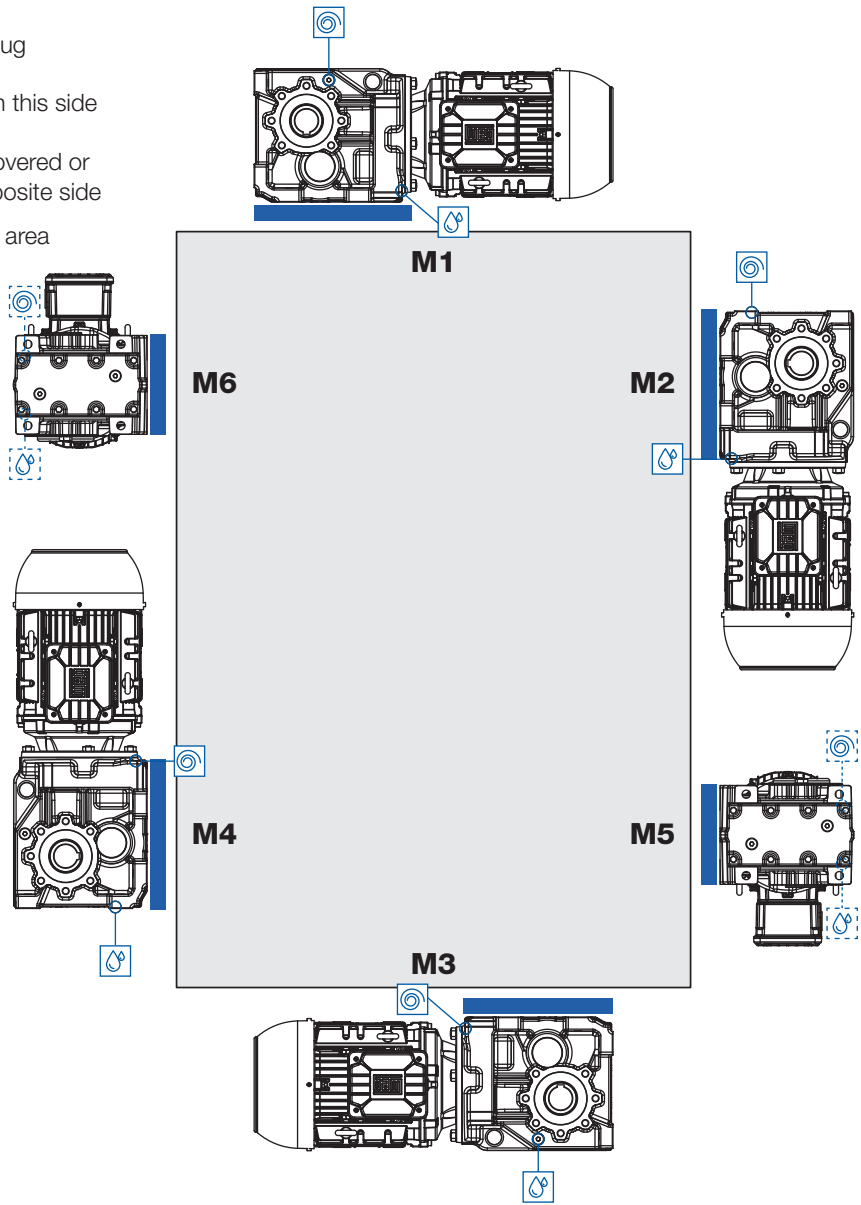


### Side indication



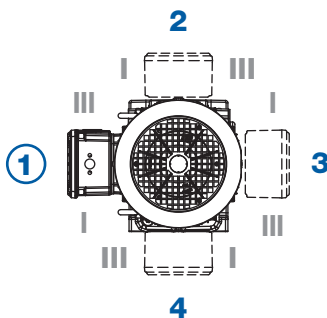
### Mounting positions - Sizes K06 to K15

-  Vent plug
-  Oil drain plug
-  Position on this side
-  Position covered or on the opposite side
-  Reference area



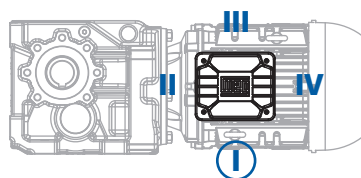
#### Position of the terminal box

Standard: Position 1

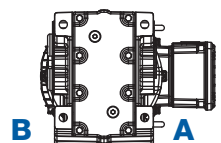


#### Cable entry

Standard: Position I



#### Side indication







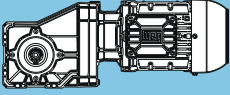
## Selection tables - Geared motors

The technical data of the geared motors shown in the selection tables apply to an ambient temperature of +68 °F.

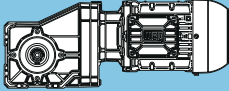
The selection tables are calculated with following motor data:

Power (IEC frame size)	Motor series (IE class)
up to 0.75 hp (63 - 80)	11N (IE1) - aluminium
1.0 - 12.5 hp (80 - 132)	11P (IE3) - aluminium
15.0 - 100 hp (160 - 250)	22P (IE3) - cast iron

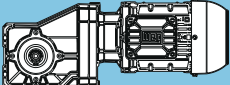
### Structure of the selection tables

1											
P <sub>N</sub> = 0.16 hp											
60 Hz		T <sub>2</sub> lb-in	f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm					F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb			
2	3	4	5	6	7	8	9	10	11	12	

- 1 Rated power of the motor
- 2 Output speed at 60 Hz
- 3 Output torque
- 4 Service factor
- 5 Total ratio
- 6 Permissible radial load - Execution with output shaft at midpoint of the shaft (standard bearing) at axial load=0
- 7 Permissible axial load - Execution with output shaft (standard bearing) at axial load=0
- 8 Permissible radial load - Execution with hollow shaft at midpoint of x=l/2 (standard bearing) at axial load=0
- 9 Permissible axial load - Execution with hollow shaft (standard bearing) at axial load=0
- 10 Geared motor type
- 11 Weight
- 12 Dimension sheet see page

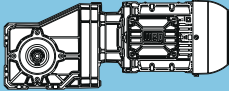
<b>P<sub>N</sub> = 0.16 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rn</sub></b>	<b>F<sub>sn</sub></b>	<b>F<sub>rn</sub></b>	<b>F<sub>sn</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.08</b>	112403	1.45	14005.40	21110	26980	21110	26980	<b>KH155-11N-63-06F</b>	1490	462
<b>0.10</b>	90511	1.80	11453.02	22370	27400	22370	27400			
<b>0.11</b>	75511	2.15	9679.02	23040	27720	23040	27720			
<b>0.12</b>	70007	2.30	9043.42	23250	27830	23250	27830			
<b>0.14</b>	60328	2.65	7915.09	23580	28010	23580	28010			
<b>0.12</b>	70680	2.30	14005.40	23250	27810	23250	27810	<b>KH155-11N-63-04E</b>	1490	462
<b>0.15</b>	56466	2.85	11453.02	23720	28100	23720	28100			
<b>0.61</b>	14266	2.80	1810.95	8660	9640	8660	9640	<b>KH094-11N-63-06F</b>	346	448
<b>0.50</b>	18145	1.50	2205.52	5600	9420	5600	2110	<b>KH084-11N-63-06F</b>	236	444
<b>0.61</b>	14656	1.85	1803.58	5980	9550	5980	2250			
<b>0.63</b>	14156	1.90	1745.64	6020	9580	6020	2270			
<b>0.72</b>	12259	2.20	1524.22	6180	9640	6180	2340			
<b>0.77</b>	11410	2.35	1427.51	6230	9670	6230	2360			
<b>0.78</b>	11383	2.35	1424.12	6230	9670	6230	2360			
<b>0.89</b>	9840	2.70	1246.44	6340	9730	6340	2430			
<b>0.77</b>	11492	2.35	2205.52	6230	9670	6230	2360			
<b>0.94</b>	9224	2.90	1803.58	6380	9760	6380	2450	<b>KH084-11N-63-04E</b>	236	444
<b>0.97</b>	8891	3.00	1745.64	6380	9780	6380	2470			
<b>4.5</b>	2255	2.40	245.70	2070	2520	2070	1010	<b>KH053-11N-63-06F</b>	44	436
<b>5.7</b>	1787	3.00	194.73	2110	2560	2110	1060			
<b>4.0</b>	2550	1.40	277.79	1240	1870	1240	610	<b>KH043-11N-63-06F</b>	37	434
<b>4.9</b>	2085	1.70	227.16	1350	1910	1350	650			
<b>6.2</b>	1646	2.20	179.37	1440	1960	1440	700			
<b>7.9</b>	1277	2.80	139.08	1510	2000	1510	740			
<b>6.1</b>	1662	2.15	277.79	1440	1960	1440	700	<b>KH043-11N-63-04E</b>	35	434
<b>7.5</b>	1359	2.65	227.16	1480	2000	1480	740			
<b>5.1</b>	2000	0.90	217.88	700	520	700	520	<b>KH033-11N-63-06F</b>	29	432
<b>6.2</b>	1626	1.10	177.19	880	580	880	580			
<b>7.8</b>	1292	1.40	140.80	990	630	990	630			
<b>10</b>	998	1.80	108.75	1060	670	1060	670			
<b>13</b>	797	2.25	86.83	1100	700	1100	700			
<b>15</b>	660	2.70	71.93	1120	720	1120	720			
<b>17</b>	602	2.95	65.63	1120	740	1120	740			
<b>7.8</b>	1304	1.40	217.88	990	630	990	630	<b>KH033-11N-63-04E</b>	29	432
<b>9.6</b>	1060	1.70	177.19	1060	670	1060	670			
<b>12</b>	843	2.15	140.80	1080	700	1080	700			
<b>16</b>	651	2.75	108.75	1120	720	1120	720			
<b>16</b>	632	1.55	68.88	1150	630	1150	630	<b>KH022-11N-63-06F</b>	24	462
<b>18</b>	567	1.60	61.75	1170	630	1170	630			
<b>21</b>	492	2.00	53.65	1170	630	1170	630			
<b>23</b>	442	2.25	48.10	1170	630	1170	630			
<b>25</b>	399	2.45	43.50	1170	630	1170	630			
<b>28</b>	358	2.75	39.00	1190	630	1190	630			
<b>36</b>	283	1.60	30.88	1190	630	1190	630			

**P<sub>N</sub> = 0.16 hp**

60 Hz			i	Output shaft		Hollow shaft		 <b>KH022-11N-63-04E</b>	m lb	Dimension sheet see page 462
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
25	412	2.40	68.88	1170	630	1170	630			
27	370	2.45	61.75	1170	630	1170	630			
32	321	3.05	53.65	1190	630	1190	630			
35	288	3.40	48.10	1190	630	1190	630			
39	260	3.75	43.50	1190	630	1190	630			
43	233	4.20	39.00	1190	630	1190	630			
49	205	4.75	34.27	1190	630	1190	630			
55	184	5.30	30.73	1190	630	1190	630			
64	158	6.20	26.41	1190	630	1190	630			
70	144	5.00	24.05	1190	630	1190	630			
72	142	6.90	23.68	1190	630	1190	630			
82	123	7.40	20.63	1190	630	1190	630			
87	117	6.15	19.50	1190	630	1190	630			
92	111	8.20	18.50	1190	630	1190	630			
110	92	8.95	15.41	1170	630	1170	630			
123	83	10.00	13.81	1120	630	1120	630			
143	71	10.15	11.84	1080	630	1080	630			
146	69	10.85	11.60	1060	630	1060	630			
163	62	12.10	10.40	1010	630	1010	630			
183	55	13.00	9.25	990	630	990	630			
199	51	13.40	8.51	940	630	940	630			
222	46	14.95	7.63	920	630	920	630			
245	41	15.85	6.91	900	630	900	630			
326	31	18.50	5.20	810	630	810	630			
444	23	22.10	3.82	720	630	720	630			

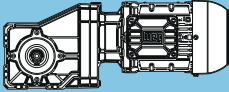
**K**

Legend see page 337

<b>P<sub>N</sub> = 0.25 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>50</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>sN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.08</b>	172097	0.95	14005.40	15490	25790	15490	25790	<b>KH155-11N-71-06E</b>	1495	462
<b>0.10</b>	139300	1.15	11453.02	19090	26440	19090	26440			
<b>0.11</b>	116521	1.40	9679.02	20860	26910	20860	26910			
<b>0.12</b>	108590	1.50	9043.42	21380	27070	21380	27070			
<b>0.14</b>	94069	1.70	7915.09	22210	27360	22210	27360			
<b>0.16</b>	82482	1.95	7012.05	22750	27580	22750	27580			
<b>0.18</b>	72760	2.20	6249.84	23160	27760	23160	27760			
<b>0.19</b>	66298	2.45	5739.09	23400	27900	23400	27900			
<b>0.23</b>	54688	2.95	4845.97	23760	28120	23760	28120			
<b>0.12</b>	109312	1.50	14005.40	21310	27040	21310	27040	<b>KH155-11N-63-04F</b>	1490	462
<b>0.15</b>	88021	1.85	11453.02	22480	27470	22480	27470			
<b>0.18</b>	73433	2.20	9679.02	23110	27760	23110	27760			
<b>0.19</b>	68081	2.35	9043.42	23310	27850	23310	27850			
<b>0.21</b>	58667	2.75	7915.09	23630	28060	23630	28060			
<b>0.61</b>	22074	1.85	1810.95	8210	9370	8210	9370	<b>KH094-11N-71-06E</b>	351	448
<b>0.72</b>	18470	2.20	1531.00	8430	9510	8430	9510			
<b>0.75</b>	17792	2.25	1480.92	8480	9530	8480	9530			
<b>0.88</b>	14825	2.70	1251.99	8630	9620	8630	9620			
<b>0.94</b>	13761	2.90	1169.35	8680	9670	8680	9670			
<b>0.94</b>	13852	2.90	1810.95	8680	9640	8680	9640			
<b>0.50</b>	27668	1.00	2205.52	3910	6740	3910	1730	<b>KH084-11N-71-06E</b>	240	444
<b>0.61</b>	22441	1.20	1803.58	5010	9150	5010	1930			
<b>0.63</b>	21720	1.25	1745.64	5130	9280	5130	1980			
<b>0.72</b>	18849	1.45	1524.22	5530	9400	5530	2090			
<b>0.77</b>	17580	1.55	1427.51	5690	9440	5690	2140			
<b>0.78</b>	17539	1.55	1424.12	5690	9440	5690	2140			
<b>0.89</b>	15225	1.75	1246.44	5930	9530	5930	2230			
<b>0.98</b>	13683	1.95	1127.18	6070	9600	6070	2290			
<b>1.0</b>	13377	2.00	1104.23	6090	9600	6090	2290			
<b>1.1</b>	11825	2.25	984.20	6200	9670	6200	2360			
<b>1.2</b>	10791	2.50	903.77	6270	9690	6270	2380			
<b>1.3</b>	10392	2.60	873.98	6320	9710	6320	2410			
<b>1.4</b>	8962	3.00	763.13	6380	9780	6380	2470			
<b>0.77</b>	17655	1.55	2205.52	5670	9440	5670	2140			
<b>0.94</b>	14290	1.90	1803.58	6000	9550	6000	2250			
<b>0.97</b>	13774	1.95	1745.64	6050	9580	6050	2270			
<b>1.1</b>	11928	2.25	1524.22	6200	9640	6200	2340			
<b>1.2</b>	11102	2.40	1427.51	6250	9690	6250	2380			
<b>1.4</b>	9574	2.80	1246.44	6360	9730	6360	2430			
<b>5.6</b>	2726	2.70	198.00	2700	3210	2700	970	<b>KH063-11N-71-06E</b>	77	438
<b>4.5</b>	3383	1.60	245.70	1890	2430	1890	920	<b>KH053-11N-71-06E</b>	49	436
<b>5.7</b>	2681	2.00	194.73	2000	2500	2000	990			
<b>7.3</b>	2082	2.60	151.20	2070	2540	2070	1030			
<b>6.9</b>	2199	2.45	245.70	2070	2520	2070	1010	<b>KH053-11N-63-04F</b>	44	436
<b>4.0</b>	3825	0.95	277.79	560	720	560	470	<b>KH043-11N-71-06E</b>	42	434
<b>4.9</b>	3128	1.15	227.16	1010	1690	1010	540			
<b>6.2</b>	2470	1.45	179.37	1260	1890	1260	630			
<b>7.9</b>	1915	1.85	139.08	1390	1930	1390	670			
<b>9.7</b>	1567	2.30	113.83	1460	1980	1460	720			
<b>12</b>	1228	2.75	89.17	1510	2000	1510	740			
<b>13</b>	1206	2.95	87.62	1510	2000	1510	740			
<b>23</b>	648	2.75	47.07	1550	2050	1550	790			
<b>6.1</b>	2486	1.45	277.79	1260	1870	1260	610			
<b>7.5</b>	2033	1.75	227.16	1370	1930	1370	670			
<b>9.5</b>	1605	2.25	179.37	1460	1980	1460	720			
<b>12</b>	1245	2.85	139.08	1510	2000	1510	740			

Legend see page 337

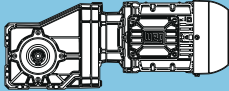
$P_N = 0.25$  hp

60 Hz		$f_B$	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page			
$n_{60}$	$T_2$			$F_{rN}$	$F_{aN}$	$F_{rN}$	$F_{aN}$						
rpm	lb-in			lb	lb	lb	lb						
<b>7.8</b>	1939	0.95	140.80	720	540	720	540	<b>KH033-11N-71-06E</b>	33	432			
<b>10</b>	1497	1.20	108.75	920	610	920	610						
<b>13</b>	1196	1.50	86.83	1010	650	1060	670						
<b>15</b>	990	1.80	71.93	1060	670	1060	670						
<b>17</b>	904	2.00	65.63	1080	700	1080	700						
<b>19</b>	805	2.20	58.50	1100	700	1100	700						
<b>22</b>	687	2.60	49.88	1100	720	1100	720						
<b>24</b>	640	2.80	46.48	1120	720	1120	720						
<b>37</b>	413	2.80	29.97	1150	740	1150	740						
<b>7.8</b>	1950	0.95	217.88	720	540	720	540	<b>KH033-11N-63-04F</b>	29	432			
<b>9.6</b>	1586	1.15	177.19	900	580	900	580						
<b>12</b>	1260	1.45	140.80	990	630	990	630						
<b>16</b>	973	1.85	108.75	1060	670	1060	670						
<b>20</b>	777	2.30	86.83	1100	700	1100	700						
<b>24</b>	644	2.75	71.93	1120	720	1120	720						
<b>16</b>	948	1.05	68.88	1100	630	1100	630	<b>KH022-11N-71-06E</b>	29	462			
<b>18</b>	850	1.10	61.75	1120	630	1120	630						
<b>21</b>	739	1.35	53.65	1150	630	1150	630						
<b>23</b>	662	1.50	48.10	1150	630	1150	630						
<b>25</b>	599	1.65	43.50	1170	630	1170	630						
<b>28</b>	537	1.85	39.00	1170	630	1170	630						
<b>32</b>	472	2.10	34.27	1170	630	1170	630						
<b>36</b>	423	2.35	30.73	1170	630	1170	630						
<b>42</b>	364	2.70	26.41	1190	630	1190	630						
<b>46</b>	331	2.20	24.05	1190	630	1190	630						
<b>47</b>	326	3.00	23.68	1190	630	1190	630						
<b>57</b>	268	2.70	19.50	1190	630	1190	630						
<b>25</b>	616	1.60	68.88	1150	630	1150	630				<b>KH022-11N-63-04F</b>	24	462
<b>28</b>	553	1.65	61.75	1170	630	1170	630						
<b>32</b>	480	2.05	53.65	1170	630	1170	630						
<b>35</b>	430	2.30	48.10	1170	630	1170	630						
<b>39</b>	389	2.55	43.50	1170	630	1170	630						
<b>44</b>	349	2.80	39.00	1190	630	1190	630						
<b>50</b>	307	3.20	34.27	1190	630	1190	630						
<b>55</b>	275	3.55	30.73	1190	630	1190	630						
<b>64</b>	236	4.15	26.41	1190	630	1190	630						
<b>71</b>	215	3.35	24.05	1190	630	1190	630						
<b>72</b>	212	4.60	23.68	1190	630	1190	630						
<b>82</b>	185	4.95	20.63	1190	630	1190	630						
<b>87</b>	175	4.15	19.50	1190	630	1190	630						
<b>92</b>	166	5.50	18.50	1190	630	1190	630						
<b>110</b>	138	6.00	15.41	1170	630	1170	630						
<b>111</b>	137	5.25	15.36	1170	630	1170	630						
<b>123</b>	124	6.70	13.81	1120	630	1120	630						
<b>144</b>	106	6.80	11.84	1080	630	1080	630						
<b>147</b>	104	7.25	11.60	1060	630	1060	630						
<b>163</b>	93	8.10	10.40	1030	630	1030	630						
<b>184</b>	83	8.70	9.25	990	630	990	630						
<b>200</b>	76	8.95	8.51	970	630	970	630						
<b>223</b>	68	10.00	7.63	920	630	920	630						
<b>246</b>	62	10.60	6.91	900	630	900	630						
<b>327</b>	47	12.40	5.20	810	630	810	630						
<b>445</b>	34	14.80	3.82	720	630	720	630						

**K**

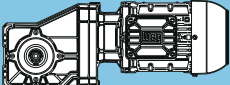
Legend see page 337

**P<sub>N</sub> = 0.33 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.10</b>	195081	0.85	11453.02	11760	19630	11760	19630	<b>KH155-11N-71-06F</b>	1497	462
<b>0.11</b>	164023	1.00	9679.02	16550	25970	16550	25970			
<b>0.12</b>	152860	1.05	9043.42	17800	26190	17800	26190			
<b>0.14</b>	132764	1.20	7915.09	19670	26570	19670	26570			
<b>0.16</b>	116715	1.40	7012.05	20860	26910	20860	26910			
<b>0.18</b>	103494	1.55	6249.84	21690	27160	21690	27160			
<b>0.19</b>	94306	1.70	5739.09	22190	27340	22190	27340			
<b>0.23</b>	78610	2.05	4845.97	22930	27650	22930	27650			
<b>0.25</b>	70924	2.25	4417.59	23220	27810	23220	27810			
<b>0.28</b>	63022	2.55	3966.24	23520	27970	23520	27970			
<b>0.12</b>	154572	1.05	14005.40	17510	26120	17510	26120	<b>KH155-11N-71-04E</b>	1493	462
<b>0.15</b>	125113	1.30	11453.02	20210	26710	20210	26710			
<b>0.18</b>	104654	1.55	9679.02	21580	27130	21580	27130			
<b>0.19</b>	97279	1.65	9043.42	22010	27270	22010	27270			
<b>0.21</b>	84269	1.90	7915.09	22660	27540	22660	27540			
<b>0.24</b>	73888	2.20	7012.05	23110	27740	23110	27740			
<b>0.27</b>	65010	2.50	6249.84	23430	27920	23430	27920			
<b>0.30</b>	59081	2.70	5739.09	23630	28030	23630	28030			
<b>0.61</b>	31091	1.30	1810.95	7350	9080	7350	9080	<b>KH094-11N-71-06F</b>	353	448
<b>0.73</b>	26070	1.55	1531.00	7870	9260	7870	9260			
<b>0.75</b>	25165	1.60	1480.92	7960	9280	7960	9280			
<b>0.89</b>	21057	1.90	1251.99	8270	9420	8270	9420			
<b>0.95</b>	19586	2.05	1169.35	8360	9460	8360	9460			
<b>1.1</b>	16320	2.45	988.58	8570	9580	8570	9580			
<b>1.2</b>	14844	2.70	906.69	8630	9620	8630	9620			
<b>0.94</b>	19805	2.05	1810.95	8340	9460	8340	9460	<b>KH094-11N-71-04E</b>	348	448
<b>1.1</b>	16537	2.45	1531.00	8540	9550	8540	9550			
<b>0.62</b>	31412	0.85	1803.58	2650	4090	2650	1600	<b>KH084-11N-71-06F</b>	243	444
<b>0.64</b>	30340	0.90	1745.64	3080	4990	3080	1640			
<b>0.73</b>	26384	1.05	1524.22	4230	7440	4230	1800			
<b>0.78</b>	24659	1.10	1427.51	4610	8270	4610	1870			
<b>0.89</b>	21399	1.25	1246.44	5170	9280	5170	1980			
<b>0.98</b>	19272	1.40	1127.18	5490	9370	5490	2070			
<b>1.0</b>	18880	1.45	1104.23	5530	9400	5530	2090			
<b>1.1</b>	16724	1.60	984.20	5780	9460	5780	2160			
<b>1.2</b>	15263	1.75	903.77	5930	9530	5930	2230			
<b>1.3</b>	14730	1.85	873.98	5980	9550	5980	2250			
<b>1.5</b>	12756	2.10	763.13	6140	9620	6140	2320			
<b>1.6</b>	11883	2.25	715.32	6200	9670	6200	2360			
<b>1.8</b>	10268	2.60	624.59	6320	9710	6320	2410			
<b>2.0</b>	8921	3.00	550.61	6380	9780	6380	2470			
<b>0.77</b>	24876	1.10	2205.52	4520	8070	4520	1840	<b>KH084-11N-71-04E</b>	238	444
<b>0.94</b>	20176	1.35	1803.58	5330	9330	5330	2020			
<b>0.97</b>	19528	1.40	1745.64	5420	9350	5420	2050			
<b>1.1</b>	16912	1.60	1524.22	5760	9460	5760	2160			
<b>1.2</b>	15774	1.70	1427.51	5870	9510	5870	2200			
<b>1.4</b>	13660	1.95	1246.44	6070	9580	6070	2270			
<b>1.5</b>	12276	2.20	1127.18	6180	9640	6180	2340			
<b>1.7</b>	10587	2.55	984.20	6290	9710	6290	2410			
<b>1.9</b>	9641	2.80	903.77	6340	9730	6340	2430			
<b>4.3</b>	4876	2.85	256.14	4450	4000	4450	1480			
<b>5.6</b>	3769	1.95	198.00	2590	3120	2590	880	<b>KH073-11N-71-06F</b>	123	440
<b>7.1</b>	2987	2.45	156.92	2680	3190	2680	940			
<b>8.6</b>	2461	2.95	198.00	2720	3210	2720	990	<b>KH063-11N-71-06F</b>	79	438
<b>8.6</b>	2461	2.95	198.00	2720	3210	2720	990	<b>KH063-11N-71-04E</b>	75	438
<b>4.5</b>	4677	1.15	245.70	1550	2340	1550	830	<b>KH053-11N-71-06F</b>	51	436
<b>5.7</b>	3707	1.45	194.73	1820	2410	1820	900			
<b>7.3</b>	2878	1.85	151.20	1980	2470	1980	970			
<b>8.9</b>	2362	2.25	124.06	2050	2520	2050	1010			
<b>12</b>	1829	2.95	96.08	2110	2560	2110	1060			

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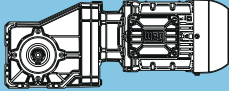
**P<sub>N</sub> = 0.33 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
6.9	3054	1.75	245.70	1930	2450	1930	940	<b>KH053-11N-71-04E</b>	46	436
8.7	2421	2.20	194.73	2050	2500	2050	990			
11	1879	2.85	151.20	2090	2540	2090	1030			
4.9	4324	0.85	227.16	**	**	**	**	<b>KH043-11N-71-06F</b>	42	434
6.2	3415	1.05	179.37	880	1390	880	520			
8.0	2648	1.35	139.08	1210	1870	1210	610			
9.8	2167	1.65	113.83	1350	1910	1350	650			
12	1698	2.00	89.17	1440	1960	1440	700			
13	1668	2.15	87.62	1440	1960	1440	700			
15	1388	2.60	72.92	1480	2000	1480	740			
17	1260	2.85	66.20	1510	2000	1510	740			
24	896	2.00	47.07	1550	2020	1550	760			
6.1	3453	1.05	277.79	830	1300	830	520			
7.5	2824	1.30	227.16	1150	1840	1150	580			
9.5	2230	1.60	179.37	1330	1910	1330	650			
12	1729	2.05	139.08	1440	1960	1440	700			
15	1415	2.55	113.83	1480	1980	1480	720			
10	2070	0.90	108.75	650	520	650	520	<b>KH033-11N-71-06F</b>	35	432
13	1653	1.10	86.83	880	580	880	580			
15	1369	1.30	71.93	970	630	970	630			
17	1249	1.45	65.63	1010	630	1010	630			
19	1114	1.60	58.50	1030	650	1030	650			
22	950	1.90	49.88	1080	670	1080	670			
24	885	2.05	46.48	1080	700	1080	700			
29	739	2.40	38.80	1100	720	1100	720			
31	683	2.60	35.90	1120	720	1120	720			
37	571	2.05	29.97	1120	720	1120	720			
9.6	2202	0.85	177.19	540	490	540	490	<b>KH033-11N-71-04E</b>	31	432
12	1750	1.05	140.80	830	560	830	560			
16	1352	1.35	108.75	970	630	970	630			
20	1079	1.65	86.83	1030	650	1030	650			
24	894	2.00	71.93	1080	700	1080	700			
26	816	2.20	65.63	1100	700	1100	700			
29	727	2.45	58.50	1100	720	1100	720			
34	620	2.90	49.88	1120	720	1120	720			
18	1176	0.80	61.75	**	**	**	**	<b>KH022-11N-71-06F</b>	31	462
21	1021	1.00	53.65	1100	630	1100	630			
23	916	1.10	48.10	1120	630	1120	630			
26	828	1.20	43.50	1120	630	1120	630			
28	742	1.35	39.00	1150	630	1150	630			
32	652	1.50	34.27	1150	630	1150	630			
36	585	1.70	30.73	1170	630	1170	630			
42	503	1.95	26.41	1170	630	1170	630			
46	458	1.60	24.05	1170	630	1170	630			
47	451	2.20	23.68	1170	630	1170	630			
54	393	2.35	20.63	1170	630	1170	630			
57	371	1.95	19.50	1170	630	1170	630			
60	352	2.60	18.50	1190	630	1190	630			
72	293	2.85	15.41	1190	630	1190	630			

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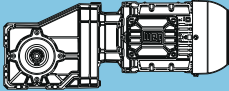
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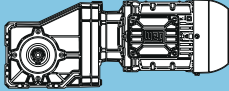


P <sub>N</sub> = 0.33 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
25	856	1.15	68.88	1120	630	1120	630	KH022-11N-71-04E	26	462
28	768	1.20	61.75	1150	630	1150	630			
32	667	1.50	53.65	1150	630	1150	630			
35	598	1.65	48.10	1170	630	1170	630			
39	541	1.85	43.50	1170	630	1170	630			
44	485	2.05	39.00	1170	630	1170	630			
50	426	2.30	34.27	1170	630	1170	630			
55	382	2.55	30.73	1170	630	1170	630			
64	328	3.00	26.41	1190	630	1190	630			
71	299	2.40	24.05	1190	630	1190	630			
72	294	3.35	23.68	1190	630	1190	630			
82	256	3.60	20.63	1190	630	1190	630			
87	242	3.00	19.50	1190	630	1190	630			
92	230	3.95	18.50	1190	630	1190	630			
110	192	4.30	15.41	1170	630	1170	630			
111	191	3.80	15.36	1170	630	1170	630			
123	172	4.80	13.81	1120	630	1120	630			
144	147	4.90	11.84	1080	630	1080	630			
147	144	5.25	11.60	1060	630	1060	630			
163	129	5.85	10.40	1030	630	1030	630			
184	115	6.25	9.25	990	630	990	630			
200	106	6.45	8.51	970	630	970	630			
223	95	7.20	7.63	920	630	920	630			
246	86	7.65	6.91	900	630	900	630			
327	65	8.95	5.20	810	630	810	630			
445	47	10.65	3.82	740	630	740	630			

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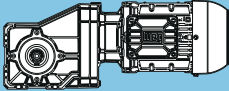


P <sub>N</sub> = 0.50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
0.14	196000	0.85	7915.09	11740	19580	11740	19580	KH155-11N-80-06E	1501	462
0.16	173195	0.95	7012.05	15470	25790	15470	25790			
0.18	153581	1.05	6249.84	17780	26170	17780	26170			
0.20	140309	1.15	5739.09	19060	26440	19060	26440			
0.23	117265	1.40	4845.97	20860	26910	20860	26910			
0.26	106351	1.50	4417.59	21560	27110	21560	27110			
0.28	94751	1.70	3966.24	22190	27340	22190	27340			
0.34	78715	2.05	3337.74	22930	27670	22930	27670			
0.37	71259	2.25	3052.96	23220	27810	23220	27810			
0.41	62939	2.55	2731.65	23520	27970	23520	27970			
0.15	190195	0.85	11453.02	12660	21510	12660	21510	KH155-11N-71-04F	1495	462
0.17	159506	1.00	9679.02	17060	26060	17060	26060			
0.19	148651	1.10	9043.42	18210	26260	18210	26260			
0.21	129439	1.25	7915.09	19920	26640	19920	26640			
0.24	113792	1.45	7012.05	21040	26950	21040	26950			
0.27	100643	1.60	6249.84	21850	27220	21850	27220			
0.29	91708	1.75	5739.09	22320	27400	22320	27400			
0.35	76444	2.10	4845.97	23020	27700	23020	27700			
0.38	68969	2.35	4417.59	23290	27850	23290	27850			
0.42	61126	2.65	3966.24	23560	28010	23560	28010			
0.87	31432	2.30	1301.54	13260	14610	13260	14610	KH104-11N-80-06E	642	452
1.0	26948	2.65	1129.81	13440	14750	13440	14750			
1.1	23670	3.00	1004.85	13560	14840	13560	14840			
0.62	45759	0.90	1810.95	4880	8250	4880	8250	KH094-11N-80-06E	357	448
0.74	38527	1.05	1531.00	6340	8830	6340	8830			
0.76	37191	1.10	1480.92	6560	8880	6560	8880			
0.90	31249	1.30	1251.99	7350	9080	7350	9080			
0.97	29067	1.40	1169.35	7600	9150	7600	9150			
1.1	24372	1.65	988.58	8030	9310	8030	9310			
1.2	22215	1.80	906.69	8210	9370	8210	9370			
1.5	18588	2.15	766.52	8430	9510	8430	9510			
1.8	14933	2.70	627.37	8630	9620	8630	9620			
2.0	13455	3.00	571.21	8700	9670	8700	9670			
0.93	30250	1.35	1810.95	7440	9100	7440	9100	KH094-11N-71-04F	351	448
1.1	25364	1.60	1531.00	7940	9280	7940	9280			
1.3	20487	1.95	1251.99	8320	9440	8320	9440			
1.4	19056	2.10	1169.35	8410	9490	8410	9490			
1.7	15878	2.55	988.58	8590	9600	8590	9600			
1.9	14443	2.80	906.69	8660	9640	8660	9640			
0.91	31560	0.85	1246.44	2650	4090	2650	1600	KH084-11N-80-06E	247	444
1.0	28424	0.95	1127.18	3730	6360	3730	1710			
1.1	24717	1.10	984.20	4610	8270	4610	1870			
1.3	22604	1.20	903.77	4990	9100	4990	1930			
1.5	18969	1.40	763.13	5530	9400	5530	2090			
1.6	17708	1.50	715.32	5690	9440	5690	2140			
1.8	15335	1.75	624.59	5930	9530	5930	2230			
2.1	13408	2.00	550.61	6090	9600	6090	2290			
2.4	11587	2.30	480.77	6230	9670	6230	2360			
2.6	10260	2.60	430.17	6320	9710	6320	2410			
2.7	9902	2.70	416.02	6340	9730	6340	2430			
0.93	30562	0.90	1803.58	2990	4810	2990	1640	KH084-11N-71-04F	240	444
0.97	29581	0.90	1745.64	3350	5550	3350	1660			
1.1	25723	1.05	1524.22	4380	7780	4380	1820			
1.2	24042	1.15	1427.51	4720	8520	4720	1890			
1.4	20863	1.30	1246.44	5260	9310	5260	2000			
1.5	18790	1.45	1127.18	5530	9400	5530	2090			
1.7	16272	1.65	984.20	5820	9490	5820	2180			
1.9	14881	1.80	903.77	5960	9530	5960	2230			
2.2	12410	2.15	763.13	6160	9640	6160	2340			
2.4	11561	2.30	715.32	6230	9670	6230	2360			
2.7	9970	2.70	624.59	6340	9730	6340	2430			

P <sub>N</sub> = 0.50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
				lb	lb	lb	lb			
4.4	7089	1.95	256.14	4290	3890	4290	1370	KH073-11N-80-06E	128	440
5.7	5473	2.55	197.75	4430	3980	4430	1440			
6.8	4590	3.00	165.85	4470	4020	4470	1510			
6.6	4754	2.90	256.14	4470	4020	4470	1480	KH073-11N-71-04F	121	440
5.7	5480	1.35	198.00	2320	2990	2320	740	KH063-11N-80-06E	84	438
7.2	4343	1.70	156.92	2520	3080	2520	830			
9.3	3372	2.20	121.85	2630	3150	2630	920			
11	2767	2.65	99.98	2700	3190	2700	970			
14	2256	2.25	81.53	2720	3240	2720	1010			
25	1227	2.25	44.35	2790	3280	2500	1060			
8.5	3675	2.00	198.00	2590	3120	2590	900	KH063-11N-71-04F	77	438
11	2912	2.50	156.92	2680	3190	2680	940			
4.6	6800	0.80	245.70	**	**	**	**	KH053-11N-80-06E	53	436
5.8	5389	1.00	194.73	1280	2140	1280	760			
7.5	4185	1.30	151.20	1710	2360	1710	850			
9.1	3434	1.55	124.06	1870	2430	1870	920			
12	2659	2.00	96.08	2000	2500	2000	990			
14	2227	2.25	80.46	2070	2520	2070	1010			
15	2023	2.65	73.08	2090	2540	2090	1030			
29	1061	2.25	38.32	2160	2590	2160	1080			
6.9	4560	1.20	245.70	1600	2340	1600	830	KH053-11N-71-04F	49	436
8.7	3614	1.50	194.73	1840	2410	1840	900			
11	2806	1.90	151.20	1980	2470	1980	970			
14	2303	2.35	124.06	2050	2520	2050	1010			
18	1783	3.00	96.08	2110	2560	2110	1060			
8.1	3849	0.95	139.08	560	720	560	470	KH043-11N-80-06E	46	434
9.9	3150	1.15	113.83	1010	1690	1010	540			
13	2468	1.40	89.17	1260	1890	1260	630			
15	2018	1.80	72.92	1370	1930	1370	670			
17	1832	1.95	66.20	1420	1960	1420	700			
20	1594	2.25	57.58	1460	1980	1460	720			
21	1499	2.40	54.18	1460	1980	1460	720			
24	1303	1.40	47.07	1510	1960	1510	700			
25	1235	2.90	44.64	1510	2000	1510	740			
26	1216	2.95	43.93	1510	2000	1510	740			
29	1065	2.25	38.49	1530	2000	1530	740			
7.4	4216	0.85	227.16	**	**	**	**	KH043-11N-71-04F	40	434
9.4	3329	1.10	179.37	920	1510	920	540			
12	2581	1.40	139.08	1240	1870	1240	610			
15	2113	1.70	113.83	1350	1910	1350	650			
19	1655	2.05	89.17	1440	1960	1440	700			
23	1353	2.65	72.92	1480	2000	1480	740			
25	1229	2.90	66.20	1510	2000	1510	740			
36	874	2.05	47.07	1550	2020	1550	760			
16	1991	0.90	71.93	700	520	700	520	KH033-11N-80-06E	37	432
17	1816	1.00	65.63	810	560	810	560			
19	1619	1.10	58.50	880	580	880	580			
23	1380	1.30	49.88	970	610	970	610			
24	1286	1.40	46.48	990	630	990	630			
29	1074	1.65	38.80	1060	650	1060	650			
31	994	1.80	35.90	1060	670	1060	670			
37	838	2.15	30.29	1100	700	1100	700			
38	829	1.40	29.97	1100	670	1100	670			
39	793	2.25	28.67	1100	700	1100	700			
46	675	2.10	24.38	1120	700	1120	700			
52	600	3.00	21.67	1120	740	1120	740			
58	536	2.70	19.37	1120	720	1120	720			

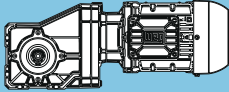
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P <sub>N</sub> = 0.50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
15	2018	0.90	108.75	670	520	670	520	KH033-11N-71-04F	33	432
19	1612	1.10	86.83	880	580	880	580			
23	1335	1.35	71.93	990	630	990	630			
26	1218	1.50	65.63	1010	650	1010	650			
29	1086	1.65	58.50	1030	650	1030	650			
34	926	1.95	49.88	1080	670	1080	670			
36	863	2.10	46.48	1080	700	1080	700			
43	720	2.50	38.80	1100	720	1100	720			
47	666	2.70	35.90	1120	720	1120	720			
56	556	2.10	29.97	1120	720	1120	720			
26	1204	0.85	43.50	1060	630	1060	630	KH022-11N-80-06E	33	462
29	1079	0.95	39.00	1080	630	1080	630			
33	948	1.05	34.27	1100	630	1100	630			
37	850	1.15	30.73	1120	630	1120	630			
43	731	1.35	26.41	1150	630	1150	630			
47	666	1.10	24.05	1150	630	1150	630			
48	655	1.50	23.68	1150	630	1150	630			
55	571	1.60	20.63	1170	630	1170	630			
58	540	1.35	19.50	1170	630	1170	630			
61	512	1.80	18.50	1170	630	1170	630			
73	426	1.95	15.41	1170	630	1170	630			
74	425	1.70	15.36	1170	630	1170	630			
82	382	2.20	13.81	1170	630	1170	630			
85	368	2.15	13.29	1190	630	1190	630			
95	328	2.20	11.84	1190	630	1190	630			
97	321	2.35	11.60	1190	630	1190	630			
109	288	2.65	10.40	1190	630	1190	630			
122	256	2.85	9.25	1150	630	1150	630			
133	236	2.90	8.51	1100	630	1100	630			
24	1278	0.80	68.88	**	**	**	**	KH022-11N-71-04F	29	462
27	1146	0.80	61.75	**	**	**	**			
31	996	1.00	53.65	1100	630	1100	630			
35	893	1.10	48.10	1120	630	1120	630			
39	807	1.25	43.50	1120	630	1120	630			
43	724	1.35	39.00	1150	630	1150	630			
49	636	1.55	34.27	1150	630	1150	630			
55	570	1.75	30.73	1170	630	1170	630			
64	490	2.00	26.41	1170	630	1170	630			
70	446	1.65	24.05	1170	630	1170	630			
71	440	2.25	23.68	1170	630	1170	630			
82	383	2.40	20.63	1170	630	1170	630			
86	362	2.00	19.50	1190	630	1190	630			
91	343	2.65	18.50	1190	630	1190	630			
109	286	2.90	15.41	1190	630	1190	630			
110	285	2.55	15.36	1190	630	1190	630			
122	256	3.25	13.81	1150	630	1150	630			
142	220	3.30	11.84	1080	630	1080	630			
145	215	3.50	11.60	1080	630	1080	630			
162	193	3.90	10.40	1030	630	1030	630			
182	172	4.20	9.25	990	630	990	630			
198	158	4.35	8.51	970	630	970	630			
221	142	4.85	7.63	920	630	920	630			
244	128	5.15	6.91	900	630	900	630			
324	97	6.00	5.20	810	630	810	630			
441	71	7.15	3.82	740	630	740	630			

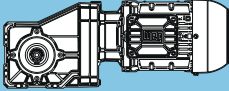
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P <sub>N</sub> = 0.75 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
0.20	209937	0.80	5739.09	**	**	**	**	KH155-11N-80-06F	1504	462
0.24	176362	0.95	4845.97	15080	25740	15080	25740			
0.26	159951	1.00	4417.59	17130	26060	17130	26060			
0.29	142875	1.15	3966.24	18860	26390	18860	26390			
0.34	119313	1.35	3337.74	20730	26860	20730	26860			
0.37	108574	1.50	3052.96	21420	27070	21420	27070			
0.42	96401	1.70	2731.65	22120	27310	22120	27310			
0.49	80154	2.00	2306.68	22890	27630	22890	27630			
0.51	76773	2.10	2215.09	23020	27700	23020	27700			
0.60	64256	2.50	1887.82	23470	27940	23470	27940			
0.61	62952	2.55	1854.30	23520	27990	23520	27990			
0.22	190857	0.85	7915.09	12970	22190	12970	22190	KH155-11N-80-04E	1499	462
0.25	168219	0.95	7012.05	16280	25920	16280	25920			
0.28	149168	1.10	6249.84	18340	26280	18340	26280			
0.30	136277	1.20	5739.09	19490	26550	19490	26550			
0.36	114187	1.40	4845.97	21110	26980	21110	26980			
0.39	103294	1.55	4417.59	21780	27200	21780	27200			
0.43	92027	1.75	3966.24	22370	27400	22370	27400			
0.52	76254	2.10	3337.74	23070	27720	23070	27720			
0.57	69209	2.35	3052.96	23310	27850	23310	27850			
0.63	61128	2.65	2731.65	23580	28010	23580	28010			
0.72	56565	2.05	1579.81	19110	20460	19110	20460	KH124-11N-80-06F	915	456
0.83	48812	2.40	1377.44	19360	20660	19360	20660			
0.93	42776	2.70	1219.69	19540	20820	19540	20820			
0.96	41439	2.80	1186.50	19560	20840	19560	20840			
0.88	47474	1.50	1301.54	12340	14140	12340	14140	KH104-11N-80-06F	644	452
1.0	40872	1.75	1129.81	12770	14340	12770	14340			
1.1	36127	2.00	1004.85	13040	14480	13040	14480			
1.2	35024	2.05	976.16	13080	14500	13080	14500			
1.3	30974	2.30	872.27	13290	14640	13290	14640			
1.4	29864	2.40	842.74	13330	14660	13330	14660			
1.5	26431	2.70	753.64	13470	14770	13470	14770			
1.6	25549	2.80	731.54	13490	14790	13490	14790			
1.3	30481	2.35	1301.54	13310	14660	13310	14660	KH104-11N-80-04E	639	452
1.5	26132	2.75	1129.81	13470	14770	13470	14770			
0.91	46709	0.90	1251.99	4650	7760	4650	7760	KH094-11N-80-06F	359	448
0.97	43536	0.95	1169.35	5420	8680	5420	8680			
1.2	36581	1.10	988.58	6650	8900	6650	8900			
1.3	33413	1.20	906.69	7100	9010	7100	9010			
1.5	28017	1.45	766.52	7710	9190	7710	9190			
1.8	22696	1.80	627.37	8160	9370	8160	9370			
2.0	20537	1.95	571.21	8320	9440	8320	9440			
2.4	17148	2.35	482.91	8520	9550	8520	9550			
2.6	15167	2.65	431.58	8610	9620	8610	9620			
0.95	44558	0.90	1810.95	5240	8660	5240	8660	KH094-11N-80-04E	355	448
1.1	37440	1.10	1531.00	6560	8880	6560	8880			
1.2	36141	1.15	1480.92	6770	8920	6770	8920			
1.4	30366	1.35	1251.99	7490	9130	7490	9130			
1.5	28246	1.45	1169.35	7690	9190	7690	9190			
1.7	23683	1.70	988.58	8090	9330	8090	9330			
1.9	21588	1.85	906.69	8250	9400	8250	9400			
2.3	18026	2.25	766.52	8480	9530	8480	9530			
2.7	14480	2.80	627.37	8660	9640	8660	9640			

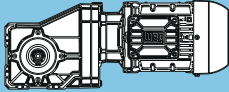
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<b>P<sub>N</sub> = 0.75 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>1.3</b>	33786	0.80	903.77	**	**	**	**	<b>KH084-11N-80-06F</b>	249	444
<b>1.5</b>	28354	0.95	763.13	3780	6470	3780	1730			
<b>1.6</b>	26523	1.05	715.32	4230	7440	4230	1800			
<b>1.8</b>	23065	1.20	624.59	4920	8970	4920	1930			
<b>2.1</b>	20208	1.35	550.61	5370	9350	5370	2050			
<b>2.2</b>	19251	1.40	525.61	5490	9370	5490	2070			
<b>2.4</b>	17536	1.55	480.77	5710	9440	5710	2140			
<b>2.7</b>	15594	1.75	430.17	5910	9510	5910	2200			
<b>3.1</b>	13006	2.05	363.25	6140	9620	6140	2320			
<b>3.3</b>	12464	2.15	348.82	6180	9640	6180	2340			
<b>3.8</b>	10470	2.55	297.29	6320	9710	6320	2410			
<b>3.9</b>	10262	2.60	292.01	6320	9730	6320	2430			
<b>4.1</b>	9663	2.75	276.09	6360	9760	6360	2450			
<b>1.2</b>	35268	0.80	1427.51	**	**	**	**	<b>KH084-11N-80-04E</b>	245	444
<b>1.4</b>	30669	0.90	1246.44	3100	5040	3100	1640			
<b>1.5</b>	27678	1.00	1127.18	4000	6950	4000	1750			
<b>1.6</b>	27059	1.00	1104.23	4140	7240	4140	1780			
<b>1.8</b>	24019	1.15	984.20	4790	8660	4790	1890			
<b>1.9</b>	22011	1.25	903.77	5130	9280	5130	1980			
<b>2.0</b>	21242	1.30	873.98	5240	9310	5240	2000			
<b>2.3</b>	18433	1.45	763.13	5600	9420	5600	2110			
<b>2.4</b>	17208	1.55	715.32	5760	9460	5760	2160			
<b>2.5</b>	16701	1.60	695.67	5800	9490	5800	2180			
<b>2.8</b>	14902	1.80	624.59	5980	9550	5980	2250			
<b>3.1</b>	13029	2.05	550.61	6140	9620	6140	2320			
<b>3.3</b>	12386	2.15	525.61	6180	9640	6180	2340			
<b>3.6</b>	11259	2.40	480.77	6250	9690	6250	2380			
<b>4.0</b>	9970	2.70	430.17	6340	9730	6340	2430			
<b>4.1</b>	9602	2.80	416.02	6360	9760	6360	2450			
<b>4.5</b>	10445	1.35	256.14	3930	3710	3930	1190	<b>KH073-11N-80-06F</b>	130	440
<b>5.8</b>	8064	1.75	197.75	4200	3840	4200	1300			
<b>6.9</b>	6763	2.05	165.85	4340	3910	4340	1370			
<b>8.8</b>	5308	2.60	130.16	4430	3980	4430	1460			
<b>11</b>	4073	2.80	99.87	4500	4050	4090	1530			
<b>24</b>	1939	2.80	47.56	4590	4110	3060	1600			
<b>6.7</b>	6903	2.00	256.14	4320	3910	4320	1370	<b>KH073-11N-80-04E</b>	126	440
<b>8.7</b>	5329	2.60	197.75	4430	3980	4430	1460			
<b>5.8</b>	8074	0.90	198.00	1570	2500	1570	540	<b>KH063-11N-80-06F</b>	86	438
<b>7.3</b>	6399	1.15	156.92	2110	2900	2110	670			
<b>9.4</b>	4969	1.50	121.85	2410	3010	2410	790			
<b>11</b>	4077	1.80	99.98	2540	3100	2540	850			
<b>14</b>	3325	1.55	81.53	2630	3150	2630	920			
<b>15</b>	3157	2.30	77.42	2650	3170	2650	940			
<b>18</b>	2635	2.80	64.62	2700	3210	2700	970			
<b>26</b>	1809	1.55	44.35	2770	3210	2560	990			
<b>32</b>	1433	2.85	35.15	2770	3260	2340	1030			
<b>8.7</b>	5336	1.40	198.00	2360	2990	2360	760	<b>KH063-11N-80-04E</b>	82	438
<b>11</b>	4229	1.75	156.92	2540	3080	2540	850			
<b>14</b>	3284	2.25	121.85	2650	3170	2650	920			
<b>17</b>	2694	2.70	99.98	2700	3210	2700	970			
<b>21</b>	2197	2.35	81.53	2740	3260	2740	1010			
<b>39</b>	1195	2.35	44.35	2790	3280	2180	1060			

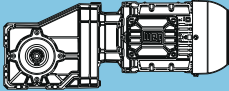
Legend see page 337

\*\* ... on request

P <sub>N</sub> = 0.75 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
7.5	6166	0.90	151.20	830	1170	830	700	KH053-11N-80-06F	57	436
9.2	5059	1.05	124.06	1420	2290	1420	790			
12	3918	1.40	96.08	1780	2380	1780	880			
14	3281	1.55	80.46	1910	2450	1910	940			
16	2980	1.80	73.08	1960	2470	1960	970			
18	2601	2.05	63.77	2020	2500	2020	990			
19	2457	2.20	60.26	2050	2500	2050	990			
23	2019	2.65	49.52	2090	2540	2090	1030			
30	1563	1.55	38.32	2140	2520	2140	1010			
38	1238	2.85	30.37	2160	2560	2160	1060			
7.0	6622	0.85	245.70	340	160	340	160	KH053-11N-80-04E	53	436
8.9	5248	1.05	194.73	1370	2290	1370	790			
11	4075	1.35	151.20	1730	2380	1730	880			
14	3343	1.60	124.06	1890	2430	1890	920			
18	2589	2.10	96.08	2020	2500	2020	990			
21	2168	2.35	80.46	2070	2520	2070	1010			
24	1969	2.70	73.08	2090	2540	2090	1030			
45	1033	2.30	38.32	2160	2590	2160	1080			
10	4642	0.80	113.83	**	**	**	**	KH043-11N-80-06F	49	434
13	3636	0.95	89.17	740	1100	740	490			
16	2974	1.20	72.92	1100	1820	1100	560			
17	2700	1.35	66.20	1190	1870	1190	610			
20	2348	1.55	57.58	1300	1890	1300	630			
21	2209	1.65	54.18	1330	1910	1330	650			
24	1919	0.95	47.07	1390	1890	1390	630			
26	1820	1.95	44.64	1420	1960	1420	700			
30	1570	1.55	38.49	1460	1930	1460	670			
31	1500	2.30	36.78	1480	1980	1480	720			
38	1239	2.35	30.39	1510	1980	1510	720			
48	961	2.85	23.57	1530	2000	1530	740			
12	3748	0.95	139.08	670	970	670	490	KH043-11N-80-04E	44	434
15	3068	1.20	113.83	1060	1800	1060	560			
19	2403	1.40	89.17	1280	1890	1280	630			
20	2361	1.50	87.62	1300	1890	1300	630			
24	1965	1.85	72.92	1390	1930	1390	670			
26	1784	2.00	66.20	1420	1960	1420	700			
30	1552	2.30	57.58	1460	1980	1460	720			
32	1460	2.45	54.18	1480	1980	1480	720			
37	1269	1.40	47.07	1510	1980	1510	720			
39	1203	2.95	44.64	1510	2000	1510	740			
45	1037	2.35	38.49	1530	2000	1530	740			
23	2034	0.90	49.88	670	520	670	520	KH033-11N-80-06F	42	432
25	1895	0.95	46.48	760	540	760	540			
29	1582	1.15	38.80	900	580	900	580			
32	1464	1.25	35.90	940	610	940	610			
38	1235	1.45	30.29	1010	630	1010	630			
40	1169	1.55	28.67	1030	650	1030	650			
47	994	1.45	24.38	1060	630	1060	630			
53	884	2.05	21.67	1080	700	1080	700			
59	790	1.85	19.37	1100	670	1100	670			
69	672	2.65	16.47	1120	720	1120	720			
76	610	2.40	14.96	1120	700	1120	700			
95	487	3.00	11.94	1150	720	1150	720			

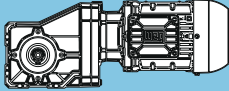
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P <sub>N</sub> = 0.75 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
20	2340	0.80	86.83	**	**	**	**	KH033-11N-80-04E	37	432
24	1939	0.95	71.93	740	540	740	540			
26	1769	1.05	65.63	830	560	830	560			
29	1577	1.15	58.50	900	580	900	580			
35	1344	1.35	49.88	990	630	990	630			
37	1253	1.45	46.48	1010	630	1010	630			
44	1046	1.70	38.80	1060	670	1060	670			
48	968	1.85	35.90	1080	670	1080	670			
57	816	2.20	30.29	1100	700	1100	700			
58	808	1.45	29.97	1100	670	1100	670			
60	773	2.30	28.67	1100	700	1100	700			
71	657	2.20	24.38	1120	700	1120	700			
89	522	2.80	19.37	1120	720	1120	720			
37	1253	0.80	30.73	**	**	**	**	KH022-11N-80-06F	37	462
43	1077	0.95	26.41	1080	630	1080	630			
48	966	1.05	23.68	1100	630	1100	630			
55	841	1.10	20.63	1120	630	1120	630			
58	795	0.95	19.50	1120	630	1120	630			
62	754	1.20	18.50	1150	630	1150	630			
74	628	1.35	15.41	1150	630	1150	630			
83	563	1.50	13.81	1170	630	1170	630			
86	542	1.50	13.29	1170	630	1170	630			
96	486	1.65	11.92	1170	630	1170	630			
98	473	1.60	11.60	1170	630	1170	630			
110	424	1.80	10.40	1170	630	1170	630			
123	377	1.95	9.25	1150	630	1150	630			
134	347	2.00	8.51	1120	630	1120	630			
149	311	2.20	7.63	1080	630	1080	630			
165	282	2.35	6.91	1030	630	1030	630			
191	243	2.55	5.96	990	630	990	630			
219	212	2.75	5.20	940	630	940	630			
36	1296	0.80	48.10	**	**	**	**	KH022-11N-80-04E	33	462
40	1172	0.85	43.50	1060	630	1060	630			
44	1051	0.95	39.00	1100	630	1100	630			
50	924	1.10	34.27	1120	630	1120	630			
56	828	1.20	30.73	1120	630	1120	630			
65	712	1.40	26.41	1150	630	1150	630			
72	648	1.15	24.05	1150	630	1150	630			
73	638	1.55	23.68	1150	630	1150	630			
84	556	1.65	20.63	1170	630	1170	630			
88	526	1.40	19.50	1170	630	1170	630			
93	499	1.85	18.50	1170	630	1170	630			
112	415	2.00	15.41	1170	630	1170	630			
125	372	2.25	13.81	1150	630	1150	630			
130	358	2.20	13.29	1120	630	1120	630			
145	321	2.50	11.92	1080	630	1080	630			
146	319	2.25	11.84	1080	630	1080	630			
149	313	2.45	11.60	1080	630	1080	630			
166	280	2.70	10.40	1030	630	1030	630			
186	249	2.90	9.25	990	630	990	630			
203	229	3.00	8.51	970	630	970	630			
226	206	3.35	7.63	920	630	920	630			
250	186	3.55	6.91	900	630	900	630			
289	161	3.85	5.96	850	630	850	630			
332	140	4.15	5.20	810	630	810	630			
452	103	4.95	3.82	740	630	740	630			

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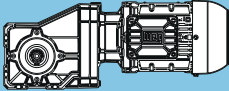
\*\* ... on request

P <sub>N</sub> = 1.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
0.28	201932	0.80	6249.84	**	**	**	**	KH155-11P-L80-04F	1517	462
0.31	184484	0.90	5739.09	14050	24480	14050	24480			
0.36	154979	1.05	4845.97	17780	26170	17780	26170			
0.40	140557	1.15	4417.59	19150	26460	19150	26460			
0.44	125551	1.30	3966.24	20350	26750	20350	26750			
0.53	104308	1.55	3337.74	21720	27180	21720	27180			
0.58	94918	1.70	3052.96	22230	27360	22230	27360			
0.64	84057	1.90	2731.65	22730	27560	22730	27560			
0.76	69888	2.30	2306.68	23290	27850	23290	27850			
0.79	66767	2.40	2215.09	23400	27920	23400	27920			
0.93	55878	2.90	1887.82	23740	28120	23740	28120			
0.95	54743	2.95	1854.30	23780	28150	23780	28150			
0.29	196477	0.85	3966.24	11960	20050	11960	20050	KH155-11P-90S/L-06E	1519	462
0.34	164499	1.00	3337.74	16730	25990	16730	25990			
0.38	149696	1.10	3052.96	18300	26280	18300	26280			
0.42	133256	1.20	2731.65	19760	26590	19760	26590			
0.50	111376	1.45	2306.68	21290	27040	21290	27040			
0.52	106679	1.50	2215.09	21580	27130	21580	27130			
0.61	89755	1.80	1887.82	22480	27450	22480	27450			
0.62	88161	1.85	1854.30	22550	27490	22550	27490			
0.75	71478	2.25	1530.83	23250	27810	23250	27810			
0.76	69990	2.30	1502.83	23290	27850	23290	27850			
0.89	58608	2.75	1281.49	23670	28080	23670	28080			
0.87	62584	2.55	1308.92	23540	27990	23540	27990	KH154-11P-90S/L-06E	1490	460
1.1	49448	2.35	1579.81	19360	20640	19360	20640	KH124-11P-L80-04F	928	456
1.3	42580	2.75	1377.44	19540	20820	19540	20820			
0.72	78235	1.50	1579.81	18190	19900	18190	19900	KH124-11P-90S/L-06E	930	456
0.83	67794	1.70	1377.44	18680	20170	18680	20170			
0.94	59537	1.95	1219.69	19000	20390	19000	20390			
0.97	57797	2.00	1186.50	19060	20440	19060	20440			
1.1	51377	2.25	1063.46	19290	20590	19290	20590			
1.2	43617	2.65	916.04	19510	20790	19510	20790			
1.3	42379	2.75	891.88	19540	20820	19540	20820			
1.4	41674	1.70	1301.54	12750	14320	12750	14320	KH104-11P-L80-04F	657	452
1.6	35804	2.00	1129.81	13060	14500	13060	14500			
1.8	31582	2.25	1004.85	13260	14610	13260	14610			
2.0	27076	2.65	872.27	13440	14750	13440	14750			
2.1	26051	2.75	842.74	13470	14790	13470	14790			
0.88	65388	1.10	1301.54	10790	13620	10790	13620	KH104-11P-90S/L-06E	659	452
1.0	56412	1.30	1129.81	11670	13890	11670	13890			
1.1	49865	1.45	1004.85	12210	14070	12210	14070			
1.2	48441	1.50	976.16	12300	14120	12300	14120			
1.3	42931	1.65	872.27	12680	14280	12680	14280			
1.4	41392	1.75	842.74	12770	14320	12770	14320			
1.5	36787	1.95	753.64	13020	14460	13020	14460			
1.6	35635	2.00	731.54	13080	14500	13080	14500			
1.7	31952	2.25	661.38	13240	14610	13240	14610			
1.8	30409	2.35	632.05	13310	14660	13310	14660			
2.0	27394	2.60	574.12	13420	14750	13420	14750			
2.2	24053	2.95	510.43	13530	14840	13530	14840			

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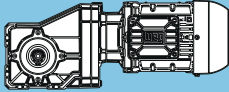
\*\* ... on request



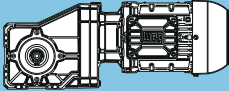
P <sub>N</sub> = 1.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
1.1	50553	0.80	1531.00	**	**	**	**	<b>KH094-11P-L80-04F</b>	373	448
1.2	48800	0.85	1480.92	4140	6680	4140	6680			
1.4	41088	1.00	1251.99	5960	8770	5960	8770			
1.5	38219	1.05	1169.35	6450	8860	6450	8860			
1.8	32112	1.25	988.58	7280	9060	7280	9060			
1.9	29332	1.40	906.69	7600	9150	7600	9150			
2.3	24594	1.65	766.52	8030	9310	8030	9310			
2.4	23761	1.70	742.09	8090	9330	8090	9330			
2.8	19882	2.05	627.37	8360	9460	8360	9460			
3.1	17953	2.25	571.21	8480	9530	8480	9530			
3.6	14959	2.70	482.91	8630	9620	8630	9620			
1.2	50073	0.80	988.58	**	**	**	**	<b>KH094-11P-90S/L-06E</b>	375	448
1.3	45832	0.90	906.69	4950	8390	4950	8390			
1.5	38588	1.05	766.52	6380	8860	6380	8860			
1.8	31325	1.30	627.37	7370	9080	7370	9080			
2.0	28346	1.45	571.21	7690	9190	7690	9190			
2.4	23767	1.70	482.91	8090	9330	8090	9330			
2.7	21110	1.90	431.58	8300	9420	8300	9420			
3.1	17590	2.30	364.86	8500	9530	8500	9530			
3.2	16993	2.35	353.21	8540	9550	8540	9550			
3.8	14130	2.85	298.61	8680	9640	8680	9640			
4.0	13497	3.00	286.42	8700	9670	8700	9670			
1.8	32432	0.85	984.20	2360	3480	2360	1570	<b>KH084-11P-L80-04F</b>	262	444
1.9	29721	0.90	903.77	3420	5710	3420	1690			
2.0	28682	0.95	873.98	3730	6360	3730	1710			
2.3	24942	1.10	763.13	4610	8270	4610	1870			
2.5	23331	1.15	715.32	4900	8900	4900	1910			
2.8	20247	1.35	624.59	5370	9350	5370	2050			
3.2	17739	1.50	550.61	5690	9440	5690	2140			
3.3	16899	1.60	525.61	5780	9460	5780	2160			
3.7	15362	1.75	480.77	5930	9530	5930	2230			
4.1	13661	1.95	430.17	6090	9600	6090	2290			
4.2	13157	2.05	416.02	6110	9620	6110	2320			
4.8	11370	2.35	363.25	6250	9690	6250	2380			
5.0	10873	2.45	348.82	6290	9710	6290	2410			
5.2	10591	2.55	340.47	6290	9710	6290	2410			
5.9	9133	2.95	297.29	6380	9780	6380	2470			
6.0	8952	3.00	292.01	6380	9780	6380	2470			
1.6	35309	0.80	695.67	**	**	**	**	<b>KH084-11P-90S/L-06E</b>	265	444
1.8	31637	0.85	624.59	2740	4270	2740	1600			
2.1	27775	1.00	550.61	3980	6900	3980	1750			
2.2	26460	1.05	525.61	4290	7580	4290	1800			
2.4	24104	1.15	480.77	4770	8610	4770	1890			
2.7	21479	1.25	430.17	5190	9310	5190	2000			
2.8	20772	1.30	416.02	5310	9330	5310	2020			
3.2	17989	1.50	363.25	5670	9440	5670	2140			
3.3	17239	1.55	348.82	5760	9460	5760	2160			
3.4	16826	1.60	340.47	5800	9460	5800	2160			
3.9	14572	1.85	297.29	6000	9550	6000	2250			
4.1	13449	2.00	276.09	6090	9600	6090	2290			
4.7	11622	2.30	241.07	6230	9670	6230	2360			
4.8	11386	2.35	236.66	6250	9690	6250	2380			
5.0	11096	2.40	231.12	6270	9690	6270	2380			
5.7	9569	2.80	201.80	6360	9760	6360	2450			
5.6	11412	2.35	206.12	6250	9690	6250	2380	<b>KH083-11P-90S/L-06E</b>	236	442
7.0	9032	2.95	163.14	6380	9780	6380	2470			

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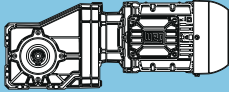
P <sub>N</sub> = 1.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
				lb	lb	lb	lb			
6.9	9226	1.50	256.14	4090	3780	4090	1260	<b>KH073-11P-L80-04F</b>	143	440
8.9	7123	1.95	197.75	4290	3890	4290	1370			
11	5974	2.30	165.85	4380	3960	4290	1420			
14	4688	2.95	130.16	4470	4020	3870	1480			
4.5	14181	1.00	256.14	3260	3510	3260	990	<b>KH073-11P-90S/L-06E</b>	146	440
5.8	10949	1.30	197.75	3870	3690	3870	1170			
6.9	9182	1.50	165.85	4090	3780	4090	1260			
8.8	7206	1.95	130.16	4290	3890	4290	1350			
11	5561	2.50	100.45	4430	3980	4250	1440			
14	4600	3.00	83.09	4470	4020	3870	1510			
24	2633	2.10	47.56	4560	4070	3150	1530			
8.9	7132	1.05	198.00	1930	2860	1930	610	<b>KH063-11P-L80-04F</b>	99	438
11	5652	1.30	156.92	2290	2970	2290	740			
14	4389	1.70	121.85	2520	3080	2520	830			
18	3601	2.05	99.98	2610	3120	2610	900			
22	2937	1.75	81.53	2680	3190	2680	940			
23	2789	2.65	77.42	2700	3190	2700	970			
40	1597	1.75	44.35	2770	3240	2230	1010			
7.3	8688	0.85	156.92	1300	1910	1300	490	<b>KH063-11P-90S/L-06E</b>	101	438
9.4	6746	1.10	121.85	2050	2880	2050	650			
11	5535	1.35	99.98	2320	2990	2320	740			
14	4514	1.15	81.53	2500	3060	2500	830			
15	4286	1.70	77.42	2520	3080	2520	850			
18	3578	2.05	64.62	2610	3150	2610	900			
19	3260	2.25	58.89	2650	3170	2650	920			
23	2778	2.65	50.17	2700	3190	2700	970			
24	2689	2.70	48.56	2700	3210	2700	970			
26	2455	1.15	44.35	2720	3150	2650	900			
33	1946	2.10	35.15	2740	3210	2410	970			
42	1511	2.95	27.29	2770	3260	2180	1010			
9.0	7014	0.80	194.73	**	**	**	**	<b>KH053-11P-L80-04F</b>	71	436
12	5446	1.00	151.20	1280	2140	1280	760			
14	4469	1.20	124.06	1640	2340	1640	830			
18	3461	1.55	96.08	1870	2430	1870	920			
22	2898	1.75	80.46	1980	2470	1980	970			
24	2632	2.05	73.08	2020	2500	2020	990			
28	2297	2.35	63.77	2070	2520	2070	1010			
29	2171	2.45	60.26	2070	2520	2070	1010			
36	1784	3.00	49.52	2110	2560	2110	1060			
46	1380	1.75	38.32	2140	2540	2140	1030			
9.2	6869	0.80	124.06	**	**	**	**	<b>KH053-11P-90S/L-06E</b>	73	436
12	5320	1.00	96.08	1330	2250	1330	790			
14	4455	1.15	80.46	1640	2360	1640	850			
16	4046	1.35	73.08	1750	2380	1750	880			
18	3531	1.55	63.77	1870	2430	1870	920			
19	3336	1.60	60.26	1910	2430	1910	920			
23	2742	1.95	49.52	2000	2470	2000	970			
27	2325	2.30	42.00	2050	2520	2050	1010			
28	2249	2.40	40.63	2070	2520	2070	1010			
30	2122	1.15	38.32	2070	2450	2070	940			
33	1912	2.80	34.53	2090	2540	2090	1030			
38	1681	2.10	30.37	2110	2500	2110	990			
49	1306	2.80	23.58	2160	2540	2160	1030			

**P<sub>N</sub> = 1.0 hp**

60 Hz		f <sub>B</sub>	i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>			F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
15	4100	0.90	113.83	250	70	250	70	<b>KH043-11P-L80-04F</b>	62	434
20	3212	1.05	89.17	1010	1690	1010	540			
24	2627	1.35	72.92	1210	1870	1210	610			
27	2384	1.50	66.20	1300	1890	1300	630			
31	2074	1.75	57.58	1370	1910	1370	650			
32	1952	1.85	54.18	1390	1930	1390	670			
37	1695	1.05	47.07	1440	1910	1440	650			
39	1608	2.25	44.64	1460	1980	1460	720			
40	1582	2.25	43.93	1460	1980	1460	720			
46	1386	1.75	38.49	1480	1960	1480	700			
48	1325	2.60	36.78	1510	2000	1510	740			
58	1095	2.65	30.39	1530	2000	1530	740			
59	1074	3.00	29.81	1530	2020	1530	760			
16	4037	0.90	72.92	360	290	360	290	<b>KH043-11P-90S/L-06E</b>	64	434
17	3665	1.00	66.20	740	1100	740	490			
20	3188	1.15	57.58	1010	1690	1010	540			
21	3000	1.20	54.18	1100	1820	1100	560			
26	2472	1.45	44.64	1260	1890	1260	630			
30	2131	1.15	38.49	1350	1840	1350	580			
31	2036	1.70	36.78	1370	1930	1370	670			
38	1683	1.75	30.39	1440	1910	1440	650			
41	1557	2.30	28.13	1460	1980	1460	720			
49	1305	2.10	23.57	1510	1960	1510	700			
59	1068	2.45	19.29	1530	2000	1530	740			
77	822	3.00	14.85	1550	2020	1550	760			
30	2107	0.85	58.50	650	520	650	520	<b>KH033-11P-L80-04F</b>	55	432
35	1797	1.00	49.88	810	560	810	560			
38	1674	1.10	46.48	880	580	880	580			
45	1398	1.30	38.80	970	610	970	610			
49	1293	1.40	35.90	990	630	990	630			
58	1091	1.65	30.29	1030	650	1030	650			
59	1079	1.10	29.97	1060	630	1060	630			
61	1033	1.75	28.67	1060	670	1060	670			
72	878	1.65	24.38	1080	650	1080	650			
81	781	2.30	21.67	1100	700	1100	700			
91	698	2.10	19.37	1100	700	1100	700			
107	593	3.00	16.47	1120	740	1120	740			
118	539	2.70	14.96	1120	720	1120	720			
30	2148	0.85	38.80	610	520	610	520	<b>KH033-11P-90S/L-06E</b>	57	432
32	1988	0.90	35.90	720	540	720	540			
38	1677	1.10	30.29	880	580	880	580			
40	1587	1.15	28.67	900	580	900	580			
47	1350	1.05	24.38	990	560	990	560			
53	1200	1.50	21.67	1010	650	1010	650			
59	1072	1.35	19.37	1060	630	1060	630			
70	912	1.95	16.47	1080	700	1080	700			
77	828	1.75	14.96	1100	670	1100	670			
89	709	2.50	12.81	1100	720	1100	720			
96	661	2.20	11.94	1120	700	1120	700			
127	500	2.90	9.03	1120	720	1120	720			

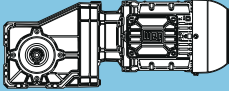
Legend see page 337



P <sub>N</sub> = 1.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
51	1234	0.80	34.27	**	**	**	**	KH022-11P-L80-04F	51	462
57	1107	0.90	30.73	1080	630	1080	630			
67	951	1.05	26.41	1100	630	1100	630			
73	866	0.85	24.05	1120	630	1120	630			
74	853	1.15	23.68	1120	630	1120	630			
85	743	1.25	20.63	1150	630	1150	630			
90	702	1.05	19.50	1150	630	1150	630			
95	666	1.40	18.50	1150	630	1150	630			
114	555	1.50	15.41	1170	630	1170	630			
115	553	1.30	15.36	1170	630	1170	630			
127	497	1.70	13.81	1150	630	1150	630			
132	479	1.65	13.29	1150	630	1150	630			
148	429	1.85	11.92	1100	630	1100	630			
149	426	1.70	11.84	1100	630	1100	630			
152	418	1.85	11.60	1080	630	1080	630			
169	375	2.05	10.40	1030	630	1030	630			
190	333	2.20	9.25	1010	630	1010	630			
207	307	2.25	8.51	970	630	970	630			
231	275	2.50	7.63	940	630	940	630			
255	249	2.65	6.91	900	630	900	630			
295	215	2.85	5.96	850	630	850	630			
338	187	3.10	5.20	810	630	810	630			
461	138	3.70	3.82	740	630	740	630			
56	1142	0.80	20.63	**	**	**	**	KH022-11P-90S/L-06E	53	462
62	1024	0.90	18.50	1100	630	1100	630			
74	853	1.00	15.41	1120	630	1120	630			
75	850	0.85	15.36	1120	630	1120	630			
83	765	1.10	13.81	1150	630	1150	630			
86	736	1.10	13.29	1150	630	1150	630			
96	660	1.20	11.92	1150	630	1150	630			
97	656	1.10	11.84	1150	630	1150	630			
99	642	1.20	11.60	1150	630	1150	630			
110	576	1.35	10.40	1170	630	1170	630			
124	512	1.40	9.25	1170	630	1170	630			
135	471	1.45	8.51	1120	630	1120	630			
150	422	1.65	7.63	1080	630	1080	630			
166	383	1.75	6.91	1060	630	1060	630			
192	330	1.90	5.96	990	630	990	630			
220	288	2.00	5.20	940	630	940	630			
300	211	2.40	3.82	850	630	850	630			

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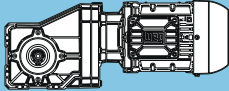
\*\* ... on request

P <sub>N</sub> = 1.5 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
0.40	209340	0.80	4417.59	**	**	**	**	KH155-11P-90S/L-04E	1515	462
0.44	186993	0.90	3966.24	13850	24030	13850	24030			
0.53	156559	1.05	3337.74	17740	26170	17740	26170			
0.58	142469	1.15	3052.96	19060	26440	19060	26440			
0.64	126823	1.30	2731.65	20320	26750	20320	26750			
0.76	105998	1.55	2306.68	21670	27160	21670	27160			
0.79	101528	1.60	2215.09	21920	27250	21920	27250			
0.93	85421	1.90	1887.82	22710	27560	22710	27560			
0.95	83688	1.95	1854.30	22770	27580	22770	27580			
1.1	67850	2.35	1530.83	23380	27900	23380	27900			
1.2	66437	2.40	1502.83	23430	27920	23430	27920			
1.4	55488	2.90	1281.49	23760	28150	23760	28150			
1.3	59344	2.70	1308.92	23650	28060	23650	28060	KH154-11P-90S/L-04E	1486	460
1.1	74496	1.55	1579.81	18390	20010	18390	20010	KH124-11P-90S/L-04E	926	456
1.3	64420	1.80	1377.44	18840	20260	18840	20260			
1.4	56574	2.05	1219.69	19130	20460	19130	20460			
1.5	54921	2.10	1186.50	19180	20500	19180	20500			
1.7	48820	2.40	1063.46	19380	20660	19380	20660			
1.9	41446	2.80	916.04	19580	20860	19580	20860			
2.0	40185	2.90	891.88	19600	20880	19600	20880			
1.4	62263	1.15	1301.54	11170	13740	11170	13740	KH104-11P-90S/L-04E	655	452
1.6	53716	1.35	1129.81	11940	13980	11940	13980			
1.8	47481	1.50	1004.85	12390	14160	12390	14160			
2.0	40879	1.75	872.27	12810	14340	12810	14340			
2.1	39413	1.80	842.74	12880	14390	12880	14390			
2.3	34957	2.05	753.64	13130	14520	13130	14520			
2.4	33861	2.10	731.54	13170	14570	13170	14570			
2.7	30362	2.35	661.38	13330	14660	13330	14660			
2.8	28895	2.50	632.05	13380	14700	13380	14700			
3.1	26030	2.75	574.12	13490	14790	13490	14790			
1.8	47778	0.85	988.58	4520	7490	4520	7490	KH094-11P-90S/L-04E	370	448
1.9	43642	0.95	906.69	5510	8700	5510	8700			
2.3	36744	1.10	766.52	6700	8920	6700	8920			
2.4	35500	1.15	742.09	6880	8970	6880	8970			
2.8	29767	1.35	627.37	7580	9150	7580	9150			
3.1	26991	1.50	571.21	7820	9240	7820	9240			
3.6	22585	1.80	482.91	8180	9370	8180	9370			
4.1	20060	2.00	431.58	8360	9460	8360	9460			
4.8	16715	2.40	364.86	8570	9580	8570	9580			
5.0	16147	2.50	353.21	8590	9600	8590	9600			
5.9	13398	3.00	298.61	8700	9690	8700	9690			
2.5	34642	0.80	715.32	**	**	**	**	KH084-11P-90S/L-04E	260	444
2.8	30125	0.90	624.59	3370	5600	3370	1660			
3.2	26448	1.05	550.61	4340	7670	4340	1800			
3.3	25196	1.10	525.61	4590	8230	4590	1870			
3.7	22952	1.20	480.77	4990	9100	4990	1930			
4.1	20452	1.30	430.17	5370	9350	5370	2050			
4.2	19739	1.35	416.02	5460	9370	5460	2070			
4.8	17129	1.60	363.25	5780	9460	5780	2160			
5.0	16415	1.65	348.82	5850	9490	5850	2180			
5.2	15989	1.70	340.47	5890	9510	5890	2200			
5.9	13846	1.95	297.29	6070	9600	6070	2290			
6.0	13572	2.00	292.01	6090	9600	6090	2290			
6.4	12780	2.10	276.09	6160	9640	6160	2340			
7.3	11044	2.45	241.07	6270	9690	6270	2380			
7.4	10819	2.50	236.66	6290	9710	6290	2410			
7.6	10544	2.55	231.12	6320	9710	6320	2410			
8.7	9073	2.95	201.80	6380	9780	6380	2470			

Legend see page 337

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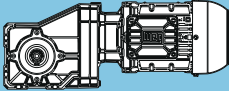
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P <sub>N</sub> = 1.5 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb			
8.5	10889	2.45		206.12	6290	9710	6290			
6.9	13531	1.05	256.14	3420	3550	3420	1030	<b>KH073-11P-90S/L-04E</b>	141	440
8.9	10447	1.35	197.75	3930	3710	3930	1190			
11	8762	1.60	165.85	4160	3800	4160	1280			
14	6876	2.00	130.16	4340	3910	4090	1370			
18	5307	2.60	100.45	4450	4000	3660	1460			
37	2512	2.20	47.56	4560	4070	2740	1550			
11	8290	0.90	156.92	1530	2380	1530	520	<b>KH063-11P-90S/L-04E</b>	97	438
14	6437	1.15	121.85	2140	2900	2140	670			
18	5282	1.40	99.98	2360	3010	2360	760			
22	4307	1.20	81.53	2520	3080	2520	850			
23	4090	1.80	77.42	2560	3100	2560	850			
27	3414	2.15	64.62	2630	3150	2630	920			
30	3111	2.35	58.89	2650	3170	2590	940			
35	2650	2.75	50.17	2700	3210	2430	970			
36	2565	2.85	48.56	2700	3210	2380	990			
40	2343	1.20	44.35	2720	3170	2340	920			
50	1857	2.20	35.15	2770	3210	2110	990			
14	6554	0.85	124.06	540	560	540	560	<b>KH053-11P-90S/L-04E</b>	68	436
18	5076	1.05	96.08	1440	2290	1440	790			
22	4251	1.20	80.46	1710	2360	1710	850			
24	3861	1.40	73.08	1800	2410	1800	900			
28	3369	1.60	63.77	1890	2430	1890	920			
29	3183	1.70	60.26	1930	2450	1930	940			
36	2616	2.05	49.52	2020	2500	2020	990			
42	2219	2.40	42.00	2070	2520	2070	1010			
43	2146	2.50	40.63	2070	2540	2070	1030			
46	2024	1.20	38.32	2090	2470	2090	970			
51	1824	2.95	34.53	2110	2560	2110	1060			
58	1604	2.20	30.37	2140	2520	2140	1010			
75	1246	2.95	23.58	2160	2560	2160	1060			
20	4629	0.80	87.62	**	**	**	**	<b>KH043-11P-90S/L-04E</b>	60	434
24	3852	0.95	72.92	610	810	610	470			
27	3497	1.05	66.20	850	1350	850	520			
31	3042	1.20	57.58	1080	1820	1080	560			
32	2862	1.25	54.18	1150	1840	1150	580			
39	2358	1.55	44.64	1300	1890	1300	630			
40	2321	1.55	43.93	1300	1890	1300	630			
46	2033	1.20	38.49	1370	1870	1370	610			
48	1943	1.75	36.78	1390	1930	1390	670			
58	1605	1.80	30.39	1460	1930	1460	670			
59	1575	2.05	29.81	1460	1980	1460	720			
63	1486	2.40	28.13	1480	1980	1480	720			
75	1245	2.20	23.57	1510	1980	1510	720			
91	1019	2.60	19.29	1530	2000	1530	740			
45	2050	0.90	38.80	700	520	700	520	<b>KH033-11P-90S/L-04E</b>	53	432
49	1897	0.95	35.90	760	540	760	540			
58	1600	1.15	30.29	900	580	900	580			
61	1515	1.20	28.67	920	610	920	610			
72	1288	1.10	24.38	990	580	990	580			
81	1145	1.55	21.67	1030	650	1030	650			
91	1023	1.45	19.37	1060	630	1060	630			
107	870	2.05	16.47	1080	700	1080	700			
118	790	1.85	14.96	1100	670	1100	670			
137	677	2.65	12.81	1120	720	1120	720			
147	631	2.30	11.94	1120	700	1120	700			

Legend see page 337

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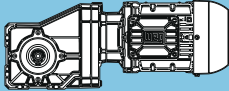
$P_N = 1.5 \text{ hp}$

60 Hz			i	Output shaft		Hollow shaft		 <b>KH022-11P-90S/L-04E</b>	m lb	Dimension sheet see page 462
$n_{60}$ rpm	$T_2$ lb-in	$f_B$		$F_{rN}$ lb	$F_{aN}$ lb	$F_{rN}$ lb	$F_{aN}$ lb			
<b>74</b>	1251	0.80		23.68	**	**	**			
<b>85</b>	1090	0.85	20.63	1080	630	1080	630			
<b>95</b>	977	0.95	18.50	1100	630	1100	630			
<b>114</b>	814	1.05	15.41	1120	630	1120	630			
<b>115</b>	811	0.90	15.36	1120	630	1120	630			
<b>127</b>	730	1.15	13.81	1150	630	1150	630			
<b>132</b>	702	1.15	13.29	1150	630	1150	630			
<b>148</b>	630	1.30	11.92	1120	630	1120	630			
<b>149</b>	625	1.15	11.84	1120	630	1120	630			
<b>152</b>	613	1.25	11.60	1100	630	1100	630			
<b>169</b>	549	1.40	10.40	1060	630	1060	630			
<b>190</b>	489	1.50	9.25	1010	630	1010	630			
<b>207</b>	450	1.55	8.51	990	630	990	630			
<b>231</b>	403	1.70	7.63	940	630	940	630			
<b>255</b>	365	1.80	6.91	920	630	920	630			
<b>295</b>	315	1.95	5.96	880	630	880	630			
<b>338</b>	275	2.10	5.20	830	630	830	630			
<b>461</b>	202	2.50	3.82	740	630	740	630			

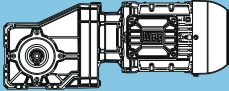
**K**

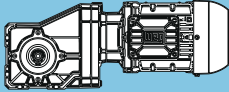
Legend see page 337

\*\* ... on request

<b>P<sub>N</sub> = 2.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
				lb	lb	lb	lb			
<b>0.57</b>	197339	0.85	3052.96	12050	20230	12050	20230	<b>KH155-11P-90S/L-04F</b>	1517	462
<b>0.64</b>	176119	0.95	2731.65	15420	25790	15420	25790			
<b>0.76</b>	147582	1.10	2306.68	18590	26350	18590	26350			
<b>0.79</b>	141360	1.15	2215.09	19150	26460	19150	26460			
<b>0.93</b>	119244	1.35	1887.82	20840	26890	20840	26890			
<b>0.95</b>	117127	1.40	1854.30	20970	26930	20970	26930			
<b>1.1</b>	95460	1.70	1530.83	22230	27360	22230	27360			
<b>1.2</b>	93473	1.75	1502.83	22320	27400	22320	27400			
<b>1.4</b>	78685	2.05	1281.49	22980	27700	22980	27700			
<b>1.7</b>	62302	2.60	1038.59	23560	28010	23560	28010			
<b>1.3</b>	83369	1.95	1308.92	22800	27610	22800	27610	<b>KH154-11P-90S/L-04F</b>	1488	460
<b>1.6</b>	70920	2.25	1127.36	23270	27830	23270	27830			
<b>1.7</b>	64768	2.50	1035.99	23490	27970	23490	27970			
<b>1.8</b>	60584	2.65	975.12	23630	28030	23630	28030			
<b>1.9</b>	55736	2.90	904.58	23760	28150	23760	28150			
<b>2.0</b>	54979	2.90	892.29	23780	28150	23780	28150			
<b>1.1</b>	103350	1.15	1579.81	16680	19270	16680	19270	<b>KH124-11P-90S/L-04F</b>	928	456
<b>1.3</b>	89558	1.30	1377.44	17580	19630	17580	19630			
<b>1.4</b>	78814	1.50	1219.69	18190	19900	18190	19900			
<b>1.5</b>	76670	1.55	1186.50	18280	19940	18280	19940			
<b>1.7</b>	68296	1.70	1063.46	18680	20170	18680	20170			
<b>1.9</b>	58225	2.00	916.04	19060	20440	19060	20440			
<b>2.0</b>	56572	2.05	891.88	19130	20460	19130	20460			
<b>2.2</b>	50502	2.30	802.79	19330	20610	19330	20610			
<b>2.3</b>	48129	2.40	768.25	19400	20680	19400	20680			
<b>2.5</b>	43488	2.65	699.95	19510	20790	19510	20790			
<b>2.7</b>	40847	2.85	661.56	19580	20860	19580	20860			
<b>1.3</b>	86022	0.85	1301.54	7850	13040	7850	13040	<b>KH104-11P-90S/L-04F</b>	657	452
<b>1.6</b>	74367	1.00	1129.81	9760	13380	9760	13380			
<b>1.7</b>	65872	1.10	1004.85	10790	13620	10790	13620			
<b>1.8</b>	63860	1.15	976.16	10990	13690	10990	13690			
<b>2.0</b>	56830	1.25	872.27	11670	13890	11670	13890			
<b>2.1</b>	54793	1.30	842.74	11850	13940	11850	13940			
<b>2.3</b>	48799	1.50	753.64	12300	14120	12300	14120			
<b>2.4</b>	47271	1.50	731.54	12410	14160	12410	14160			
<b>2.7</b>	42474	1.70	661.38	12720	14300	12720	14300			
<b>2.8</b>	40507	1.75	632.05	12840	14370	12840	14370			
<b>3.1</b>	36567	1.95	574.12	13040	14480	13040	14480			
<b>3.4</b>	32177	2.25	510.43	13240	14610	13240	14610			
<b>3.5</b>	31205	2.30	496.04	13290	14640	13290	14640			
<b>4.0</b>	27586	2.60	443.08	13420	14750	13420	14750			
<b>4.2</b>	26177	2.75	422.20	13490	14790	13490	14790			
<b>2.3</b>	50765	0.80	766.52	**	**	**	**	<b>KH094-11P-90S/L-04F</b>	373	448
<b>2.4</b>	49047	0.85	742.09	4140	6680	4140	6680			
<b>2.8</b>	41295	1.00	627.37	5980	8770	5980	8770			
<b>3.1</b>	37445	1.10	571.21	6610	8900	6610	8900			
<b>3.6</b>	31462	1.30	482.91	7370	9080	7370	9080			
<b>4.1</b>	27945	1.45	431.58	7730	9220	7730	9220			
<b>4.8</b>	23383	1.75	364.86	8140	9350	8140	9350			
<b>5.0</b>	22590	1.80	353.21	8180	9370	8180	9370			
<b>5.9</b>	18902	2.15	298.61	8430	9510	8430	9510			
<b>6.1</b>	18055	2.25	286.42	8480	9530	8480	9530			
<b>7.2</b>	15044	2.65	242.14	8630	9620	8630	9620			
<b>7.3</b>	14866	2.70	239.77	8660	9620	8660	9620			



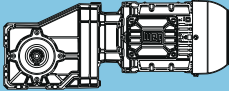
P <sub>N</sub> = 2.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
3.3	34810	0.80	525.61	**	**	**	**	KH084-11P-90S/L-04F	262	444
3.7	31775	0.85	480.77	2770	4340	2770	1620			
4.1	28315	0.95	430.17	3890	6700	3890	1730			
4.2	27328	1.00	416.02	4140	7240	4140	1780			
4.8	23764	1.15	363.25	4860	8810	4860	1910			
5.0	22773	1.20	348.82	5010	9170	5010	1960			
5.2	22228	1.20	340.47	5100	9280	5100	1980			
5.9	19290	1.40	297.29	5530	9400	5530	2090			
6.0	18908	1.45	292.01	5580	9400	5580	2090			
6.4	17840	1.50	276.09	5690	9440	5690	2140			
7.3	15450	1.75	241.07	5930	9530	5930	2230			
7.4	15167	1.80	236.66	5960	9530	5960	2230			
7.6	14782	1.80	231.12	6000	9550	6000	2250			
8.7	12774	2.10	201.80	6160	9620	6160	2320			
9.4	11783	2.30	187.31	6230	9670	6230	2360			
11	10161	2.65	163.55	6340	9730	6200	2430			
8.5	14891	1.80	206.12	5980	9550	5980	2250	KH083-11P-90S/L-04F	234	442
11	11786	2.30	163.14	6230	9670	6230	2360			
12	10291	2.60	142.45	6320	9730	6070	2430			
14	9095	2.95	125.90	6380	9780	5690	2470			
8.9	14286	1.00	197.75	3260	3510	3260	990	KH073-11P-90S/L-04F	143	440
11	11982	1.15	165.85	3710	3640	3710	1100			
13	9403	1.50	130.16	4070	3780	4070	1240			
17	7257	1.90	100.45	4290	3890	3930	1350			
18	7215	1.60	99.87	4290	3890	3870	1370			
21	6003	2.30	83.09	4410	3960	3570	1420			
23	5571	2.50	77.11	4430	3980	3440	1440			
25	5105	2.70	70.67	4450	4000	3330	1460			
27	4672	2.95	64.67	4470	4020	3190	1480			
37	3436	1.60	47.56	4540	4000	2860	1460			
48	2653	2.55	36.72	4560	4070	2560	1530			
14	8803	0.85	121.85	1280	1840	1280	470	KH063-11P-90S/L-04F	99	438
18	7223	1.05	99.98	1910	2860	1910	610			
22	5890	0.90	81.53	2250	2940	2250	720			
23	5593	1.30	77.42	2320	2970	2320	740			
27	4668	1.60	64.62	2470	3060	2470	810			
30	4254	1.75	58.89	2540	3080	2540	850			
35	3624	2.05	50.17	2610	3120	2560	900			
36	3508	2.10	48.56	2630	3150	2520	900			
40	3204	0.90	44.35	2650	3060	2470	830			
43	2974	2.45	41.17	2680	3190	2340	940			
44	2877	2.45	39.83	2680	3190	2290	970			
50	2539	1.60	35.15	2720	3150	2230	900			
52	2445	2.75	33.85	2720	3240	2140	990			
64	1972	2.25	27.29	2740	3190	1980	970			
78	1618	2.75	22.40	2770	3240	1820	1010			
18	6941	0.80	96.08	**	**	**	**	KH053-11P-90S/L-04F	71	436
22	5813	0.90	80.46	1120	1800	1120	740			
24	5280	1.05	73.08	1370	2290	1370	790			
28	4607	1.20	63.77	1600	2340	1600	830			
29	4353	1.25	60.26	1660	2360	1660	850			
35	3577	1.50	49.52	1870	2430	1870	920			
36	3571	1.50	49.43	1870	2430	1870	920			
42	3034	1.80	42.00	1960	2470	1960	970			
43	2935	1.85	40.63	1980	2470	1980	970			
46	2768	0.90	38.32	2000	2380	2000	880			
51	2495	2.15	34.53	2050	2500	2050	990			
56	2273	2.35	31.46	2070	2520	2070	1010			
58	2194	1.60	30.37	2070	2450	2070	940			
64	1979	2.60	27.39	2090	2540	2090	1030			
74	1703	2.15	23.58	2110	2500	2110	990			
91	1398	2.65	19.35	2140	2540	2090	1030			

P <sub>N</sub> = 2.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
30	4160	0.90	57.58	**	**	**	**	KH043-11P-90S/L-04F	64	434
32	3914	0.95	54.18	540	670	540	470			
39	3225	1.10	44.64	1010	1690	1010	540			
40	3174	1.15	43.93	1030	1750	1030	560			
46	2781	0.90	38.49	1170	1780	1170	520			
48	2657	1.30	36.78	1210	1870	1210	610			
58	2195	1.35	30.39	1350	1840	1350	580			
59	2154	1.50	29.81	1350	1910	1350	650			
62	2032	1.75	28.13	1370	1930	1370	670			
74	1703	1.60	23.57	1440	1910	1440	650			
83	1535	2.35	21.25	1460	1980	1460	720			
91	1394	1.90	19.29	1480	1960	1480	700			
101	1256	2.85	17.39	1510	2000	1510	740			
118	1073	2.30	14.85	1530	2000	1530	740			
156	811	2.90	11.22	1550	2020	1390	760			
58	2188	0.85	30.29	580	490	580	490	KH033-11P-90S/L-04F	55	432
61	2071	0.90	28.67	670	520	670	520			
72	1761	0.85	24.38	830	490	830	490			
81	1566	1.15	21.67	920	580	920	580			
91	1399	1.05	19.37	970	560	970	560			
107	1190	1.50	16.47	1030	650	1030	650			
117	1081	1.35	14.96	1060	630	1060	630			
137	925	1.95	12.81	1080	700	1080	700			
147	863	1.70	11.94	1080	650	1080	650			
176	722	2.50	10.00	1100	720	1100	720			
194	652	2.25	9.03	1120	700	1120	700			
256	496	2.70	6.86	1120	720	1120	720			
127	998	0.85	13.81	1100	630	1100	630	KH022-11P-90S/L-04F	51	462
132	960	0.85	13.29	1100	630	1100	630			
147	861	0.95	11.92	1120	630	1120	630			
148	855	0.85	11.84	1120	630	1120	630			
151	838	0.90	11.60	1120	630	1120	630			
169	751	1.05	10.40	1080	630	1080	630			
190	668	1.10	9.25	1030	630	1030	630			
206	615	1.15	8.51	1010	630	1010	630			
230	551	1.25	7.63	970	630	970	630			
254	499	1.35	6.91	920	630	920	630			
294	431	1.45	5.96	880	630	880	630			
338	376	1.55	5.20	830	630	830	630			
459	276	1.85	3.82	740	630	740	630			

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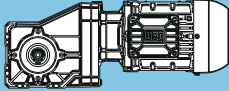
**P<sub>N</sub> = 3.0 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>0.79</b>	211742	0.80	2215.09	**	**	**	**	<b>KH155-11P-100L-04E</b>	1539	462
<b>0.92</b>	179537	0.90	1887.82	14840	25700	14840	25700			
<b>0.94</b>	176350	0.95	1854.30	15260	25760	15260	25760			
<b>1.1</b>	144103	1.15	1530.83	18860	26390	18860	26390			
<b>1.2</b>	141468	1.15	1502.83	19090	26440	19090	26440			
<b>1.4</b>	119707	1.35	1281.49	20770	26860	20770	26860			
<b>1.7</b>	95532	1.70	1038.59	22210	27360	22210	27360			
<b>1.3</b>	125791	1.30	1308.92	20350	26750	20350	26750	<b>KH154-11P-100L-04E</b>	1510	460
<b>1.5</b>	107456	1.50	1127.36	21560	27110	21560	27110			
<b>1.7</b>	98342	1.65	1035.99	22050	27290	22050	27290			
<b>1.8</b>	92183	1.75	975.12	22370	27400	22370	27400			
<b>1.9</b>	85163	1.90	904.58	22710	27560	22710	27560			
<b>2.0</b>	83832	1.95	892.29	22750	27580	22750	27580			
<b>2.2</b>	74492	2.15	799.45	23130	27760	23130	27760			
<b>2.3</b>	71767	2.25	771.80	23250	27810	23250	27810			
<b>2.5</b>	63368	2.55	688.57	23520	27990	23520	27990			
<b>2.6</b>	62085	2.60	676.04	23560	28010	23560	28010			
<b>2.9</b>	54018	2.95	595.58	23810	28170	23810	28170			
<b>1.4</b>	118424	1.00	1219.69	15420	18860	15420	18860	<b>KH124-11P-100L-04E</b>	950	456
<b>1.6</b>	102622	1.15	1063.46	16700	19270	16700	19270			
<b>1.7</b>	98508	1.20	1022.92	17000	19380	17000	19380			
<b>1.9</b>	87854	1.35	916.04	17670	19650	17670	19650			
<b>2.0</b>	85361	1.35	891.88	17800	19720	17800	19720			
<b>2.2</b>	76519	1.55	802.79	18280	19940	18280	19940			
<b>2.3</b>	73077	1.60	768.25	18430	20030	18430	20030			
<b>2.5</b>	66170	1.75	699.95	18750	20210	18750	20210			
<b>2.6</b>	62283	1.85	661.56	18910	20320	18910	20320			
<b>2.8</b>	58089	2.00	619.56	19060	20410	19060	20410			
<b>2.9</b>	56412	2.05	602.92	19130	20460	19130	20460			
<b>3.2</b>	50127	2.30	540.20	19330	20610	19330	20610			
<b>3.4</b>	47978	2.40	519.19	19400	20680	19400	20680			
<b>3.8</b>	42556	2.75	465.31	19540	20820	19540	20820			
<b>3.9</b>	40695	2.85	446.82	19580	20860	19580	20860			
<b>4.0</b>	39618	2.95	435.90	19600	20910	19600	20910			
<b>2.0</b>	85039	0.85	872.27	7960	13040	7960	13040	<b>KH104-11P-100L-04E</b>	679	452
<b>2.1</b>	81992	0.90	842.74	8520	13130	8520	13130			
<b>2.3</b>	73173	1.00	753.64	9870	13400	9870	13400			
<b>2.4</b>	70882	1.00	731.54	10160	13470	10160	13470			
<b>2.6</b>	63822	1.15	661.38	10970	13670	10970	13670			
<b>2.8</b>	60867	1.20	632.05	11260	13760	11260	13760			
<b>3.0</b>	55062	1.30	574.12	11800	13940	11800	13940			
<b>3.4</b>	48753	1.50	510.43	12300	14120	12300	14120			
<b>3.5</b>	47281	1.50	496.04	12390	14160	12390	14160			
<b>3.9</b>	41973	1.70	443.08	12720	14320	12720	14320			
<b>4.1</b>	39830	1.80	422.20	12860	14390	12860	14390			
<b>4.6</b>	35892	2.00	382.82	13060	14500	13060	14500			
<b>4.8</b>	34291	2.10	366.49	13150	14550	13150	14550			
<b>4.9</b>	33532	2.15	359.12	13170	14570	13170	14570			
<b>5.5</b>	29262	2.45	316.65	13350	14680	13350	14680			
<b>5.6</b>	28748	2.50	311.74	13380	14700	13380	14700			
<b>6.5</b>	24555	2.90	270.17	13530	14840	13530	14840			
<b>6.6</b>	23837	3.00	262.82	13560	14840	13560	14840			



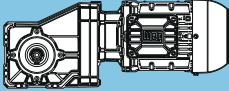
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<b>P<sub>N</sub> = 3.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b> rpm	<b>T<sub>2</sub></b> lb-in	<b>f<sub>B</sub></b>		<b>F<sub>rn</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rn</sub></b>	<b>F<sub>aN</sub></b>			
				lb	lb	lb	lb			
3.6	47080	0.85	482.91	4650	7760	4650	7760	<b>KH094-11P-100L-04E</b>	395	448
4.0	41903	1.00	431.58	5820	8750	5820	8750			
4.8	35208	1.15	364.86	6900	8970	6900	8970			
4.9	34014	1.20	353.21	7060	8990	7060	8990			
5.8	28580	1.40	298.61	7670	9170	7670	9170			
6.1	27357	1.50	286.42	7780	9220	7780	9220			
7.2	22891	1.75	242.14	8160	9370	8160	9370			
7.3	22667	1.80	239.77	8180	9370	8180	9370			
8.6	18926	2.15	202.70	8430	9490	8430	9490			
9.0	18069	2.25	194.32	8480	9530	8480	9530			
9.3	17388	2.30	187.38	8520	9550	8520	9550			
11	15056	2.65	164.28	8630	9620	8630	9620			
10	18036	2.25	169.25	8480	9530	8480	9530	<b>KH093-11P-100L-04E</b>	366	446
12	15247	2.65	143.08	8630	9620	8630	9620			
5.0	34077	0.80	348.82	**	**	**	**	<b>KH084-11P-100L-04E</b>	284	444
5.1	33193	0.80	340.47	**	**	**	**			
5.9	28865	0.95	297.29	3690	6270	3690	1710			
6.0	28352	0.95	292.01	3840	6610	3840	1730			
6.3	26752	1.00	276.09	4230	7440	4230	1800			
7.2	23263	1.15	241.07	4920	8970	4920	1930			
7.4	22790	1.20	236.66	4990	9100	4990	1930			
7.6	22257	1.20	231.12	5080	9260	5080	1960			
8.6	19314	1.40	201.80	5510	9370	5510	2070			
9.3	17854	1.50	187.31	5690	9440	5690	2140			
9.7	17181	1.55	180.62	5760	9460	5760	2160			
11	15461	1.75	163.55	5930	9530	5930	2230			
8.5	21965	1.25	206.12	5130	9280	5130	1980	<b>KH083-11P-100L-04E</b>	256	442
11	17385	1.55	163.14	5730	9460	5730	2160			
12	15180	1.75	142.45	5960	9530	5960	2230			
14	13416	2.00	125.90	6110	9600	6090	2290			
16	11345	2.35	106.46	6250	9690	5690	2380			
19	9752	2.75	91.51	6360	9760	5280	2450			
22	8498	3.00	79.75	6410	9800	4970	2500			
38	4847	3.00	45.48	6560	9870	3980	2560			
11	17674	0.80	165.85	**	**	**	**	<b>KH073-11P-100L-04E</b>	165	440
13	13870	1.00	130.16	3350	3530	3350	1010			
17	10704	1.30	100.45	3890	3710	3890	1170			
21	8854	1.55	83.09	4140	3800	3890	1280			
23	8217	1.70	77.11	4200	3840	3730	1300			
25	7531	1.85	70.67	4270	3870	3570	1350			
27	6891	2.00	64.67	4320	3910	3440	1370			
28	6527	2.15	61.25	4360	3930	3370	1390			
34	5511	2.50	51.72	4430	3980	3100	1440			
35	5315	2.60	49.88	4430	3980	3060	1460			
48	3913	1.75	36.72	4520	3960	2720	1440			
57	3281	2.50	30.79	4540	4000	2520	1480			
29	6422	0.85	60.26	650	810	650	700	<b>KH053-11P-100L-04E</b>	93	436
35	5277	1.05	49.52	1350	2290	1350	790			
42	4476	1.20	42.00	1640	2340	1640	830			
43	4330	1.25	40.63	1690	2360	1690	850			
51	3680	1.45	34.53	1840	2410	1840	900			
52	3549	1.50	33.30	1870	2430	1870	920			
55	3353	1.60	31.46	1890	2430	1890	920			
64	2919	1.75	27.39	1980	2470	1980	970			
73	2550	2.10	23.93	2020	2500	2020	990			
74	2513	1.50	23.58	2020	2410	2020	900			
88	2103	2.55	19.73	2090	2540	2090	1030			
90	2062	1.80	19.35	2090	2450	2090	940			
116	1596	2.30	14.98	2140	2520	2000	1010			

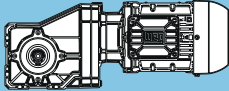
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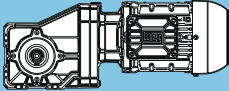
<b>P<sub>N</sub> = 3.0 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>40</b>	4681	0.80	43.93	**	**	**	**	<b>KH043-11P-100L-04E</b>	84	434
<b>47</b>	3919	0.90	36.78	520	630	520	470			
<b>48</b>	3894	0.95	36.54	560	720	560	470			
<b>59</b>	3177	1.05	29.81	1010	1690	1010	540			
<b>61</b>	3063	1.05	28.74	1080	1820	1080	560			
<b>62</b>	2998	1.20	28.13	1100	1820	1100	560			
<b>74</b>	2512	1.10	23.57	1260	1800	1260	540			
<b>82</b>	2264	1.60	21.25	1330	1910	1330	650			
<b>90</b>	2056	1.30	19.29	1370	1870	1370	610			
<b>100</b>	1853	1.95	17.39	1420	1960	1420	700			
<b>118</b>	1582	1.60	14.85	1460	1930	1460	670			
<b>124</b>	1503	2.40	14.10	1480	1980	1480	720			
<b>148</b>	1259	2.85	11.81	1510	2000	1460	740			
<b>156</b>	1196	1.95	11.22	1510	1980	1460	720			
<b>190</b>	978	2.30	9.18	1530	2000	1350	740			
<b>235</b>	793	2.70	7.44	1550	2020	1240	760			
<b>81</b>	2309	0.80	21.67	**	**	**	**			
<b>106</b>	1755	1.05	16.47	830	560	830	560			
<b>117</b>	1594	0.95	14.96	900	520	900	520			
<b>136</b>	1365	1.30	12.81	970	630	970	630			
<b>146</b>	1272	1.15	11.94	1010	580	1010	580			
<b>175</b>	1066	1.70	10.00	1060	670	1060	670			
<b>193</b>	962	1.50	9.03	1080	650	1080	650			
<b>254</b>	731	1.85	6.86	1100	670	1100	670			
<b>327</b>	569	2.15	5.34	1080	720	1080	720			
<b>418</b>	444	2.55	4.17	990	740	990	740			

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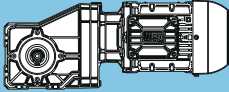
P <sub>N</sub> = 4.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
1.1	199607	0.80	1530.83	**	**	**	**	<b>KH155-11P-L100L-04F</b>	1554	462
1.2	195956	0.85	1502.83	12360	20910	12360	20910			
1.4	166243	1.00	1281.49	16680	25990	16680	25990			
1.7	133359	1.20	1038.59	19830	26620	19830	26620			
1.3	173799	0.95	1308.92	15760	25830	15760	25830			
1.5	149079	1.10	1127.36	18480	26330	18480	26330			
1.7	136436	1.20	1035.99	19580	26570	19580	26570			
1.8	128157	1.25	975.12	20230	26730	20230	26730			
1.9	118398	1.35	904.58	20910	26910	20910	26910			
2.0	116790	1.40	892.29	21020	26950	21020	26950			
2.2	103995	1.55	799.45	21780	27200	21780	27200			
2.3	100192	1.60	771.80	21990	27270	21990	27270			
2.5	88836	1.80	688.57	22550	27490	22550	27490			
2.6	87040	1.85	676.04	22640	27520	22640	27520			
2.9	76050	2.10	595.58	23090	27740	23090	27740			
3.0	74197	2.15	582.27	23160	27790	23160	27790			
3.4	63845	2.50	507.30	23520	27990	23520	27990			
3.5	63385	2.55	503.64	23540	27990	23540	27990			
4.0	54195	2.95	436.93	23810	28170	23810	28170			
1.6	141786	0.85	1063.46	12990	18280	12990	18280			
1.7	136381	0.85	1022.92	13650	18410	13650	18410			
1.9	121632	0.95	916.04	15200	18790	15200	18790			
2.0	118182	1.00	891.88	15510	18880	15510	18880			
2.2	106159	1.10	802.79	16480	19200	16480	19200			
2.3	101383	1.15	768.25	16840	19310	16840	19310			
2.5	91992	1.30	699.95	17450	19560	17450	19560			
2.6	86768	1.35	661.56	17760	19690	17760	19690			
2.8	80926	1.45	619.56	18070	19850	18070	19850			
2.9	78591	1.50	602.92	18190	19900	18190	19900			
3.2	69982	1.65	540.20	18610	20120	18610	20120			
3.4	67122	1.75	519.19	18730	20190	18730	20190			
3.7	59785	1.95	465.31	19020	20390	19020	20390			
3.9	57173	2.05	446.82	19110	20460	19110	20460			
4.0	55660	2.10	435.90	19150	20500	19150	20500			
4.3	50849	2.30	400.70	19310	20610	19310	20610			
4.5	48640	2.40	384.88	19380	20680	19380	20680			
4.6	48030	2.40	380.06	19400	20680	19400	20680			
5.2	41280	2.80	331.43	19580	20860	19580	20860			
5.3	41026	2.85	329.39	19580	20860	19580	20860			
5.5	39570	2.95	319.02	19630	20910	19630	20910			
2.6	88178	0.85	661.38	7440	12300	7440	12300			
2.8	84268	0.85	632.05	8210	13080	8210	13080			
3.0	76232	0.95	574.12	9510	13330	9510	13330			
3.4	67498	1.05	510.43	10610	13580	10610	13580			
3.5	65595	1.10	496.04	10840	13620	10840	13620			
3.9	58232	1.25	443.08	11560	13850	11560	13850			
4.1	55374	1.30	422.20	11800	13940	11800	13940			
4.5	50004	1.45	382.82	12230	14100	12230	14100			
4.7	47772	1.50	366.49	12390	14160	12390	14160			
4.8	46715	1.55	359.12	12450	14190	12450	14190			
5.5	40937	1.75	316.65	12810	14340	12810	14340			
5.6	40219	1.80	311.74	12860	14370	12860	14370			
6.4	34570	2.05	270.17	13130	14550	13130	14550			
6.5	34392	2.10	269.34	13150	14550	13150	14550			
6.6	33560	2.15	262.82	13170	14570	13170	14570			
6.9	32228	2.20	253.44	13240	14610	13240	14610			
7.5	29500	2.45	233.43	13350	14680	13350	14680			
7.6	28773	2.50	228.15	13380	14700	13380	14700			
7.9	27630	2.60	220.00	13420	14750	13420	14750			
8.0	27136	2.65	216.51	13440	14750	13440	14750			
8.8	24501	2.90	197.12	13530	14840	13530	14840			

**P<sub>N</sub> = 4.0 hp**

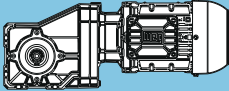
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
4.8	48645	0.85	364.86	4290	7010	4290	7010	KH094-11P-L100L-04F	410	448
4.9	47092	0.85	353.21	4720	7910	4720	7910			
5.8	39568	1.05	298.61	6270	8830	6270	8830			
6.1	37875	1.10	286.42	6540	8880	6540	8880			
7.2	31824	1.30	242.14	7350	9080	7350	9080			
7.3	31512	1.30	239.77	7370	9080	7370	9080			
8.6	26422	1.55	202.70	7890	9260	7890	9260			
9.0	25226	1.60	194.32	7980	9310	7980	9310			
9.3	24275	1.65	187.38	8070	9330	8070	9330			
11	21107	1.90	164.28	8300	9420	8300	9420			
10	24665	1.65	169.25	8030	9310	8030	9310			
12	20851	1.95	143.08	8320	9440	8320	9440			
14	18050	2.25	123.86	8480	9530	8480	9530			
16	15987	2.50	109.70	8590	9600	8590	9600			
18	13830	2.90	94.90	8700	9670	8700	9670			
19	13336	3.00	91.51	8700	9690	8700	9690			
7.2	32141	0.85	241.07	2630	4050	2630	1600	KH084-11P-L100L-04F	300	444
7.4	31553	0.85	236.66	2880	4560	2880	1620			
7.5	30751	0.90	231.12	3170	5170	3170	1640			
7.6	30364	0.90	228.21	3300	5460	3300	1660			
8.6	26740	1.00	201.80	4270	7530	4270	1800			
9.3	24769	1.10	187.31	4680	8410	4680	1870			
9.6	23836	1.15	180.62	4860	8810	4860	1910			
11	21495	1.25	163.55	5220	9310	5220	2000			
8.4	30038	0.90	206.12	3390	5670	3390	1690	KH083-11P-L100L-04F	271	442
11	23775	1.15	163.14	4860	8810	4860	1910			
12	20760	1.30	142.45	5330	9330	5330	2020			
14	18348	1.45	125.90	5640	9420	5640	2110			
16	15515	1.75	106.46	5930	9530	5930	2230			
19	13336	2.00	91.51	6110	9620	5600	2320			
22	11643	2.30	79.89	6250	9670	5240	2360			
25	9974	2.70	68.44	6340	9730	4920	2430			
26	9618	2.80	66.00	6360	9760	4830	2450			
28	9199	2.80	63.12	6380	9780	4700	2470			
38	6628	2.20	45.48	6500	9780	4160	2470			
48	5245	2.80	35.99	6540	9850	3750	2540			
17	14639	0.95	100.45	3190	3510	3190	970	KH073-11P-L100L-04F	181	440
21	12109	1.15	83.09	3690	3640	3690	1100			
23	11237	1.25	77.11	3820	3690	3820	1150			
25	10299	1.35	70.67	3960	3730	3870	1190			
27	9424	1.50	64.67	4070	3780	3710	1240			
28	8926	1.55	61.25	4140	3800	3620	1280			
34	7537	1.85	51.72	4270	3870	3300	1350			
35	7269	1.90	49.88	4290	3890	3260	1350			
41	6210	2.25	42.61	4380	3930	3010	1420			
44	5708	2.45	39.17	4410	3980	2900	1440			
47	5351	1.30	36.72	4430	3840	2900	1300			
54	4722	2.95	32.40	4470	4020	2650	1480			
57	4487	1.80	30.79	4500	3910	2650	1390			
72	3522	2.30	24.17	4540	3980	2380	1460			
93	2718	3.00	18.65	4560	4050	2140	1530			

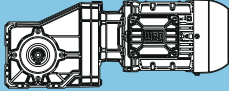
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P <sub>N</sub> = 4.0 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>sN</sub>	F <sub>rN</sub>	F <sub>sN</sub>			
rpm	lb-in			lb	lb	lb	lb			
30	8582	0.85	58.89	1390	2090	1390	490	KH063-11P-L100L-04F	137	438
35	7311	1.00	50.17	1890	2830	1890	610			
36	7077	1.05	48.56	1960	2860	1960	630			
42	6000	1.25	41.17	2230	2940	2230	720			
44	5805	1.25	39.83	2270	2970	2270	720			
51	4933	1.40	33.85	2430	3030	2430	790			
55	4646	1.60	31.88	2470	3060	2410	810			
63	4056	1.60	27.83	2560	3100	2250	850			
64	3977	1.15	27.29	2560	2970	2290	740			
65	3911	1.60	26.84	2590	3100	2200	880			
72	3534	2.00	24.25	2630	3150	2110	900			
78	3264	1.40	22.40	2650	3060	2090	810			
79	3216	1.85	22.07	2650	3170	2020	920			
87	2915	2.25	20.00	2680	3190	1910	970			
100	2527	1.80	17.34	2720	3150	1840	900			
106	2390	2.60	16.40	2720	3240	1750	990			
125	2032	2.90	13.94	2740	3260	1620	1030			
132	1922	2.35	13.19	2740	3210	1620	970			
160	1586	2.80	10.88	2770	3240	1480	1010			
41	6121	0.90	42.00	920	1370	920	720	KH053-11P-L100L-04F	106	436
43	5921	0.90	40.63	1060	1660	1060	740			
50	5032	1.10	34.53	1460	2320	1460	810			
52	4853	1.10	33.30	1530	2320	1530	810			
55	4585	1.20	31.46	1620	2340	1620	830			
64	3992	1.30	27.39	1780	2380	1780	880			
73	3487	1.55	23.93	1870	2430	1870	920			
74	3436	1.10	23.58	1890	2290	1890	790			
88	2875	1.85	19.73	1980	2470	1980	970			
90	2820	1.30	19.35	2000	2380	2000	880			
107	2359	2.30	16.19	2050	2520	2050	1010			
116	2183	1.70	14.98	2070	2450	2070	940			
127	2004	2.70	13.75	2090	2540	1960	1030			
153	1661	2.25	11.40	2110	2520	1840	1010			
185	1370	2.70	9.40	2140	2540	1710	1030			
61	4188	0.80	28.74	**	**	**	**	KH043-11P-L100L-04F	99	434
62	4099	0.90	28.13	310	200	310	200			
74	3435	0.80	23.57	**	**	**	**			
82	3097	1.15	21.25	1060	1800	1060	560			
90	2811	0.95	19.29	1170	1780	1170	520			
100	2534	1.40	17.39	1260	1870	1260	610			
117	2164	1.15	14.85	1350	1840	1350	580			
123	2055	1.75	14.10	1370	1930	1370	670			
147	1721	2.10	11.81	1440	1960	1440	700			
155	1635	1.45	11.22	1460	1910	1460	650			
182	1395	2.40	9.57	1480	2000	1420	740			
189	1345	2.45	9.23	1510	2000	1390	740			
190	1338	1.70	9.18	1510	1960	1420	700			
234	1084	2.00	7.44	1530	2000	1280	740			
279	908	2.30	6.23	1550	2020	1190	760			
345	736	2.70	5.05	1480	2050	1080	790			
357	710	2.75	4.87	1460	2050	1080	790			
136	1867	0.95	12.81	790	540	790	540	KH033-11P-L100L-04F	90	432
146	1740	0.85	11.94	850	490	850	490			
174	1457	1.25	10.00	940	610	940	610			
193	1316	1.10	9.03	990	580	990	580			
254	1000	1.35	6.86	1060	630	1060	630			
326	778	1.60	5.34	1100	670	1100	670			
417	608	1.85	4.17	1010	720	1010	720			
1.7	178564	0.90	1038.59	15080	25740	15080	25740			
1.8	171747	0.95	1001.50	15980	25880	15980	25880			

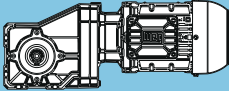


P <sub>N</sub> = 5.4 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
1.6	198694	0.85	1127.36	11780	19670	11780	19670	<b>KH154-11P-112M-04E</b>	1528	460
1.7	182217	0.90	1035.99	14570	25580	14570	25580			
1.8	171160	0.95	975.12	16050	25880	16050	25880			
1.9	158454	1.05	904.58	17510	26120	17510	26120			
2.0	156301	1.05	892.29	17740	26170	17740	26170			
2.2	139465	1.15	799.45	19310	26500	19310	26500			
2.3	135639	1.20	779.11	19630	26570	19630	26570			
2.5	119140	1.35	688.57	20840	26890	20840	26890			
2.6	116972	1.40	676.04	21000	26930	21000	26930			
2.9	102417	1.60	595.58	21870	27220	21870	27220			
3.0	99922	1.60	582.27	22010	27270	22010	27270			
3.5	86342	1.85	507.30	22660	27540	22660	27540			
4.0	73601	2.20	436.93	23180	27790	23180	27790			
4.1	72775	2.20	432.92	23220	27810	23220	27810			
4.2	70308	2.30	419.11	23290	27850	23290	27850			
4.6	62876	2.55	377.93	23540	27990	23540	27990			
4.7	62151	2.60	374.35	23560	28010	23560	28010			
4.9	59683	2.70	360.98	23650	28060	23650	28060			
2.2	141489	0.85	802.79	12990	18280	12990	18280	<b>KH124-11P-112M-04E</b>	968	456
2.3	135125	0.90	768.25	13760	18460	13760	18460			
2.5	122860	0.95	699.95	15060	18770	15060	18770			
2.7	115884	1.00	661.56	15690	18950	15690	18950			
2.8	108305	1.10	619.56	16300	19130	16300	19130			
2.9	105180	1.10	602.92	16550	19220	16550	19220			
3.2	93853	1.25	540.20	17330	19510	17330	19510			
3.4	90018	1.30	519.19	17560	19600	17560	19600			
3.8	80345	1.45	465.31	18100	19850	18100	19850			
3.9	76994	1.50	446.82	18280	19940	18280	19940			
4.0	74958	1.55	435.90	18370	19990	18370	19990			
4.4	68622	1.70	400.70	18660	20170	18660	20170			
4.6	65777	1.75	384.88	18770	20230	18770	20230			
5.3	56061	2.10	331.43	19130	20480	19130	20480			
5.4	55261	2.10	327.38	19180	20500	19180	20500			
5.5	53739	2.15	319.02	19220	20550	19220	20550			
5.7	51712	2.25	307.62	19290	20590	19290	20590			
6.2	47302	2.45	283.73	19420	20700	19420	20700			
6.3	46276	2.50	278.15	19450	20730	19450	20730			
6.5	44531	2.60	268.22	19490	20770	19490	20770			
6.7	43541	2.65	262.80	19510	20790	19510	20790			
7.2	40145	2.90	244.33	19600	20880	19600	20880			
7.3	39285	2.95	239.59	19630	20910	19630	20910			
3.4	90146	0.80	510.43	**	**	**	**	<b>KH104-11P-112M-04E</b>	697	452
3.5	87426	0.85	496.04	7580	12590	7580	12590			
4.0	77773	0.95	443.08	9260	13260	9260	13260			
4.2	74108	1.00	422.20	9780	13380	9780	13380			
4.6	66921	1.10	382.82	10680	13600	10680	13600			
4.8	63935	1.15	366.49	10990	13670	10990	13670			
4.9	62649	1.15	359.12	11130	13710	11130	13710			
5.5	54901	1.30	316.65	11820	13940	11820	13940			
5.6	54050	1.35	311.74	11910	13960	11910	13960			
6.5	46459	1.55	270.17	12450	14190	12450	14190			
6.7	45195	1.60	262.82	12540	14230	12540	14230			
6.9	43492	1.65	253.44	12660	14280	12660	14280			
7.5	39812	1.80	233.43	12860	14390	12860	14390			
7.7	38831	1.85	228.15	12930	14410	12930	14410			
8.0	37367	1.90	220.00	12990	14460	12990	14460			
8.1	36774	1.95	216.51	13040	14480	13040	14480			
8.9	33205	2.15	197.12	13200	14570	13200	14570			
9.2	31953	2.25	190.08	13260	14610	13260	14610			
9.3	31529	2.25	187.95	13260	14640	13260	14640			
11	26905	2.65	162.39	13440	14770	13440	14770			

P <sub>N</sub> = 5.4 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>aN</sub>	F <sub>rn</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
12	27154	2.65	140.95	13440	14750	13440	14750	<b>KH103-11P-112M-04E</b>	644	450
14	23985	3.00	124.50	13560	14840	13560	14840			
5.9	52737	0.80	298.61	**	**	**	**	<b>KH094-11P-112M-04E</b>	412	448
6.1	50481	0.80	286.42	**	**	**	**			
7.2	42502	0.95	242.14	5730	8720	5730	8720			
7.3	42086	0.95	239.77	5820	8750	5820	8750			
8.7	35361	1.15	202.70	6900	8970	6900	8970			
9.0	33830	1.20	194.32	7100	9010	7100	9010			
9.4	32555	1.25	187.38	7260	9060	7260	9060			
11	28366	1.45	164.28	7710	9190	7710	9190			
10	32606	1.25	169.25	7240	9060	7240	9060			
12	27564	1.45	143.08	7780	9220	7780	9220			
14	23861	1.70	123.86	8090	9330	8090	9330			
16	21134	1.90	109.70	8300	9420	8300	9420			
18	18282	2.20	94.90	8480	9530	8480	9530			
19	17629	2.30	91.51	8500	9530	8500	9530			
22	15554	2.60	80.74	8610	9600	8610	9600			
9.4	33013	0.85	187.31	2180	3100	2180	1550	<b>KH084-11P-112M-04E</b>	302	444
9.7	31834	0.85	180.62	2740	4270	2740	1600			
11	28707	0.95	163.55	3780	6470	3780	1730			
11	31429	0.85	163.14	2900	4610	2900	1620	<b>KH083-11P-112M-04E</b>	273	442
12	27443	1.00	142.45	4090	7150	4090	1780			
14	24254	1.10	125.90	4770	8610	4770	1890			
16	20509	1.30	106.46	5350	9330	5350	2020			
19	17629	1.55	91.51	5710	9440	5710	2140			
22	15391	1.75	79.89	5930	9530	5580	2230			
26	13185	2.05	68.44	6140	9620	5150	2320			
27	12715	2.10	66.00	6160	9640	5060	2340			
28	12160	2.10	63.12	6200	9670	4970	2360			
30	11222	2.40	58.25	6270	9690	4790	2380			
32	10617	2.55	55.11	6290	9710	4650	2410			
36	9415	2.85	48.87	6380	9760	4410	2450			
39	8762	1.65	45.48	6410	9670	4340	2360			
49	6933	2.10	35.99	6500	9760	3910	2450			
56	6055	2.85	31.43	6520	9800	3690	2500			
21	16007	0.90	83.09	2810	3420	2810	900	<b>KH073-11P-112M-04E</b>	183	440
23	14855	0.95	77.11	3120	3480	3120	970			
25	13614	1.05	70.67	3420	3550	3420	1010			
27	12459	1.15	64.67	3620	3620	3620	1080			
29	11800	1.20	61.25	3730	3640	3730	1120			
34	9964	1.40	51.72	4000	3750	3550	1210			
35	9777	1.45	50.75	4020	3750	3530	1210			
41	8209	1.70	42.61	4200	3840	3210	1300			
45	7546	1.85	39.17	4270	3870	3080	1350			
48	7074	0.95	36.72	4320	3710	3100	1170			
54	6242	2.20	32.40	4380	3930	2810	1420			
57	5932	1.40	30.79	4410	3800	2830	1260			
64	5309	2.60	27.56	4450	3980	2590	1460			
73	4656	1.75	24.17	4470	3890	2520	1370			
94	3593	2.25	18.65	4520	3980	2230	1460			
114	2973	2.75	15.43	4540	4020	2050	1510			

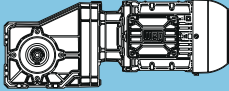
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\*\* ... on request

P <sub>N</sub> = 5.4 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
35	9665	0.80	50.17	**	**	**	**	<b>KH063-11P-112M-04E</b>	139	438
36	9355	0.80	48.56	**	**	**	**			
43	7931	0.95	41.17	1660	2700	1660	560			
44	7673	0.95	39.83	1780	2810	1780	560			
52	6521	1.05	33.85	2110	2900	2110	670			
55	6142	1.20	31.88	2200	2920	2200	700			
63	5361	1.20	27.83	2360	2990	2360	760			
64	5257	0.85	27.29	2380	2830	2380	580			
65	5171	1.25	26.84	2380	3010	2380	760			
72	4672	1.50	24.25	2470	3060	2270	810			
78	4315	1.05	22.40	2520	2940	2250	700			
80	4252	1.40	22.07	2540	3080	2160	850			
88	3853	1.70	20.00	2590	3120	2050	880			
101	3341	1.35	17.34	2630	3060	1960	810			
107	3159	1.95	16.40	2650	3170	1840	940			
126	2686	2.20	13.94	2700	3210	1710	970			
133	2541	1.75	13.19	2720	3150	1710	900			
153	2208	2.55	11.46	2740	3260	1570	1010			
159	2129	2.60	11.05	2740	3260	1530	1010			
161	2096	2.15	10.88	2740	3190	1570	940			
193	1751	2.95	9.09	2770	3280	1420	1060			
197	1718	2.60	8.92	2770	3240	1420	990			
232	1460	3.00	7.58	2770	3260	1330	1030			
51	6652	0.80	34.53	**	**	**	**	<b>KH053-11P-112M-04E</b>	108	436
53	6415	0.85	33.30	670	850	670	700			
56	6061	0.90	31.46	970	1460	970	720			
64	5277	1.00	27.39	1370	2290	1370	790			
73	4610	1.20	23.93	1600	2340	1600	830			
74	4543	0.85	23.58	1620	2180	1620	670			
89	3801	1.40	19.73	1820	2410	1820	900			
91	3728	1.00	19.35	1820	2270	1820	760			
108	3119	1.75	16.19	1930	2450	1930	940			
117	2886	1.30	14.98	1980	2360	1980	850			
128	2649	2.05	13.75	2020	2500	2020	990			
154	2196	1.70	11.40	2070	2450	1930	940			
155	2179	2.45	11.31	2070	2520	1890	1010			
161	2102	2.55	10.91	2090	2540	1840	1030			
187	1811	2.05	9.40	2110	2500	1780	990			
196	1728	2.90	8.97	2110	2560	1710	1060			
228	1485	2.50	7.71	2140	2520	1620	1010			
268	1262	2.90	6.55	2070	2560	1510	1060			
83	4094	0.90	21.25	310	200	310	200	<b>KH043-11P-112M-04E</b>	101	434
101	3350	1.10	17.39	940	1550	940	540			
118	2861	0.90	14.85	1150	1750	1150	490			
124	2716	1.35	14.10	1190	1870	1190	610			
149	2275	1.60	11.81	1330	1910	1330	650			
156	2162	1.10	11.22	1350	1840	1350	580			
183	1844	1.80	9.57	1420	1960	1420	700			
190	1778	1.85	9.23	1440	1960	1440	700			
191	1769	1.30	9.18	1440	1910	1440	650			
236	1433	1.50	7.44	1480	1960	1350	700			
282	1200	1.75	6.23	1510	1980	1240	720			
348	973	2.05	5.05	1530	2000	1120	740			
360	938	2.10	4.87	1510	2000	1100	740			

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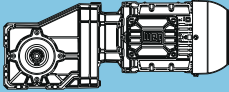
\*\* ... on request

P <sub>N</sub> = 7.5 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>sn</sub>	F <sub>rn</sub>	F <sub>sn</sub>			
rpm	lb-in			lb	lb	lb	lb			
2.2	192641	0.85	799.45	13060	22370	13060	22370	KH154-11P-132S-04E	1567	460
2.3	187356	0.90	779.11	13920	24190	13920	24190			
2.6	164907	1.00	688.57	16880	26010	16880	26010			
3.0	142053	1.15	595.58	19150	26460	19150	26460			
3.5	120255	1.35	507.30	20820	26890	20820	26890			
4.0	102725	1.60	436.93	21870	27220	21870	27220			
4.1	102185	1.60	434.63	21900	27250	21900	27250			
4.2	98333	1.65	419.11	22100	27310	22100	27310			
4.7	87944	1.85	377.93	22620	27520	22620	27520			
4.8	86077	1.90	369.91	22680	27540	22680	27540			
4.9	83826	1.95	360.98	22800	27580	22800	27580			
5.5	74571	2.15	323.79	23160	27760	23160	27760			
5.7	71760	2.25	312.23	23270	27830	23270	27830			
6.4	62554	2.55	275.58	23560	28010	23560	28010			
6.6	60540	2.65	267.26	23630	28060	23630	28060			
6.7	59110	2.70	261.49	23670	28080	23670	28080			
2.8	149599	0.80	619.56	**	**	**	**	KH124-11P-132S-04E	1008	456
2.9	145284	0.80	602.92	**	**	**	**			
3.3	129904	0.90	540.20	14410	18590	14410	18590			
3.4	124596	0.95	519.19	14950	18730	14950	18730			
3.8	111210	1.05	465.31	16120	19090	16120	19090			
4.0	106791	1.10	446.82	16460	19200	16460	19200			
4.4	95180	1.25	400.70	17270	19490	17270	19490			
4.6	91423	1.30	384.88	17490	19580	17490	19580			
4.7	89552	1.30	377.78	17600	19630	17600	19630			
5.3	78082	1.50	331.43	18230	19920	18230	19920			
5.4	77601	1.50	329.39	18250	19940	18250	19940			
5.5	75004	1.55	319.02	18390	20010	18390	20010			
5.7	72175	1.60	307.62	18520	20080	18520	20080			
6.2	66296	1.75	283.73	18770	20230	18770	20230			
6.3	65873	1.75	281.92	18790	20230	18790	20230			
6.6	62414	1.85	268.22	18930	20320	18930	20320			
6.7	61027	1.90	262.80	18970	20370	18970	20370			
7.2	56504	2.05	244.33	19130	20480	19130	20480			
7.4	55293	2.10	239.59	19180	20500	19180	20500			
7.6	53210	2.20	231.04	19240	20570	19240	20570			
7.7	52663	2.20	229.14	19270	20570	19270	20570			
8.6	47027	2.45	206.32	19420	20730	19420	20730			
8.9	45160	2.55	198.95	19490	20770	19490	20770			
12	39801	2.90	151.11	19630	20910	19630	20910	KH123-11P-132S-04E	955	454
4.6	92436	0.80	382.82	**	**	**	**	KH104-11P-132S-04E	736	452
4.8	88312	0.85	366.49	7460	12360	7460	12360			
4.9	86536	0.85	359.12	7820	13040	7820	13040			
5.6	75990	0.95	316.65	9580	13330	9580	13330			
5.7	74812	0.95	311.74	9730	13380	9730	13380			
6.5	64439	1.10	270.17	10970	13670	10970	13670			
6.6	64241	1.15	269.34	10990	13670	10990	13670			
6.7	62686	1.15	262.82	11150	13710	11150	13710			
7.0	60325	1.20	253.44	11380	13780	11380	13780			
7.6	55334	1.30	233.43	11820	13940	11820	13940			
7.7	54083	1.35	228.15	11910	13980	11910	13980			
8.0	52044	1.40	220.00	12070	14030	12070	14030			
8.2	51218	1.40	216.51	12140	14050	12140	14050			
9.0	46344	1.55	197.12	12480	14210	12480	14210			
9.3	44597	1.60	190.08	12590	14250	12590	14250			
9.4	44098	1.65	187.95	12630	14280	12630	14280			
11	37710	1.90	162.39	12990	14460	12990	14460			

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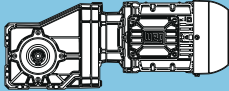
\*\* ... on request

**P<sub>N</sub> = 7.5 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>13</b>	37125	1.95	140.95	13020	14480	13020	14480	<b>KH103-11P-132S-04E</b>	683	450
<b>14</b>	32792	2.20	124.50	13220	14590	13220	14590			
<b>16</b>	28465	2.50	108.07	13400	14720	13400	14720			
<b>17</b>	27448	2.60	104.21	13440	14750	13440	14750			
<b>19</b>	24593	2.90	93.37	13530	14840	13530	14840			
<b>8.7</b>	48844	0.85	202.70	4270	6970	4270	6970	<b>KH094-11P-132S-04E</b>	452	448
<b>9.1</b>	46729	0.90	194.32	4860	8210	4860	8210			
<b>9.4</b>	45060	0.90	187.38	5260	8660	5260	8660			
<b>11</b>	39344	1.05	164.28	6340	8830	6340	8830			
<b>10</b>	44579	0.90	169.25	5350	8680	5350	8680	<b>KH093-11P-132S-04E</b>	423	446
<b>12</b>	37686	1.10	143.08	6590	8900	6590	8900			
<b>14</b>	32624	1.25	123.86	7260	9060	7260	9060			
<b>16</b>	28894	1.40	109.70	7670	9170	7670	9170			
<b>19</b>	24996	1.60	94.90	8030	9310	8030	9310			
<b>22</b>	21266	1.90	80.74	8300	9420	8300	9420			
<b>26</b>	18098	2.25	68.71	8480	9530	8480	9530			
<b>28</b>	16846	2.40	63.96	8540	9580	8540	9580			
<b>30</b>	15614	2.60	59.28	8610	9600	8610	9600			
<b>33</b>	14242	2.80	54.07	8680	9640	8680	9640			
<b>48</b>	9780	2.55	37.13	8830	9690	8830	9690			
<b>14</b>	33161	0.85	125.90	2180	3100	2180	1550	<b>KH083-11P-132S-04E</b>	313	442
<b>17</b>	28041	0.95	106.46	3980	6900	3980	1750			
<b>19</b>	24103	1.15	91.51	4810	8720	4810	1910			
<b>22</b>	21042	1.30	79.89	5310	9330	5310	2020			
<b>26</b>	18026	1.50	68.44	5690	9440	5580	2140			
<b>27</b>	17384	1.55	66.00	5760	9460	5460	2160			
<b>28</b>	16625	1.55	63.12	5820	9490	5350	2180			
<b>30</b>	15343	1.75	58.25	5960	9530	5150	2230			
<b>32</b>	14515	1.85	55.11	6020	9580	4990	2270			
<b>36</b>	12872	2.10	48.87	6160	9620	4700	2320			
<b>39</b>	11979	1.25	45.48	6230	9510	4650	2200			
<b>43</b>	10849	2.45	41.19	6290	9710	4320	2410			
<b>49</b>	9479	1.55	35.99	6360	9620	4160	2320			
<b>50</b>	9327	2.85	35.41	6380	9760	4020	2450			
<b>56</b>	8278	2.05	31.43	6430	9690	3890	2380			
<b>64</b>	7317	2.30	27.78	6470	9730	3660	2430			
<b>75</b>	6187	2.75	23.49	6520	9800	3390	2500			
<b>27</b>	17034	0.85	64.67	2520	3370	2520	850	<b>KH073-11P-132S-04E</b>	223	440
<b>29</b>	16133	0.90	61.25	2810	3420	2810	900			
<b>34</b>	13623	1.05	51.72	3420	3550	3420	1030			
<b>35</b>	13138	1.05	49.88	3510	3570	3510	1060			
<b>41</b>	11223	1.25	42.61	3840	3690	3510	1150			
<b>45</b>	10317	1.35	39.17	3960	3730	3370	1190			
<b>54</b>	8534	1.65	32.40	4180	3820	3060	1280			
<b>57</b>	8110	1.00	30.79	4230	3620	3100	1100			
<b>64</b>	7259	1.90	27.56	4290	3890	2790	1350			
<b>73</b>	6366	1.30	24.17	4360	3750	2720	1240			
<b>74</b>	6290	2.20	23.88	4380	3930	2610	1420			
<b>88</b>	5313	2.60	20.17	4450	4000	2380	1460			
<b>91</b>	5123	2.70	19.45	4450	4000	2340	1460			
<b>95</b>	4912	1.65	18.65	4470	3890	2380	1350			
<b>114</b>	4064	2.00	15.43	4520	3960	2180	1420			
<b>135</b>	3456	2.35	13.12	4540	4000	2000	1460			
<b>155</b>	2995	2.70	11.37	4540	4020	1890	1510			

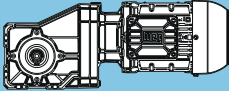
Legend see page 337



P <sub>N</sub> = 7.5 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
52	8916	0.80	33.85	**	**	**	**	KH063-11P-132S-04E	179	438
55	8397	0.90	31.88	1480	2290	1480	520			
63	7330	0.90	27.83	1890	2830	1890	610			
66	7069	0.90	26.84	1980	2860	1980	630			
73	6387	1.10	24.25	2140	2920	2140	670			
79	5900	0.80	22.40	**	**	**	**			
80	5813	1.05	22.07	2270	2970	2270	720			
88	5268	1.25	20.00	2380	3010	2250	760			
102	4567	1.00	17.34	2500	2900	2160	670			
108	4320	1.45	16.40	2520	3080	2000	850			
127	3672	1.60	13.94	2610	3120	1840	900			
134	3474	1.30	13.19	2630	3030	1840	790			
154	3018	1.85	11.46	2680	3190	1660	940			
160	2910	1.90	11.05	2680	3190	1640	970			
162	2866	1.55	10.88	2680	3100	1690	850			
194	2394	2.20	9.09	2720	3240	1480	990			
198	2349	1.90	8.92	2720	3170	1530	920			
233	1997	2.20	7.58	2740	3190	1390	970			
283	1641	2.50	6.23	2770	3240	1280	1010			
294	1583	2.55	6.01	2770	3240	1260	1010			
357	1301	2.95	4.94	2790	3280	1150	1030			
74	6303	0.85	23.93	810	1120	810	700	KH053-11P-132S-04E	150	436
89	5197	1.05	19.73	1420	2290	1420	790			
109	4264	1.25	16.19	1710	2360	1710	850			
118	3946	0.95	14.98	1780	2250	1780	740			
128	3622	1.50	13.75	1840	2430	1840	920			
155	3003	1.25	11.40	1960	2360	1960	850			
156	2979	1.80	11.31	1980	2470	1980	970			
162	2874	1.85	10.91	1980	2470	1980	970			
188	2476	1.50	9.40	2050	2410	1890	900			
197	2363	2.15	8.97	2050	2520	1800	1010			
229	2031	1.85	7.71	2090	2470	1730	970			
269	1725	2.15	6.55	2110	2500	1600	990			
327	1420	2.60	5.39	1980	2540	1460	1030			
340	1367	2.70	5.19	1960	2540	1440	1030			

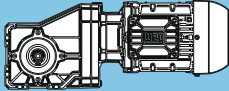
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\*\* ... on request

P <sub>N</sub> = 10 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
3.0	195149	0.85	595.58	12520	21240	12520	21240	KH154-11P-L132M-04F	1598	460
3.5	165544	1.00	507.30	16770	25990	16770	25990			
4.1	141707	1.15	436.93	19150	26460	19150	26460			
4.2	135649	1.20	419.11	19650	26570	19650	26570			
4.7	121820	1.35	377.93	20680	26840	20680	26840			
4.8	118990	1.35	369.91	20860	26910	20860	26910			
4.9	116118	1.40	360.98	21060	26950	21060	26950			
5.5	103514	1.55	323.79	21810	27200	21810	27200			
5.6	101855	1.60	318.60	21900	27250	21900	27250			
5.7	99613	1.60	312.23	22030	27290	22030	27290			
6.4	87199	1.85	275.58	22640	27520	22640	27520			
6.6	84392	1.90	267.26	22750	27580	22750	27580			
6.8	82570	1.95	261.49	22840	27610	22840	27610			
7.7	72245	2.25	231.17	23250	27810	23250	27810			
7.9	70240	2.30	225.22	23310	27850	23310	27850			
9.1	60002	2.70	194.80	23630	28060	23630	28060			
3.8	152777	0.80	465.31	**	**	**	**			
4.0	146706	0.80	446.82	**	**	**	**			
4.1	142828	0.85	435.90	12860	18250	12860	18250			
4.4	131026	0.90	400.70	14250	18570	14250	18570			
4.6	125596	0.95	384.88	14810	18700	14810	18700			
4.7	124023	0.95	380.06	14950	18750	14950	18750			
5.3	107712	1.10	331.43	16370	19150	16370	19150			
5.4	107049	1.10	329.39	16410	19180	16410	19180			
5.5	103466	1.15	319.02	16680	19270	16680	19270			
5.8	99564	1.20	307.62	16950	19360	16950	19360			
6.2	91644	1.30	283.73	17470	19580	17470	19580			
6.3	91059	1.30	281.92	17510	19580	17510	19580			
6.4	89657	1.30	278.15	17600	19630	17600	19630			
6.6	86279	1.35	268.22	17780	19720	17780	19720			
6.7	84536	1.40	262.80	17890	19760	17890	19760			
7.2	78272	1.50	244.33	18210	19920	18210	19920			
7.4	76754	1.50	239.59	18300	19940	18300	19940			
7.7	73862	1.60	231.04	18430	20030	18430	20030			
8.6	65418	1.80	206.32	18790	20230	18790	20230			
8.9	62952	1.85	198.95	18880	20300	18880	20300			
9.0	62455	1.85	197.38	18910	20320	18910	20320			
10	53229	2.20	169.97	19240	20550	19240	20550			
12	54121	2.15	151.11	19220	20530	19220	20530	KH123-11P-L132M-04F	985	454
13	47191	2.45	131.76	19420	20700	19420	20700			
14	45504	2.55	127.05	19470	20750	19470	20750			
16	40647	2.85	113.49	19600	20880	19600	20880			
36	17607	3.00	49.16	19990	21470	19990	21470			
63	10039	3.00	28.03	18430	21600	18430	21600			
6.6	88525	0.80	270.17	**	**	**	**	KH104-11P-L132M-04F	767	452
6.7	86116	0.85	262.82	7870	13040	7870	13040			
7.0	82873	0.90	253.44	8480	13130	8480	13130			
7.6	76174	0.95	233.43	9510	13330	9510	13330			
7.8	74451	1.00	228.15	9760	13380	9760	13380			
8.0	71645	1.00	220.00	10120	13470	10120	13470			
8.2	70508	1.05	216.51	10270	13490	10270	13490			
9.0	63931	1.15	197.12	11020	13690	11020	13690			
9.3	61521	1.20	190.08	11240	13760	11240	13760			
9.4	60832	1.20	187.95	11310	13780	11310	13780			
11	52237	1.40	162.39	12050	14030	12050	14030			

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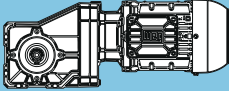
\*\* ... on request

P <sub>N</sub> = 10 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
				lb	lb	lb	lb			
13	50482	1.45	140.95	12180	14070	12180	14070	<b>KH103-11P-L132M-04F</b>	714	450
14	44590	1.60	124.50	12590	14250	12590	14250			
16	38706	1.85	108.07	12930	14410	12930	14410			
17	37323	1.90	104.21	12990	14460	12990	14460			
19	33441	2.15	93.37	13200	14570	13200	14570			
22	28617	2.50	79.90	13400	14700	13400	14700			
26	24716	2.90	69.01	13530	14840	13530	14840			
33	19079	2.80	53.27	13690	14990	13690	14990			
45	14104	3.00	39.38	13800	15130	13800	15130			
58	10863	2.80	30.33	12880	15150	12880	15150			
79	8030	3.00	22.42	11600	15260	11600	15260			
11	52011	0.80	158.41	**	**	**	**	<b>KH094-11P-L132M-04F</b>	483	448
12	51245	0.80	143.08	**	**	**	**	<b>KH093-11P-L132M-04F</b>	454	446
14	44361	0.90	123.86	5370	8680	5370	8680			
16	39290	1.05	109.70	6320	8830	6320	8830			
19	33989	1.20	94.90	7080	9010	7080	9010			
22	28917	1.40	80.74	7670	9170	7670	9170			
26	24609	1.65	68.71	8050	9310	8050	9310			
28	22908	1.75	63.96	8160	9370	8160	9370			
30	21231	1.90	59.28	8300	9420	8300	9420			
33	19365	2.10	54.07	8410	9490	8410	9490			
38	16765	2.40	46.81	8540	9580	8540	9580			
43	14849	2.70	41.46	8660	9640	8660	9640			
48	13298	1.90	37.13	8720	9530	8720	9530			
51	12385	3.00	34.58	8750	9710	8750	9710			
56	11242	2.25	31.39	8790	9620	8790	9620			
65	9735	2.55	27.18	8830	9690	8830	9690			
88	7192	3.00	20.08	8900	9800	8900	9800			
19	32775	0.85	91.51	2340	3440	2340	1570	<b>KH083-11P-L132M-04F</b>	344	442
22	28613	0.95	79.89	3820	6560	3820	1730			
26	24512	1.10	68.44	4720	8520	4720	1890			
27	23638	1.15	66.00	4880	8860	4880	1910			
28	22607	1.15	63.12	5060	9260	5060	1960			
30	20863	1.30	58.25	5310	9330	5310	2020			
32	19738	1.35	55.11	5460	9370	5460	2070			
36	17503	1.55	48.87	5730	9460	5130	2160			
39	16289	0.90	45.48	5870	9280	5080	1980			
43	14752	1.80	41.19	6000	9550	4680	2250			
49	12890	1.15	35.99	6160	9460	4500	2160			
50	12682	2.10	35.41	6160	9640	4320	2340			
56	11257	1.55	31.43	6270	9530	4180	2230			
57	11071	2.40	30.91	6270	9690	4050	2380			
64	9950	1.70	27.78	6340	9600	3930	2290			
67	9484	2.80	26.48	6360	9760	3750	2450			
69	9147	2.85	25.54	6380	9780	3690	2470			
75	8413	2.05	23.49	6430	9690	3620	2380			
88	7231	2.35	20.19	6470	9730	3370	2430			
100	6314	2.75	17.63	6520	9800	3170	2500			
122	5215	3.00	14.56	6540	9850	2900	2540			

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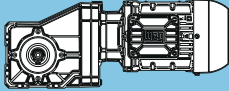
\*\* ... on request



P <sub>N</sub> = 10 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
35	18176	0.80	50.75	**	**	**	**	KH073-11P-L132M-04F	254	440
42	15261	0.90	42.61	3030	3460	2920	940			
45	14029	1.00	39.17	3330	3530	2970	1010			
55	11604	1.20	32.40	3780	3660	2990	1120			
64	9871	1.40	27.56	4020	3750	2990	1210			
73	8657	0.95	24.17	4160	3570	2790	1060			
74	8553	1.65	23.88	4180	3820	2830	1280			
88	7224	1.90	20.17	4290	3890	2590	1370			
91	6966	2.00	19.45	4320	3910	2540	1370			
95	6680	1.25	18.65	4340	3730	2610	1210			
107	5949	2.35	16.61	4410	3960	2340	1440			
115	5526	1.50	15.43	4430	3820	2340	1300			
135	4699	1.75	13.12	4470	3890	2160	1370			
156	4072	2.00	11.37	4520	3960	2000	1420			
184	3438	2.35	9.60	4540	4000	1840	1460			
191	3317	2.45	9.26	4540	4000	1820	1480			
224	2833	2.85	7.91	4560	4050	1690	1510			
73	8685	0.80	24.25	**	**	**	**	KH063-11P-L132M-04F	209	438
89	7163	0.95	20.00	1930	2860	1930	610			
108	5874	1.05	16.40	2250	2940	2050	720			
127	4993	1.20	13.94	2430	3030	2020	790			
134	4724	0.95	13.19	2470	2900	1930	650			
154	4104	1.35	11.46	2540	3100	1820	850			
160	3958	1.40	11.05	2560	3100	1780	880			
163	3897	1.15	10.88	2590	2990	1840	740			
195	3256	1.60	9.09	2650	3170	1620	920			
198	3195	1.40	8.92	2650	3060	1640	830			
234	2715	1.60	7.58	2700	3120	1510	880			
284	2231	1.85	6.23	2740	3170	1370	940			
295	2153	1.90	6.01	2740	3190	1350	940			
358	1769	2.15	4.94	2770	3240	1210	990			
90	7066	0.80	19.73	**	**	**	**	KH053-11P-L132M-04F	181	436
109	5799	0.95	16.19	1120	1800	1120	740			
129	4925	1.10	13.75	1510	2320	1510	810			
155	4083	0.90	11.40	1750	2230	1750	720			
156	4051	1.35	11.31	1750	2380	1750	880			
162	3907	1.40	10.91	1800	2410	1800	900			
188	3367	1.10	9.40	1910	2320	1910	810			
197	3213	1.60	8.97	1930	2450	1930	940			
230	2761	1.35	7.71	2000	2380	1840	880			
270	2346	1.60	6.55	2050	2430	1710	920			
328	1930	1.90	5.39	2070	2470	1550	970			
341	1859	2.00	5.19	2020	2500	1530	990			
415	1529	2.40	4.27	1870	2520	1390	1010			

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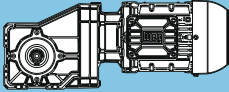
\*\* ... on request

P <sub>N</sub> = 12.5 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
3.5	204897	0.80	507.30	**	**	**	**	<b>KH154-11P-L132M-04G</b>	1609	460
4.0	175754	0.95	436.93	15490	25790	15490	25790			
4.1	174471	0.95	434.63	15670	25810	15670	25810			
4.2	168241	0.95	419.11	16430	25940	16430	25940			
4.7	151090	1.10	377.93	18280	26280	18280	26280			
4.8	147884	1.10	369.91	18590	26350	18590	26350			
4.9	144019	1.15	360.98	18930	26420	18930	26420			
5.5	128652	1.25	323.79	20190	26710	20190	26710			
5.7	123805	1.30	312.23	20550	26800	20550	26800			
6.4	108601	1.50	275.58	21510	27110	21510	27110			
6.6	105105	1.55	267.26	21720	27180	21720	27180			
6.7	102836	1.55	261.49	21850	27220	21850	27220			
7.6	90166	1.80	231.17	22480	27470	22480	27470			
7.8	87665	1.85	225.22	22620	27520	22620	27520			
9.1	75045	2.15	194.80	23130	27760	23130	27760			
4.7	152584	0.80	377.78	**	**	**	**	<b>KH124-11P-L132M-04G</b>	1049	456
5.3	133317	0.90	331.43	13980	18500	13980	18500			
5.4	132496	0.90	329.39	14070	18520	14070	18520			
5.5	128325	0.90	319.02	14520	18640	14520	18640			
5.7	123486	0.95	307.62	14990	18750	14990	18750			
6.2	113663	1.05	283.73	15890	19000	15890	19000			
6.3	112938	1.05	281.92	15940	19020	15940	19020			
6.6	107230	1.10	268.22	16390	19180	16390	19180			
6.7	104848	1.10	262.80	16570	19220	16570	19220			
7.2	97280	1.20	244.33	17110	19420	17110	19420			
7.4	95392	1.25	239.59	17240	19470	17240	19470			
7.6	91800	1.30	231.04	17470	19560	17470	19560			
7.7	91045	1.30	229.14	17510	19580	17510	19580			
8.6	81474	1.45	206.32	18050	19830	18050	19830			
8.9	78402	1.50	198.95	18210	19920	18210	19920			
10	66433	1.75	169.97	18750	20210	18750	20210			
12	66576	1.75	151.11	18750	20210	18750	20210			
13	58051	2.00	131.76	19060	20440	19060	20440			
14	55976	2.10	127.05	19150	20480	19150	20480			
16	50002	2.35	113.49	19330	20640	19330	20640			
18	43058	2.70	97.73	19540	20820	19540	20820			
36	21659	2.45	49.16	19940	21360	19940	21360			
63	12350	2.45	28.03	18590	21540	18590	21540			
7.6	94281	0.80	233.43	**	**	**	**	<b>KH104-11P-L132M-04G</b>	778	452
7.7	92149	0.80	228.15	**	**	**	**			
8.0	88676	0.80	220.00	**	**	**	**			
8.2	87269	0.85	216.51	7620	12700	7620	12700			
9.0	79291	0.90	197.12	9040	13240	9040	13240			
9.3	76303	0.95	190.08	9490	13310	9490	13310			
9.4	75448	0.95	187.95	9620	13350	9620	13350			
11	64788	1.10	162.39	10900	13650	10900	13650			
13	62100	1.15	140.95	11200	13740	11200	13740			
14	54852	1.30	124.50	11850	13940	11850	13940			
16	47614	1.50	108.07	12390	14160	12390	14160			
17	45913	1.55	104.21	12500	14210	12500	14210			
19	41137	1.75	93.37	12790	14340	12790	14340			
22	35202	2.05	79.90	13110	14520	13110	14520			
26	30405	2.35	69.01	13310	14660	13310	14660			
33	23470	2.25	53.27	13560	14860	13560	14860			
45	17350	2.45	39.38	13740	15040	13740	15040			
58	13363	2.25	30.33	13040	15060	13040	15060			
79	9878	2.45	22.42	11740	15200	11740	15200			

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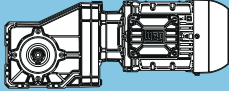
**P<sub>N</sub> = 12.5 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
<b>16</b>	48332	0.85	109.70	4380	7190	4380	7190	<b>KH093-11P-L132M-04G</b>	465	446
<b>19</b>	41811	1.00	94.90	5890	8750	5890	8750			
<b>22</b>	35573	1.15	80.74	6880	8970	6880	8970			
<b>26</b>	30272	1.35	68.71	7510	9130	7510	9130			
<b>28</b>	28180	1.45	63.96	7730	9190	7730	9190			
<b>30</b>	26118	1.55	59.28	7910	9260	7910	9260			
<b>33</b>	23822	1.70	54.07	8090	9350	8090	9350			
<b>38</b>	20624	1.95	46.81	8320	9440	8320	9440			
<b>43</b>	18267	2.20	41.46	8480	9530	8480	9530			
<b>48</b>	16359	1.55	37.13	8570	9400	8570	9400			
<b>49</b>	15799	2.55	35.86	8610	9600	8610	9600			
<b>51</b>	15235	2.45	34.58	8630	9620	8630	9620			
<b>56</b>	13830	1.80	31.39	8700	9510	8700	9510			
<b>58</b>	13442	3.00	30.51	8700	9690	8700	9690			
<b>65</b>	11975	2.10	27.18	8770	9580	8770	9580			
<b>73</b>	10605	2.50	24.07	8810	9640	8810	9640			
<b>85</b>	9173	2.90	20.82	8860	9710	8860	9710			
<b>88</b>	8847	2.45	20.08	8860	9710	8860	9710			
<b>22</b>	35198	0.80	79.89	**	**	**	**	<b>KH083-11P-L132M-04G</b>	355	442
<b>26</b>	30153	0.90	68.44	3350	5550	3350	1660			
<b>27</b>	29078	0.95	66.00	3690	6270	3690	1710			
<b>28</b>	27810	0.95	63.12	4020	6990	4020	1750			
<b>30</b>	25664	1.05	58.25	4500	8030	4500	1840			
<b>32</b>	24280	1.10	55.11	4770	8610	4770	1890			
<b>36</b>	21531	1.25	48.87	5220	9310	5220	2000			
<b>43</b>	18148	1.50	41.19	5670	9420	4970	2110			
<b>49</b>	15857	0.95	35.99	5890	9310	4790	2000			
<b>50</b>	15601	1.75	35.41	5930	9530	4590	2230			
<b>56</b>	13847	1.25	31.43	6070	9400	4450	2090			
<b>57</b>	13618	1.95	30.91	6090	9600	4270	2290			
<b>64</b>	12239	1.40	27.78	6200	9490	4160	2180			
<b>67</b>	11667	2.30	26.48	6250	9670	3930	2360			
<b>69</b>	11252	2.35	25.54	6270	9690	3870	2380			
<b>75</b>	10349	1.65	23.49	6320	9580	3820	2270			
<b>78</b>	9931	2.55	22.54	6340	9730	3640	2430			
<b>87</b>	8895	1.90	20.19	6410	9670	3530	2360			
<b>93</b>	8331	2.90	18.91	6430	9800	3350	2500			
<b>100</b>	7767	2.25	17.63	6450	9710	3300	2410			
<b>117</b>	6653	2.60	15.10	6500	9780	3060	2470			
<b>121</b>	6415	2.45	14.56	6500	9780	3010	2470			
<b>45</b>	17258	0.80	39.17	**	**	**	**	<b>KH073-11P-L132M-04G</b>	265	440
<b>54</b>	14275	1.00	32.40	3260	3510	2650	990			
<b>64</b>	12142	1.15	27.56	3690	3620	2680	1100			
<b>73</b>	10649	0.80	24.17	**	**	**	**			
<b>74</b>	10521	1.35	23.88	3930	3710	2700	1190			
<b>88</b>	8887	1.55	20.17	4140	3800	2680	1280			
<b>91</b>	8569	1.65	19.45	4180	3820	2680	1280			
<b>95</b>	8217	1.00	18.65	4200	3620	2500	1080			
<b>106</b>	7318	1.90	16.61	4290	3890	2500	1350			
<b>114</b>	6798	1.20	15.43	4340	3730	2500	1190			
<b>135</b>	5780	1.40	13.12	4410	3800	2290	1280			
<b>155</b>	5009	1.65	11.37	4450	3870	2140	1350			
<b>184</b>	4230	1.95	9.60	4500	3930	1960	1390			
<b>191</b>	4080	2.00	9.26	4520	3930	1910	1420			
<b>223</b>	3485	2.35	7.91	4540	4000	1780	1460			

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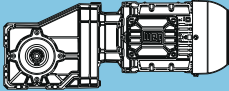
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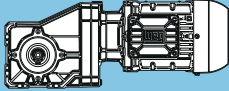


P <sub>N</sub> = 12.5 hp													
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page			
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>						
rpm	lb-in			lb	lb	lb	lb						
108	7226	0.90	16.40	1910	2860	1840	610	KH063-11P-L132M-04G	220	438			
127	6142	1.00	13.94	2200	2920	1840	700						
134	5811	0.80	13.19	**	**	**	**						
154	5049	1.10	11.46	2410	3010	1840	790						
160	4868	1.15	11.05	2450	3030	1840	810						
162	4794	0.95	10.88	2450	2880	1750	650						
194	4005	1.30	9.09	2560	3100	1710	880						
198	3930	1.15	8.92	2560	2990	1730	740						
233	3340	1.30	7.58	2630	3060	1620	810						
283	2745	1.50	6.23	2700	3120	1460	880						
294	2648	1.55	6.01	2700	3120	1420	900						
357	2176	1.75	4.94	2740	3170	1280	940						
128	6058	0.90	13.75	970	1460	970	720				KH053-11P-L132M-04G	192	436
156	4983	1.10	11.31	1480	2320	1480	810						
162	4807	1.15	10.91	1530	2320	1530	810						
188	4141	0.90	9.40	1730	2230	1730	720						
197	3952	1.30	8.97	1780	2380	1780	880						
229	3397	1.10	7.71	1890	2320	1890	810						
269	2886	1.30	6.55	1980	2360	1800	850						
327	2375	1.55	5.39	2050	2430	1640	920						
340	2287	1.60	5.19	2070	2430	1600	920						
413	1881	1.95	4.27	1930	2470	1460	970						

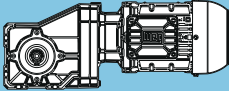
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P <sub>N</sub> = 15 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
4.1	209813	0.80	436.93	**	**	**	**	KH154-22P-160M-04E	1746	460
4.7	180741	0.90	377.93	14840	25700	14840	25700			
4.8	176905	0.95	369.91	15380	25790	15380	25790			
5.5	153901	1.05	323.79	18030	26210	18030	26210			
5.6	151434	1.10	318.60	18250	26280	18250	26280			
5.7	147489	1.10	310.30	18640	26350	18640	26350			
6.4	130183	1.25	275.58	20080	26680	20080	26680			
6.6	126252	1.30	267.26	20370	26750	20370	26750			
6.8	123273	1.30	261.49	20590	26820	20590	26820			
7.7	108310	1.50	231.17	21540	27110	21540	27110			
7.9	105305	1.55	225.22	21720	27180	21720	27180			
8.3	100035	1.60	214.39	22010	27270	22010	27270			
9.1	90334	1.80	194.80	22480	27470	22480	27470			
9.6	85451	1.90	184.65	22710	27560	22710	27560			
11	73004	2.20	159.72	23200	27810	23200	27810			
12	76838	2.10	146.69	23070	27720	23070	27720	KH153-22P-160M-04E	1645	458
14	66179	2.45	126.34	23450	27940	23450	27940			
16	57242	2.80	109.28	23720	28100	23720	28100			
5.6	153193	0.80	319.02	**	**	**	**	KH124-22P-160M-04E	1186	456
6.3	135691	0.85	283.73	13740	18430	13740	18430			
6.4	133022	0.90	278.15	14030	18500	14030	18500			
6.8	125424	0.95	262.80	14840	18700	14840	18700			
7.3	116371	1.00	244.33	15670	18930	15670	18930			
7.4	114113	1.05	239.59	15850	19000	15850	19000			
7.7	108913	1.10	229.14	16280	19130	16280	19130			
8.6	97665	1.20	206.32	17090	19420	17090	19420			
9.0	93241	1.25	197.38	17380	19540	17380	19540			
10	79800	1.45	169.97	18140	19870	18140	19870			
12	79154	1.50	151.11	18160	19900	18160	19900	KH123-22P-160M-04E	1133	454
13	69018	1.70	131.76	18640	20140	18640	20140			
16	59448	1.95	113.49	19020	20390	19020	20390			
18	51192	2.25	97.73	19310	20610	19310	20610			
21	44718	2.60	85.37	19490	20770	19490	20770			
24	38626	3.00	73.74	19650	20930	19650	20930			
30	30627	2.55	58.47	19810	21130	19810	21130			
53	17464	2.55	33.34	19850	21380	19850	21380			
9.4	90253	0.80	187.95	**	**	**	**			
11	77502	0.95	162.39	9330	13290	9330	13290			
14	65215	1.10	124.50	10880	13650	10880	13650	KH103-22P-160M-04E	862	450
16	56609	1.30	108.07	11690	13890	11690	13890			
19	48909	1.45	93.37	12300	14120	12300	14120			
22	41853	1.70	79.90	12750	14320	12750	14320			
26	36148	2.00	69.01	13060	14500	13060	14500			
30	30570	2.35	58.36	13310	14660	13310	14660			
37	24944	2.85	47.62	13510	14810	13510	14810			
38	24645	2.70	47.05	13530	14840	13530	14840			
66	14033	2.70	26.79	12630	15040	12630	15040			
19	49710	0.85	94.90	3980	6340	3980	6340	KH093-22P-160M-04E	602	446
22	42293	0.95	80.74	5800	8750	5800	8750			
26	35991	1.15	68.71	6830	8950	6830	8950			
30	31052	1.30	59.28	7440	9100	7440	9100			
36	26049	1.55	49.73	7910	9260	7910	9260			
43	21717	1.85	41.46	8250	9420	8250	9420			
44	21178	1.90	40.43	8300	9420	8300	9420			
49	18784	2.15	35.86	8450	9510	8450	9510			
56	16558	2.45	31.61	8570	9580	8570	9580			
58	15982	2.50	30.51	8590	9600	8590	9600			
68	13603	2.95	25.97	8700	9670	8700	9670			
74	12608	2.10	24.07	8750	9550	8750	9550			
85	10906	2.45	20.82	8790	9620	8790	9620			
100	9282	2.90	17.72	8860	9710	8860	9710			

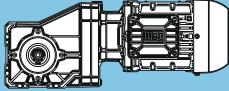
<b>P<sub>N</sub> = 15 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>30</b>	30512	0.90	58.25	3260	5370	3260	1660	<b>KH083-22P-160M-04E</b>	492	442
<b>36</b>	25599	1.05	48.87	4520	8070	4520	1840			
<b>43</b>	21571	1.25	41.18	5220	9310	5040	2000			
<b>53</b>	17684	1.55	33.76	5710	9440	4700	2140			
<b>57</b>	16191	1.65	30.91	5870	9510	4500	2200			
<b>67</b>	13871	1.90	26.48	6070	9600	4140	2290			
<b>79</b>	11807	2.15	22.54	6230	9670	3800	2360			
<b>94</b>	9905	2.45	18.91	6340	9730	3460	2430			
<b>101</b>	9235	1.90	17.63	6380	9640	3440	2340			
<b>111</b>	8344	2.75	15.93	6430	9800	3190	2500			
<b>118</b>	7910	2.20	15.10	6450	9710	3190	2410			
<b>138</b>	6731	2.55	12.85	6500	9780	2940	2470	<b>KH073-22P-160M-04E</b>	401	440
<b>74</b>	12509	1.10	23.88	3620	3620	2430	1080			
<b>88</b>	10565	1.30	20.17	3930	3710	2470	1190			
<b>107</b>	8701	1.60	16.61	4160	3820	2470	1280			
<b>156</b>	5956	1.40	11.37	4410	3800	2230	1260			
<b>185</b>	5029	1.65	9.60	4450	3870	2050	1350			
<b>224</b>	4143	1.95	7.91	4500	3930	1840	1420			

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P <sub>N</sub> = 20 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
5.5	212023	0.80	323.79	**	**	**	**	KH154-22P-160L-04F	1797	460
5.6	208624	0.80	318.60	**	**	**	**			
5.7	203189	0.80	310.30	**	**	**	**			
6.4	179718	0.90	275.58	14900	25720	14900	25720			
6.6	173936	0.95	267.26	15690	25830	15690	25830			
6.8	170180	0.95	261.49	16160	25900	16160	25900			
7.7	149833	1.10	231.17	18370	26300	18370	26300			
7.9	145677	1.10	225.22	18750	26370	18750	26370			
8.3	138672	1.15	214.39	19380	26500	19380	26500			
9.1	125485	1.30	194.80	20390	26770	20390	26770			
9.6	118459	1.35	184.65	20880	26910	20880	26910			
11	101836	1.60	159.72	21900	27220	21900	27220			
12	104780	1.55	146.69	21720	27180	21720	27180	KH153-22P-160L-04F	1695	458
14	90244	1.80	126.34	22480	27450	22480	27450			
16	78058	2.05	109.28	23000	27700	23000	27700			
18	68851	2.35	96.39	23360	27880	23360	27880			
21	59136	2.70	82.79	23650	28080	23650	28080			
31	40536	2.40	56.75	24120	28440	24120	28440			
50	25450	2.40	35.63	24350	28550	24350	28550			
7.7	150045	0.80	229.14	**	**	**	**	KH124-22P-160L-04F	1237	456
8.6	134550	0.90	206.32	13830	18460	13830	18460			
9.0	128720	0.90	197.38	14460	18610	14460	18610			
10	110166	1.05	169.97	16140	19090	16140	19090			
12	107937	1.10	151.11	16320	19150	16320	19150	KH123-22P-160L-04F	1184	454
13	94115	1.25	131.76	17310	19490	17310	19490			
16	81065	1.45	113.49	18050	19830	18050	19830			
18	69808	1.65	97.73	18590	20120	18590	20120			
21	60979	1.90	85.37	18970	20350	18970	20350			
24	52672	2.20	73.74	19240	20570	19240	20570			
29	43558	2.65	60.98	19510	20790	19510	20790			
30	41765	1.90	58.47	19560	20840	19560	20840			
35	36415	2.40	50.98	19690	20970	19690	20970			
53	23815	1.90	33.34	19920	21180	19920	21180			
61	20764	2.40	29.07	19290	21270	19290	21270			
14	88929	0.80	124.50	**	**	**	**	KH103-22P-160L-04F	913	450
16	77194	0.95	108.07	9330	13290	9330	13290			
19	66694	1.10	93.37	10680	13600	10680	13600			
22	57072	1.25	79.90	11650	13870	11650	13870			
26	49293	1.45	69.01	12250	14100	12250	14100			
30	41686	1.70	58.36	12770	14320	12770	14320			
37	34015	2.10	47.62	13150	14550	13150	14550			
38	33607	2.00	47.05	13170	14570	13170	14570			
43	29172	2.30	40.84	13380	14700	13380	14700			
46	27600	2.60	38.64	13420	14750	13420	14750			
50	25207	2.65	35.29	13510	14810	13510	14810			
66	19136	2.00	26.79	12990	14860	12990	14860			
76	16607	2.30	23.25	12320	14950	12320	14950			
88	14350	2.65	20.09	11690	15040	11690	15040			

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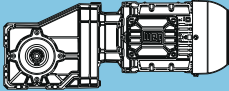
P <sub>N</sub> = 20 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>50</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
26	49079	0.85	68.71	4110	6630	4110	6630	KH093-22P-160L-04F	653	446
30	42343	0.95	59.28	5760	8750	5760	8750			
36	35522	1.15	49.73	6880	8950	6880	8950			
43	29615	1.35	41.46	7580	9150	7580	9150			
44	28879	1.40	40.43	7640	9170	7640	9170			
49	25615	1.60	35.86	7960	9280	7960	9280			
56	22579	1.80	31.61	8180	9370	8180	9370			
58	21793	1.85	30.51	8250	9400	8250	9400			
68	18550	2.15	25.97	8450	9510	8450	9510			
74	17193	1.55	24.07	8520	9350	8520	9350			
79	16000	2.50	22.40	8590	9600	8590	9600			
85	14872	1.80	20.82	8630	9440	8630	9440			
94	13422	3.00	18.79	8700	9690	8700	9690			
100	12657	2.10	17.72	8750	9550	8750	9550			
118	10772	2.50	15.08	8680	9640	8680	9640			
136	9293	2.85	13.01	8210	9710	8210	9710			
36	34907	0.80	48.87	**	**	**	**	KH083-22P-160L-04F	542	442
43	29415	0.95	41.18	3570	6020	3570	1690			
53	24115	1.15	33.76	4790	8660	4270	1890			
57	22079	1.25	30.91	5130	9280	4320	1980			
67	18914	1.40	26.48	5550	9400	4320	2090			
79	16100	1.60	22.54	5870	9510	4180	2200			
94	13507	1.80	18.91	6090	9600	3800	2290			
101	12593	1.40	17.63	6180	9460	3780	2160			
111	11379	2.00	15.93	6250	9690	3460	2380			
118	10786	1.60	15.10	6290	9550	3460	2250			
136	9329	2.30	13.06	6380	9760	3120	2450			
138	9179	1.90	12.85	6380	9640	3190	2340			
165	7700	2.25	10.78	6450	9710	2900	2410			
195	6493	2.65	9.09	6500	9780	2680	2470			
74	17057	0.85	23.88	2470	3370	1840	830	KH073-22P-160L-04F	452	440
88	14407	1.00	20.17	3240	3510	1960	990			
107	11864	1.20	16.61	3730	3640	2050	1120			
156	8122	1.00	11.37	4200	3620	1960	1100			
185	6857	1.20	9.60	4340	3730	1960	1190			
224	5650	1.45	7.91	4430	3820	1960	1280			

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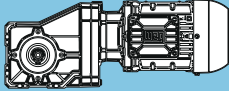
**P<sub>N</sub> = 25 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
6.8	211181	0.80	261.49	**	**	**	**	<b>KH154-22P-180M-04E</b>	1828	460
7.7	185932	0.90	231.17	14070	24530	14070	24530			
7.9	181147	0.90	225.22	14790	25700	14790	25700			
8.3	172084	0.95	214.39	15980	25880	15980	25880			
9.1	156040	1.05	194.80	17800	26190	17800	26190			
9.6	147606	1.10	184.65	18640	26350	18640	26350			
11	126895	1.30	159.72	20320	26750	20320	26750			
12	129228	1.25	146.69	20170	26710	20170	26710	<b>KH153-22P-180M-04E</b>	1726	458
14	111301	1.45	126.34	21360	27040	21360	27040			
16	96271	1.70	109.28	22190	27340	22190	27340			
18	84916	1.90	96.39	22730	27560	22730	27560			
21	72935	2.20	82.79	23220	27810	23220	27810			
26	60681	2.65	68.88	23630	28030	23630	28030			
31	49995	1.95	56.75	23920	28260	23920	28260			
36	43061	2.95	48.88	24080	28390	24080	28390			
50	31389	1.95	35.63	24280	28390	24280	28390			
58	27037	2.95	30.69	24350	28510	24350	28510			
13	116075	1.00	131.76	15690	18950	15690	18950	<b>KH123-22P-180M-04E</b>	1215	454
16	99980	1.20	113.49	16930	19360	16930	19360			
18	86096	1.35	97.73	17800	19720	17800	19720			
21	75208	1.55	85.37	18370	19990	18370	19990			
24	64962	1.80	73.74	18820	20260	18820	20260			
29	53721	2.15	60.98	19220	20550	19220	20550			
35	44207	2.65	50.18	19510	20790	19510	20790			
35	44911	1.95	50.98	19490	20770	19490	20770			
40	38683	2.95	43.91	19650	20930	19650	20930			
61	25610	1.95	29.07	19580	21110	19580	21110			
71	22059	2.95	25.04	18570	21220	18570	21220			
19	82255	0.90	93.37	8590	13150	8590	13150			
22	70389	1.05	79.90	10300	13490	10300	13490			
26	60795	1.20	69.01	11330	13780	11330	13780			
30	51413	1.40	58.36	12120	14050	12120	14050			
37	41951	1.70	47.62	12750	14320	12750	14320			
43	35978	1.85	40.84	13060	14500	13060	14500			
46	34040	2.10	38.64	13170	14550	13170	14550			
50	31089	2.15	35.29	13290	14640	13290	14640			
58	27178	2.65	30.85	13440	14750	13440	14750			
59	26605	2.50	30.20	13470	14770	13470	14770			
68	22975	2.90	26.08	12970	14880	12970	14880			
76	20482	1.85	23.25	12590	14810	12590	14810			
88	17699	2.15	20.09	11910	14900	11910	14900			
103	15144	2.50	17.19	11240	15020	11240	15020			
120	13082	2.90	14.85	10660	15080	10660	15080			
30	52223	0.80	59.28	**	**	**	**	<b>KH093-22P-180M-04E</b>	683	446
36	43810	0.95	49.73	5510	8700	5510	8700			
44	35617	1.15	40.43	6880	8970	6880	8970			
49	31591	1.30	35.86	7370	9080	7370	9080			
56	27847	1.45	31.61	7760	9220	7760	9220			
58	26878	1.50	30.51	7850	9240	7850	9240			
68	22879	1.75	25.97	8180	9370	8180	9370			
79	19734	2.05	22.40	8390	9460	8390	9460			
85	18342	1.45	20.82	8480	9310	8480	9310			
94	16553	2.45	18.79	8570	9580	8570	9580			
100	15611	1.70	17.72	8610	9420	8610	9420			
116	13461	3.00	15.28	8700	9690	8700	9690			
118	13285	2.00	15.08	8720	9530	8720	9530			
136	11461	2.35	13.01	8410	9600	8410	9600			
163	9611	2.80	10.91	7850	9690	7850	9690			

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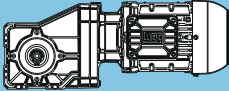
\*\* ... on request



<b>P<sub>N</sub> = 25 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>53</b>	29741	0.90	33.76	3510	5890	3510	1690	<b>KH083-22P-180M-04E</b>	573	442
<b>67</b>	23328	1.15	26.48	4950	9010	3840	1930			
<b>79</b>	19857	1.30	22.54	5460	9370	3890	2070			
<b>94</b>	16659	1.45	18.91	5820	9490	3890	2180			
<b>111</b>	14034	1.65	15.93	6070	9580	3710	2270			
<b>118</b>	13303	1.30	15.10	6110	9440	3660	2140			
<b>136</b>	11505	1.85	13.06	6250	9690	3300	2380			
<b>138</b>	11320	1.55	12.85	6270	9530	3390	2230			
<b>165</b>	9497	1.85	10.78	6360	9620	3080	2320			
<b>195</b>	8008	2.15	9.09	6450	9710	2830	2410			
<b>238</b>	6563	2.65	7.45	6500	9780	2540	2470			

Legend see page 337

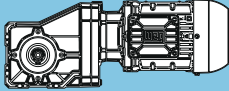
**P<sub>N</sub> = 30 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rn</sub>	F <sub>an</sub>	F <sub>rn</sub>	F <sub>an</sub>			
rpm	lb-in			lb	lb	lb	lb			
8.3	205900	0.80	214.39	**	**	**	**	<b>KH154-22P-180L-04F</b>	1874	460
9.1	186322	0.90	194.80	14010	24370	14010	24370			
9.6	176614	0.95	184.65	15400	25790	15400	25790			
11	151833	1.05	159.72	18230	26260	18230	26260			
12	153677	1.05	146.69	18050	26240	18050	26240	<b>KH153-22P-180L-04F</b>	1773	458
14	132357	1.25	126.34	19920	26640	19920	26640			
16	114485	1.40	109.28	21180	27000	21180	27000			
18	100981	1.60	96.39	21960	27250	21960	27250			
21	86733	1.85	82.79	22660	27540	22660	27540			
26	72161	2.25	68.88	23250	27810	23250	27810			
31	59872	2.70	57.15	23650	28060	23650	28060			
36	51208	2.45	48.88	23870	28240	23870	28240			
50	37327	1.65	35.63	24170	28240	24170	28240			
58	32152	2.45	30.69	24260	28370	24260	28370			
13	138036	0.85	131.76	13470	18390	13470	18390	<b>KH123-22P-180L-04F</b>	1261	454
16	118895	1.00	113.49	15440	18880	15440	18880			
18	102385	1.15	97.73	16770	19290	16770	19290			
21	89436	1.30	85.37	17600	19630	17600	19630			
24	77252	1.50	73.74	18280	19940	18280	19940			
29	63884	1.85	60.98	18860	20280	18860	20280			
35	53408	1.65	50.98	19240	20550	19240	20550			
40	46001	2.45	43.91	19450	20750	19450	20750			
43	43215	2.70	41.25	19540	20820	19540	20820			
47	39611	2.95	37.81	19630	20910	19630	20910			
61	30455	1.65	29.07	19810	20950	19810	20950			
71	26233	2.45	25.04	18820	21090	18820	21090			
22	83706	0.85	79.90	8320	13110	8320	13110	<b>KH103-22P-180L-04F</b>	990	450
26	72297	1.00	69.01	10050	13440	10050	13440			
30	61140	1.20	58.36	11290	13760	11290	13760			
37	49888	1.45	47.62	12230	14100	12230	14100			
43	42785	1.60	40.84	12700	14300	12700	14300			
46	40480	1.75	38.64	12840	14370	12840	14370			
50	36971	1.80	35.29	13020	14480	13020	14480			
58	32319	2.20	30.85	13240	14610	13240	14610			
59	31638	2.10	30.20	13260	14640	13260	14640			
68	27322	2.45	26.08	13240	14750	13240	14750			
76	24357	1.60	23.25	12860	14680	12860	14680			
80	23100	2.90	22.05	12430	14880	12430	14880			
88	21047	1.80	20.09	12140	14790	12140	14790			
103	18009	2.10	17.19	11440	14900	11440	14900			
120	15557	2.45	14.85	10810	14990	10810	14990			
141	13158	2.90	12.56	10180	15080	10180	15080			
36	52099	0.80	49.73	**	**	**	**	<b>KH093-22P-180L-04F</b>	730	446
44	42356	0.95	40.43	5800	8750	5800	8750			
49	37568	1.10	35.86	6610	8900	6610	8900			
56	33116	1.25	31.61	7190	9040	7190	9040			
58	31963	1.25	30.51	7330	9080	7330	9080			
68	27207	1.50	25.97	7820	9240	7820	9240			
79	23467	1.70	22.40	8140	9350	8140	9350			
85	21812	1.25	20.82	8250	9150	8250	9150			
94	19685	2.05	18.79	8390	9490	8390	9490			
100	18564	1.45	17.72	8450	9280	8450	9280			
116	16008	2.50	15.28	8590	9600	8590	9600			
118	15798	1.70	15.08	8610	9420	8610	9420			
136	13630	1.95	13.01	8610	9510	8610	9510			
163	11430	2.35	10.91	8030	9600	8030	9600			
200	9292	2.85	8.87	7400	9710	7400	9710			

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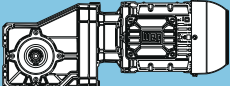


<b>P<sub>N</sub> = 30 hp</b>										
<b>60 Hz</b>			<b>i</b>	<b>Output shaft</b>		<b>Hollow shaft</b>			<b>m</b> lb	<b>Dimension sheet</b> see page
<b>n<sub>60</sub></b>	<b>T<sub>2</sub></b>	<b>f<sub>B</sub></b>		<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>	<b>F<sub>rN</sub></b>	<b>F<sub>aN</sub></b>			
rpm	lb-in			lb	lb	lb	lb			
<b>53</b>	35368	0.80	33.76	**	**	**	**	<b>KH083-22P-180L-04F</b>	619	442
<b>67</b>	27741	0.95	26.48	4050	7040	3370	1750			
<b>79</b>	23614	1.10	22.54	4900	8900	3480	1910			
<b>94</b>	19811	1.25	18.91	5460	9370	3550	2070			
<b>111</b>	16689	1.40	15.93	5820	9490	3570	2180			
<b>118</b>	15819	1.10	15.10	5910	9310	3370	2000			
<b>136</b>	13682	1.60	13.06	6090	9600	3510	2290			
<b>138</b>	13462	1.30	12.85	6110	9420	3390	2110			
<b>165</b>	11293	1.55	10.78	6270	9530	3260	2230			
<b>195</b>	9523	1.85	9.09	6360	9620	2970	2320			
<b>238</b>	7805	2.20	7.45	6450	9710	2680	2410			

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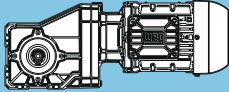
**P<sub>N</sub> = 40 hp**

60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page			
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb						
<b>11</b>	208587	0.80		159.72	**	**	**				**	<b>KH154-22P-200L-04E</b>	2002
<b>16</b>	155677	1.05	109.28	17920	26190	17920	26190	<b>KH153-22P-200L-04E</b>	1900	458			
<b>18</b>	137315	1.20	96.39	19560	26550	19560	26550						
<b>22</b>	117940	1.40	82.79	20970	26930	20970	26930						
<b>26</b>	98125	1.65	68.88	22120	27310	22120	27310						
<b>31</b>	81414	2.00	57.15	22890	27650	22890	27650						
<b>37</b>	67895	2.35	47.66	23400	27900	23400	27900						
<b>42</b>	60231	2.65	42.28	23650	28060	23650	28060						
<b>43</b>	58365	2.75	40.97	23690	28100	23690	28100						
<b>48</b>	53137	3.00	37.30	23830	28190	23830	28190						
<b>67</b>	37808	2.65	26.54	24170	28240	24170	28240						
<b>18</b>	139223	0.85	97.73	13380	18370	13380	18370	<b>KH123-22P-200L-04E</b>	1389	454			
<b>21</b>	121616	0.95	85.37	15240	18820	15240	18820						
<b>24</b>	105048	1.10	73.74	16610	19240	16610	19240						
<b>29</b>	86870	1.35	60.98	17780	19690	17780	19690						
<b>35</b>	71485	1.65	50.18	18550	20100	18550	20100						
<b>43</b>	58764	2.00	41.25	19060	20410	19060	20410						
<b>47</b>	53863	2.15	37.81	19220	20550	19220	20550						
<b>51</b>	49889	2.35	35.02	19360	20640	19360	20640						
<b>54</b>	47054	2.45	33.03	19420	20730	19420	20730						
<b>60</b>	42580	2.75	29.89	19560	20840	19560	20840						
<b>62</b>	40643	2.85	28.53	19600	20880	19600	20880						
<b>83</b>	30714	2.35	21.56	18300	20950	18300	20950						
<b>94</b>	26839	2.70	18.84	17470	21090	17470	21090						
<b>31</b>	83138	0.90	58.36	8480	13130	8480	13130				<b>KH103-22P-200L-04E</b>	1118	450
<b>37</b>	67838	1.05	47.62	10610	13580	10610	13580						
<b>46</b>	55045	1.30	38.64	11850	13940	11850	13940						
<b>58</b>	43948	1.65	30.85	12630	14280	12630	14280						
<b>59</b>	43022	1.55	30.20	12700	14300	12700	14300						
<b>68</b>	37153	1.80	26.08	13020	14480	13020	14480						
<b>81</b>	31412	2.15	22.05	12900	14640	12900	14640						
<b>99</b>	25642	2.60	18.00	11890	14790	11890	14790						
<b>104</b>	24488	1.55	17.19	11850	14680	11850	14680						
<b>120</b>	21155	1.80	14.85	11200	14790	11200	14790						
<b>142</b>	17893	2.15	12.56	10500	14900	10500	14900						
<b>174</b>	14602	2.60	10.25	9710	15020	9710	15020						
<b>56</b>	45031	0.90	31.61	5280	8660	5280	8660	<b>KH093-22P-200L-04E</b>	858	446			
<b>69</b>	36996	1.10	25.97	6700	8920	6700	8920						
<b>79</b>	31910	1.25	22.40	7350	9080	7350	9080						
<b>95</b>	26768	1.50	18.79	7870	9240	7870	9240						
<b>116</b>	21767	1.85	15.28	8250	9420	8250	9420						
<b>118</b>	21483	1.25	15.08	8270	9170	8270	9170						
<b>137</b>	18534	1.45	13.01	8450	9280	8450	9280						
<b>149</b>	17024	2.35	11.95	8540	9550	8540	9550						
<b>163</b>	15542	1.75	10.91	8410	9420	8410	9420						
<b>201</b>	12636	2.10	8.87	7710	9550	7710	9550						
<b>256</b>	9887	2.70	6.94	6990	9670	6990	9670						



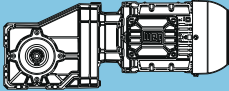
Legend see page 337

\*\* ... on request

P <sub>N</sub> = 50 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
				lb	lb	lb	lb			
16	191786	0.85	109.28	13220	22710	13220	22710	KH153-22P-200L-04F	1960	458
18	169165	0.95	96.39	16410	25940	16410	25940			
22	145297	1.10	82.79	18880	26390	18880	26390			
26	120884	1.35	68.88	20770	26860	20770	26860			
31	100298	1.60	57.15	22010	27270	22010	27270			
37	83643	1.95	47.66	22800	27610	22800	27610			
42	74201	2.15	42.28	23180	27790	23180	27790			
43	71902	2.25	40.97	23270	27830	23270	27830			
48	65462	2.45	37.30	23470	27940	23470	27940			
50	62215	2.60	35.45	23580	28010	23580	28010			
56	56213	2.85	32.03	23760	28120	23760	28120			
67	46578	2.15	26.54	23990	28010	23990	28010			
76	41085	2.95	23.41	24100	28150	24100	28150			
21	149824	0.80	85.37	**	**	**	**	KH123-22P-200L-04F	1448	454
24	129414	0.90	73.74	14460	18610	14460	18610			
29	107020	1.10	60.98	16460	19180	16460	19180			
36	88066	1.35	50.18	17690	19670	17690	19670			
43	72394	1.60	41.25	18500	20080	18500	20080			
47	66357	1.75	37.81	18770	20230	18770	20230			
51	61460	1.90	35.02	18950	20350	18950	20350			
54	57968	2.00	33.03	19090	20440	19090	20440			
60	52457	2.20	29.89	19270	20570	19270	20570			
62	50070	2.30	28.53	19330	20640	19330	20640			
76	41418	2.80	23.60	19150	20860	19150	20860			
83	37838	1.90	21.56	18750	20730	18750	20730			
95	33064	2.20	18.84	17800	20880	17800	20880			
110	28554	2.55	16.27	16840	21020	16840	21020			
37	83573	0.85	47.62	8390	13110	8390	13110	KH103-22P-200L-04F	1177	450
46	67813	1.05	38.64	10610	13580	10610	13580			
58	54142	1.35	30.85	11910	13980	11910	13980			
59	53001	1.30	30.20	12000	14010	12000	14010			
68	45770	1.45	26.08	12520	14210	12520	14210			
81	38698	1.75	22.05	12950	14430	12950	14430			
99	31590	2.15	18.00	12270	14640	12270	14640			
104	30168	1.30	17.19	12250	14480	12250	14480			
120	26062	1.45	14.85	11530	14610	11530	14610			
122	25623	2.60	14.60	11290	14790	11290	14790			
142	22043	1.75	12.56	10790	14770	10790	14770			
174	17989	2.15	10.25	9960	14900	9960	14900			
214	14584	2.60	8.31	9190	15020	9190	15020			

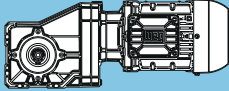
Legend see page 337

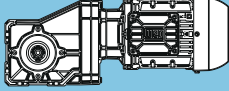
\*\* ... on request

P <sub>N</sub> = 60 hp										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub> rpm	T <sub>2</sub> lb-in	f <sub>B</sub>		F <sub>rN</sub> lb	F <sub>aN</sub> lb	F <sub>rN</sub> lb	F <sub>aN</sub> lb			
18	205741	0.80		96.39	**	**	**			
22	176712	0.95	82.79	15470	25790	15470	25790			
26	147022	1.10	68.88	18730	26370	18730	26370			
31	121984	1.35	57.15	20700	26840	20700	26840			
37	101728	1.60	47.66	21920	27250	21920	27250			
42	90245	1.75	42.28	22500	27470	22500	27470			
43	87449	1.85	40.97	22640	27520	22640	27520			
48	79615	2.05	37.30	22950	27670	22950	27670			
50	75667	2.15	35.45	23110	27760	23110	27760			
56	68367	2.35	32.03	23380	27900	23380	27900			
67	56883	2.85	26.65	23740	28120	23740	28120			
76	49968	2.45	23.41	23920	27920	23920	27920			
89	42924	2.80	20.11	24080	28100	24080	28100			
29	130159	0.90	60.98	14390	18590	14390	18590	KH123-22P-225S/M-04F	1750	454
36	107107	1.10	50.18	16430	19180	16430	19180			
43	88046	1.35	41.25	17690	19670	17690	19670			
47	80704	1.45	37.81	18100	19850	18100	19850			
51	74749	1.55	35.02	18390	20010	18390	20010			
54	70501	1.65	33.03	18590	20120	18590	20120			
60	63799	1.85	29.89	18860	20300	18860	20300			
62	60896	1.90	28.53	18970	20370	18970	20370			
76	50373	2.30	23.60	19330	20640	19330	20640			
83	46019	1.55	21.56	19240	20480	19240	20480			
92	41451	2.80	19.42	18210	20860	18210	20860			
95	40213	1.80	18.84	18230	20660	18230	20660			
110	34728	2.10	16.27	17220	20840	17220	20840			
132	28730	2.55	13.46	16050	21020	16050	21020			
46	82476	0.90	38.64	8590	13150	8590	13150	KH103-22P-225S/M-04F	1479	450
58	65848	1.10	30.85	10840	13620	10840	13620			
59	64461	1.05	30.20	10970	13670	10970	13670			
68	55667	1.20	26.08	11800	13940	11800	13940			
81	47065	1.45	22.05	12430	14190	12430	14190			
99	38420	1.75	18.00	12700	14430	12700	14430			
104	36691	1.05	17.19	12700	14230	12700	14230			
120	31697	1.20	14.85	11910	14410	11910	14410			
122	31163	2.15	14.60	11620	14640	11620	14640			
142	26809	1.45	12.56	11110	14590	11110	14590			
153	24888	2.70	11.66	10590	14810	10590	14810			
174	21878	1.75	10.25	10230	14770	10230	14770			
214	17737	2.15	8.31	9420	14900	9420	14900			
268	14173	2.70	6.64	8630	15040	8630	15040			

Legend see page 337

\*\* ... on request

<b>P<sub>N</sub> = 75 hp</b>										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
26	179391	0.90	68.88	15060	25740	15060	25740	<b>KH153-22P-225S/M-04G</b>	2368	458
31	148841	1.10	57.15	18520	26330	18520	26330			
37	124126	1.30	47.66	20530	26800	20530	26800			
44	106702	1.50	40.97	21650	27160	21650	27160			
48	97144	1.65	37.30	22170	27340	22170	27340			
50	92326	1.75	35.45	22390	27430	22390	27430			
56	83419	1.95	32.03	22800	27610	22800	27610			
67	69407	2.30	26.65	23340	27880	23340	27880			
76	60969	2.00	23.41	23600	27630	23600	27630			
81	57583	2.80	22.11	23720	28100	23720	28100			
89	52374	2.30	20.11	23850	27850	23850	27850			
107	43572	2.90	16.73	24050	28080	24050	28080			
36	130689	0.90	50.18	14300	18570	14300	18570			
43	107432	1.10	41.25	16410	19180	16410	19180			
51	91206	1.30	35.02	17510	19580	17510	19580			
54	86023	1.35	33.03	17800	19720	17800	19720			
60	77846	1.50	29.89	18230	19920	18230	19920			
63	74304	1.55	28.53	18410	20010	18410	20010			
76	61464	1.90	23.60	18950	20350	18950	20350			
92	50577	2.30	19.42	18730	20610	18730	20610			
95	49067	1.50	18.84	18790	20390	18790	20390			
110	42374	1.75	16.27	17690	20590	17690	20590			
112	41566	2.80	15.96	17310	20860	17310	20860			
133	35055	2.10	13.46	16410	20820	16410	20820			
161	28831	2.55	11.07	15240	21020	15240	21020			

<b>P<sub>N</sub> = 100 hp</b>										
60 Hz			i	Output shaft		Hollow shaft			m lb	Dimension sheet see page
n <sub>60</sub>	T <sub>2</sub>	f <sub>B</sub>		F <sub>rN</sub>	F <sub>aN</sub>	F <sub>rN</sub>	F <sub>aN</sub>			
rpm	lb-in			lb	lb	lb	lb			
31	203536	0.80	57.15	**	**	**	**	<b>KH153-22P-250S/M-04F</b>	2597	458
37	169738	0.95	47.66	16370	25920	16370	25920			
43	145912	1.10	40.97	18840	26390	18840	26390			
48	132841	1.20	37.30	19920	26640	19920	26640			
50	126253	1.30	35.45	20410	26770	20410	26770			
56	114073	1.40	32.03	21220	27000	21220	27000			
67	94912	1.70	26.65	22280	27380	22280	27380			
76	83373	1.45	23.41	22820	27040	22820	27040			
81	78743	2.05	22.11	23000	27700	23000	27700			
89	71620	1.70	20.11	23270	27340	23270	27340			
97	65673	2.45	18.44	23470	27940	23470	27940			
106	59583	2.10	16.73	23650	27650	23650	27650			
112	56449	2.85	15.85	23740	28120	23740	28120			
128	49433	2.55	13.88	23920	27920	23920	27920			
154	41241	3.00	11.58	23450	28150	23450	28150			

Legend see page 337

\*\* ... on request



# Selection tables - Gear units

## Structure of the selection tables

1 Type	2 i	3 $T_{2max}$ [lb-in]	4 $n_2$ [rpm]	5 $i_{exact}$	6 $n_{1max}$ [rpm]	7 IEC motor frame size													
						63	71	80	90	100	112	132	160	180	200	225	250	-	
						8 IEC adapter													
						I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280	
9 NEMA adapter																			
						N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-			
<b>K022</b>																			
2 stages	10																		
$n_1=1750$ rpm	11																		
Maximum torque 974 lb-in	12																		

1 Type	2 i	13 SERVO adapter										15 Input unit									
		3 $n_{1max}$ [rpm]	4 Adapter size									3 $n_{1max}$ [rpm]	6 Input shaft [mm]								
			S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	19x40	24x50	28x60	38x80	42x110	48x110	55x110	

- 1 Type of gear unit
- 2 Total ratio
- 3 Permissible output torque at S1 operation ( $f_b = 1.0$ )
- 4 Output speed (gear unit) at  $n_1 = 1750$  rpm
- 5 Exact mathematical ratio
- 6 Maximum permissible input speed gear unit, valid for direct mounting and IEC / NEMA adapter  
Max. perm. input speed IEC / NEMA adapter: I63 - I132 / N56 - N213 = 3000 rpm, I160 - I280 / N254 - N364 = 2500 rpm  
Max. perm. motor speed (Direct mounting): motor frame size 63 - 180 = 3000 rpm, 200 - 250 = 2500 rpm, higher motor speed on request
- 7 Possible motor frame sizes (Direct mounting)
- 8 Possible IEC adapter sizes
- 9 Possible NEMA adapter sizes
- 10 Number of gear stages
- 11 Motor speed
- 12 Maximum torque
- 13 Maximum input speed - SERVO adapter
- 14 Possible SERVO adapter sizes
- 15 Maximum input speed - input unit (higher input speeds on request)
- 16 Possible input shafts of the input unit

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	-	-	-	-	-	-	-	-
		IEC adapter															
		163	171			180	190	-	-	-	-	-	-	-	-		
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	-	-	-	-	-	-	-	-		
K022	68.88	974	25	551/8	6000												
	61.75	903	28	247/4	6000												
	53.65	974	33	1073/20	6000												
	48.10	974	36	481/10	6000												
	43.50	974	40	87/2	6000												
	39.00	974	45	39/1	6000												
	34.27	974	51	377/11	6000												
	30.88	451	57	247/8	6000												
	30.73	974	57	338/11	6000												
	26.41	974	66	1479/56	6000												
	24.05	717	73	481/20	6000												
	23.68	974	74	663/28	6000												
	20.63	912	85	1073/52	6000												
	19.50	717	90	39/2	6000												
	18.50	903	95	37/2	6000												
	15.41	823	114	493/32	6000												
	15.36	717	114	169/11	6000												
	13.81	823	127	221/16	6000												
	13.29	788	132	319/24	6000												
	11.92	788	147	143/12	6000												
	11.84	717	148	663/56	6000												
	11.60	752	151	58/5	6000												
	10.40	752	168	52/5	6000												
	9.25	717	189	37/4	6000												
	8.51	682	206	783/92	6000												
	7.63	682	229	351/46	6000												
	6.91	655	253	221/32	6000												
	5.96	611	294	143/24	6000												
	5.20	575	337	26/5	6000												
	3.82	504	459	351/92	6000												

Legend see page 393



Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size																
						IEC adapter																
		NEMA adapter																				
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	-	-	-	-	-	-	-							
K033	217.88	1770	8.0	1743/8	6000																	
	177.19	1770	9.9	2835/16	6000																	
	140.80	1770	12	6195/44	6000																	
	108.75	1770	16	435/4	6000																	
	86.83	1770	20	4515/52	6000																	
	71.93	1770	24	1079/15	6000																	
	65.63	1770	27	525/8	6000																	
	58.50	1770	30	117/2	6000																	
	49.88	1770	35	399/8	6000																	
	46.48	1770	38	1534/33	6000																	
	38.80	1770	45	1785/46	6000																	
	35.90	1770	49	754/21	6000																	
	30.29	1770	58	1575/52	6000																	
	29.97	1142	58	1079/36	6000																	
	28.67	1770	61	86/3	6000																	
	24.38	1416	72	195/8	6000																	
	21.67	1770	81	65/3	6000																	
	19.37	1443	90	3835/198	6000																	
	16.47	1770	106	247/15	6000																	
	14.96	1443	117	1885/126	6000																	
	12.81	1770	137	884/69	6000																	
	11.94	1443	147	215/18	6000																	
	10.00	1770	175	10/1	6000																	
	9.03	1443	194	325/36	6000																	
6.86	1319	255	247/36	6000																		
5.34	1213	328	1105/207	6000																		
4.17	1115	420	25/6	6000																		

Legend see page 393

Type	i	SERVO adapter										Input unit													
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]											
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110			
<b>K033</b>	217.88	5000																							
	177.19	5000																							
	140.80	5000																							
	108.75	5000																							
	86.83	5000																							
	71.93	5000																							
	65.63	5000																							
	58.50	5000																							
	49.88	4400																							
	46.48	5000																							
	38.80	3800																							
	35.90	5000																							
	30.29	3400																							
	29.97	5000																							
	28.67	5000																							
	24.38	5000																							
	21.67	5000																							
	19.37	5000																							
	16.47	4400																							
	14.96	5000																							
	12.81	3800																							
	11.94	5000																							
	10.00	3400																							
	9.03	5000																							
	6.86	4400																							
	5.34	3800																							
	4.17	3400																							



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	-	-	-	-	-	-
		IEC adapter															
		163	171		180	190	1100	1112	-	-	-	-	-	-			
NEMA adapter																	
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	-	-	-	-	-	-		
K043	277.79	3540	6.3	14445/52	6000												
	227.16	3540	7.7	23625/104	6000												
	179.37	3540	9.8	25650/143	6000												
	139.08	3540	13	50625/364	6000												
	113.83	3540	15	38475/338	6000												
	89.17	3346	20	535/6	6000												
	87.62	3540	20	18225/208	6000												
	72.92	3540	24	875/12	6000												
	66.20	3540	26	6885/104	6000												
	57.58	3540	30	1900/33	6000												
	54.18	3540	32	16200/299	6000												
	47.07	1770	37	93197/1980	6000												
	44.64	3540	39	625/14	6000												
	43.93	3540	40	7425/169	6000												
	38.49	2390	45	30485/792	6000												
	36.78	3399	48	3825/104	5600												
	36.54	3540	48	475/13	6000												
	30.39	2868	58	33098/1089	6000												
	29.81	3195	59	775/26	5000												
	28.74	3160	61	20925/728	4800												
	28.13	3540	62	225/8	6000												
	23.57	2717	74	21775/924	6000												
	21.25	3540	82	85/4	6000												
	19.29	2602	91	1273/66	6000												
	17.39	3540	101	400/23	6000												
	14.85	2461	118	2613/176	6000												
	14.10	3540	124	550/39	6000												
	11.81	3540	148	425/36	5600												
	11.22	2319	156	14807/1320	6000												
	9.57	3301	183	775/81	5000												
	9.23	3266	190	775/84	4800												
	9.18	2222	191	6968/759	6000												
	7.44	2124	235	67/9	6000												
	6.23	2045	281	14807/2376	5600												
	5.05	1956	346	27001/5346	5000												
	4.87	1938	359	27001/5544	4800												

Legend see page 393

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>K043</b>	277.79	5000													3000									
	227.16	5000													3000									
	179.37	5000													3000									
	139.08	5000													3000									
	113.83	5000													3000									
	89.17	5000													3000									
	87.62	5000													3000									
	72.92	5000													3000									
	66.20	4900													3000									
	57.58	5000													3000									
	54.18	4200													3000									
	47.07	5000													3000									
	44.64	5000													3000									
	43.93	3700													3000									
	38.49	5000													3000									
	36.78	3400													3000									
	36.54	5000													3000									
	30.39	5000													3000									
	29.81	3000													3000									
	28.74	2900													2900									
	28.13	5000													3000									
	23.57	5000													3000									
	21.25	4900													3000									
	19.29	5000													3000									
	17.39	4200													3000									
	14.85	5000													3000									
	14.10	3700													3000									
	11.81	3400													3000									
	11.22	4900													3000									
	9.57	3000													3000									
	9.23	2900													2900									
	9.18	4200													3000									
	7.44	3700													3000									
	6.23	3400													3000									
	5.05	3000													3000									
	4.87	2900													2900									



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171		180	190	1100	1112	1132	-	-	-	-			
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
K053	245.70	5310	7.1	2457/10	6000											
	194.73	5310	9.0	2142/11	6000											
	151.20	5310	12	756/5	6000											
	124.06	5310	14	8064/65	6000											
	96.08	5310	18	3843/40	6000											
	80.46	4992	22	7644/95	6000											
	73.08	5310	24	1827/25	6000											
	63.77	5310	27	13328/209	6000											
	60.26	5310	29	1386/23	6000											
	49.52	5310	35	4704/95	6000											
	49.43	5310	35	3213/65	6000											
	42.00	5310	42	42/1	5600											
	40.63	5310	43	50176/1235	6000											
	38.32	2372	46	728/19	6000											
	34.53	5310	51	518/15	5000											
	33.30	5310	53	333/10	4800											
	31.46	5310	56	2989/95	6000											
	30.37	3469	58	19040/627	6000											
	27.39	5107	64	630/23	4400											
	23.93	5310	73	11368/475	6000											
	23.58	3655	74	448/19	6000											
	19.73	5310	89	8624/437	6000											
	19.35	3655	90	14336/741	6000											
	16.19	5310	108	19992/1235	6000											
	14.98	3655	117	854/57	6000											
	13.75	5310	127	784/57	5600											
	11.40	3655	154	3248/285	6000											
	11.31	5310	155	29008/2565	5000											
	10.91	5310	160	1036/95	4800											
	9.40	3655	186	12320/1311	6000											
	8.97	5001	195	3920/437	4400											
	7.71	3655	227	1904/247	6000											
6.55	3655	267	1120/171	5600												
5.39	3655	325	8288/1539	5000												
5.19	3655	337	296/57	4800												
4.27	3655	410	5600/1311	4400												

Legend see page 393



Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]										
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110		
<b>K053</b>	245.70	5000													3000									
	194.73	5000													3000									
	151.20	5000													3000									
	124.06	5000													3000									
	96.08	5000													3000									
	80.46	5000													3000									
	73.08	5000													3000									
	63.77	5000													3000									
	60.26	4500													3000									
	49.52	5000													3000									
	49.43	3900													3000									
	42.00	3600													3000									
	40.63	5000													3000									
	38.32	5000													3000									
	34.53	3200													3000									
	33.30	3100													3000									
	31.46	5000													3000									
	30.37	5000													3000									
	27.39	2800													2800									
	23.93	5000													3000									
	23.58	5000													3000									
	19.73	4500													3000									
	19.35	5000													3000									
	16.19	3900													3000									
	14.98	5000													3000									
	13.75	3600													3000									
	11.40	5000													3000									
	11.31	3200													3000									
	10.91	3100													3000									
	9.40	4500													3000									
	8.97	2800													2800									
	7.71	3900													3000									
	6.55	3600													3000									
	5.39	3200													3000									
	5.19	3100													3000									
	4.27	2800													2800									



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		63	171		180	190	1100	1112	1132	-	-	-	-			
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
K063	198.00	7258	8.8	198/1	6000											
	156.92	7258	11	2040/13	6000											
	121.85	7258	14	1584/13	6000											
	99.98	7258	18	16896/169	6000											
	81.53	5054	21	1386/17	6000											
	77.42	7258	23	2013/26	6000											
	64.62	7258	27	840/13	6000											
	58.89	7258	30	3828/65	6000											
	50.17	7258	35	11088/221	6000											
	48.56	7258	36	14520/299	6000											
	44.35	2753	39	754/17	6000											
	41.17	7258	43	118272/2873	6000											
	39.83	7036	44	6732/169	6000											
	35.15	4018	50	1160/33	6000											
	33.85	6700	52	440/13	5600											
	31.88	7258	55	14091/442	6000											
	27.83	6319	63	3256/117	5000											
	27.29	4425	64	464/17	6000											
	26.84	6257	65	2442/91	4800											
	24.25	6921	72	26796/1105	6000											
	22.40	4425	78	14848/663	6000											
	22.07	5895	79	6600/299	4400											
	20.00	6532	88	101640/5083	6000											
	17.34	4425	101	1769/102	6000											
	16.40	6151	107	2772/169	6000											
	13.94	5859	126	3080/221	5600											
	13.19	4425	133	3364/255	6000											
	11.46	5523	153	22792/1989	5000											
	11.05	5470	158	2442/221	4800											
	10.88	4425	161	12760/1173	6000											
	9.09	5151	193	46200/5083	4400											
	8.92	4425	196	116/13	6000											
	7.58	4310	231	1160/153	5600											
6.23	4062	281	8584/1377	5000												
6.01	4018	291	2146/357	4800												
4.94	3788	354	5800/1173	4400												

Legend see page 393

Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>K063</b>	198.00	5000													3000									
	156.92	5000													3000									
	121.85	5000													2500									
	99.98	5000													2500									
	81.53	5000													3000									
	77.42	5000													2500									
	64.62	5000													3000									
	58.89	5000													2500									
	50.17	5000													2500									
	48.56	4700													2500									
	44.35	5000													3000									
	41.17	5000													2500									
	39.83	4200													2500									
	35.15	5000													3000									
	33.85	3700													2500									
	31.88	5000													2500									
	27.83	3300													2500									
	27.29	5000													2500									
	26.84	3200													2500									
	24.25	5000													2500									
	22.40	5000													2500									
	22.07	2900													2500									
	20.00	4700													2500									
	17.34	5000													2500									
	16.40	4200													2500									
	13.94	3700													2500									
	13.19	5000													2500									
	11.46	3300													2500									
	11.05	3200													2500									
	10.88	4700													2500									
	9.09	2900													2500									
	8.92	4200													2500									
	7.58	3700													2500									
	6.23	3300													2500									
	6.01	3200													2500									
	4.94	2900													2500									



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size												
						63	71	80	90	100	112	132	160	-	-	-	-	-
		IEC adapter																
		163	171			180	190	1100	1112	1132	-	-	-	-	-	-		
NEMA adapter																		
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	-		
K073	256.14	13719	6.8	5635/22	6000													
	197.75	13719	8.8	791/4	6000													
	165.85	13719	11	2156/13	6000													
	130.16	13719	13	4165/32	6000													
	100.45	13719	17	2009/20	6000													
	99.87	11400	18	18676/187	6000													
	83.09	13719	21	1911/23	6000													
	77.11	13719	23	6554/85	6000													
	70.67	13719	25	3675/52	6000													
	64.67	13719	27	71456/1105	6000													
	61.25	13719	29	245/4	5600													
	51.72	13719	34	931/18	5000													
	50.75	13719	34	203/4	6000													
	49.88	13719	35	399/8	4800													
	3 stages	47.56	5426	37	26680/561	6000												
	n <sub>1</sub> =1750 rpm	42.61	13719	41	980/23	4400												
		39.17	13719	45	16646/425	6000												
	Maximum torque 13719 lb-in	36.72	6700	48	13108/357	6000												
		32.40	13719	54	63336/1955	6000												
		30.79	8054	57	20416/663	6000												
		27.56	13719	64	6090/221	6000												
		24.17	8054	72	145/6	6000												
		23.88	13719	73	406/17	5600												
		20.17	13719	87	15428/765	5000												
		19.45	13719	90	1653/85	4800												
		18.65	8054	94	4756/255	6000												
		16.61	13719	105	6496/391	4400												
		15.43	8054	113	6032/391	6000												
		13.12	8054	133	2900/221	6000												
	11.37	8054	154	580/51	5600													
	9.60	8054	182	4408/459	5000													
	9.26	8054	189	1102/119	4800													
7.91	8054	221	9280/1173	4400														

Legend see page 393

Type	i	SERVO adapter										Input unit								
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]						
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110
<b>K073</b>	256.14	5000											3000							
	197.75	5000											2500							
	165.85	5000											2500							
	130.16	5000											2500							
	100.45	5000											2500							
	99.87	5000											3000							
	83.09	5000											2500							
	77.11	5000											2500							
	70.67	4600											2500							
	64.67	5000											2500							
	61.25	4200											2500							
	51.72	3700											2500							
	50.75	5000											2500							
	49.88	3600											2500							
	47.56	5000											3000							
	42.61	3300											2500							
	39.17	5000											2500							
	36.72	5000											2500							
	32.40	5000											2500							
	30.79	5000											2500							
	27.56	4600											2500							
	24.17	5000											2500							
	23.88	4200											2500							
	20.17	3700											2500							
	19.45	3600											2500							
	18.65	5000											2500							
	16.61	3300											2500							
	15.43	5000											2500							
	13.12	4600											2500							
	11.37	4200											2500							
	9.60	3700											2500							
	9.26	3600											2500							
	7.91	3300											2500							



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	-	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	-	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-	
K083	206.12	26552	8.5	13398/65	6000												
	163.14	26552	11	26103/160	6000												
	142.45	26552	12	2849/20	6000												
	125.90	26552	14	25179/200	6000												
	106.46	26552	16	12243/115	6000												
	91.51	26552	19	23793/260	6000												
	79.89	26552	22	6391/80	5600												
	79.75	25233	22	319/4	6000												
	68.44	26552	26	616/9	5000												
	66.00	26552	27	66/1	4800												
	63.12	25313	28	16159/256	6000												
	58.25	26552	30	6699/115	4400												
	55.11	26552	32	5291/96	6000												
	48.87	26552	36	2541/52	3900												
	48.71	26552	36	15587/320	6000												
	45.48	14391	38	2001/44	6000												
	41.19	26552	42	7579/184	6000												
	41.18	26552	42	9471/230	3500												
	35.99	14436	49	101361/2816	6000												
	35.41	26552	49	1133/32	6000												
	33.76	26552	52	4389/130	3100												
	31.43	16958	56	11063/352	6000												
	30.91	26552	57	11869/384	5600												
	27.78	16825	63	97773/3520	6000												
	26.48	26304	66	715/27	5000												
	25.54	26021	69	715/28	4800												
	23.49	16958	75	2067/88	6000												
	22.54	25065	78	4147/184	4400												
	20.19	16693	87	7107/352	6000												
	18.91	23773	93	605/32	3900												
	17.63	17144	99	24817/1408	5600												
	15.93	22587	110	5863/368	3500												
	15.10	17144	116	1495/99	5000												
	14.56	15471	120	4485/308	4800												
	13.06	21277	134	209/16	3100												
	12.85	17144	136	1131/88	4400												
	10.78	17144	162	345/32	3900												
	9.09	17144	193	1599/176	3500												
	7.45	17144	235	1311/176	3100												

Legend see page 393

Type	i	SERVO adapter										Input unit										
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]								
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>K083</b>	206.12	5000												2500								
	163.14	5000												2500								
	142.45	5000												2500								
	125.90	5000												2500								
	106.46	5000												2500								
	91.51	5000												2500								
	79.89	4500												2500								
	79.75	5000												2500								
	68.44	4000												2500								
	66.00	3900												2500								
	63.12	5000												2500								
	58.25	3600												2500								
	55.11	5000												2500								
	48.87	3100												2500								
	48.71	5000												2500								
	45.48	5000												2500								
	41.19	5000												2500								
	41.18	2800												2500								
	35.99	5000												2500								
	35.41	5000												2500								
	33.76	-												2500								
	31.43	5000												2500								
	30.91	4500												2500								
	27.78	5000												2500								
	26.48	4000												2500								
	25.54	3900												2500								
	23.49	5000												2500								
	22.54	3600												2500								
	20.19	5000												2500								
	18.91	3100												2500								
	17.63	4500												2500								
	15.93	2800												2500								
	15.10	4000												2500								
	14.56	3900												2500								
	13.06	-												2500								
	12.85	3600												2500								
	10.78	3100												2500								
	9.09	2800												2500								
	7.45	-												2500								



Legend see page 393





Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>K084</b>	2205.52	5000													3000									
	1803.58	5000													3000									
	1745.64	5000													3000									
	1524.22	5000													3000									
	1427.51	5000													3000									
	1424.12	5000													3000									
	1246.44	5000													3000									
	1127.18	5000													3000									
	1104.23	5000													3000									
	984.20	5000													3000									
	903.77	5000													3000									
	873.98	5000													3000									
	763.13	5000													3000									
	715.32	5000													3000									
	695.67	5000													3000									
	624.59	5000													3000									
	550.61	5000													3000									
	525.61	5000													3000									
	480.77	5000													3000									
	430.17	5000													3000									
	416.02	5000													3000									
	363.25	5000													3000									
	348.82	5000													3000									
	340.47	5000													3000									
	297.29	5000													3000									
	292.01	4500													3000									
	276.09	5000													3000									
	241.07	5000													3000									
	236.66	4000													3000									
	231.12	4500													3000									
	228.21	3900													3000									
	201.80	4500													3000									
	187.31	4000													3000									
	180.62	3900													3000									
	163.55	4000													3000									
	157.71	3900													3000									



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	-	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	-	-	-	-	
K093	169.25	39828	10	21156/125	6000												
	143.08	39828	12	49364/345	6000												
	123.86	39828	14	241531/1950	6000												
	109.70	39828	16	24682/225	5600												
	94.90	39828	18	192167/2025	5000												
	91.51	39828	19	192167/2100	4800												
	80.74	39828	22	139277/1725	4400												
	68.71	39828	25	66994/975	3900												
	63.96	39828	27	1599/25	6000												
	59.28	39828	30	102254/1725	3500												
	54.07	39828	32	3731/69	6000												
	49.73	39828	35	19393/390	3100												
	46.81	39828	37	5617/120	6000												
	41.46	39828	42	3731/90	5600												
	40.43	39828	43	75809/1875	2700												
	37.13	24649	47	8541/230	6000												
	35.86	39828	49	58097/1620	5000												
	34.58	36722	51	58097/1680	4800												
	31.61	39828	55	22919/725	2300												
	31.39	24835	56	33215/1058	6000												
	30.51	39828	57	42107/1380	4400												
	27.18	24738	64	10001/368	6000												
	25.97	39828	67	779/30	3900												
	24.07	26473	73	6643/276	5600												
	22.40	39828	78	15457/690	3500												
	20.82	26473	84	103441/4968	5000												
	20.08	21321	87	103441/5152	4800												
	18.79	39828	93	451/24	3100												
	17.72	26473	99	74971/4232	4400												
	15.28	39828	115	22919/1500	2700												
	15.08	26473	116	1387/92	3900												
	13.01	26473	135	27521/2116	3500												
11.95	39828	146	6929/580	2300													
10.91	26473	160	4015/368	3100													
8.87	26473	197	40807/4600	2700													
6.94	26473	252	37011/5336	2300													

Legend see page 393

Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]									
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110			
<b>K093</b>	169.25	5000													2500								
	143.08	5000													2500								
	123.86	5000													2500								
	109.70	4800													2500								
	94.90	4200													2500								
	91.51	4100													2500								
	80.74	3700													2500								
	68.71	3300													2500								
	63.96	5000													2500								
	59.28	3000													2500								
	54.07	5000													2500								
	49.73	-													2500								
	46.81	5000													2500								
	41.46	4800													2500								
	40.43	-													2300								
	37.13	5000													2500								
	35.86	4200													2500								
	34.58	4100													2500								
	31.61	-													2000								
	31.39	5000													2500								
	30.51	3700													2500								
	27.18	5000													2500								
	25.97	3300													2500								
	24.07	4800													2500								
	22.40	3000													2500								
	20.82	4200													2500								
	20.08	4100													2500								
	18.79	-													2500								
	17.72	3700													2500								
	15.28	-													2300								
	15.08	3300													2500								
	13.01	3000													2500								
	11.95	-													2000								
	10.91	-													2500								
	8.87	-													2300								
	6.94	-													2000								



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size										
						63	71	80	90	100	112	132	-	-	-	-
		IEC adapter														
		163	171		180	190	1100	1112	1132	-	-	-	-			
NEMA adapter																
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-	-	
<b>K094</b>	1810.95	39828	1.0	1131846/625	6000											
4 stages n <sub>1</sub> =1750 rpm	1531.00	39828	1.1	2640974/1725	6000											
	1480.92	39828	1.2	37023/25	6000											
	1251.99	39828	1.4	86387/69	6000											
	1169.35	39828	1.5	1607856/1375	6000											
	988.58	39828	1.8	3751664/3795	6000											
	906.69	39828	1.9	31734/35	6000											
	766.52	39828	2.3	17630/23	6000											
	742.09	39828	2.4	1205892/1625	6000											
	627.37	39828	2.8	937916/1495	6000											
	571.21	39828	3.1	142803/250	6000											
	482.91	39828	3.6	111069/230	6000											
	431.58	39828	4.1	269739/625	6000											
	364.86	39828	4.8	209797/575	6000											
	Maximum torque 39828 lb-in	353.21	39828	5.0	1015488/2875	6000										
		298.61	39828	5.9	789824/2645	6000										
		286.42	39828	6.1	465432/1625	6000										
242.14		39828	7.2	1086008/4485	6000											
239.77		39828	7.3	29971/125	5600											
202.70		39828	8.6	209797/1035	5600											
194.32		39828	9.0	218612/1125	5000											
187.38		39828	9.3	163959/875	4800											
164.28		39828	11	1530284/9315	5000											
158.41		39828	11	54653/345	4800											

Legend see page 393

Type	i	SERVO adapter										Input unit											
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]									
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110	
<b>K094</b>	1810.95	5000													3000								
	1531.00	5000													3000								
	1480.92	5000													3000								
	1251.99	5000													3000								
	1169.35	5000													3000								
	988.58	5000													3000								
	906.69	5000													3000								
	766.52	5000													3000								
	742.09	5000													3000								
	627.37	5000													3000								
	571.21	5000													3000								
	482.91	5000													3000								
	431.58	5000													3000								
	364.86	5000													3000								
	353.21	5000													3000								
	298.61	5000													3000								
	286.42	5000													3000								
	242.14	5000													3000								
	239.77	4800													3000								
	202.70	4800													3000								
	194.32	4200													3000								
	187.38	4100													3000								
	164.28	4200													3000								
	158.41	4100													3000								



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	225	-
		IEC adapter															
		63	171			180	190	1100	1112	1132	1160	1180	1200	1225	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-	
K103	140.95	70806	12	128269/910	6000												
	124.50	70806	14	13072/105	5600												
	108.07	70806	16	20425/189	5000												
	104.21	70806	17	20425/196	4800												
	93.37	70806	19	3268/35	4400												
	79.90	70806	22	72713/910	3900												
	69.01	70806	25	55556/805	3500												
	58.36	70806	30	817/14	3100												
	53.27	52777	33	2983/56	6000												
	47.62	70806	37	41667/875	2700												
	47.05	66363	37	988/21	5600												
	40.84	66363	43	30875/756	5000												
	39.38	41846	44	30875/784	4800												
	38.64	70806	45	39216/1015	2300												
	35.29	66363	50	247/7	4400												
	30.85	70806	57	30229/980	2100												
	30.33	30048	58	2669/88	6000												
	30.20	66363	58	1691/56	3900												
	26.79	37784	65	884/33	5600												
	26.08	66363	67	4199/161	3500												
	23.25	37784	75	27625/1188	5000												
	22.42	23826	78	27625/1232	4800												
	22.05	66363	79	1235/56	3100												
	20.09	37784	87	221/11	4400												
	18.00	66363	97	12597/700	2700												
	17.19	37784	102	1513/88	3900												
	14.85	37784	118	3757/253	3500												
	14.60	66363	120	2964/203	2300												
	12.56	37784	139	1105/88	3100												
	11.66	66363	150	9139/784	2100												
	10.25	37784	171	11271/1100	2700												
	8.31	37784	211	2652/319	2300												
6.64	37784	264	8177/1232	2100													

Legend see page 393

Type	i	SERVO adapter											Input unit									
		n <sub>1max</sub>	Adapter size											n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>K103</b>	140.95	5000												2500								
	124.50	5000												2500								
	108.07	4500												2500								
	104.21	4400												2500								
	93.37	4000												2500								
	79.90	3500												2500								
	69.01	3200												1800								
	58.36	-												1800								
	53.27	5000												2500								
	47.62	-												1800								
	47.05	5000												2500								
	40.84	4500												2500								
	39.38	4400												2500								
	38.64	-												1800								
	35.29	4000												2500								
	30.85	-												1800								
	30.33	5000												2500								
	30.20	3500												2500								
	26.79	5000												2500								
	26.08	3200												1800								
	23.25	4500												2500								
	22.42	4400												2500								
	22.05	-												1800								
	20.09	4000												2500								
	18.00	-												1800								
	17.19	3500												2500								
	14.85	3200												1800								
	14.60	-												1800								
	12.56	-												1800								
	11.66	-												1800								
	10.25	-												1800								
	8.31	-												1800								
	6.64	-												1800								



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	-	-	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	-	-	-	-	-	
		NEMA adapter															
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	-	-	-	-	-	
K104	1301.54	70806	1.3	300656/231	6000												
	1129.81	70806	1.5	2348875/2079	6000												
	1004.85	70806	1.7	738568/735	6000												
	976.16	70806	1.8	75164/77	6000												
	872.27	70806	2.0	2308025/2646	6000												
	842.74	70806	2.1	1150336/1365	6000												
	753.64	70806	2.3	184642/245	6000												
	731.54	70806	2.4	1797400/2457	6000												
	661.38	70806	2.6	13889/21	6000												
	632.05	70806	2.8	287584/455	6000												
	574.12	70806	3.0	1736125/3024	6000												
	510.43	70806	3.4	267976/525	6000												
	496.04	70806	3.5	13889/28	6000												
	443.08	70806	3.9	167485/378	6000												
	4 stages	422.20	70806	4.1	339872/805	6000											
		382.82	70806	4.6	66994/175	6000											
		366.49	70806	4.8	531050/1449	6000											
		359.12	70806	4.9	32680/91	6000											
	Maximum torque 70806 lb-in	316.65	70806	5.5	254904/805	6000											
		311.74	70806	5.6	510625/1638	6000											
		311.24	70806	5.6	6536/21	5600											
		270.17	70806	6.5	102125/378	5600											
		269.34	70806	6.5	24510/91	6000											
		262.82	70806	6.7	248368/945	5000											
		253.44	70806	6.9	62092/245	4800											
		233.43	70806	7.5	1634/7	5600											
		228.15	70806	7.7	388075/1701	5000											
		220.00	70806	8.0	388075/1764	4800											
		216.51	70806	8.1	104576/483	4400											
		197.12	70806	8.9	62092/315	5000											
	190.08	70806	9.2	46569/245	4800												
	187.95	70806	9.3	817000/4347	4400												
162.39	70806	11	26144/161	4400													

Legend see page 393



Type	i	SERVO adapter										Input unit												
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]										
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>K104</b>	1301.54	5000												3000										
	1129.81	5000												3000										
	1004.85	5000												2500										
	976.16	5000												3000										
	872.27	5000												2500										
	842.74	5000												2500										
	753.64	5000												2500										
	731.54	5000												2500										
	661.38	5000												2500										
	632.05	5000												2500										
	574.12	5000												2500										
	510.43	5000												2500										
	496.04	5000												2500										
	443.08	5000												2500										
	422.20	5000												2500										
	382.82	5000												2500										
	366.49	5000												2500										
	359.12	5000												2500										
	316.65	5000												2500										
	311.74	5000												2500										
	311.24	5000												2500										
	270.17	5000												2500										
	269.34	5000												2500										
	262.82	4500												2500										
	253.44	4400												2500										
	233.43	5000												2500										
	228.15	4500												2500										
	220.00	4400												2500										
	216.51	4000												2500										
	197.12	4500												2500										
	190.08	4400												2500										
	187.95	4000												2500										
	162.39	4000												2500										



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	225	-
		IEC adapter															
		63	171	180	190	1100	1112	1132	1160	1180	1200	1225	1250	-			
		NEMA adapter															
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364	-	-	
K123	151.11	115060	12	12089/80	5600												
	131.76	115060	13	5929/45	5000												
	127.05	115060	14	2541/20	4800												
	113.49	115060	15	26103/230	4400												
	97.73	115060	18	2541/26	3900												
	85.37	115060	20	3927/46	3500												
	73.74	115060	24	19173/260	3100												
	60.98	115060	29	7623/125	2700												
	58.47	77603	30	22451/384	5600												
	50.98	85746	34	11011/216	5000												
	50.18	115060	35	14553/290	2300												
	49.16	52211	36	1573/32	4800												
	43.91	112643	40	16159/368	4400												
	41.25	115060	42	165/4	2100												
	37.81	115060	46	605/16	3900												
	35.02	115060	50	10857/310	1900												
	33.34	44254	52	46943/1408	5600												
	33.03	115060	53	12155/368	3500												
	29.89	115060	59	2541/85	1700												
	29.07	48900	60	2093/72	5000												
	28.53	115060	61	913/32	3100												
	28.03	29774	62	897/32	4800												
	25.04	64239	70	4407/176	4400												
	23.60	115060	74	4719/200	2700												
	21.56	71275	81	345/16	3900												
	19.42	115060	90	9009/464	2300												
	18.84	72178	93	3315/176	3500												
	16.27	72178	108	5727/352	3100												
	15.96	115060	110	3575/224	2100												
	13.55	115060	129	6721/496	1900												
	13.46	72178	130	2691/200	2700												
	11.57	115060	151	1573/136	1700												
	11.07	72178	158	56511/5104	2300												
9.10	72178	192	22425/2464	2100													
7.73	72178	226	42159/5456	1900													
6.60	72178	265	897/136	1700													

Legend see page 393

Type	i	SERVO adapter											Input unit									
		n <sub>1max</sub>	Adapter size											n <sub>1max</sub>	Input shaft [mm]							
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110
<b>K123</b>	151.11	5000												2500								
	131.76	4800												2500								
	127.05	4600												2500								
	113.49	4200												2500								
	97.73	3700												2500								
	85.37	3400												1800								
	73.74	-												1800								
	60.98	-												1800								
	58.47	5000												2500								
	50.98	4800												2500								
	50.18	-												1800								
	49.16	4600												2500								
	43.91	4200												2500								
	41.25	-												1800								
	37.81	3700												2500								
	35.02	-												1800								
	33.34	5000												2500								
	33.03	3400												1800								
	29.89	-												1600								
	29.07	4800												2500								
	28.53	-												1800								
	28.03	4600												2500								
	25.04	4200												2500								
	23.60	-												1800								
	21.56	3700												2500								
	19.42	-												1800								
	18.84	3400												1800								
	16.27	-												1800								
	15.96	-												1800								
	13.55	-												1800								
	13.46	-												1800								
	11.57	-												1600								
	11.07	-												1800								
	9.10	-												1800								
	7.73	-												1800								
	6.60	-												1600								



Legend see page 393



Type	i	SERVO adapter										Input unit								
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]						
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110
K124	1579.81	5000											3000							
	1377.44	5000											3000							
	1219.69	5000											2500							
	1186.50	5000											3000							
	1063.46	5000											2500							
	1022.92	5000											2500							
	1021.73	5000											3000							
	916.04	5000											2500							
	891.88	5000											2500							
	802.79	5000											2500							
	788.83	5000											2500							
	768.25	5000											2500							
	699.95	5000											2500							
	661.56	5000											2500							
	619.56	5000											2500							
	602.92	5000											2500							
	540.20	5000											2500							
	519.19	5000											2500							
	512.47	5000											2500							
	465.31	5000											2500							
	446.82	5000											2500							
	435.90	5000											2500							
	400.70	5000											2500							
	384.88	5000											2500							
	380.06	5000											2500							
	377.78	5000											2500							
	331.43	5000											2500							
	329.39	5000											2500							
	327.38	5000											2500							
	319.02	4800											2500							
	307.62	4600											2500							
	283.73	5000											2500							
	281.92	5000											2500							
	278.15	4800											2500							
	268.22	4600											2500							
	262.80	4200											2500							
	244.33	5000											2500							
	239.59	4800											2500							
	231.04	4600											2500							
	229.14	4200											2500							
	206.32	4800											2500							
	198.95	4600											2500							
197.38	4200											2500								
169.97	4200											2500								



Legend see page 393



Type	i	SERVO adapter										Input unit																
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]														
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110								
<b>K153</b>	146.69	-												2500														
	126.34	-												2500														
	109.28	-												2500														
	96.39	-												1800														
	82.79	-												1800														
	68.88	-												1800														
	57.15	-												1800														
	56.75	-												2500														
	48.88	-												2500														
	47.66	-												1800														
	42.28	-												2500														
	40.97	-												1800														
	37.30	-												1800														
	35.63	-												2500														
	35.45	-												1700														
	32.03	-												1800														
	30.69	-												2500														
	26.65	-												1800														
	26.54	-												2500														
	23.41	-												1800														
	22.11	-												1800														
	20.11	-												1800														
	18.44	-												1800														
	16.73	-												1800														
	15.85	-												1800														
	13.88	-												1800														
	13.72	-												1700														
	11.58	-												1800														
	9.95	-												1800														
	8.61	-												1700														



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size											
						63	71	80	90	100	112	132	160	180	200	-	-
		IEC adapter															
		163	171			180	190	1100	1112	1132	1160	1180	1200	-	-	-	
NEMA adapter																	
		[lb-in]	[rpm]			N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	-	-	-	
K154  4 stages n <sub>1</sub> =1750 rpm  Maximum torque 159313 lb-in	1308.92	159313	1.3	765716/585	6000												
	1127.36	159313	1.6	674163/598	6000												
	1035.99	159313	1.7	745913/720	6000												
	975.12	159313	1.8	823977/845	6000												
	904.58	159313	1.9	244237/270	6000												
	892.29	159313	2.0	2626911/2944	6000												
	799.45	159313	2.2	719509/900	6000												
	779.11	159313	2.2	286713/368	6000												
	771.80	159313	2.3	3210669/4160	6000												
	688.57	159313	2.5	2533923/3680	6000												
	676.04	159313	2.6	30422/45	6000												
	673.90	159313	2.6	350427/520	6000												
	595.58	159313	2.9	3097017/5200	6000												
	582.27	159313	3.0	1232091/2116	6000												
	581.11	159313	3.0	679903/1170	6000												
	507.30	159313	3.4	547883/1080	5600												
	503.64	159313	3.5	1505889/2990	6000												
	500.51	159313	3.5	2394441/4784	6000												
	436.93	159313	4.0	643167/1472	5600												
	434.63	159313	4.0	105616/243	5000												
	432.92	159313	4.0	2926539/6760	6000												
	419.11	159313	4.2	3772/9	4800												
	377.93	159313	4.6	786093/2080	5600												
	374.35	159313	4.7	8610/23	5000												
	369.91	159313	4.7	16646/45	4400												
	360.98	159313	4.8	16605/46	4800												
	323.79	159313	5.4	12628/39	5000												
	318.60	159313	5.5	674163/2116	4400												
	312.23	159313	5.6	4059/13	4800												
	310.30	159313	5.6	72611/234	3900												
	275.58	159313	6.4	823977/2990	4400												
	267.26	159313	6.5	1278585/4784	3900												
	261.49	159313	6.7	11767/45	3500												
	231.17	159313	7.6	312543/1352	3900												
	225.22	159313	7.8	953127/4232	3500												
	214.39	159313	8.2	125419/585	3100												
	194.80	159313	9.0	1164933/5980	3500												
	184.65	159313	9.5	441693/2392	3100												
	159.72	159313	11	539847/3380	3100												

Legend see page 393



Type	i	SERVO adapter										Input unit													
		n <sub>1max</sub> [rpm]	Adapter size										n <sub>1max</sub> [rpm]	Input shaft [mm]											
			S92	S105	S114	S115	S130	S141	S142	S180	S189	S190		19x40	24x50	28x60	38x80	42x110	48x110	55x110					
<b>K154</b>	1308.92	5000													2500										
	1127.36	5000													2500										
	1035.99	5000													2500										
	975.12	5000													2500										
	904.58	5000													2500										
	892.29	5000													2500										
	799.45	5000													2500										
	779.11	5000													2500										
	771.80	5000													2500										
	688.57	5000													2500										
	676.04	5000													2500										
	673.90	5000													2500										
	595.58	5000													2500										
	582.27	5000													2500										
	581.11	5000													2500										
	507.30	5000													2500										
	503.64	5000													2500										
	500.51	5000													2500										
	436.93	5000													2500										
	434.63	4900													2500										
	432.92	5000													2500										
	419.11	4700													2500										
	377.93	5000													2500										
	374.35	4900													2500										
	369.91	4300													2500										
	360.98	4700													2500										
	323.79	4900													2500										
	318.60	4300													2500										
	312.23	4700													2500										
	310.30	3800													2500										
	275.58	4300													2500										
	267.26	3800													2500										
	261.49	3500													2500										
	231.17	3800													2500										
	225.22	3500													2500										
	214.39	-													2500										
	194.80	3500													2500										
	184.65	-													2500										
	159.72	-													2500										



Legend see page 393

Type	i	T <sub>2max</sub>	n <sub>2</sub>	i <sub>exact</sub>	n <sub>1max</sub>	IEC motor frame size															
						IEC adapter															
		NEMA adapter																			
		[lb-in]	[rpm]		[rpm]	N56	N143/145	N182	N184	N213/215	-	-	-	-							
K155  5 stages n <sub>1</sub> =1750 rpm  Maximum torque 159313 lb-in	14005.40	159313	0.1	40965806/2925	6000																
	11453.02	159313	0.2	1340003/117	6000																
	9679.02	159313	0.2	26133359/2700	6000																
	9043.42	159313	0.2	58194416/6435	6000																
	7915.09	159313	0.2	1709659/216	6000																
	7012.05	159313	0.2	273470/39	6000																
	6249.84	159313	0.3	9281006/1485	6000																
	5739.09	159313	0.3	14548604/2535	6000																
	4845.97	159313	0.4	174455/36	6000																
	4417.59	159313	0.4	574287/130	6000																
	3966.24	159313	0.4	4640503/1170	6000																
	3337.74	159313	0.5	3254293/975	6000																
	3052.96	159313	0.6	244237/80	6000																
	2731.65	159313	0.6	532672/195	6000																
	2306.68	159313	0.8	4152029/1800	6000																
	2215.09	159313	0.8	16845752/7605	6000																
	1887.82	159313	0.9	84952/45	6000																
	1854.30	159313	0.9	3254293/1755	5600																
	1530.83	159313	1.1	2686607/1755	6000																
	1502.83	159313	1.2	23737196/15795	5000																
1449.16	159313	1.2	847757/585	4800																	
1281.49	159313	1.4	4152029/3240	5600																	
1038.59	159313	1.7	7571347/7290	5000																	
1001.50	159313	1.7	1081621/1080	4800																	

Legend see page 393

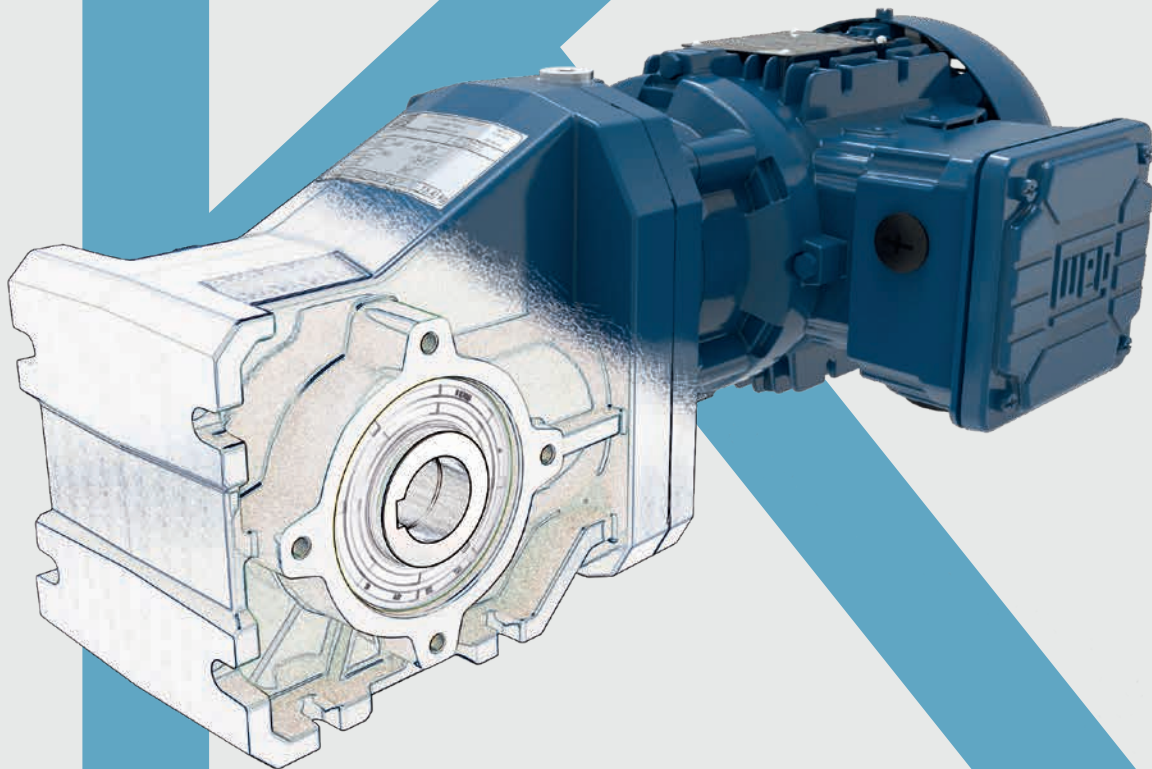
Type	i	SERVO adapter										Input unit														
		n <sub>1max</sub>	Adapter size										n <sub>1max</sub>	Input shaft [mm]												
			[rpm]	S92	S105	S114	S115	S130	S141	S142	S180	S189		S190	[rpm]	19x40	24x50	28x60	38x80	42x110	48x110	55x110				
<b>K155</b>	14005.40	5000													3000											
	11453.02	5000													3000											
	9679.02	5000													3000											
	9043.42	5000													3000											
	7915.09	5000													3000											
	7012.05	5000													3000											
	6249.84	5000													3000											
	5739.09	5000													3000											
	4845.97	5000													3000											
	4417.59	5000													3000											
	3966.24	5000													3000											
	3337.74	5000													3000											
	3052.96	5000													3000											
	2731.65	5000													3000											
	2306.68	5000													3000											
	2215.09	5000													3000											
	1887.82	5000													3000											
	1854.30	5000													3000											
	1530.83	5000													3000											
	1502.83	4900													3000											
	1449.16	4700													3000											
	1281.49	5000													3000											
	1038.59	4900													3000											
	1001.50	4700													3000											



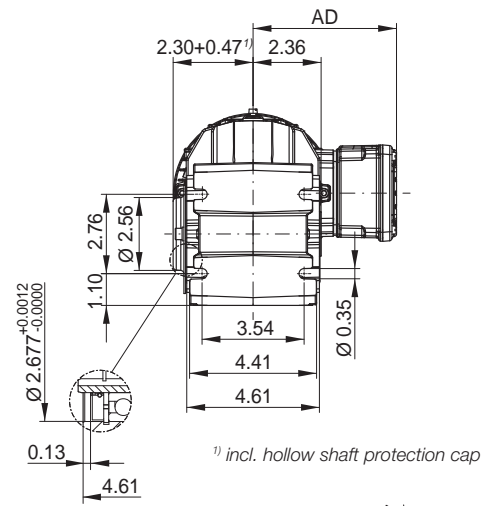
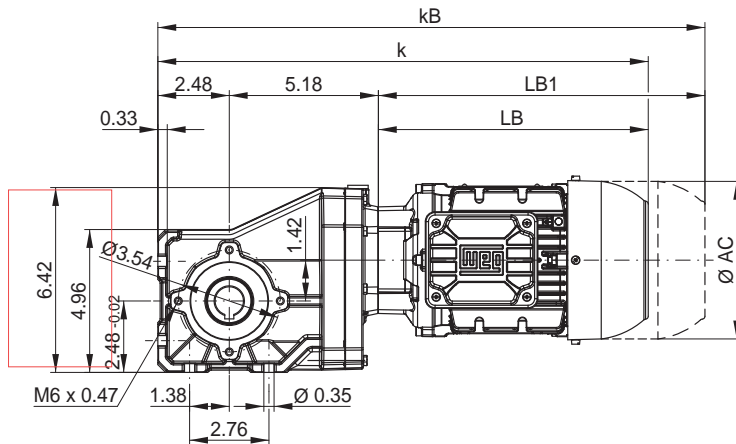
Legend see page 393



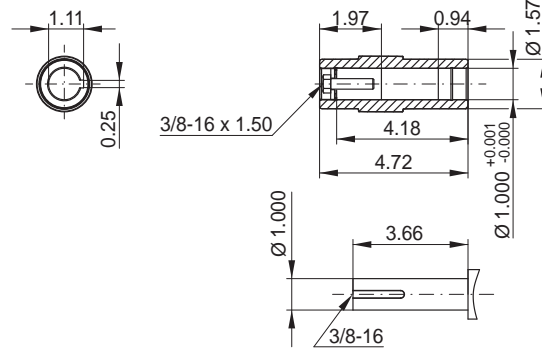
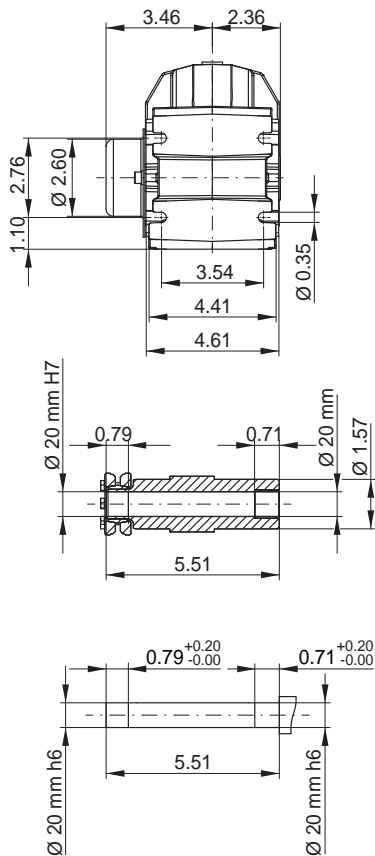
Dimension sheets - Geared motors



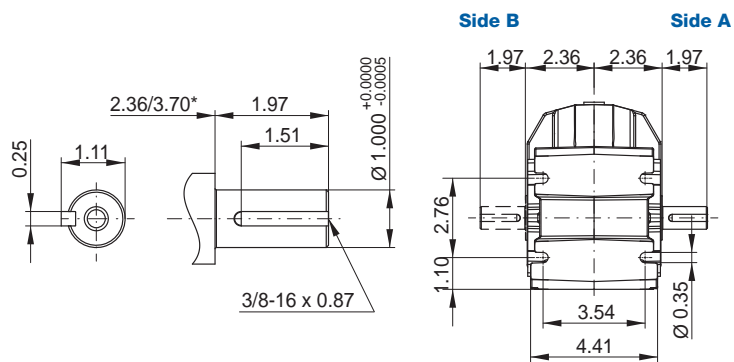
### KH022 - Hollow shaft



### KD022 - Shrink disc



### KS022 - Output shaft



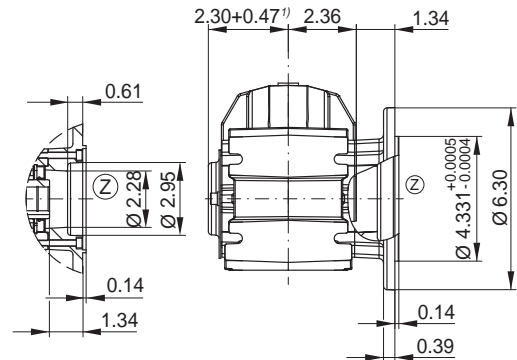
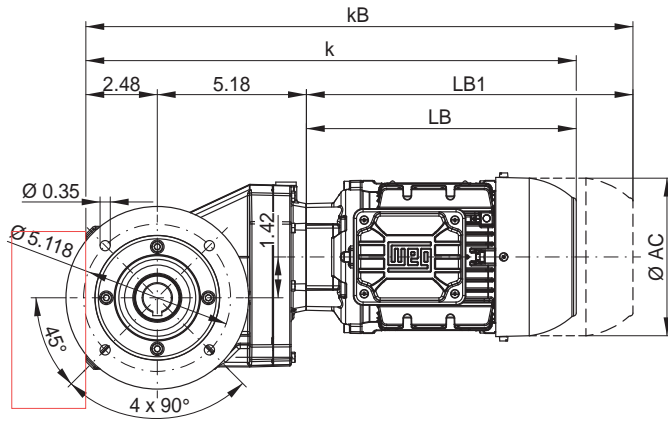
Motor fr.	63	71	80	L80	90S/L
AC	4.96	5.55	6.26	6.26	7.01
AD	5.04	5.35	5.71	5.71	6.10
k	15.71	17.05	17.36	18.29	19.02
kB	17.44	18.98	19.65	20.57	21.89
LB	8.03	9.37	9.69	10.63	11.34
LB1	9.76	11.30	11.97	12.91	14.21

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

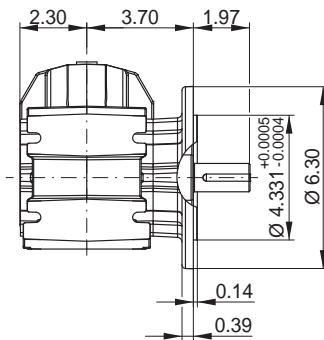
<sup>\*</sup>Designs KS/KF

**KO022 - Flange execution  $\varnothing$  6.30 in ( $\varnothing$  160 mm) with hollow shaft**

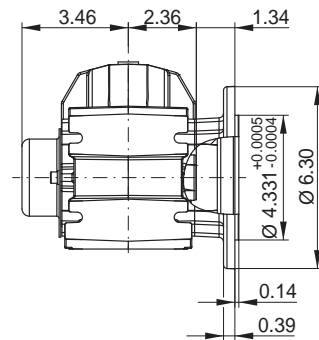


¹) incl. hollow shaft protection cap

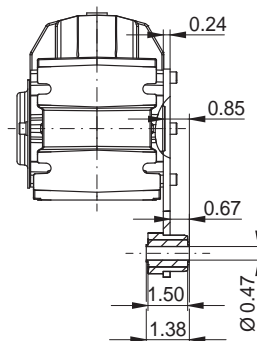
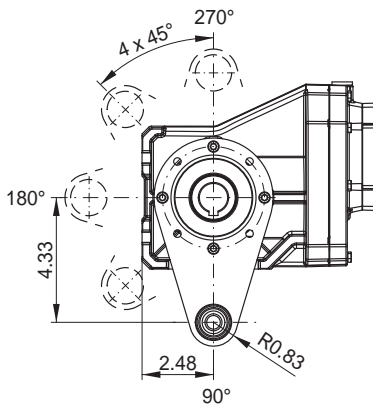
**KF022 - Flange execution  $\varnothing$  6.30 in ( $\varnothing$  160 mm) with output shaft**



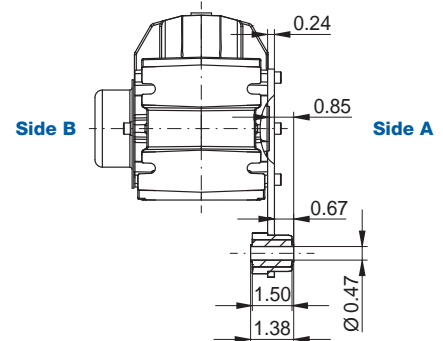
**KP022 - Flange execution  $\varnothing$  6.30 in ( $\varnothing$  160 mm) with hollow shaft and shrink disc**



**KT022 - Hollow shaft with torque arm \*\***



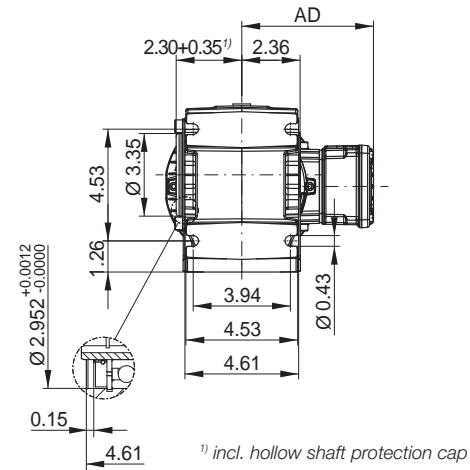
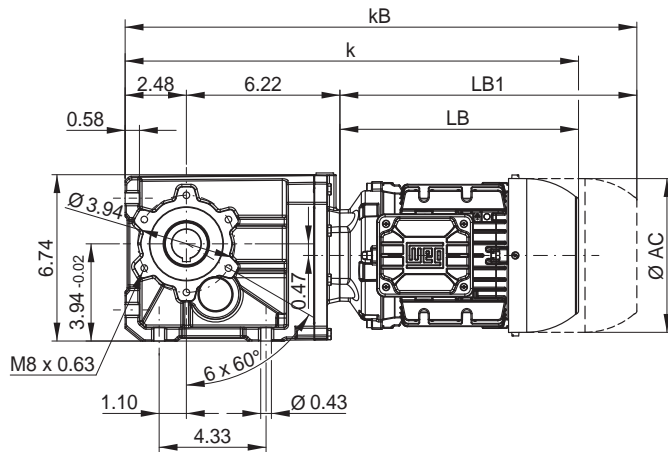
**KU022 - Hollow shaft with shrink disc and torque arm \*\***



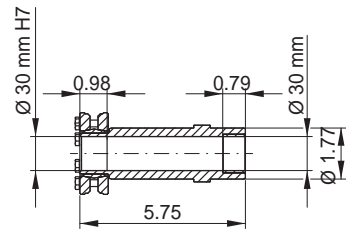
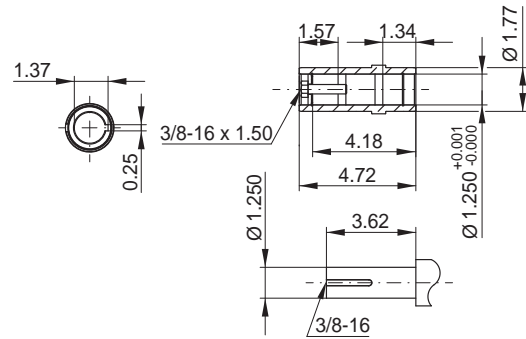
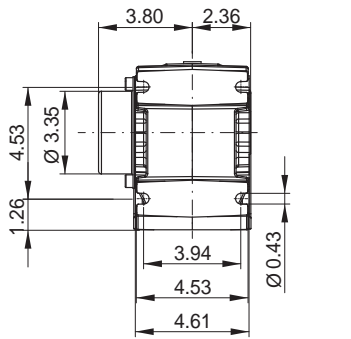
Torque arm possible positions:  
90°. 120°. 150°. 180°. 210°. 240°. 270°  
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

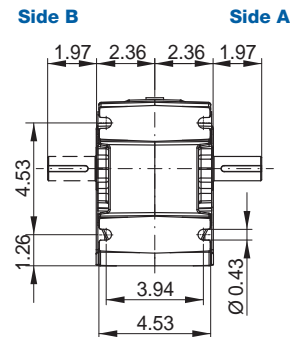
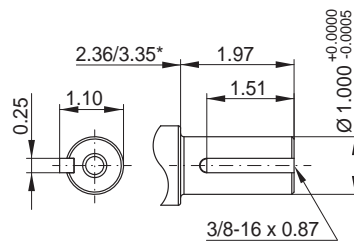
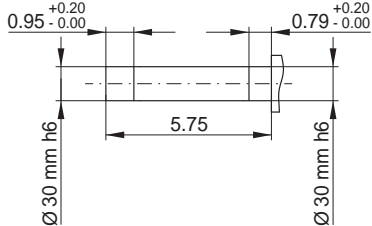
### KH033 - Hollow shaft



### KD033 - Shrink disc



### KS033 - Output shaft



Motor fr.	63	71	80	L80	90S/L	100L	L100L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50
k	16.73	18.07	18.39	19.33	20.04	22.01	23.50
kB	18.46	20.00	20.67	21.61	22.91	25.31	26.81
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11

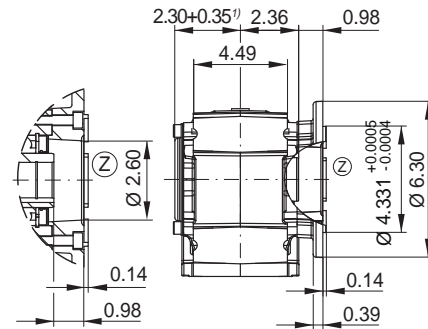
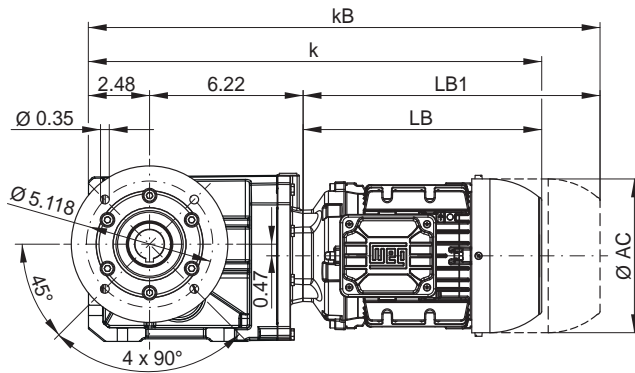
Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

\*Designs KS/KF

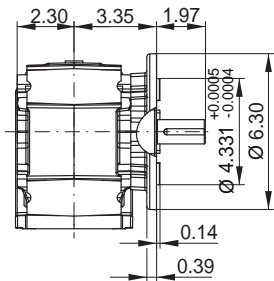


**KO033 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft**

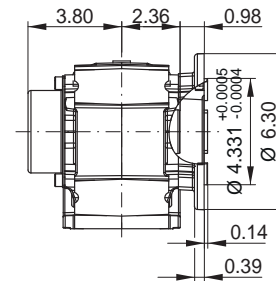


<sup>1)</sup> incl. hollow shaft protection cap

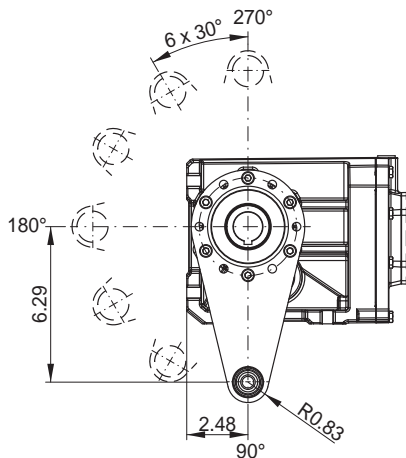
**KF033 - Flange execution Ø 6.30 in (Ø 160 mm) with output shaft**



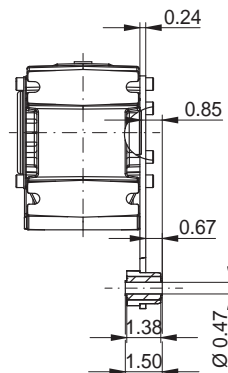
**KP033 - Flange execution Ø 6.30 in (Ø 160 mm) with hollow shaft and shrink disc**



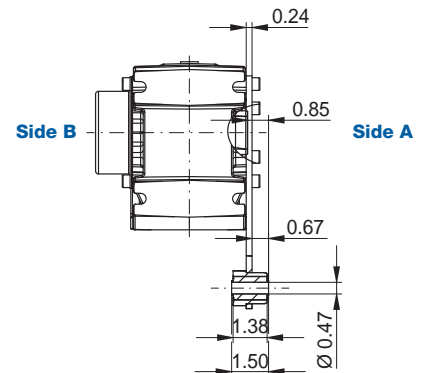
**KT033 - Hollow shaft with torque arm \*\***



Torque arm possible positions:  
90°. 120°. 150°. 180°. 210°. 240°. 270°  
Dimensions in inch.

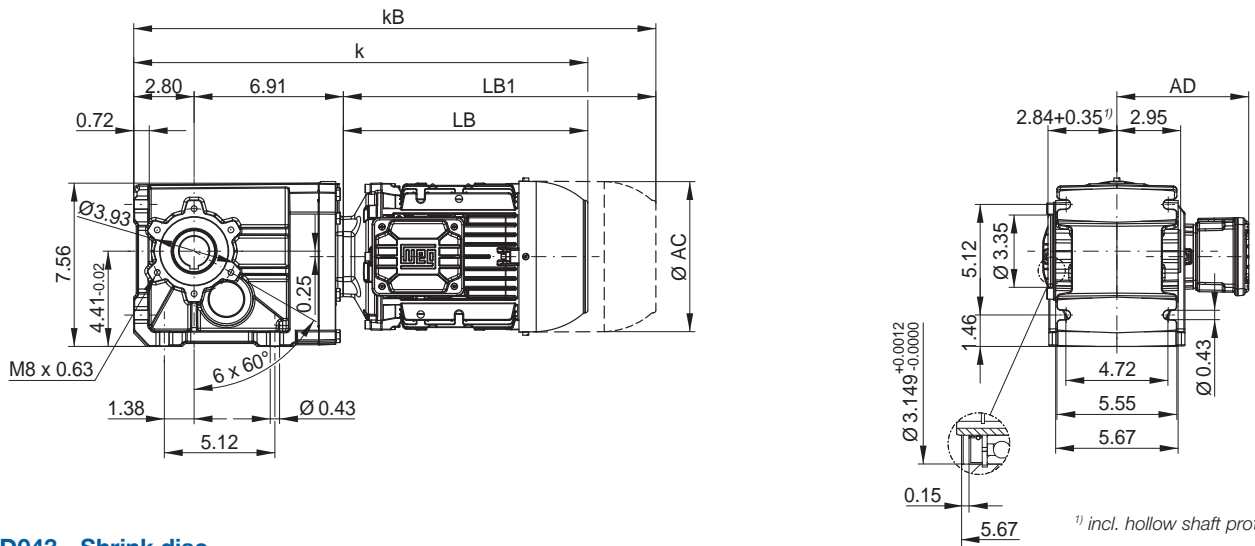


**KU033 - Hollow shaft with shrink disc and torque arm \*\***

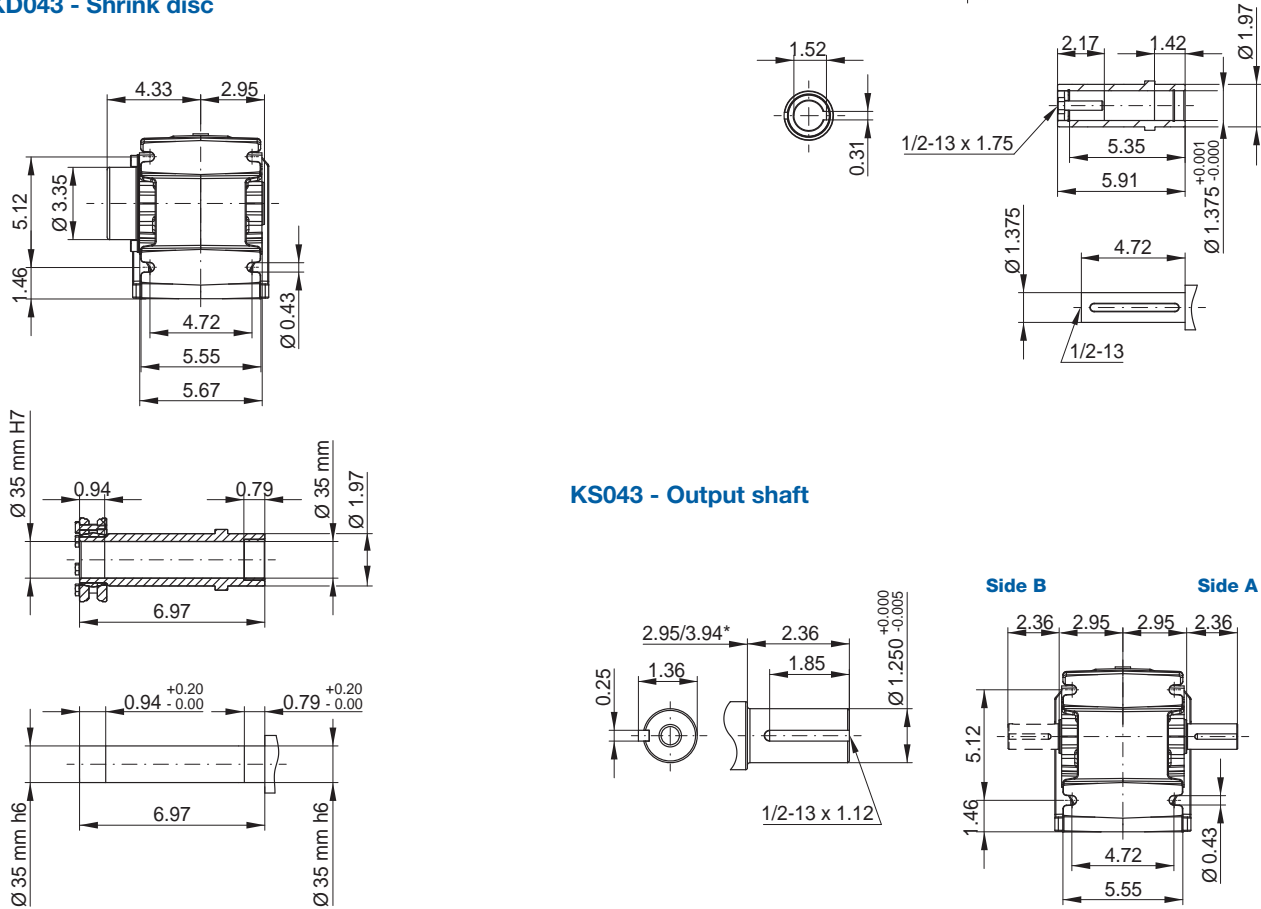


\*\* Torque arm may be mounted on side A or side B.

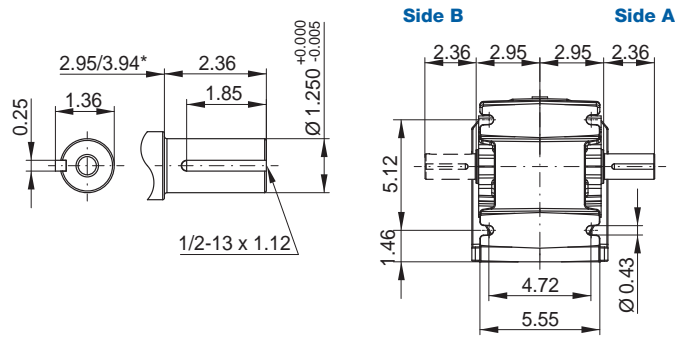
### KH043 - Hollow shaft



### KD043 - Shrink disc



### KS043 - Output shaft



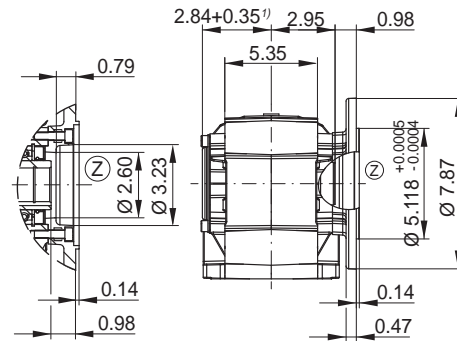
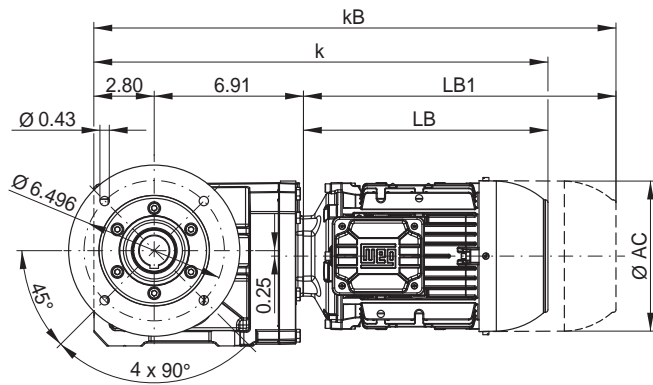
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28
k	17.76	19.09	19.41	20.33	21.06	23.03	24.53	23.43
kB	19.49	21.02	21.69	22.62	23.94	26.34	27.83	26.85
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

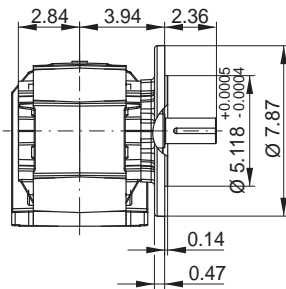
\*Designs KS/KF

**KO043 - Flange execution Ø 7.87 in (Ø 200 mm) with hollow shaft**

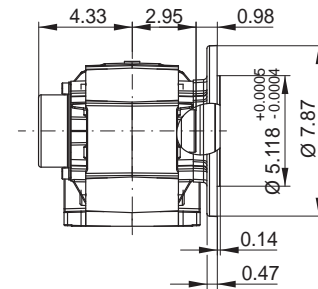


<sup>1)</sup> incl. hollow shaft protection cap

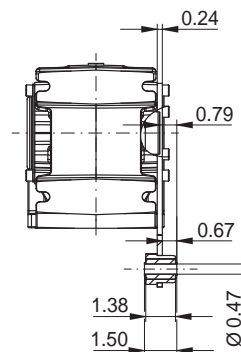
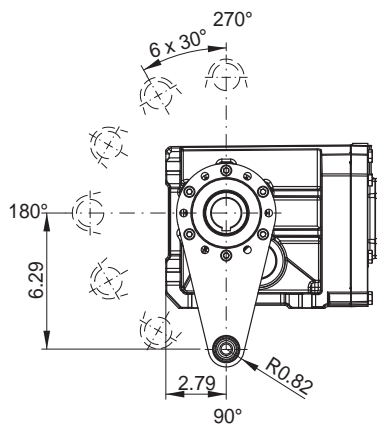
**KF043 - Flange execution Ø 7.87 in (Ø 200 mm) with output shaft**



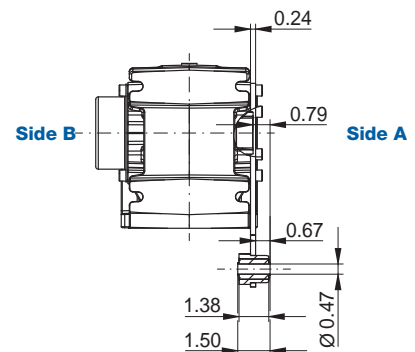
**KP043 - Flange execution Ø 7.87 in (Ø 200 mm) with hollow shaft and shrink disc**



**KT043 - Hollow shaft with torque arm \*\***



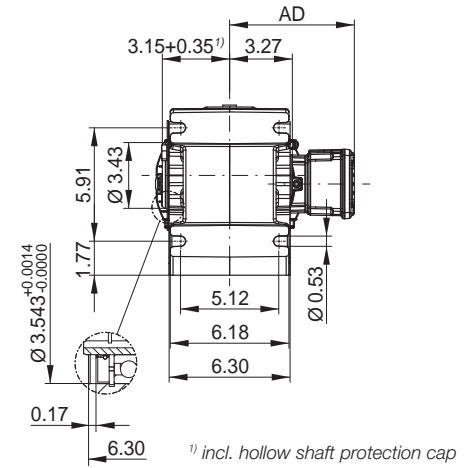
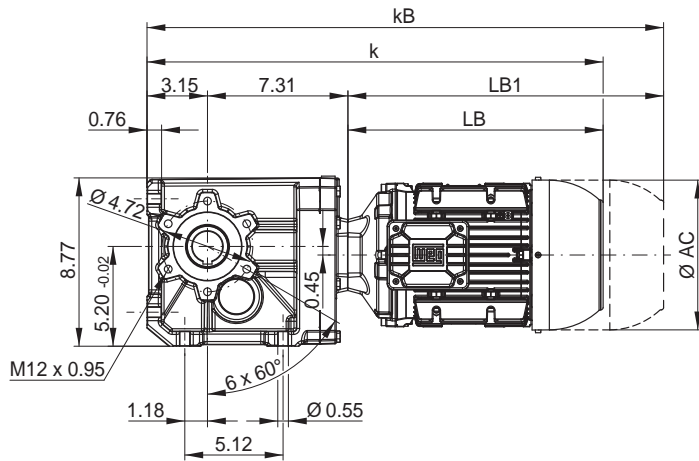
**KU043 - Hollow shaft with shrink disc and torque arm \*\***



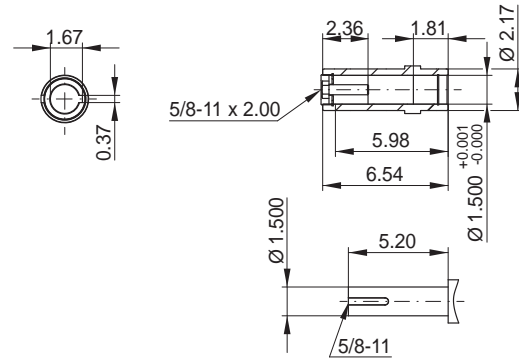
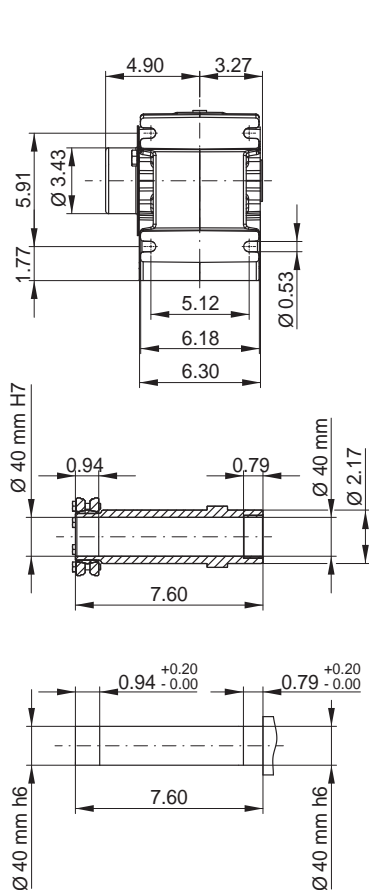
Torque arm possible positions:  
90°, 120°, 150°, 180°, 210°, 240°, 270°  
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

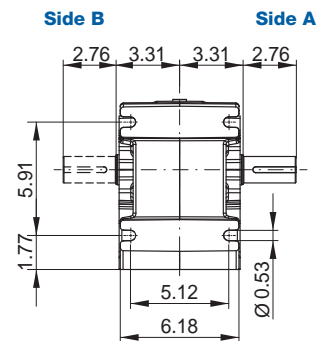
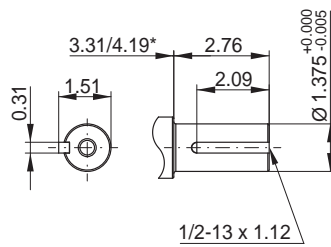
### KH053 - Hollow shaft



### KD053 - Shrink disc



### KS053 - Output shaft



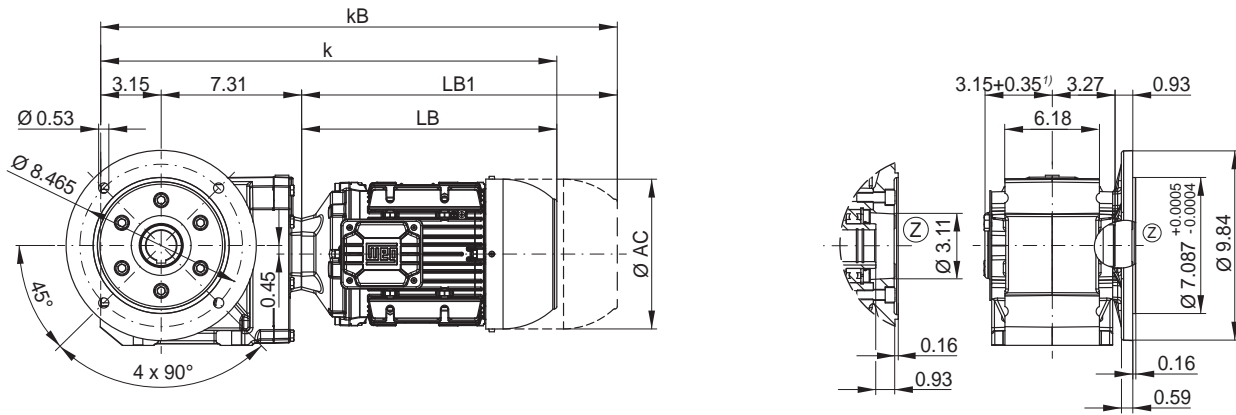
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	18.50	19.84	20.16	21.10	21.81	23.78	25.28	24.17	26.73	28.23
kB	20.24	21.77	22.44	23.39	24.69	27.09	28.58	27.60	31.38	32.87
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

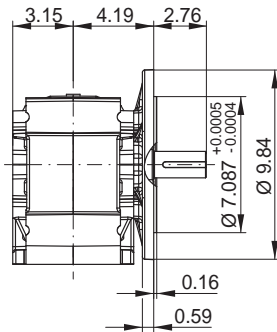
\*Designs KS/KF

**KO053 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft**

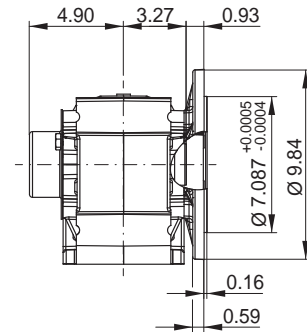


<sup>1)</sup> incl. hollow shaft protection cap

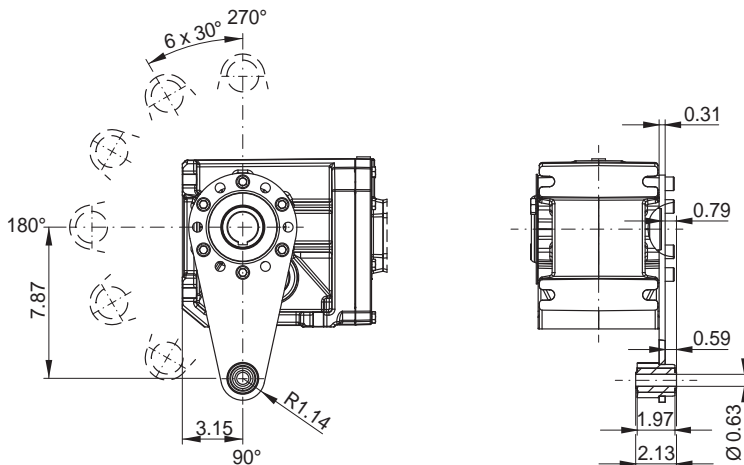
**KF053 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with output shaft**



**KP053 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft and shrink disc**

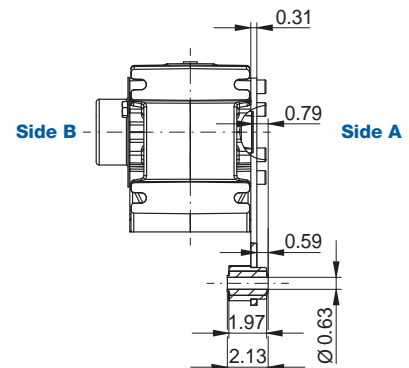


**KT053 - Hollow shaft with torque arm \*\***



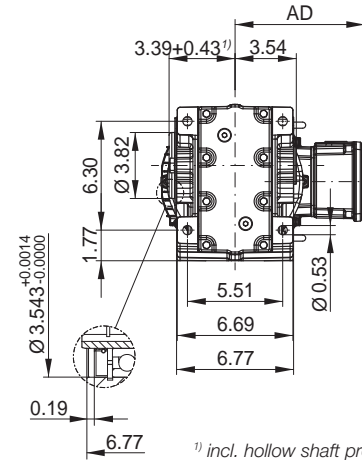
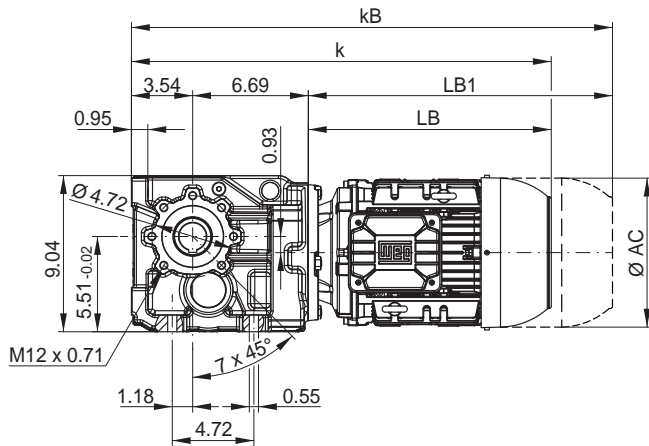
Torque arm possible positions:  
 $90^\circ$ ,  $120^\circ$ ,  $150^\circ$ ,  $180^\circ$ ,  $210^\circ$ ,  $240^\circ$ ,  $270^\circ$   
 Dimensions in inch.

**KU053 - Hollow shaft with shrink disc and torque arm \*\***



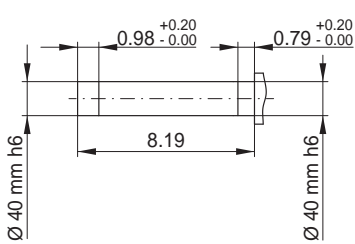
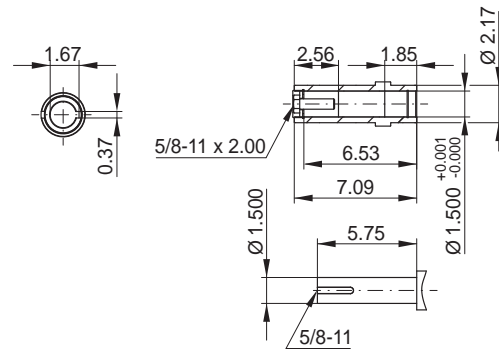
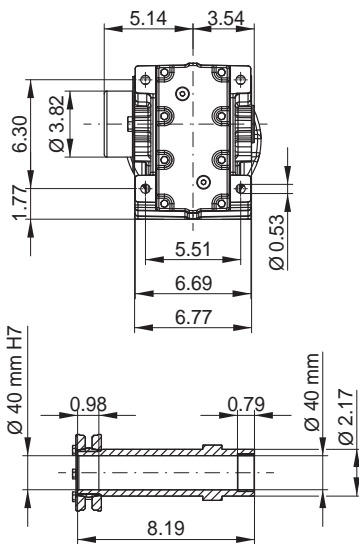
\*\* Torque arm may be mounted on side A or side B.

### KH063 - Hollow shaft

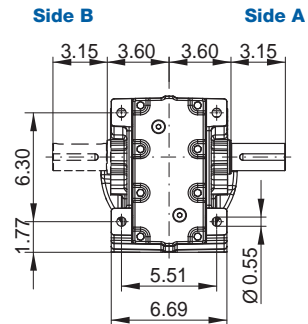
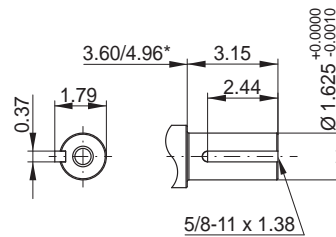


<sup>1)</sup> incl. hollow shaft protection cap

### KD063 - Shrink disc



### KS063 - Output shaft



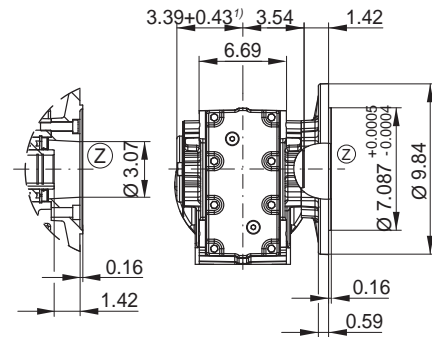
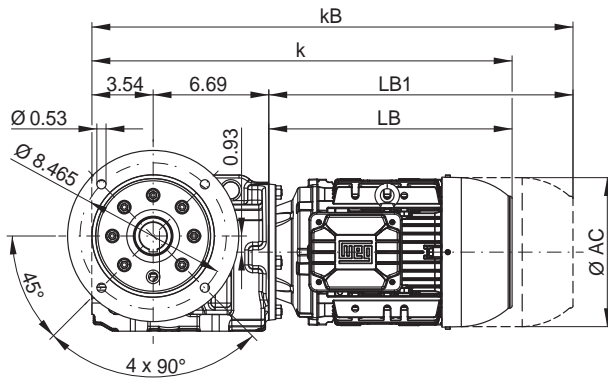
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	18.27	19.61	19.92	20.87	21.57	23.54	25.04	23.94	26.50	27.99
kB	20.00	21.54	22.20	23.15	24.45	26.85	28.35	27.36	31.14	32.64
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

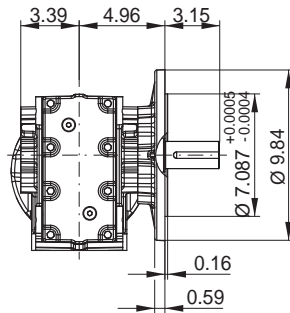
\*Designs KS/KF

**KO063 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm)**

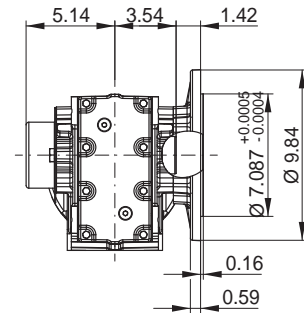


<sup>1)</sup> incl. hollow shaft protection cap

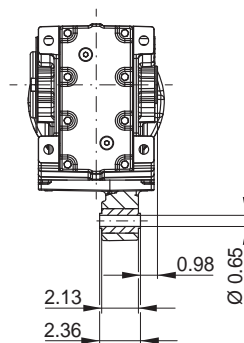
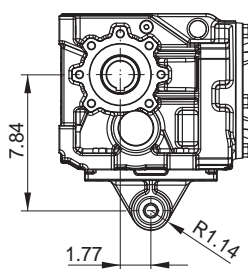
**KF063 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with output shaft**



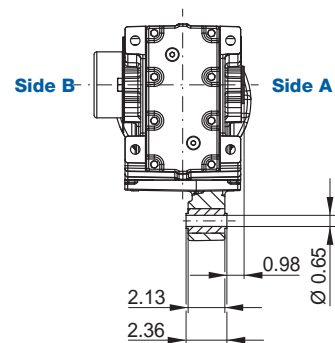
**KP063 - Flange execution  $\varnothing$  9.84 in ( $\varnothing$  250 mm) with hollow shaft and shrink disc**



**KT063 - Hollow shaft with torque arm \*\***



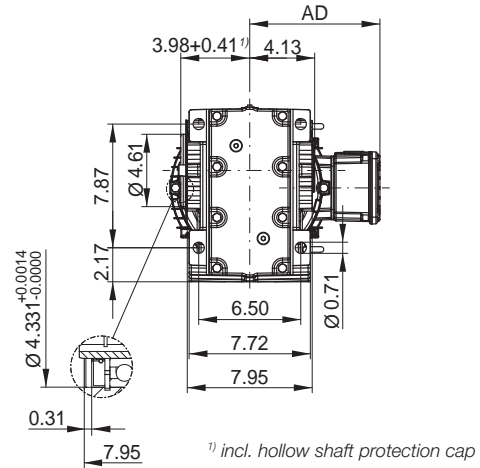
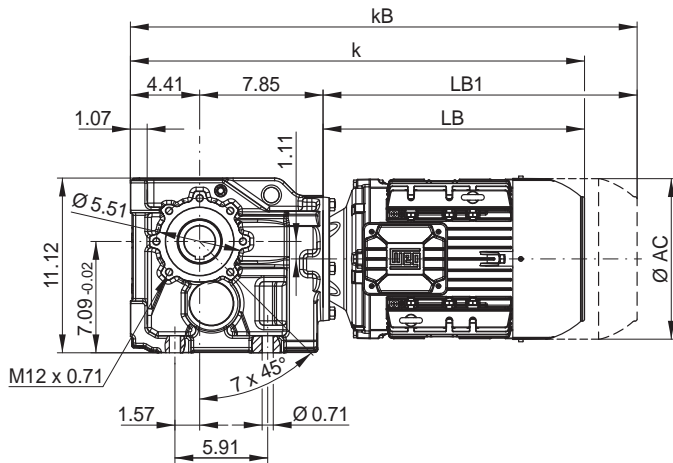
**KU063 - Hollow shaft with shrink disc and torque arm \*\***



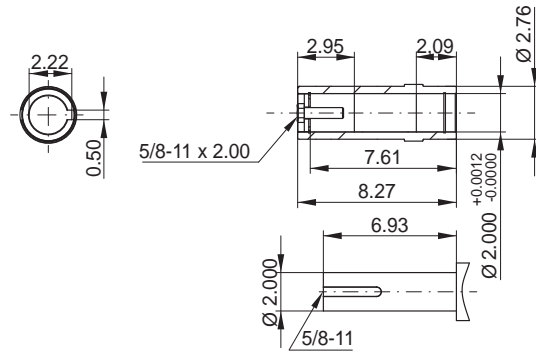
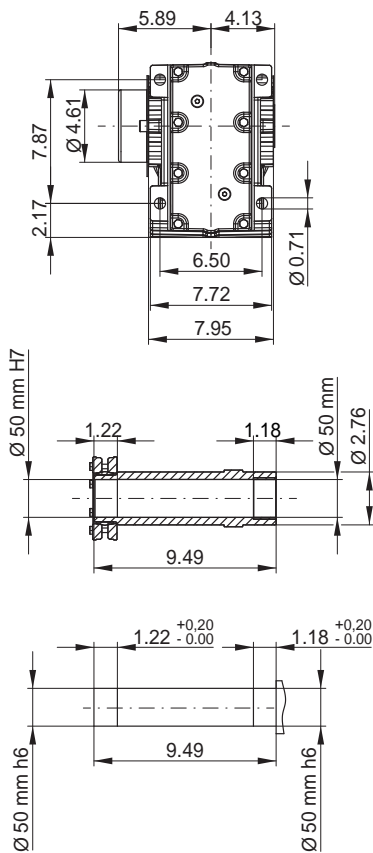
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

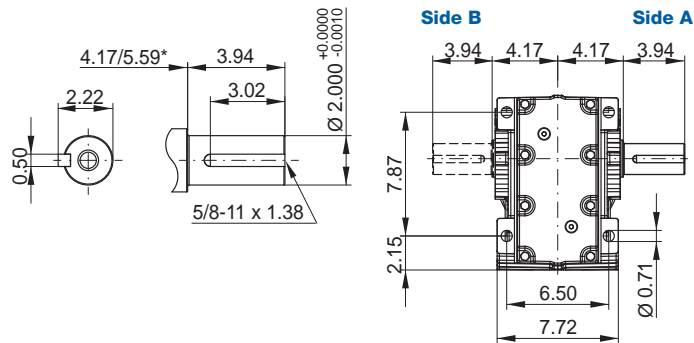
### KH073 - Hollow shaft



### KD073 - Shrink disc



### KS073 - Output shaft



Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	20.31	21.65	21.97	22.89	23.62	25.59	27.09	25.98	28.54	30.04	33.74	35.47
kB	22.05	23.58	24.25	25.18	26.50	28.90	30.39	29.41	33.19	34.69	38.62	40.35
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

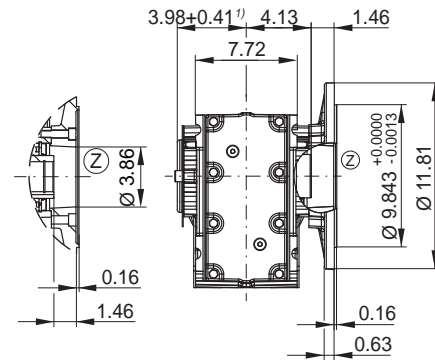
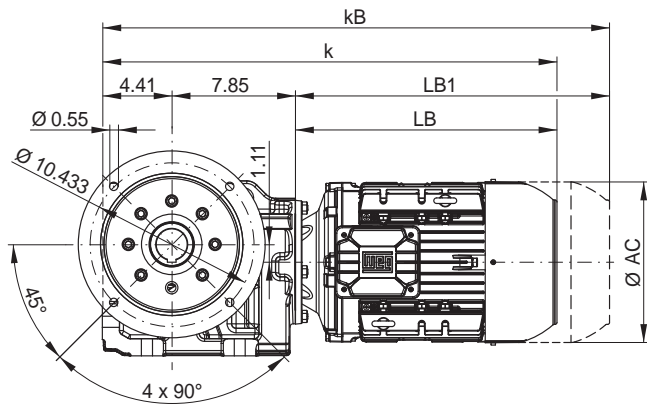
Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

\*Designs KS/KF

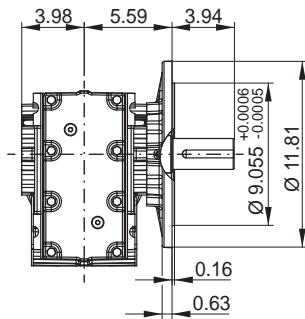


**KO073 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with hollow shaft**

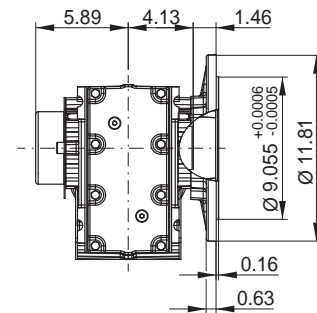


¹) incl. hollow shaft protection cap

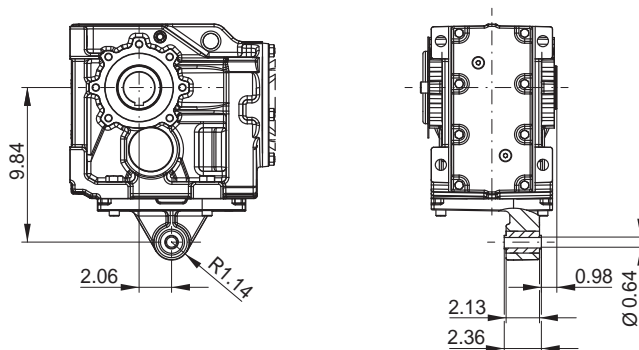
**KF073 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with output shaft**



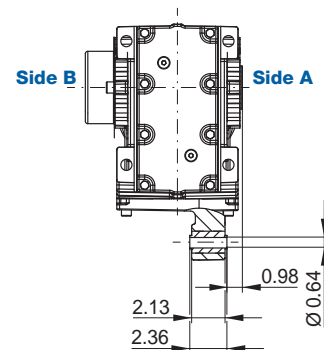
**KP073 - Flange execution  $\varnothing$  11.81 in ( $\varnothing$  300 mm) with hollow shaft and shrink disc**



**KT073 - Hollow shaft with torque arm \*\***



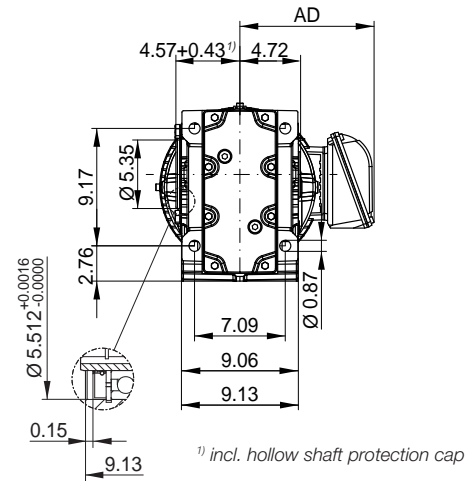
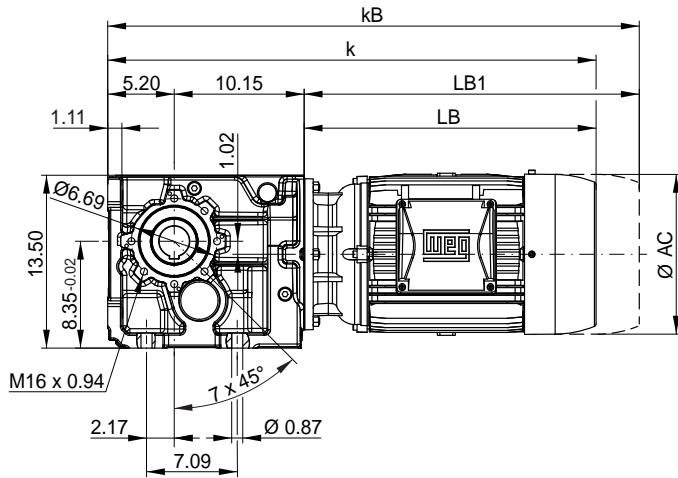
**KU073 - Hollow shaft with shrink disc and torque arm \*\***



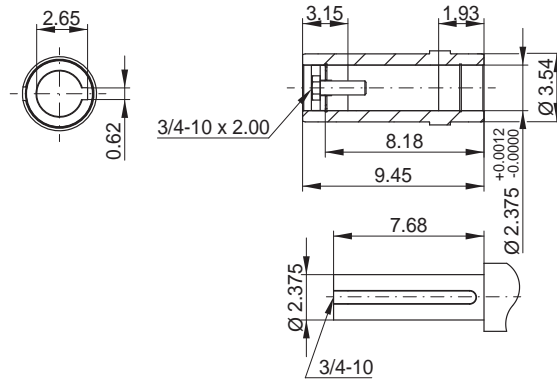
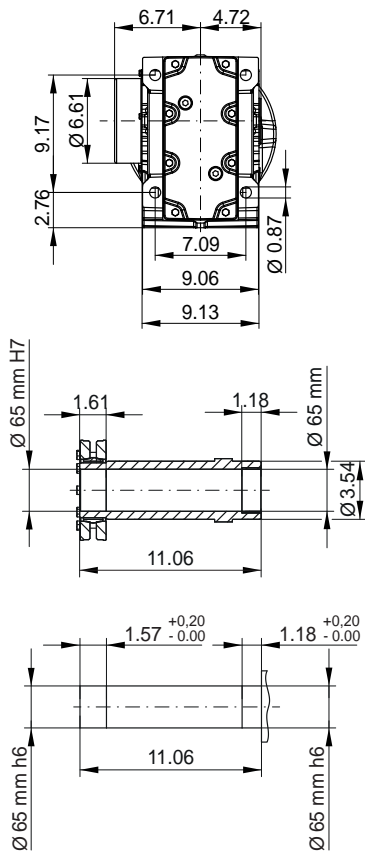
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

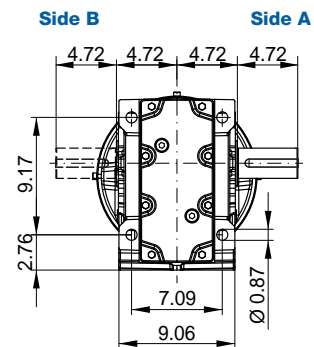
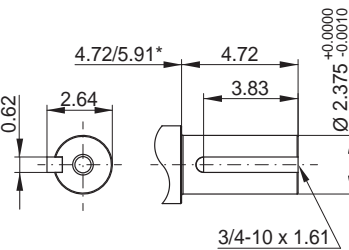
### KH083 - Hollow shaft



### KD083 - Shrink disc



### KS083 - Output shaft



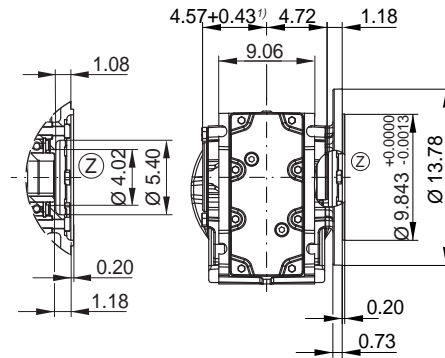
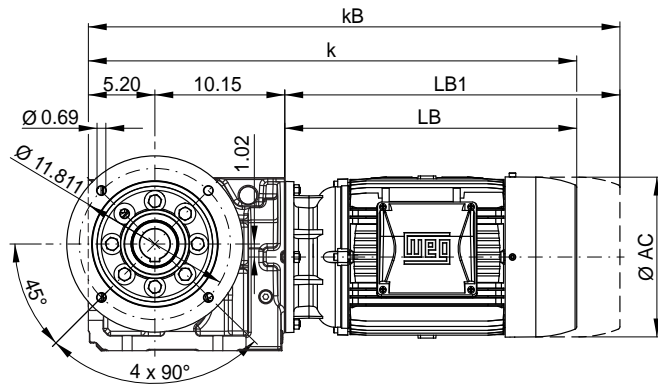
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06
k	23.39	24.72	25.04	25.98	26.69	28.66	30.16	29.06	31.61	33.11	36.42	38.15	39.09	40.59
kB	25.12	26.65	27.32	28.27	29.57	31.97	33.46	32.48	36.26	37.76	41.30	43.03	43.74	45.24
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

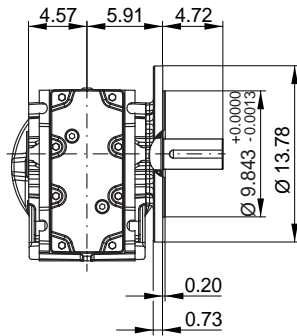
\*Designs KS/KF

**KO083 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft**

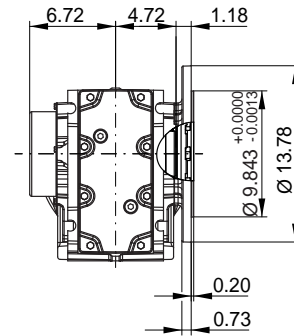


<sup>1)</sup> incl. hollow shaft protection cap

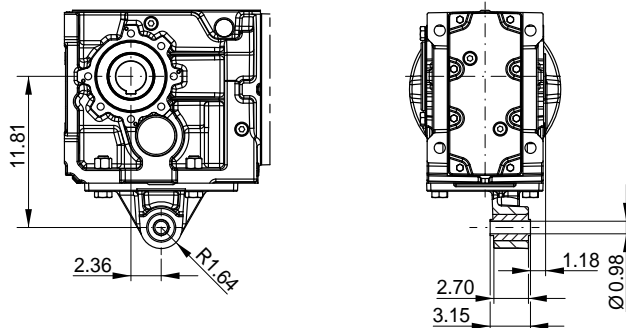
**KF083 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with output shaft**



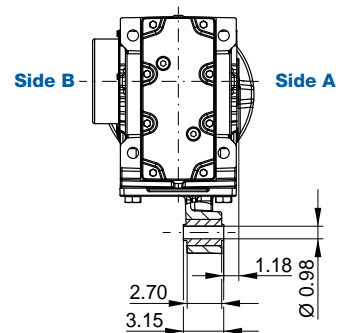
**KP083 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft and shrink disc**



**KT083 - Hollow shaft with torque arm \*\***



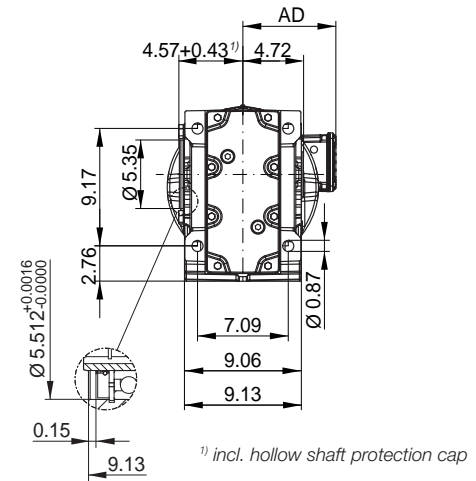
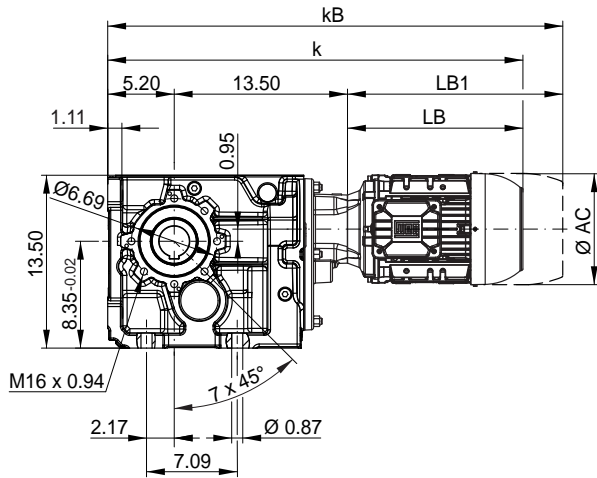
**KU083 - Hollow shaft with shrink disc and torque arm \*\***



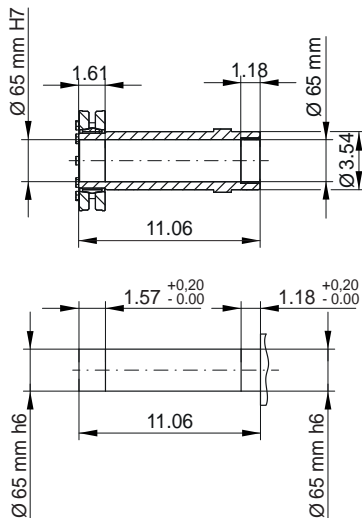
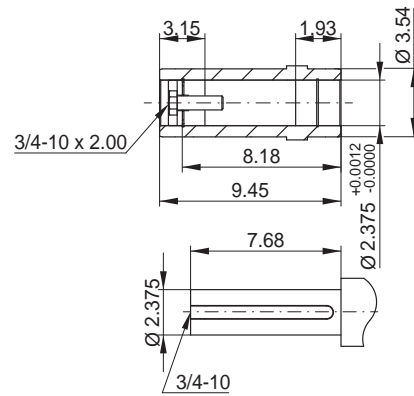
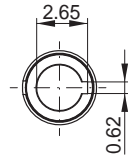
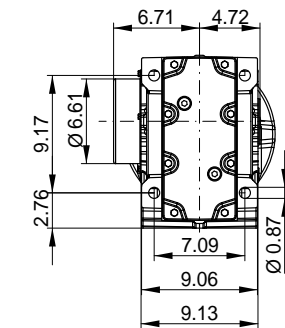
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

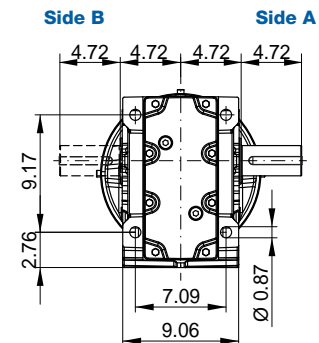
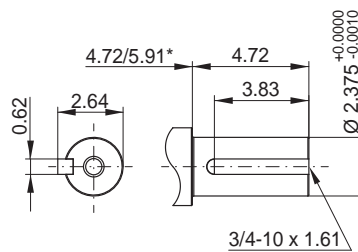
### KH084 - Hollow shaft



### KD084 - Shrink disc



### KS084 - Output shaft



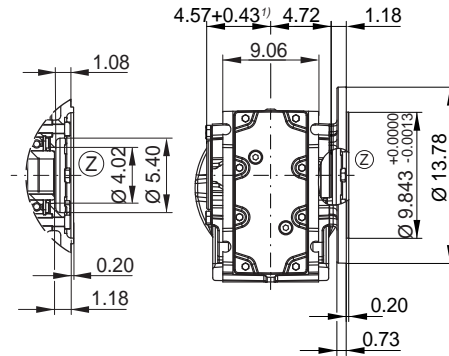
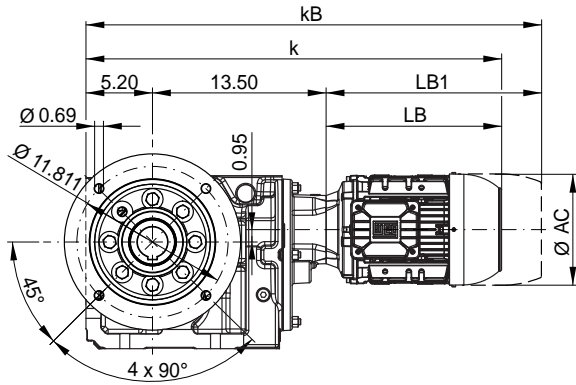
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	26.73	28.07	28.39	29.33	30.04	32.01	33.50	32.40	34.96	36.46
kB	28.46	30.00	30.67	31.61	32.91	35.31	36.81	35.83	39.61	41.10
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

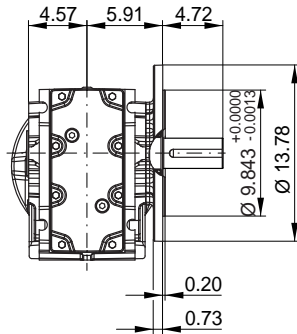
\*Designs KS/KF

**KO084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft**

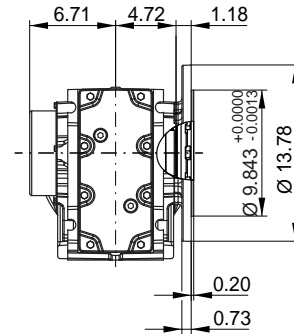


<sup>1)</sup> incl. hollow shaft protection cap

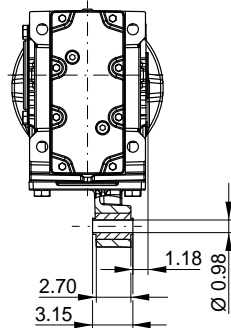
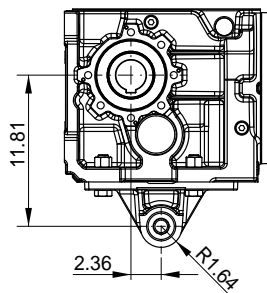
**KF084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with output shaft**



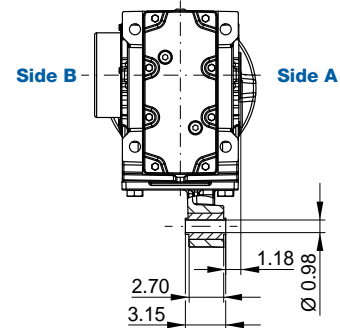
**KP084 - Flange execution  $\varnothing$  13.78 in ( $\varnothing$  350 mm) with hollow shaft and shrink disc**



**KT084 - Hollow shaft with torque arm \*\***



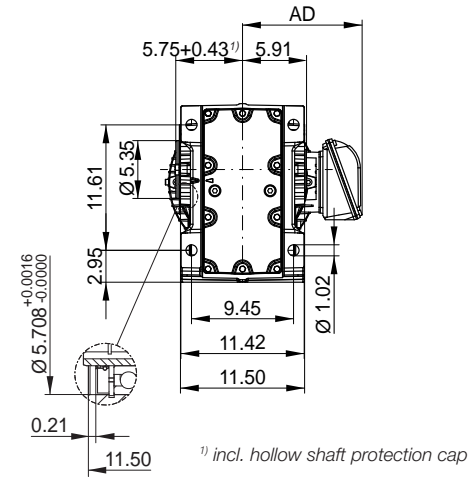
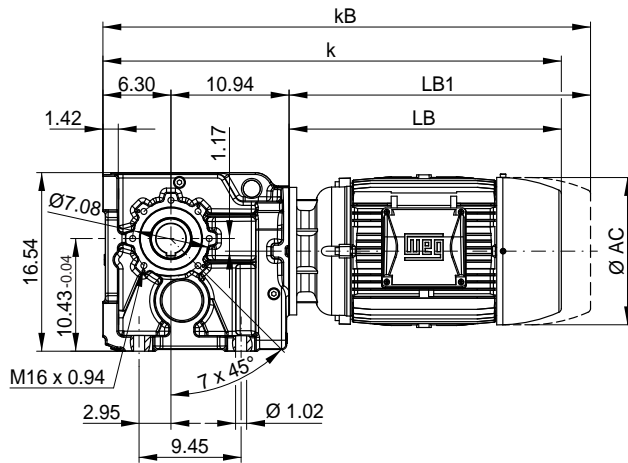
**KU084 - Hollow shaft with shrink disc and torque arm \*\***



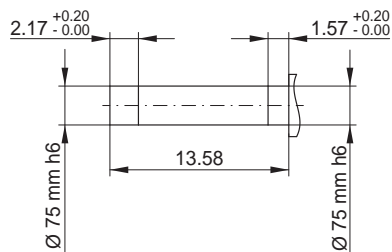
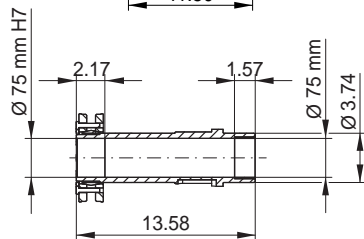
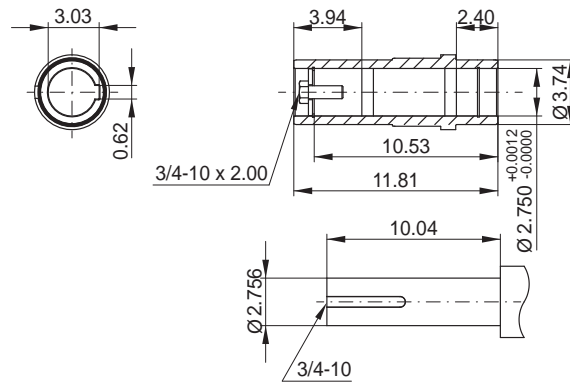
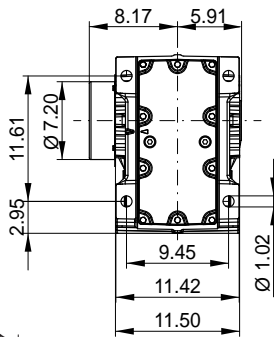
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

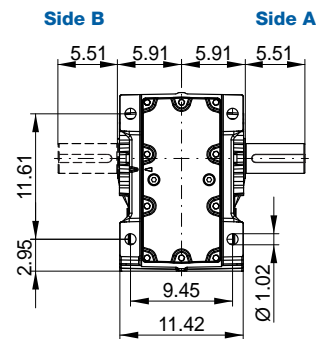
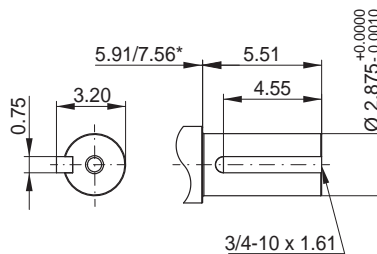
### KH093 - Hollow shaft



### KD093 - Shrink disc



### KS093 - Output shaft



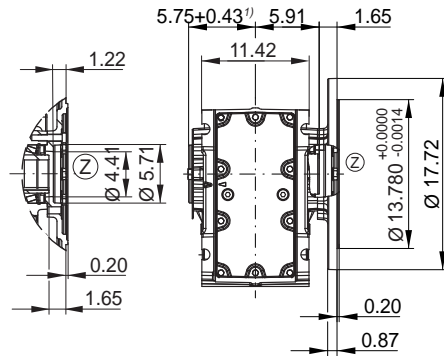
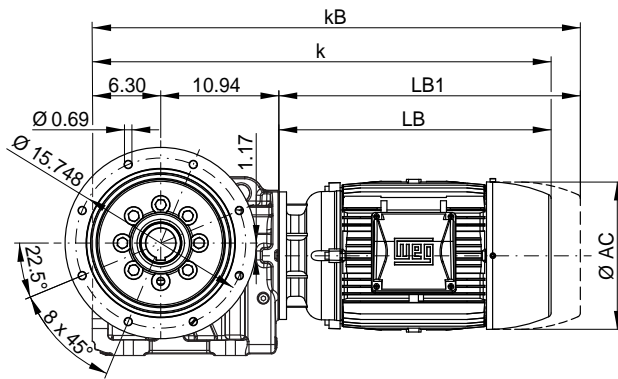
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	25.28	26.61	26.93	27.87	28.58	30.55	32.05	30.94	33.50	35.00	38.31	40.04	40.98	42.48	46.10
kB	27.01	28.54	29.21	30.16	31.46	33.86	35.35	34.37	38.15	39.65	43.19	44.92	45.63	47.13	51.06
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

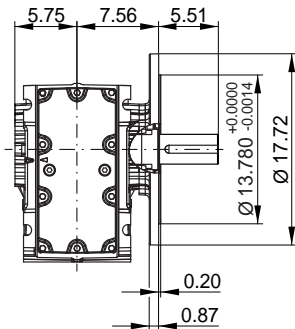
\*Designs KS/KF

**KO093 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft**

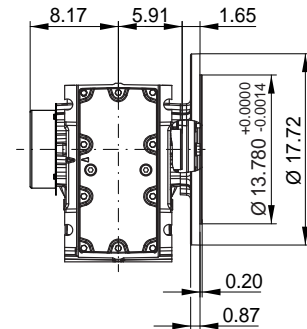


<sup>1)</sup> incl. hollow shaft protection cap

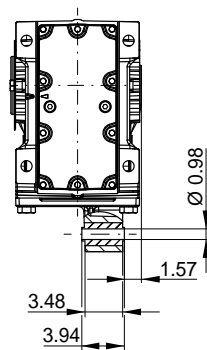
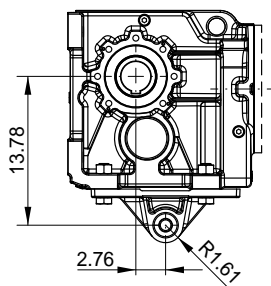
**KF093 - Flange execution  $\varnothing 17.72$  ( $\varnothing 450$  mm) with output shaft**



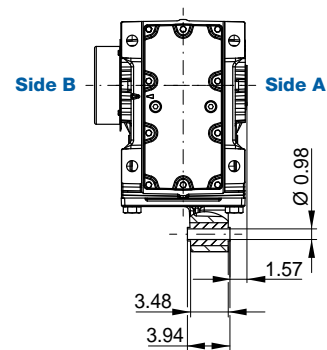
**KP093 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft and shrink disc**



**KT093 - Hollow shaft with torque arm \*\***



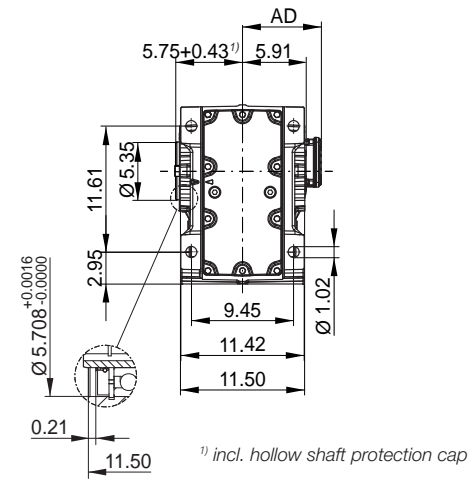
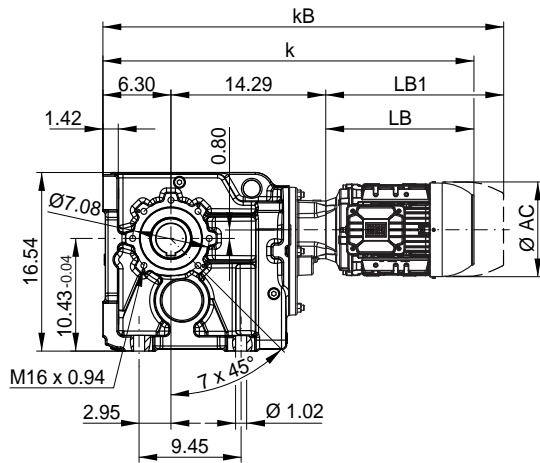
**KU093 - Hollow shaft with shrink disc and torque arm \*\***



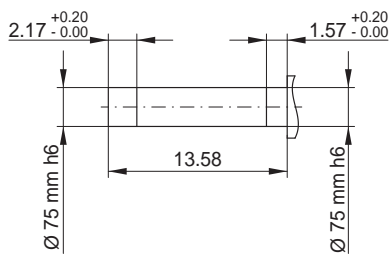
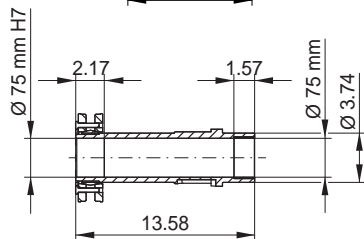
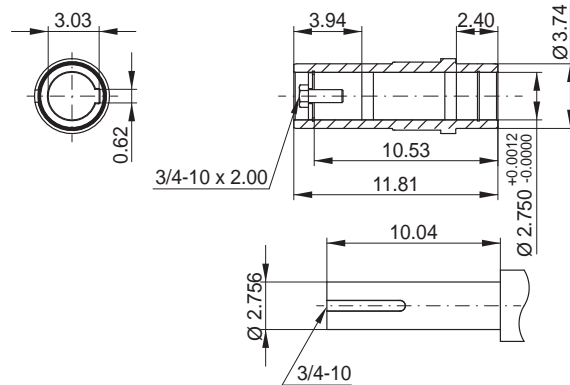
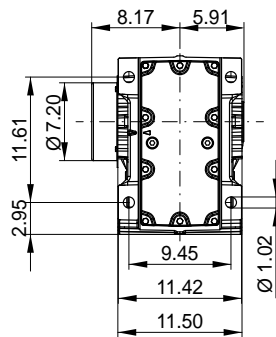
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

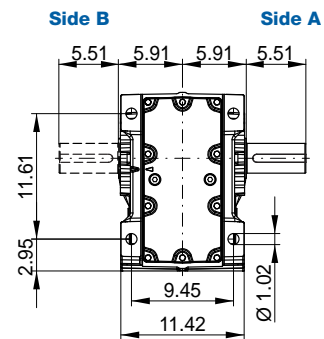
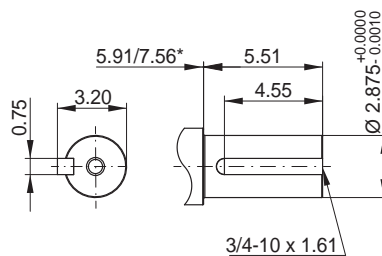
### KH094 - Hollow shaft



### KD094 - Shrink disc



### KS094 - Output shaft



Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	28.62	29.96	30.28	31.22	31.93	33.90	35.39	34.29	36.85	38.35
kB	30.35	31.89	32.56	33.50	34.80	37.20	38.70	37.72	41.50	42.99
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

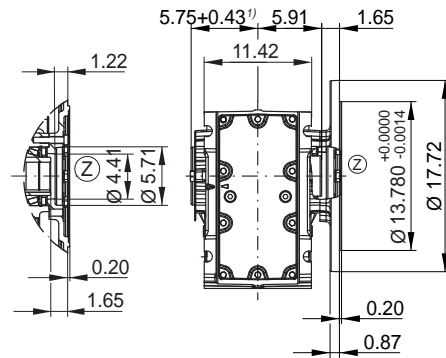
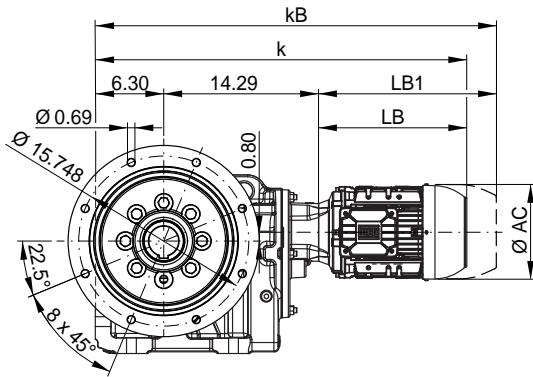
Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

\*Designs KS/KF

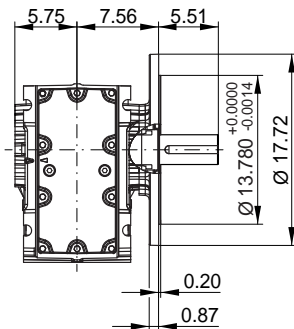


**KO094 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft**

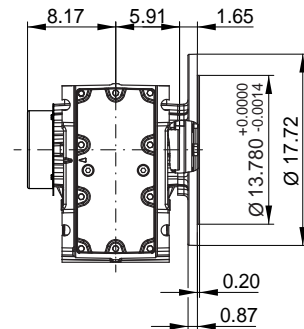


<sup>1)</sup> incl. hollow shaft protection cap

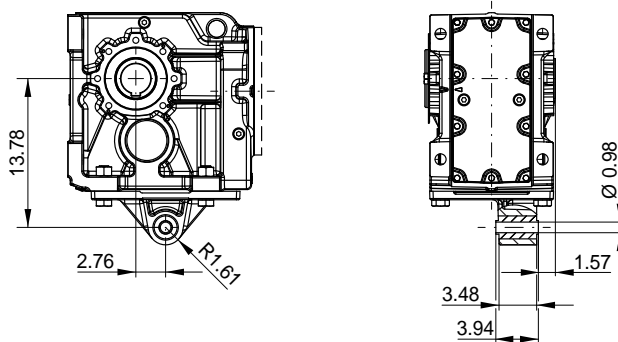
**KF094 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with output shaft**



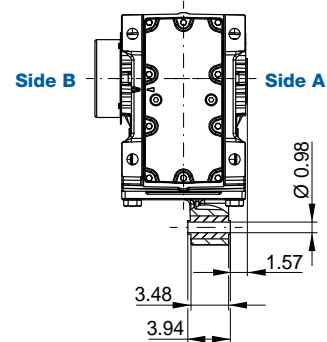
**KP094 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft and shrink disc**



**KT094 - Hollow shaft with torque arm \*\***



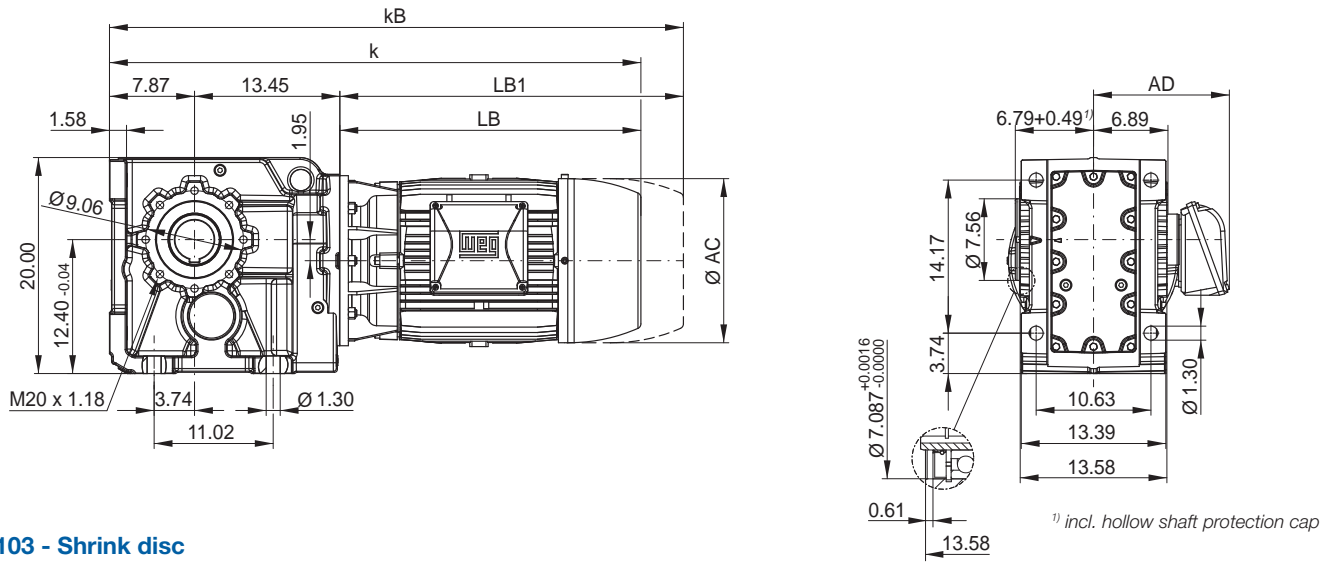
**KU094 - Hollow shaft with shrink disc and torque arm \*\***



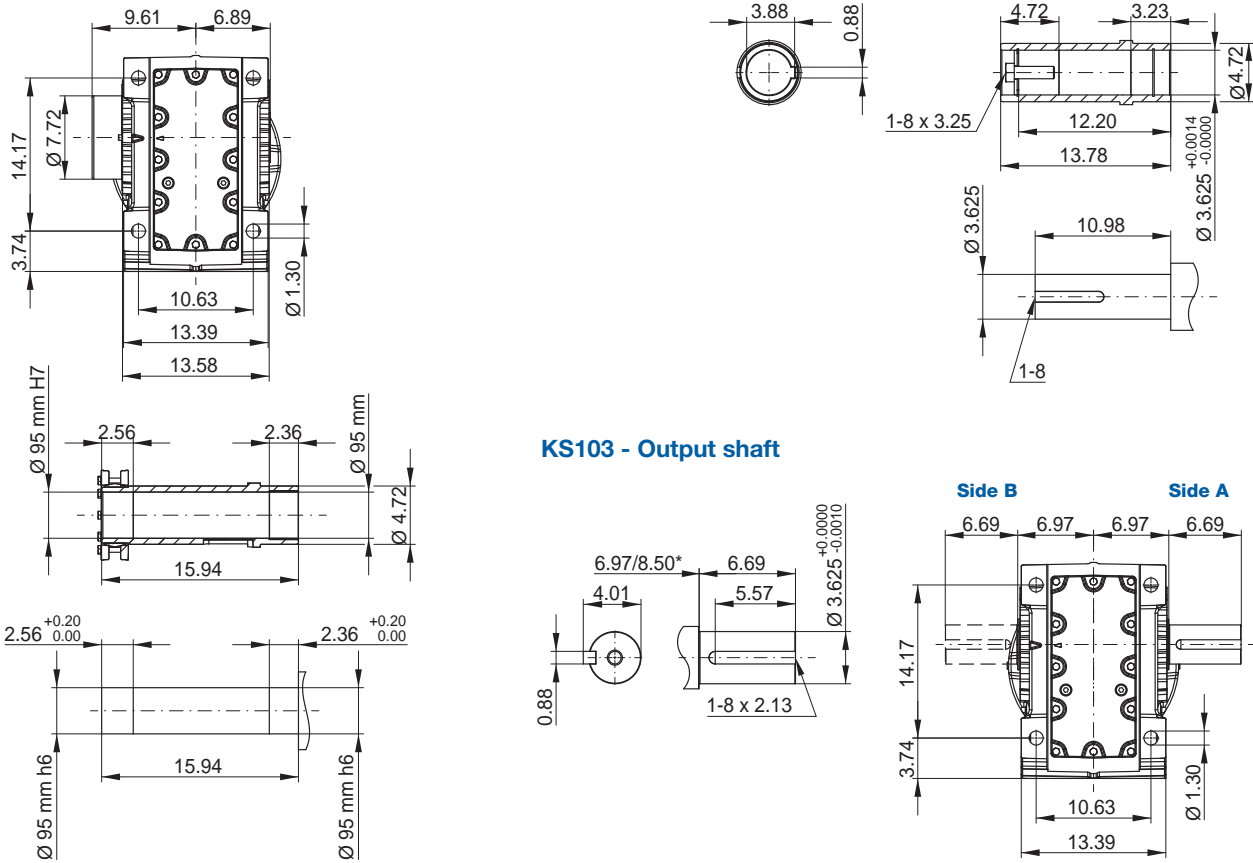
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

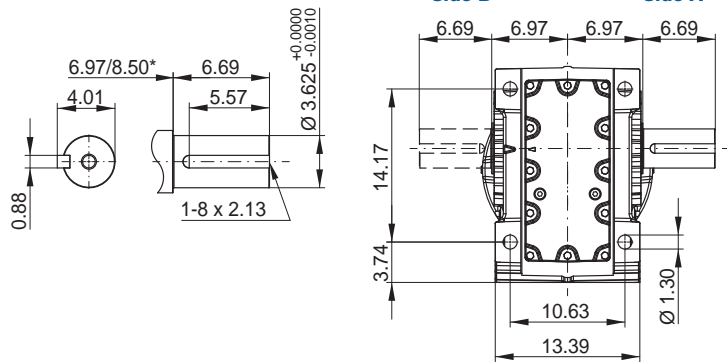
### KH103 - Hollow shaft



### KD103 - Shrink disc



### KS103 - Output shaft



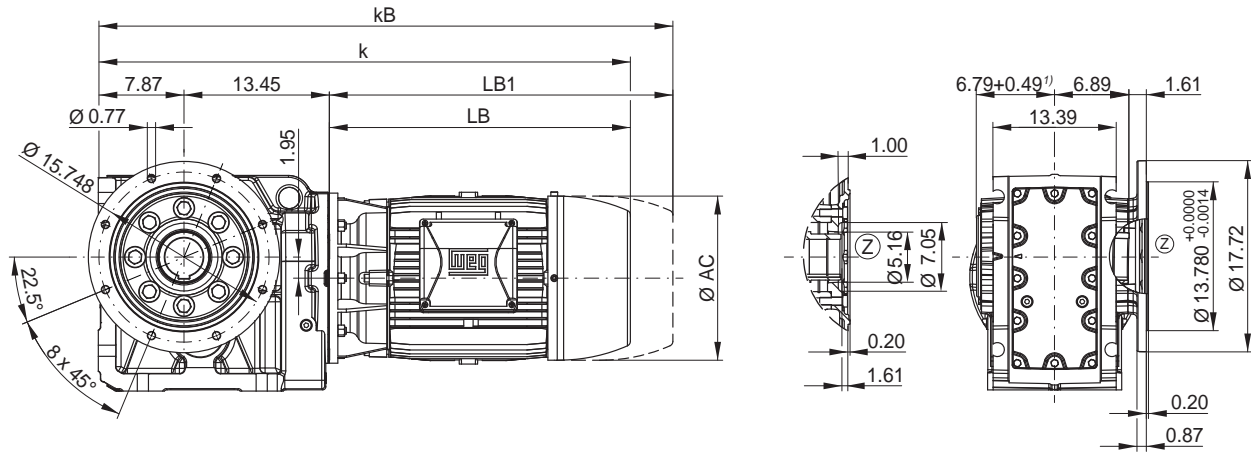
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	35.04	37.60	39.09	41.89	43.62	44.57	46.06	49.69	53.94
kB	-	-	-	-	-	-	-	38.46	42.24	43.74	46.77	48.50	49.21	50.71	54.65	58.58
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

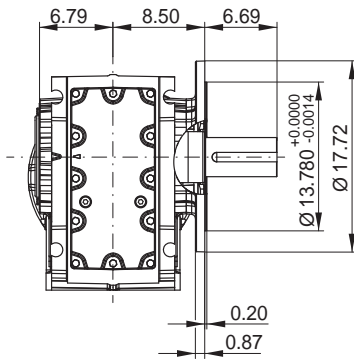
\*Designs KS/KF

**KO103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft**

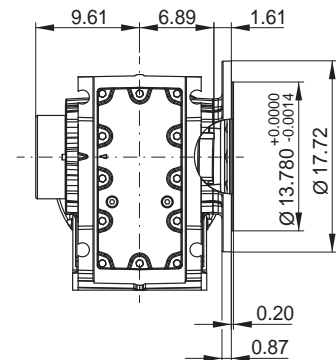


<sup>1)</sup> incl. hollow shaft protection cap

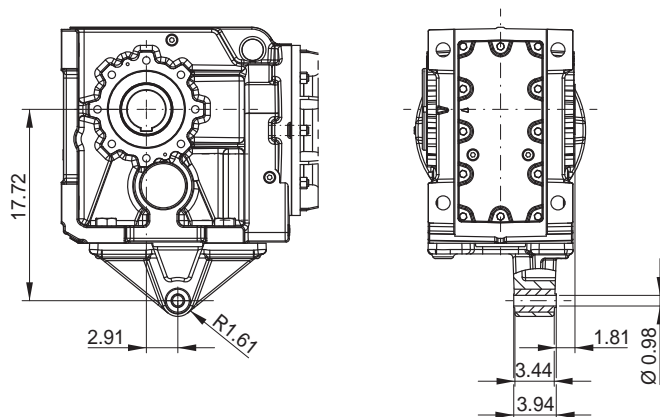
**KF103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with output shaft**



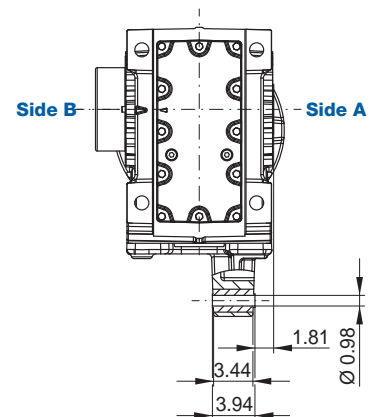
**KP103 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft and shrink disc**



**KT103 - Hollow shaft with torque arm \*\***



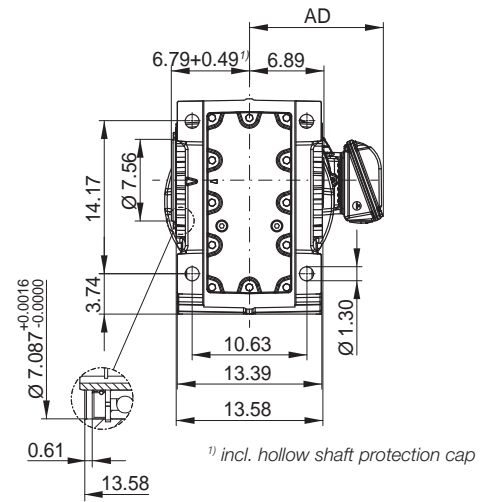
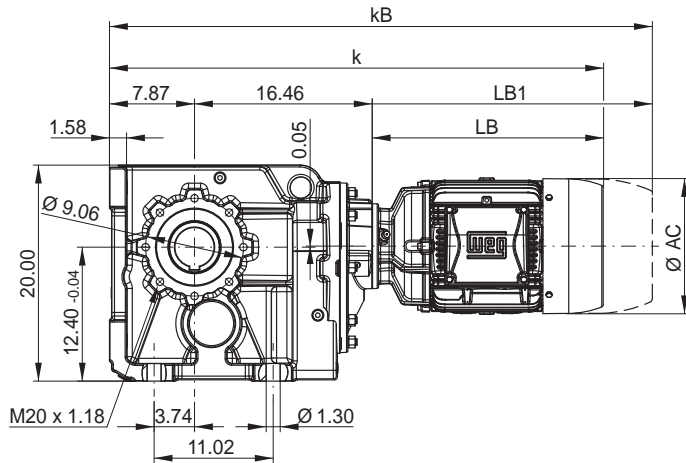
**KU103 - Hollow shaft with shrink disc and torque arm \*\***



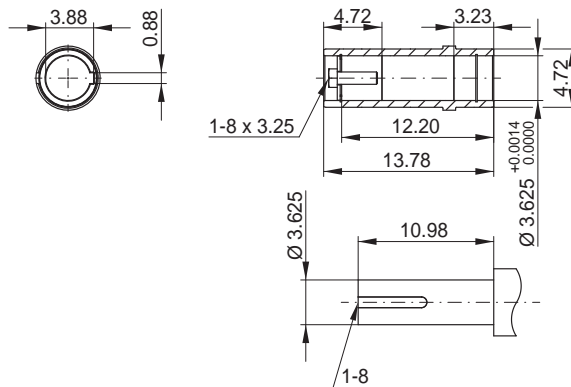
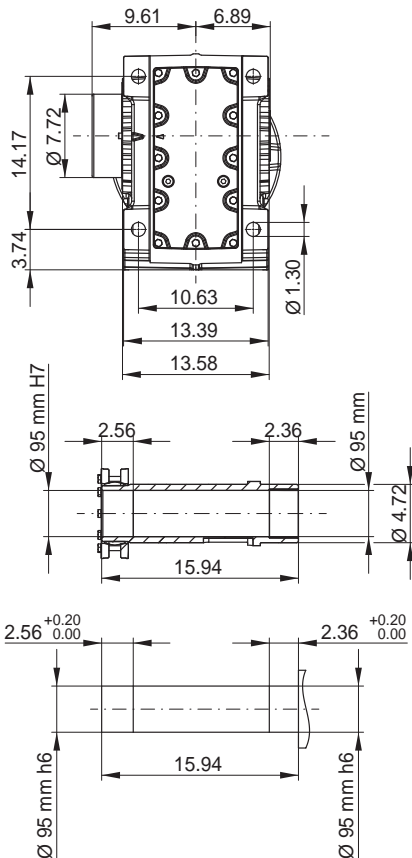
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

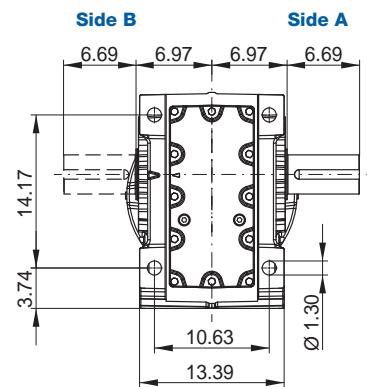
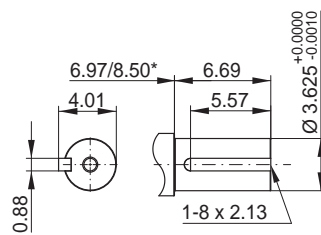
### KH104 - Hollow shaft



### KD104 - Shrink disc



### KS104 - Output shaft



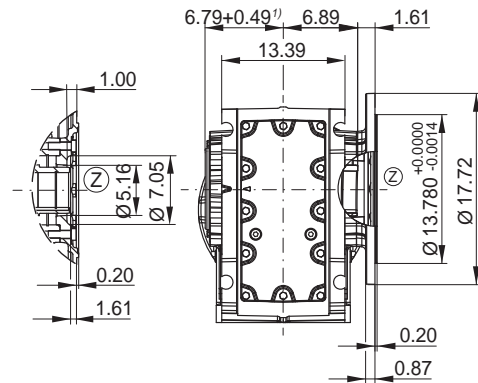
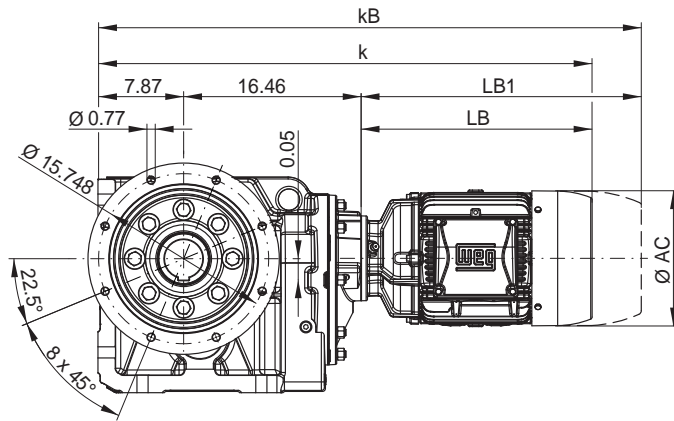
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	32.36	33.70	34.02	34.96	35.67	37.64	39.13	38.03	40.59	42.09	45.79	47.52
kB	34.09	35.63	36.30	37.24	38.54	40.94	42.44	41.46	45.24	46.73	50.67	52.40
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

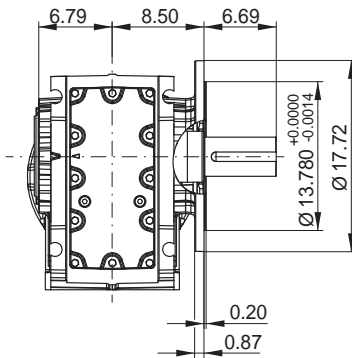
\*Designs KS/KF

**KO104 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft**

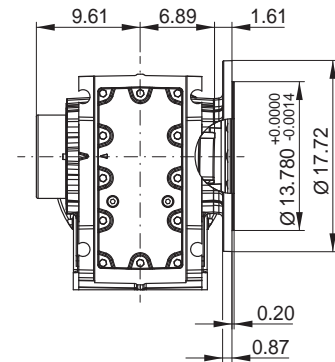


<sup>1)</sup> incl. hollow shaft protection cap

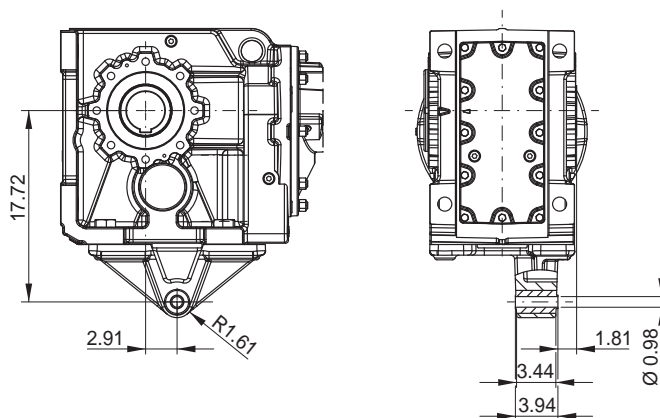
**KF104 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with output shaft**



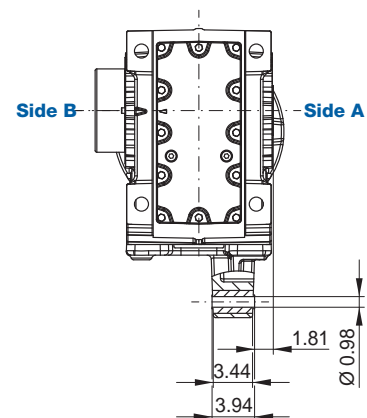
**KP104 - Flange execution  $\varnothing 17.72$  in ( $\varnothing 450$  mm) with hollow shaft and shrink disc**



**KT104 - Hollow shaft with torque arm \*\***



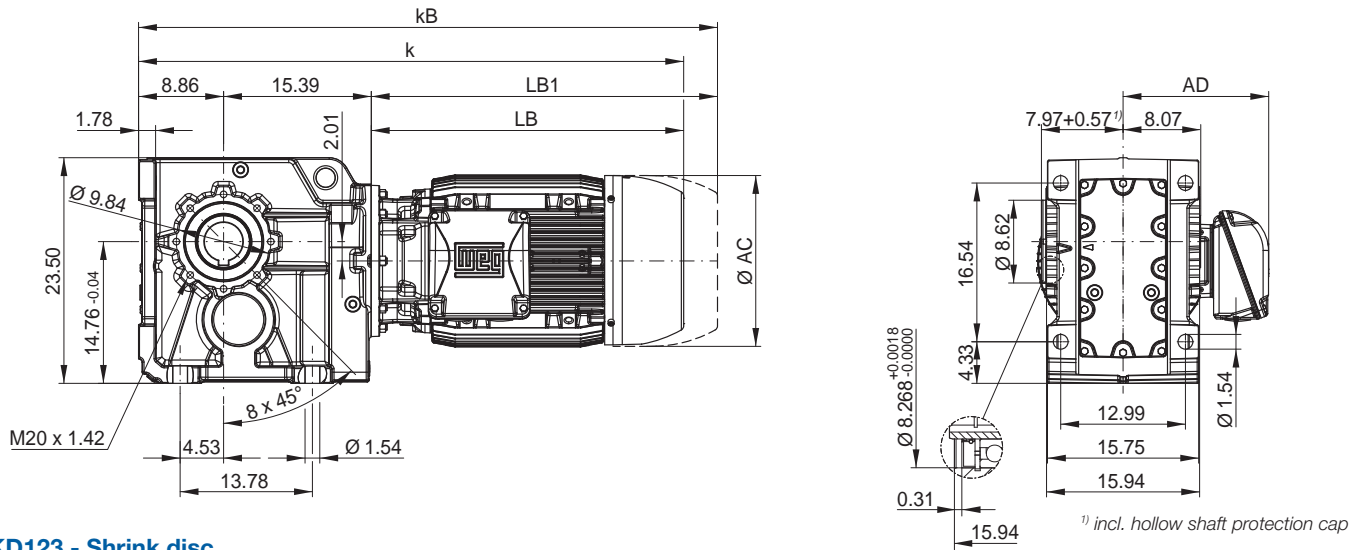
**KU104 - Hollow shaft with shrink disc and torque arm \*\***



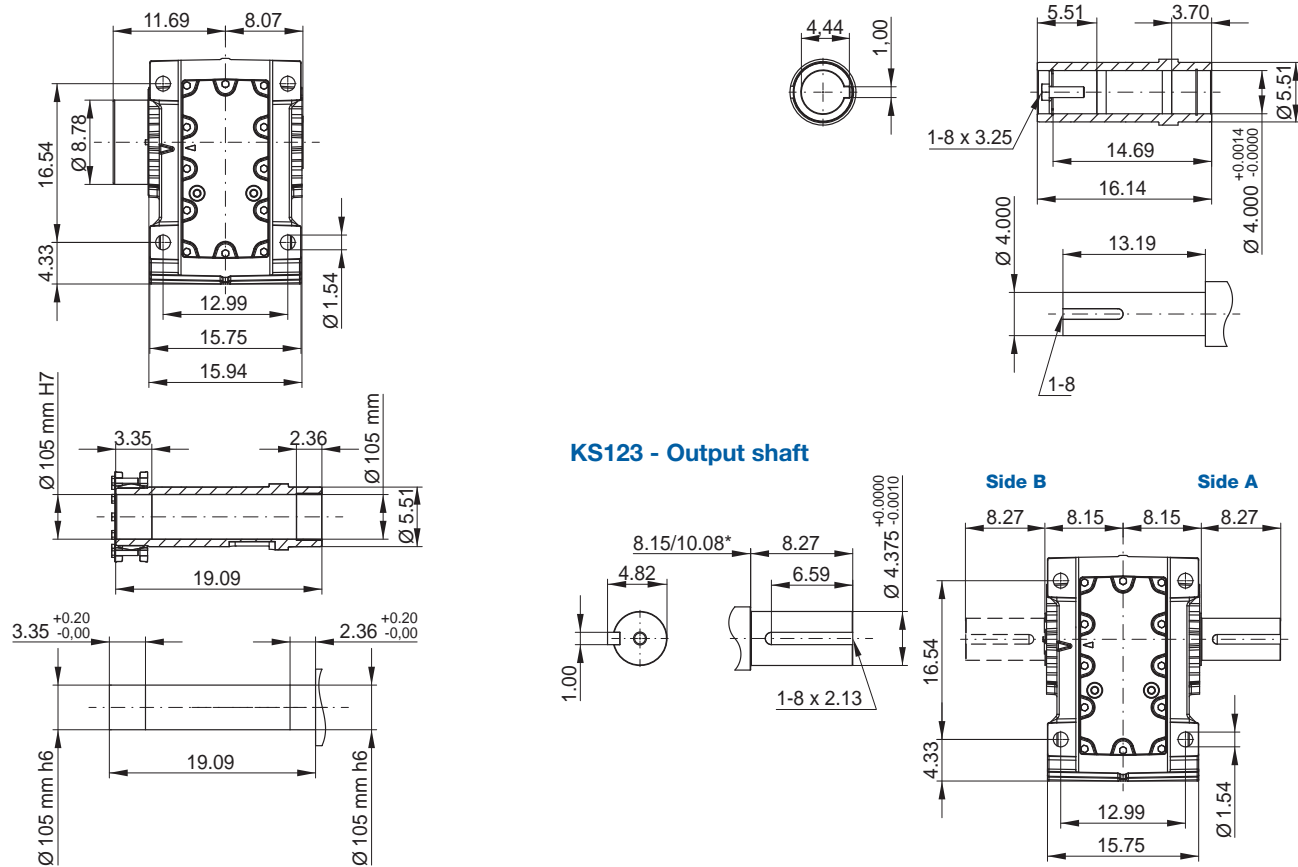
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

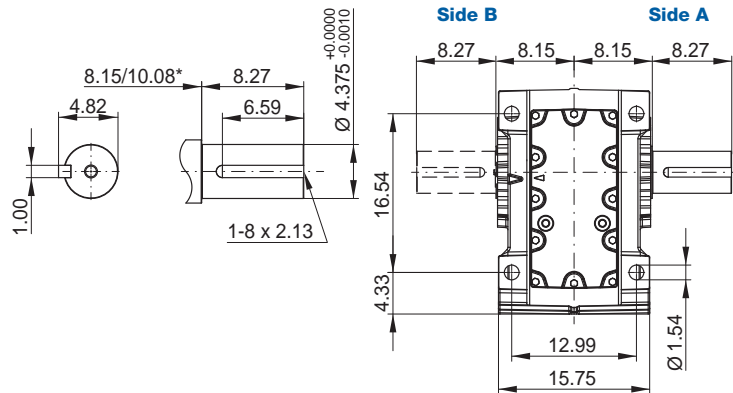
### KH123 - Hollow shaft



### KD123 - Shrink disc



### KS123 - Output shaft



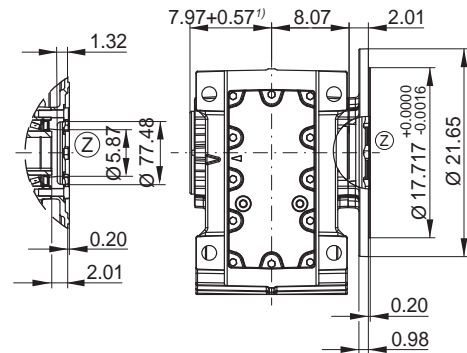
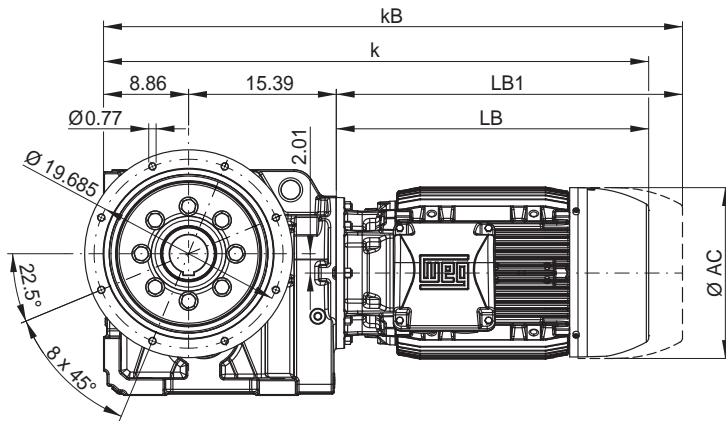
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L	200L	225S/M
AC	-	-	-	-	-	-	-	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20	17.83
AD	-	-	-	-	-	-	-	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48	15.16
k	-	-	-	-	-	-	-	37.95	40.51	42.01	44.80	46.54	47.48	48.98	52.60	56.85
kB	-	-	-	-	-	-	-	41.38	45.16	46.65	49.69	51.42	52.13	53.62	57.56	61.50
LB	-	-	-	-	-	-	-	13.70	16.26	17.76	20.55	22.28	23.23	24.72	28.35	32.60
LB1	-	-	-	-	-	-	-	17.13	20.91	22.40	25.43	27.17	27.87	29.37	33.31	37.24

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

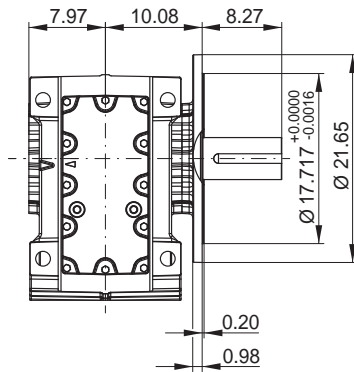
\*Designs KS/KF

**KO123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  450 mm) with hollow shaft**

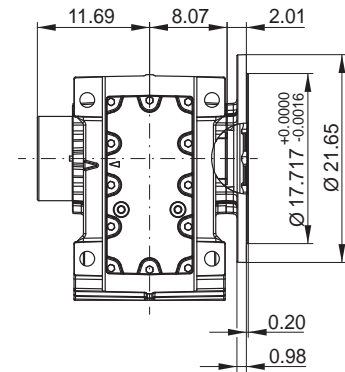


<sup>1)</sup> incl. hollow shaft protection cap

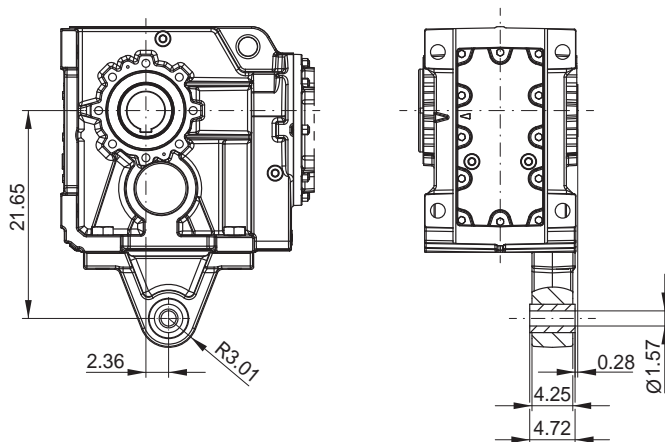
**KF123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  450 mm) with output shaft**



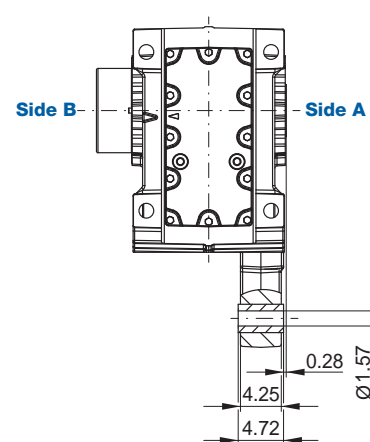
**KP123 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  450 mm) with hollow shaft and shrink disc**



**KT123 - Hollow shaft with torque arm \*\***



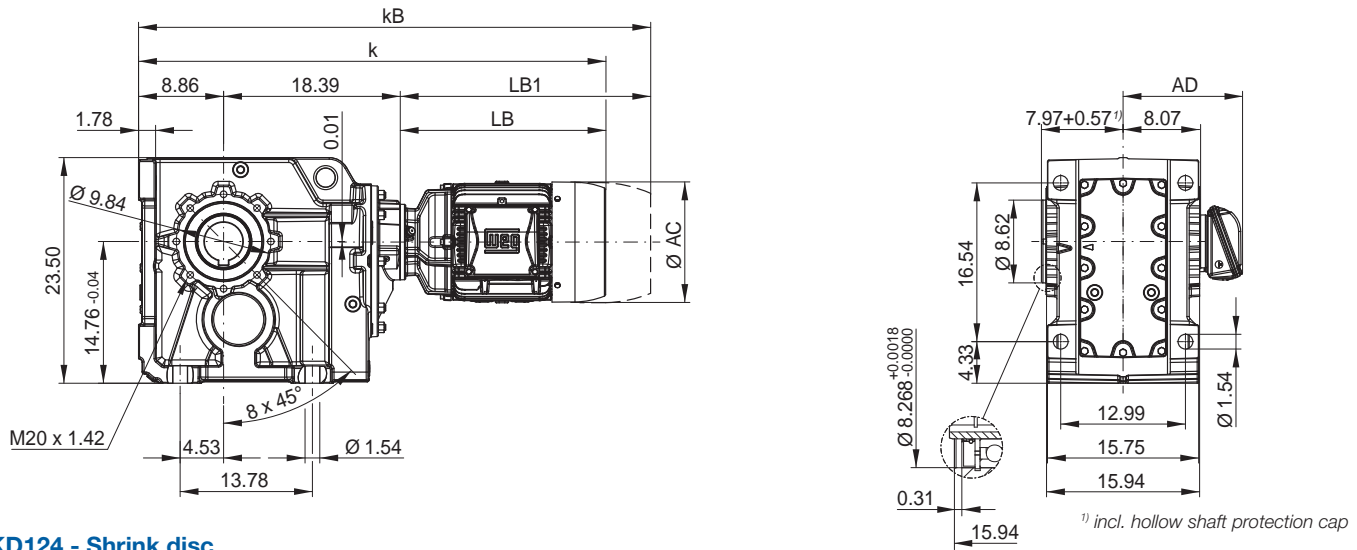
**KU123 - Hollow shaft with shrink disc and torque arm \*\***



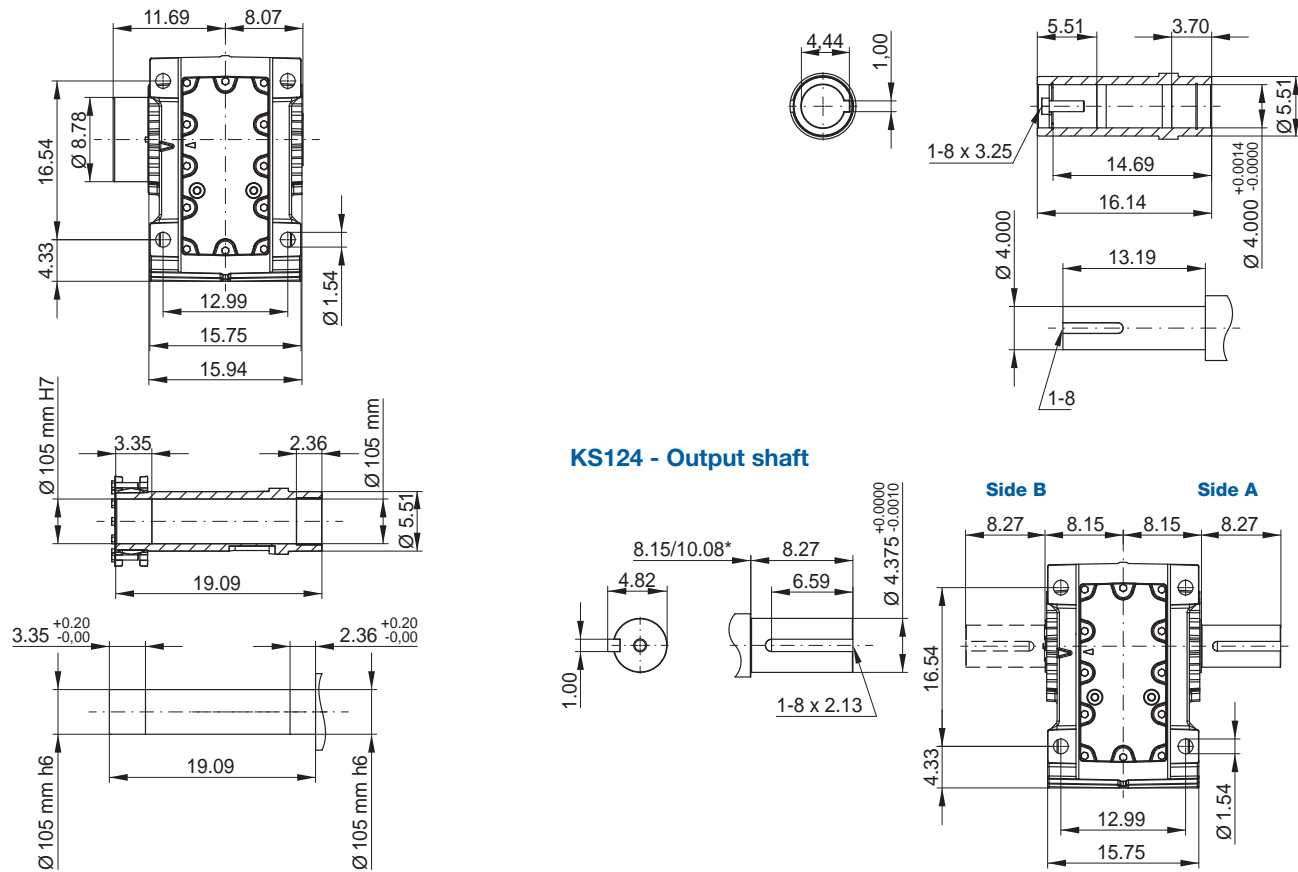
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

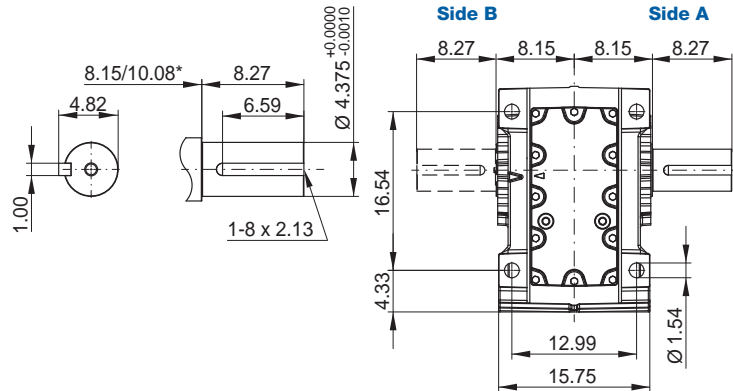
### KH124 - Hollow shaft



### KD124 - Shrink disc



### KS124 - Output shaft



Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47
k	35.28	36.61	36.93	37.87	38.58	40.55	42.05	40.94	43.50	45.00	48.70	50.43
kB	37.01	38.54	39.21	40.16	41.46	43.86	45.35	44.37	48.15	49.65	53.58	55.31
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.46	23.19
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	26.34	28.07

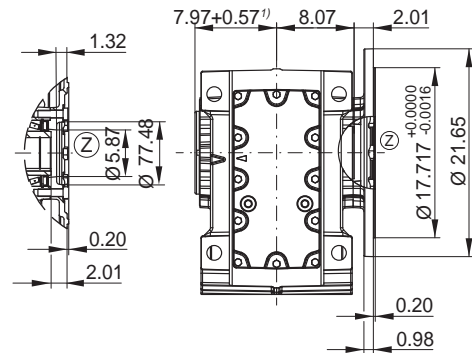
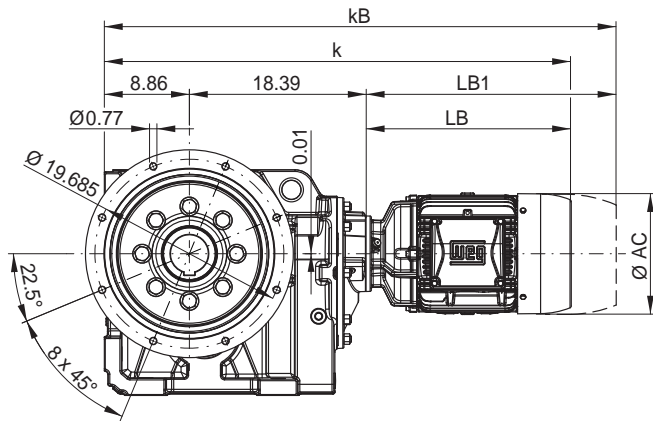
Motor dimension sheets see from page 488

Description of motor lengths  $LB$  and  $LB1$  see page 492

\*Designs KS/KF

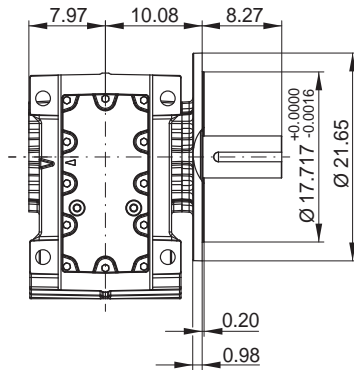


**KO124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft**

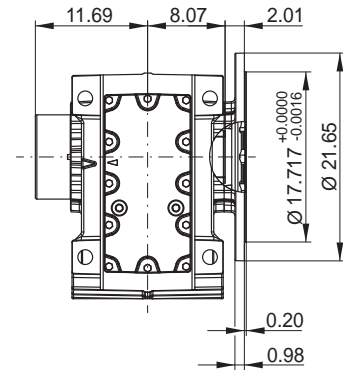


<sup>1)</sup> incl. hollow shaft protection cap

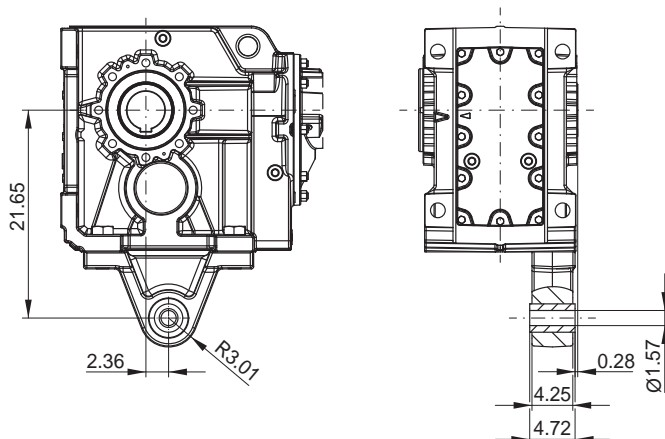
**KF124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with output shaft**



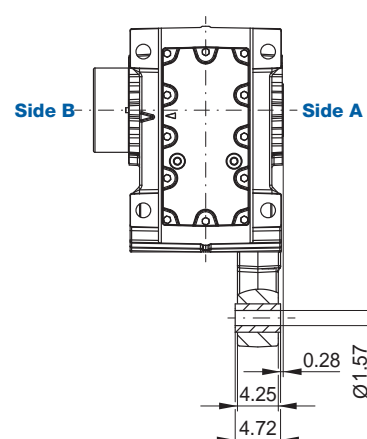
**KP124 - Flange execution  $\varnothing$  21.65 in ( $\varnothing$  550 mm) with hollow shaft and shrink disc**



**KT124 - Hollow shaft with torque arm \*\***



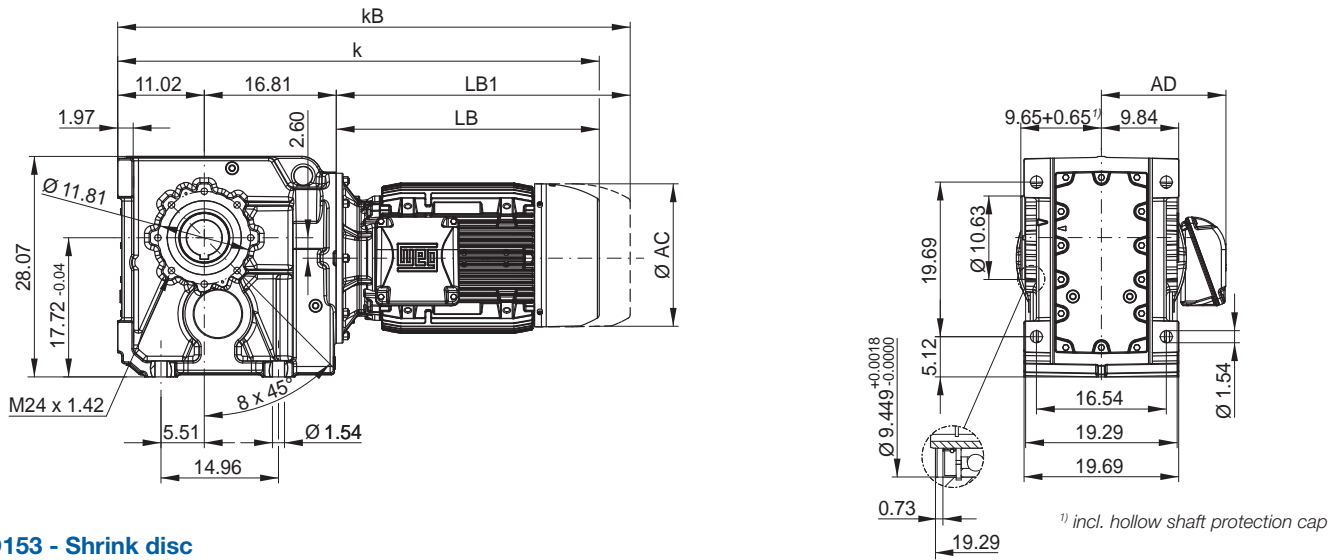
**KU124 - Hollow shaft with shrink disc and torque arm \*\***



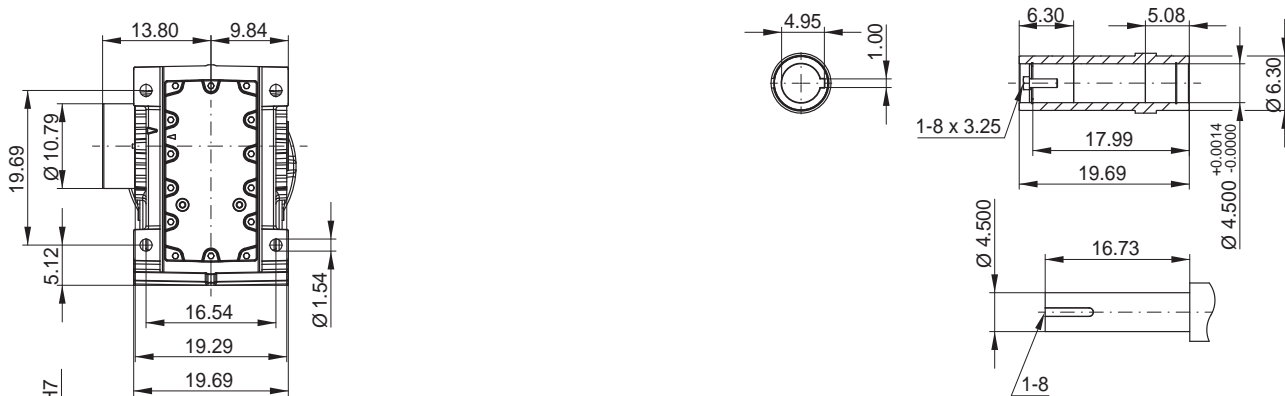
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

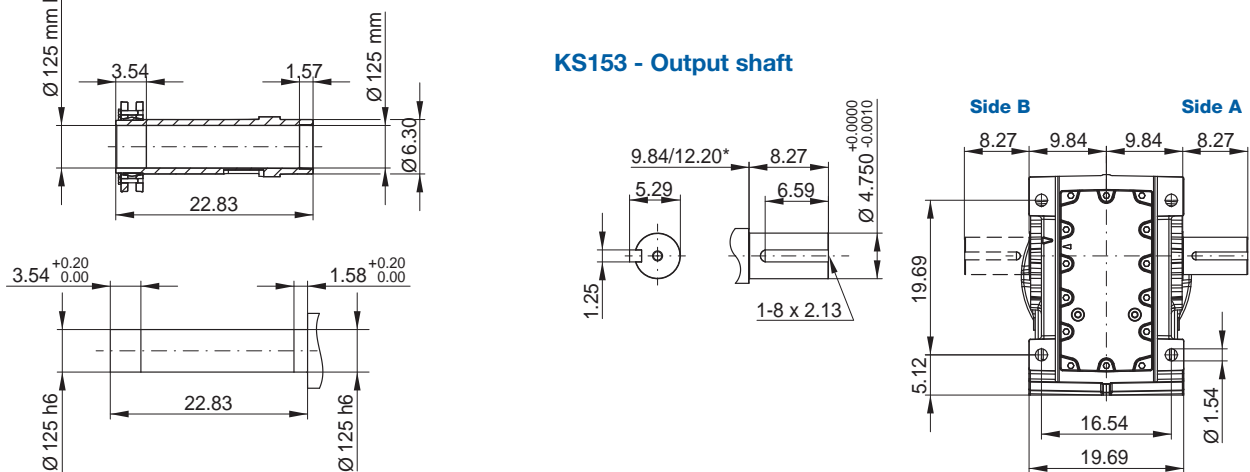
### KH153 - Hollow shaft



### KD153 - Shrink disc



### KS153 - Output shaft



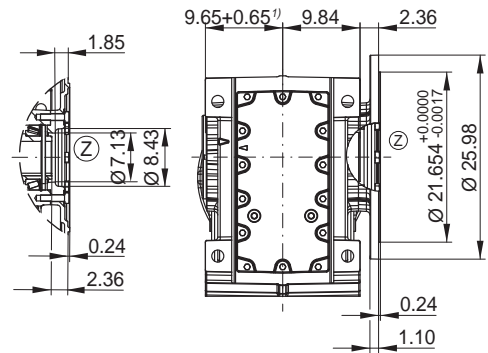
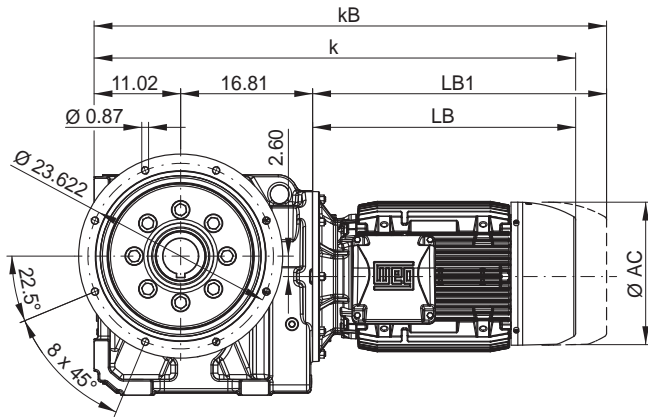
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L	200L	225S/M	250S/M
AC	-	-	-	-	-	-	-	-	-	-	12.95	12.95	13.66	13.66	15.20	17.83	18.98
AD	-	-	-	-	-	-	-	-	-	-	10.47	10.47	11.06	11.06	12.48	15.16	15.87
k	-	-	-	-	-	-	-	-	-	-	47.76	49.49	50.43	51.93	55.55	59.80	61.34
kB	-	-	-	-	-	-	-	-	-	-	52.64	54.37	55.08	56.57	60.51	64.45	65.98
LB	-	-	-	-	-	-	-	-	-	-	19.92	21.65	22.60	24.09	27.72	31.97	33.50
LB1	-	-	-	-	-	-	-	-	-	-	24.80	26.54	27.24	28.74	32.68	36.61	38.15

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

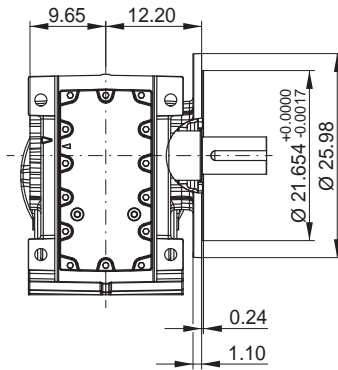
\*Designs KS/KF

**KO153 - Flange execution Ø 25.98 in (Ø 660 mm) with hollow shaft**

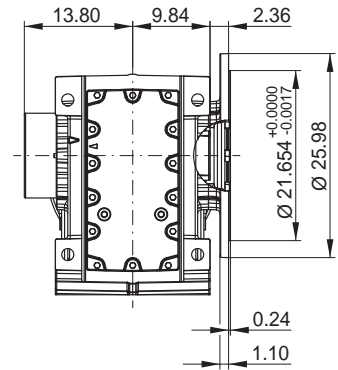


<sup>1)</sup> incl. hollow shaft protection cap

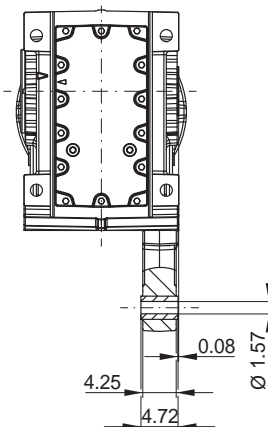
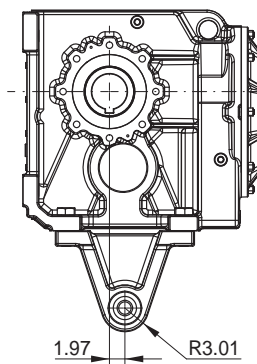
**KF153 - Flange execution Ø 25.98 in (Ø 660 mm) with output shaft**



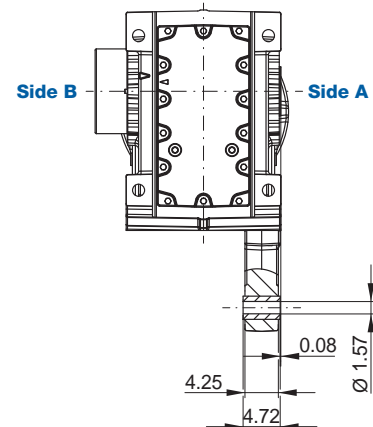
**KP153 - Flange execution Ø 25.98 in (Ø 660 mm) with hollow shaft and shrink disc**



**KT153 - Hollow shaft with torque arm \*\***



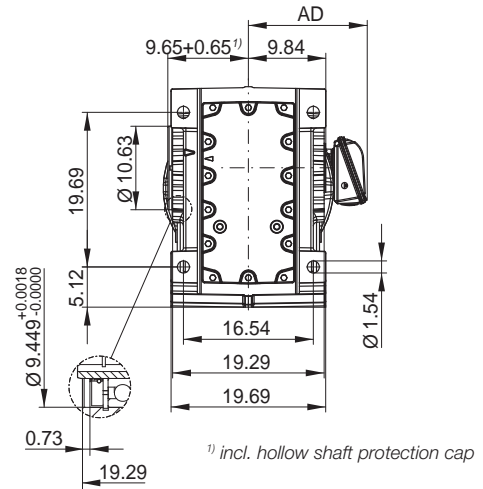
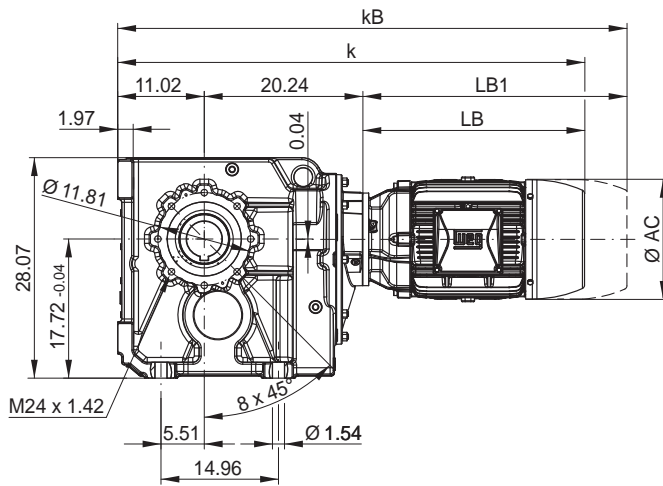
**KU153 - Hollow shaft with shrink disc and torque arm \*\***



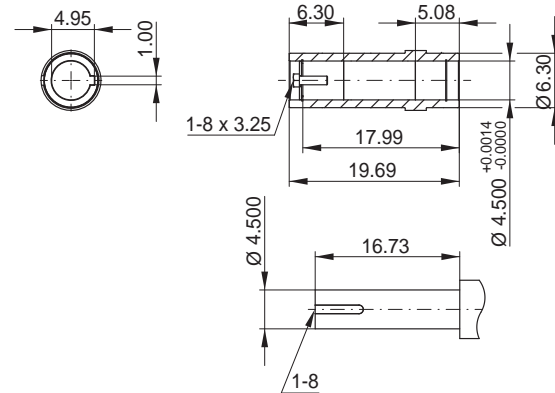
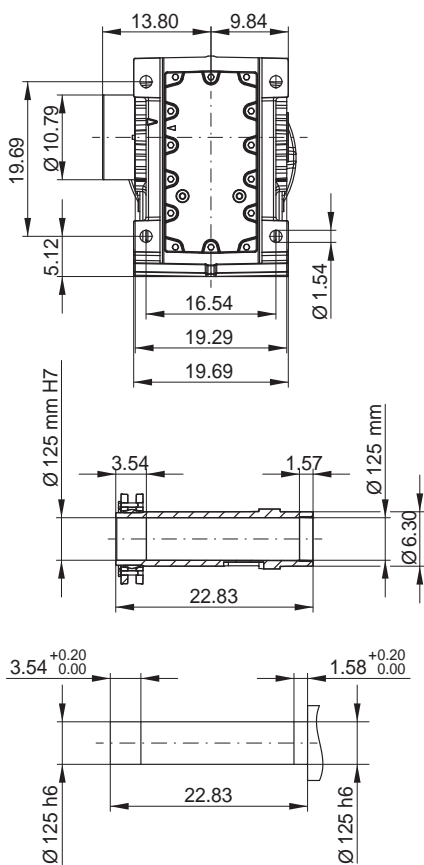
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

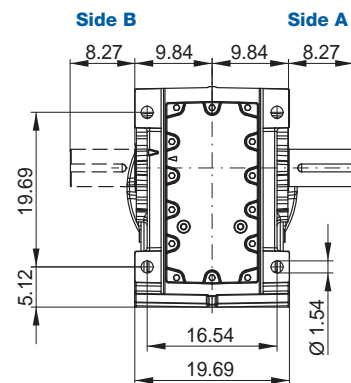
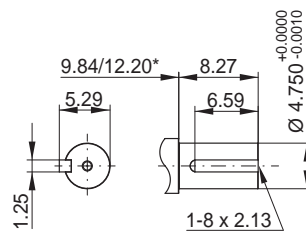
### KH154 - Hollow shaft



### KD154 - Shrink disc



### KS154 - Output shaft



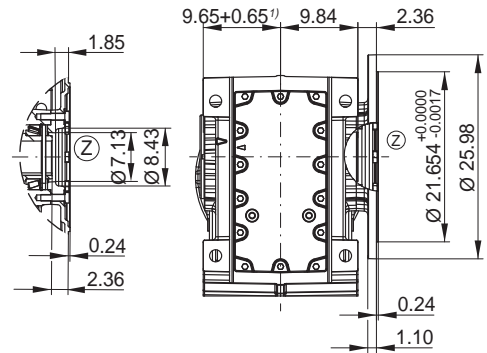
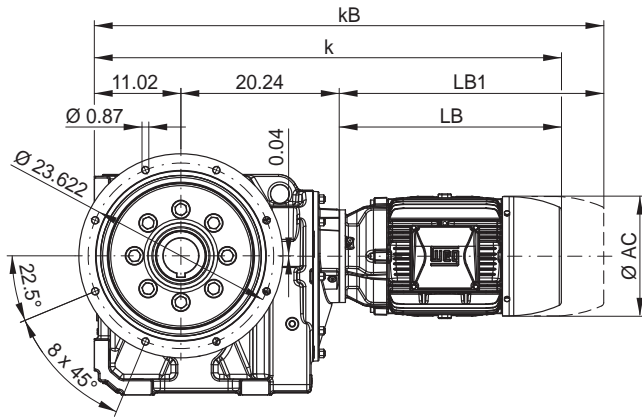
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M	160M	160L	180M	180L	200L
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28	12.95	12.95	13.66	13.66	15.20
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07	10.47	10.47	11.06	11.06	12.48
k	39.29	40.63	40.94	41.89	42.60	44.57	46.06	44.96	47.52	49.02	52.32	54.06	55.00	56.50	60.12
kB	41.02	42.56	43.23	44.17	45.47	47.87	49.37	48.39	52.17	53.66	57.20	58.94	59.65	61.14	65.08
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76	21.06	22.80	23.74	25.24	28.86
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40	25.94	27.68	28.39	29.88	33.82

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

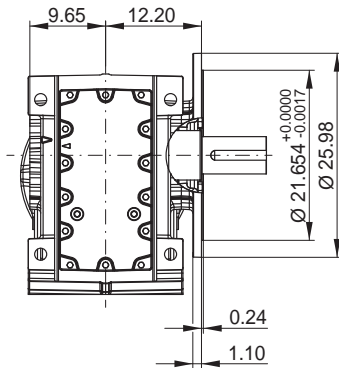
\*Designs KS/KF

**KO154 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft**

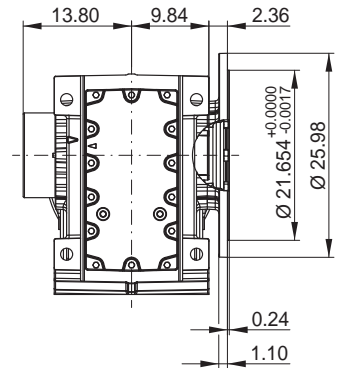


¹) incl. hollow shaft protection cap

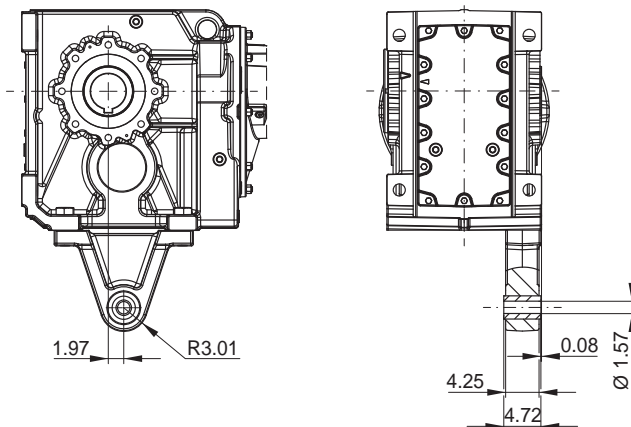
**KF154 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with output shaft**



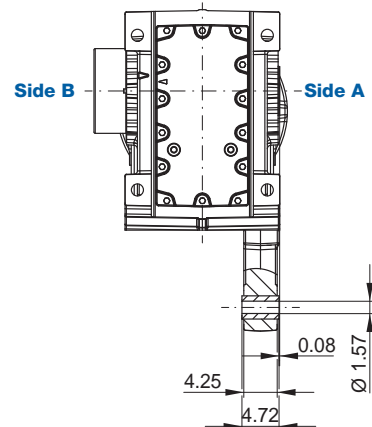
**KP154 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft and shrink disc**



**KT154 - Hollow shaft with torque arm \*\***



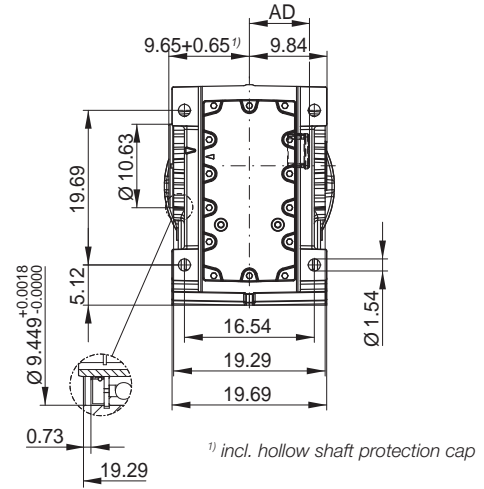
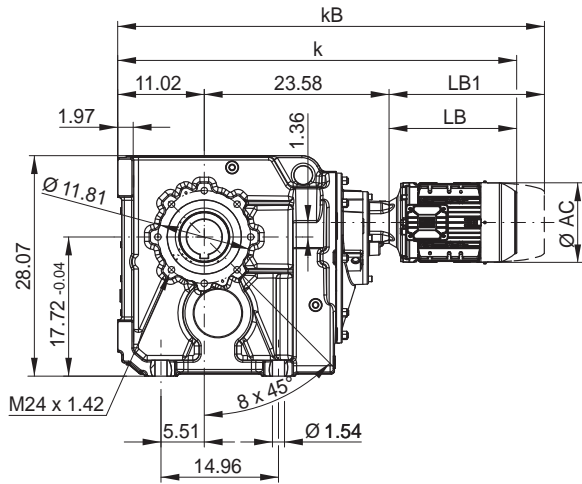
**KU154 - Hollow shaft with shrink disc and torque arm \*\***



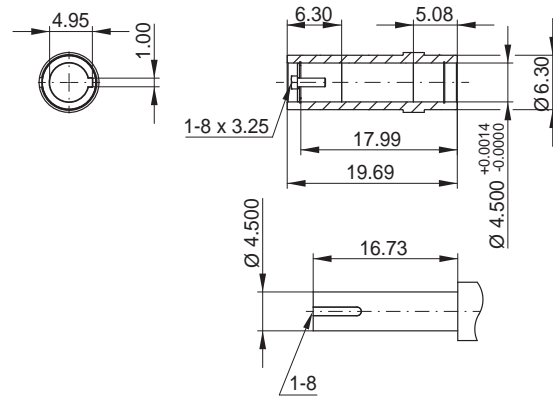
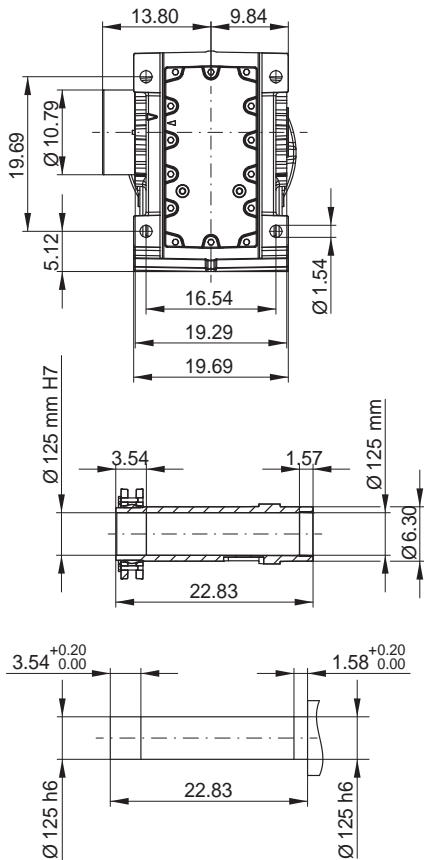
Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

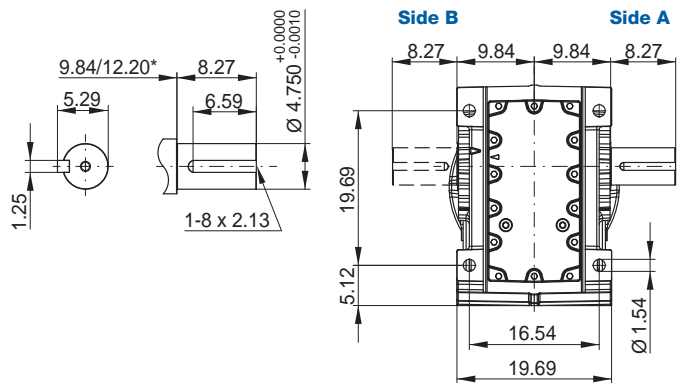
### KH155 - Hollow shaft



### KD155 - Shrink disc



### KS155 - Output shaft



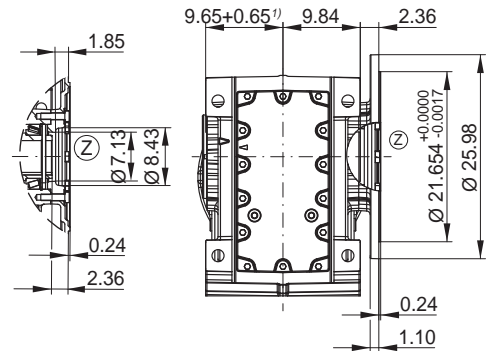
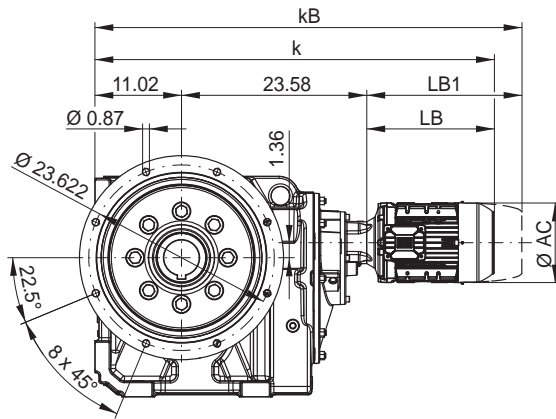
Motor fr.	63	71	80	L80	90S/L	100L	L100L	112M	132S.M	L132M
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
k	42.64	43.98	44.29	45.24	45.94	47.91	49.41	48.31	50.87	52.36
kB	44.37	45.91	46.57	47.52	48.82	51.22	52.72	51.73	55.51	57.01
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40

Motor dimension sheets see from page 488

Description of motor lengths LB and LB1 see page 492

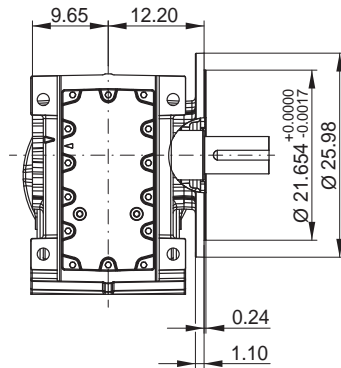
\*Designs KS/KF

**KO155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft**

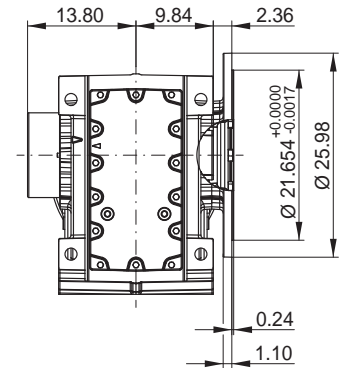


¹) incl. hollow shaft protection cap

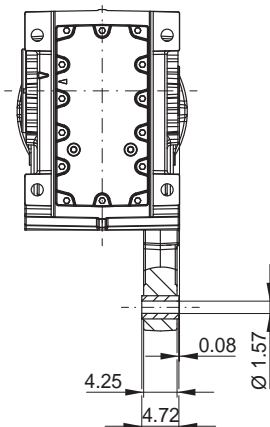
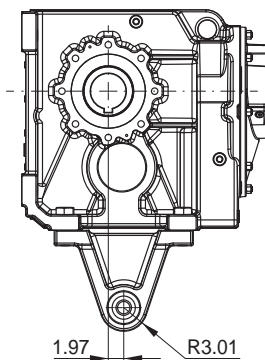
**KF155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with output shaft**



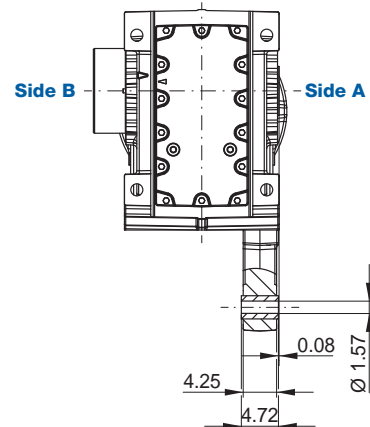
**KP155 - Flange execution  $\varnothing 25.98$  in ( $\varnothing 660$  mm) with hollow shaft and shrink disc**



**KT155 - Hollow shaft with torque arm \*\***



**KU155 - Hollow shaft with shrink disc and torque arm \*\***

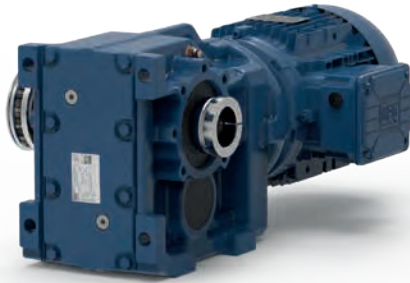


Dimensions in inch.

\*\* Torque arm may be mounted on side A or side B.

# EasyLock

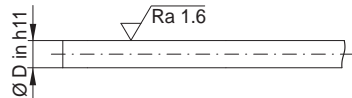
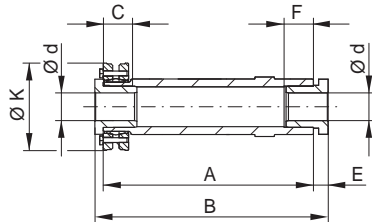
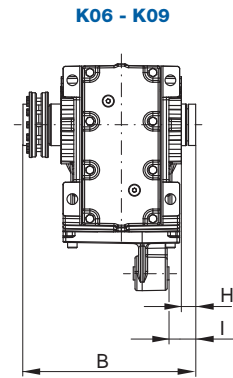
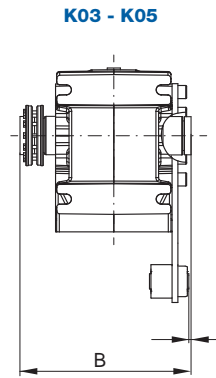
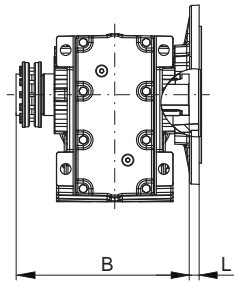
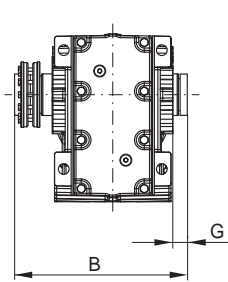
K



**KE... - Hollow shaft with EasyLock**

**KQ... - Flange execution with EasyLock**

**KV... - Hollow shaft and torque arm with EasyLock**

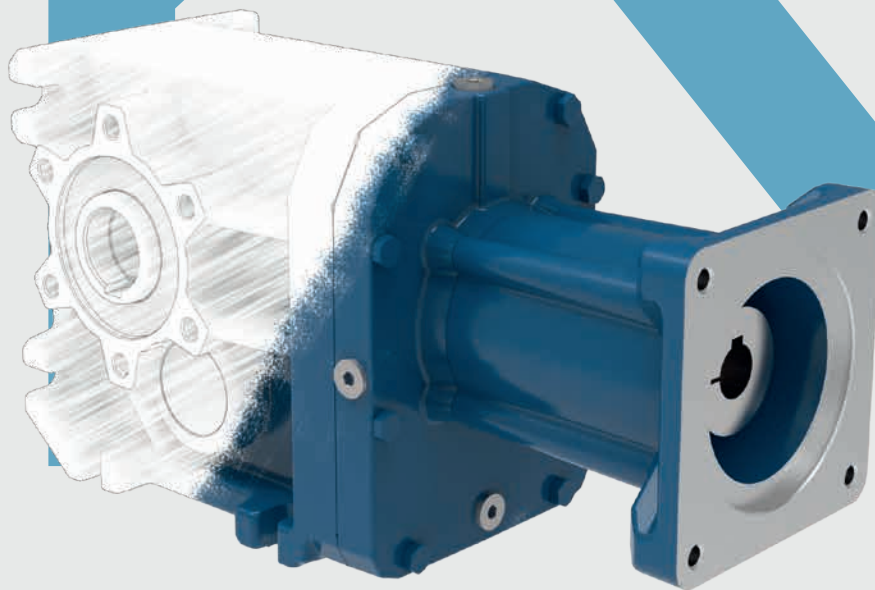


Dimension \ Gear unit size	K03.		K04.		K05.		K06.		K07.		K08.		K09.	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
A	5.73		7.05		7.99		8.50		10.43		12.09		14.49	
B	6.73		8.19		9.13		9.65		11.57		13.23		15.63	
C	1.40		1.42		1.42		1.42		1.46		1.57		1.89	
d, D	1.0000	25	1.1875	30	1.1875	35	1.1875	35	1.6250	40	1.9375	45	2.3750	55
	1.1250	30	1.2500	32	1.3750	38	1.3750	38	1.7500	45	2.0000	50	2.4375	60
	1.1875	35	1.3750	35	1.4375	40	1.4375	40	1.9375	48	2.3750	55	2.7500	65
	1.2500	32	1.4375	38	1.5000	42	1.5000	42	2.0000	50	2.4375	60	2.9375	70
				40	1.6250	45	1.6250	45		55		65		75
E	0.71		0.71		0.71		0.71		0.73		0.71		0.71	
F	1.30		1.42		1.42		1.42		1.46		1.57		1.89	
G	0.73		0.87		0.91		0.94		0.94		1.18		1.18	
H	0.73		0.87		0.91		0.94		0.94		1.18		1.18	
I	0.18		0.04		0.00		1.77		1.77		2.20		2.60	
K	3.15		3.54		3.54		3.54		4.33		6.10		6.10	
L	0.27		0.47		0.59		0.59		0.63		0.73		0.87	

Gear unit dimension sheets see from page 429

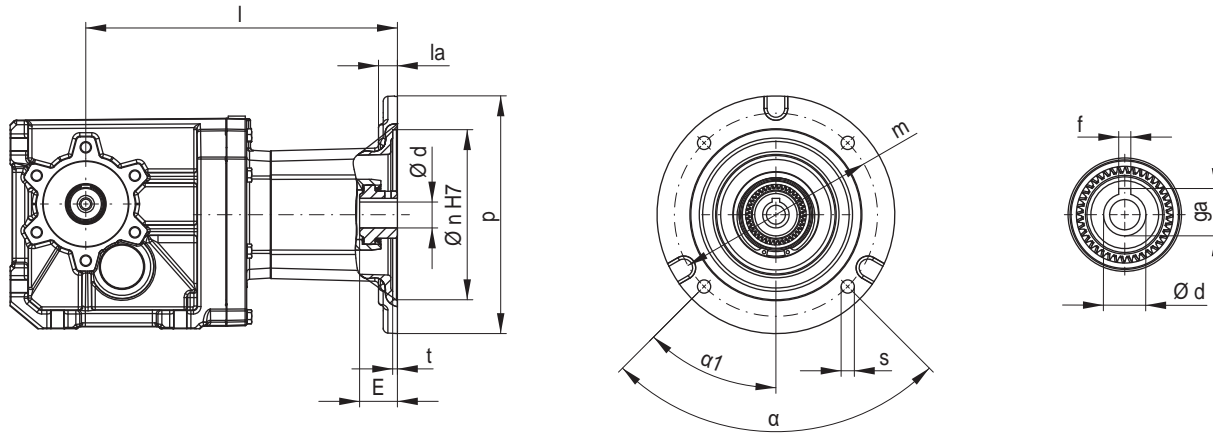


# Dimension sheets - Input types



## IEC Adapter I63 to I280

K



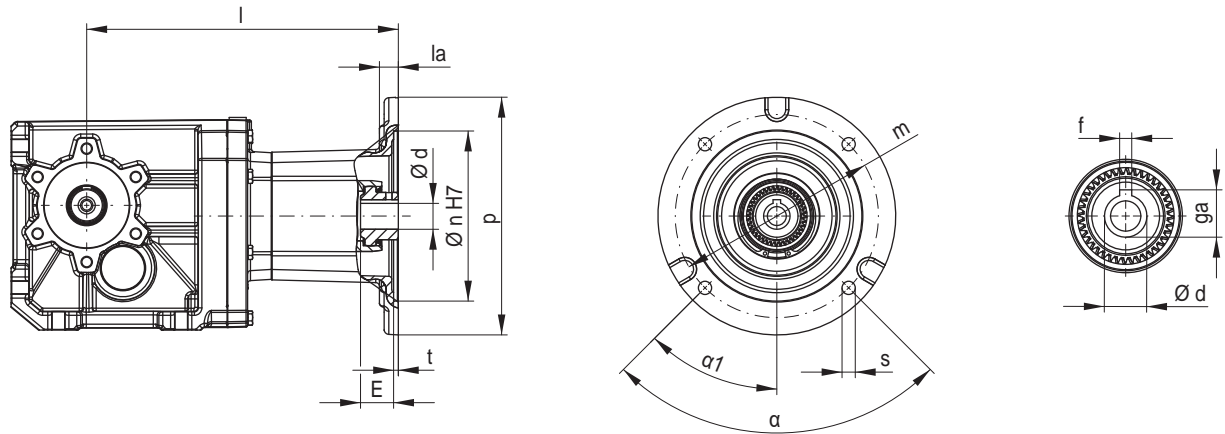
Type	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
p	6.30	6.30	7.87	7.87	9.84	9.84	11.81	13.78	13.78	15.75	17.72	21.65	21.65
n	3.74	4.33	5.12	5.12	7.09	7.09	9.06	9.84	9.84	11.81	13.78	17.72	17.72
la	0.89	0.39	0.51	0.51	0.59	0.79	0.59	1.38	1.38	0.79	0.79	0.79	0.79
m	4.53	5.12	6.50	6.50	8.46	8.46	10.43	11.81	11.81	13.78	15.75	19.69	19.69
t	0.18	0.18	0.18	0.18	0.20	0.20	0.20	0.20	0.20	0.22	0.20	0.20	0.20
s	M8 x 0.63	M8 x 0.39	0.47	0.47	0.55	0.55	0.55	0.75	0.75	0.75	0.75	0.75	0.75
$\alpha$	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	3.54	1.77	1.77	1.77
$\alpha_1$	1.38	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77	1.77
d	0.43	0.55	0.75	0.94	1.10	1.10	1.50	1.65	1.89	2.17	2.36	2.56	2.95
f	0.16	0.20	0.24	0.31	0.31	0.31	0.39	0.47	0.55	0.63	0.71	0.71	0.79
ga	0.50	0.64	0.86	1.07	1.23	1.23	1.63	1.78	2.04	2.33	2.54	2.73	3.15
E <sup>1)</sup>	0.98	1.26	1.69	1.87	2.48	3.94	3.37	4.39	4.39	4.51	5.51	5.75	5.75

<sup>1)</sup> Maximum motor shaft length for motors with key

Gear unit size	I63	I71	I80	I90	I100	I112	I132	I160	I180	I200	I225	I250	I280
	l												
K02	6.44	6.44	7.54	7.54	-	-	-	-	-	-	-	-	-
K03	7.48	7.48	8.58	8.58	9.80	-	-	-	-	-	-	-	-
K04	8.17	8.17	9.27	9.27	10.49	12.58	-	-	-	-	-	-	-
K05	8.58	8.58	9.69	9.69	10.91	12.99	13.43	-	-	-	-	-	-
K06	7.97	7.97	9.07	9.07	10.30	12.38	12.81	-	-	-	-	-	-
K07	9.15	9.15	10.26	10.26	11.48	13.56	14.00	17.38	-	-	-	-	-
K08	11.08	11.08	12.19	12.19	13.41	15.49	15.93	19.25	19.25	-	-	-	-
K09	11.87	11.87	12.97	12.97	14.19	16.28	16.71	20.04	20.04	21.16	-	-	-
K10	-	-	-	-	-	18.41	18.84	22.07	22.07	23.19	24.37	-	-
K12	-	-	-	-	-	20.33	20.77	24.00	24.00	25.12	26.30	29.80	29.80
K15	-	-	-	-	-	-	-	24.78	24.78	25.91	27.09	30.59	30.59

Dimensions in inch.

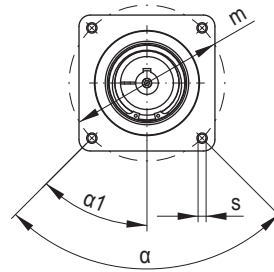
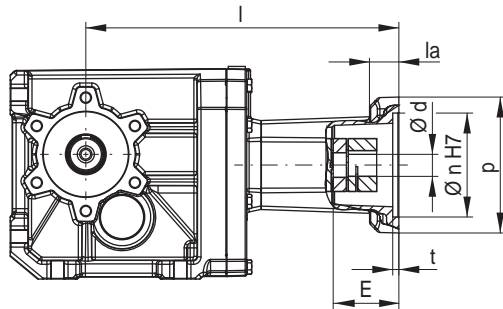
## NEMA Adapter N56 to N364



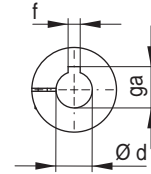
Type	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
p	6.69	6.69	9.84	9.84	11.81	8.86	11.02	13.78	15.75
n	4.50	4.50	8.50	8.50	8.50	8.50	10.50	12.50	12.50
la	0.51	0.51	0.39	0.66	0.39	1.18	1.38	0.59	0.59
m	5.88	5.88	7.25	7.25	7.25	7.25	9.00	11.00	11.00
t	0.18	0.18	0.20	0.13	0.20	0.20	0.12	0.20	0.20
s	0.43	0.43	0.55	0.55	0.55	0.55	0.55	0.75	0.75
α	90°	90°	90°	90°	90°	90°	90°	90°	90°
α <sub>1</sub>	45°	45°	45°	45°	45°	45°	45°	45°	45°
d	0.63	0.88	1.13	1.13	1.38	1.63	1.88	2.13	2.38
f	0.19	0.19	0.25	0.25	0.31	0.38	0.50	0.50	0.63
ga	0.71	0.96	1.24	1.24	1.52	1.80	2.10	2.35	2.65
E	2.17	2.17	2.66	3.81	3.17	4.15	4.39	4.31	4.31

Gear unit size	N56	N143/145	N182	N184	N213/215	N254/256	N284/286	N324/326	N364
	l								
K02	7.54	7.54	-	-	-	-	-	-	-
K03	8.58	8.58	9.80	-	-	-	-	-	-
K04	9.27	9.27	10.49	12.58	-	-	-	-	-
K05	9.69	9.69	10.91	12.99	13.43	-	-	-	-
K06	9.07	9.07	10.30	12.38	12.81	-	-	-	-
K07	10.26	10.26	11.48	13.56	14.00	17.38	-	-	-
K08	12.19	12.19	13.41	15.49	15.93	19.25	19.37	-	-
K09	12.97	12.97	14.19	16.28	16.71	20.04	20.16	22.03	-
K10	-	-	-	18.41	18.84	22.07	22.19	24.06	24.67
K12	-	-	-	20.33	20.77	24.00	24.11	25.98	26.59
K15	-	-	-	-	-	24.78	24.90	27.38	27.38

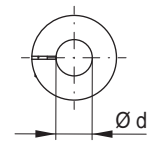
## SERVO Adapter S92 bis S190



Shaft with key



Smooth shaft



Type	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190									
p	3.98	5.67	5.67	5.67	5.67	5.67	5.67	7.76	7.76	7.76									
n	3.15	3.74	3.74	4.33	4.33	4.33	5.12	4.50	5.12	7.09									
la	0.69	1.22	1.22	1.22	1.22	1.22	1.22	1.38	1.26	1.50									
m	3.94	4.53	5.12	5.12	5.71	6.50	6.50	7.87	8.46	8.46									
t	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26									
s	M6x0.47	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x0.63	M8x16	0.53	0.59	0.59									
α	90°	90°	90°	90°	90°	90°	90°	90°	90°	90°									
α <sub>1</sub>	45°	45°	45°	45°	45°	45°	45°	45°	45°	45°									
d <sup>1)</sup>	0.55	0.63	0.75	0.75	0.75	0.94	0.94	0.75	0.87	0.94	1.10	0.94	0.94	1.26	1.38	1.26	1.50	1.50	
f	0.20	0.20	0.24	0.24	0.24	0.31	0.31	0.24	0.24	0.31	0.31	0.31	0.31	0.39	0.39	0.39	0.39	0.39	0.39
ga	0.64	0.72	0.86	0.86	0.86	1.07	1.07	0.86	0.98	1.07	1.23	1.07	1.07	1.39	1.51	1.39	1.39	1.39	1.63
E <sup>2)</sup>	1.87	2.74	2.74	2.11	2.11	2.97	2.97	2.46	2.46	2.62	2.46	2.46	2.46	2.58	2.89	2.34	3.41	3.41	3.41
E <sup>3)</sup>	1.87	2.74	2.74	2.62	2.62	2.97	2.97	2.97	2.46	2.11	2.97	2.46	3.41	2.89	2.34	3.41	3.41	3.41	3.41

<sup>1)</sup> Other shaft diameters on request

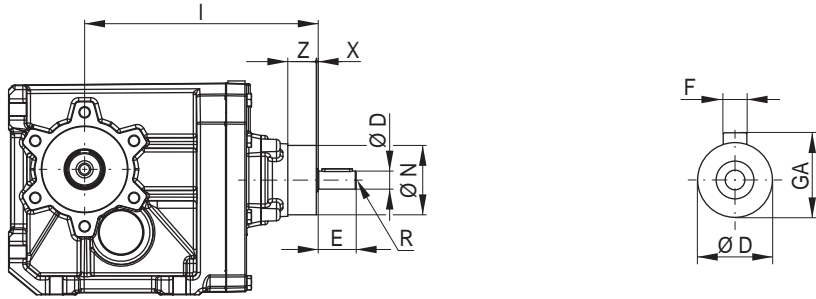
<sup>2)</sup> Maximum motor shaft length for motors with key

<sup>3)</sup> Maximum motor shaft length for motors with smooth shaft

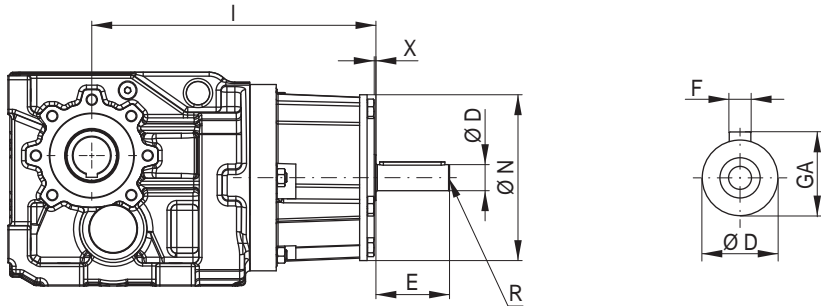
Gear unit size	S92	S105	S114	S115	S130	S141	S142	S180	S189	S190
	l									
K02	9.02	10.91	10.91	10.91	10.91	10.91	10.91	-	-	-
K03	10.06	11.95	11.95	11.95	11.95	11.95	11.95	-	-	-
K04	10.75	12.64	12.64	12.64	12.64	12.64	12.64	15.41	15.18	16.24
K05	11.16	13.05	13.05	13.05	13.05	13.05	13.05	15.83	15.59	16.65
K06	10.55	12.44	12.44	12.44	12.44	12.44	12.44	15.22	14.98	16.04
K07	11.73	13.62	13.62	13.62	13.62	13.62	13.62	16.40	16.16	17.22
K08	13.66	15.55	15.55	15.55	15.55	15.55	15.55	18.33	18.09	19.15
K09	14.45	16.34	16.34	16.34	16.34	16.34	16.34	19.11	18.88	19.94
K10	-	-	-	-	-	-	-	21.24	21.00	22.07
K12	-	-	-	-	-	-	-	23.17	22.93	24.00
K15	-	-	-	-	-	-	-	-	-	-

Dimensions in inch.

### Input Unit U2, U3



### Input Unit U5, U6, U7



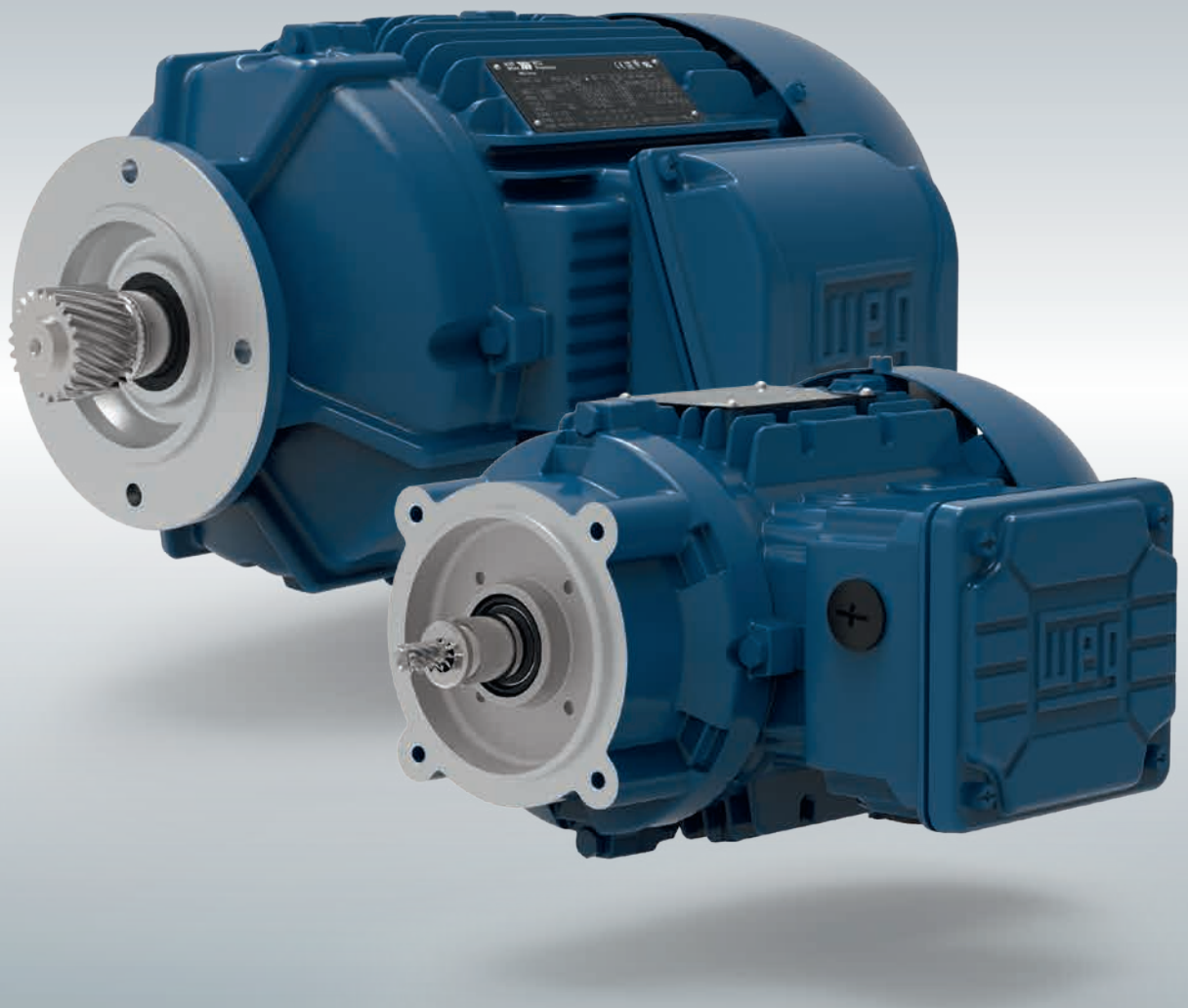
Type	Input shaft						
	19x40*	24x50*	28x60*	38x80*	42x110*	48x110*	55x110*
	U2	U3	U5			U6	U7
D	0.75	0.94	1.10	1.50	1.65	1.89	2.17
F	0.24	0.31	0.31	0.39	0.47	0.55	0.63
GA	0.85	1.06	1.22	1.61	1.77	2.03	2.32
E	1.57	1.97	2.36	3.15	4.33	4.33	4.33
N	2.87	3.98	7.01			9.25	11.42
X	0.08	0.10	0.07			0.26	0.16
Z	0.12	1.38	-			-	-
R	M6	M10	M10	M12	M16	M16	M20

Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
D	< Ø 55 mm (2.17 in)	k6
	≥ Ø 55 mm (2.17 in)	m6

Gear unit size	Input shaft				
	19x40*	24x50*	28x60* 38x80* 42x110*	48x110*	55x110*
	U2	U3	U5	U6	U7
	I				
K02	7.54	-	-	-	-
K03	8.58	-	-	-	-
K04	9.27	10.53	-	-	-
K05	9.69	10.94	-	-	-
K06	9.07	10.33	12.01	-	-
K07	10.26	11.52	13.19	-	-
K08	12.19	13.44	15.06	15.93	-
K09	12.97	14.23	15.85	16.71	-
K10	-	16.36	17.87	18.74	21.46
K12	-	18.29	19.80	20.67	23.39
K15	-	-	20.59	21.46	24.17

\* Shaft sizes in mm.





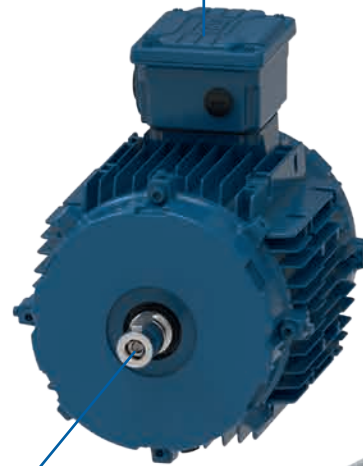
## Modular System Motor





Terminal box designs  
page 494

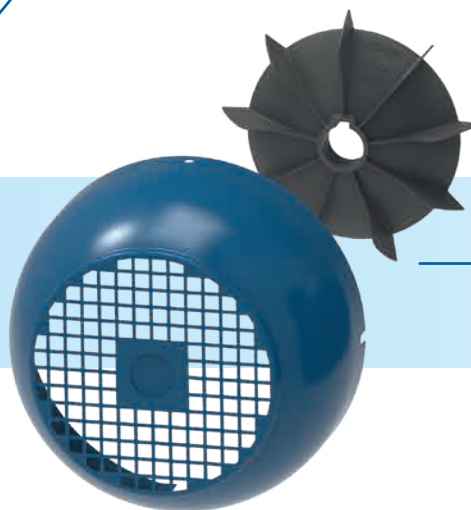
M



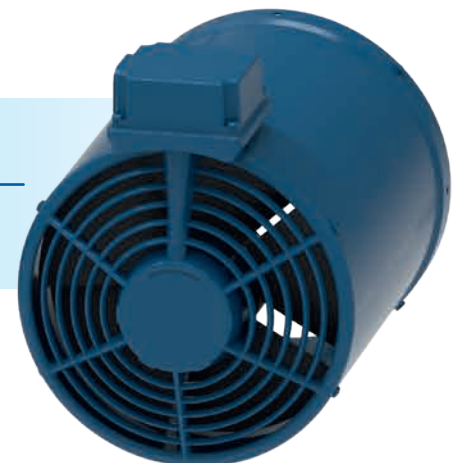
Brake systems  
and backstops  
page 497



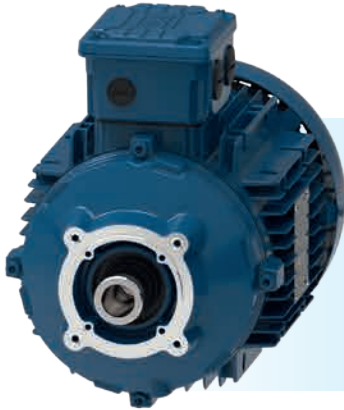
Encoder systems  
page 508



Ventilation systems  
page 511



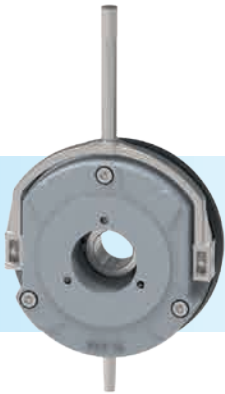




Motor series 11  
with aluminium housing  
(frame sizes 63 - 132)



Motor series 22  
with cast iron housing  
(frame sizes 160 - 250)



## The modular motor system

Our motor system is an optimized and modularly designed kit. It includes harmonized modules like brakes, encoders, forced ventilation and connecting systems which are combined to meet the customer's requirements.

The significant advantage of this concept offers fast and reliable delivery times, not only to our local customers but also internationally, because WEG's competent sales network and assembling centers guarantee the availability of components worldwide.

Detailed description of the motor modules from page 493.

## The modular system motor

Due to special windings and clever connecting systems it's possible to use the same motor all over the world. Just a change of connection (4 possible options) and the motor can do its job reliably in Europe, USA or Far East, from 115 V to 690 V, 50 Hz and 60 Hz.

### The modular system motor is available in two energy efficiency classes:

- IE1: Series 11N, IEC frame sizes 63 to 80 (up to 0.75 hp)
- IE3: Series 11P (aluminium), IEC sizes 80 to 132 (1.0 - 12.5 hp);  
Series 22P (cast iron), IEC sizes 160 to 250 (15-100 hp)
- Motors in energy efficiency class IE4 on request

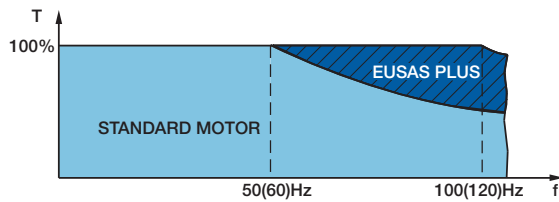
### Advantages

- Wide voltage range
- Switchable to all usual voltages worldwide:
  - 115-460 V - 50/60 Hz up to and including frame size 100
  - 200-690 V - 50/60 Hz for frame sizes 112 to 250
- Frequency inverter operation 100/120 Hz
- Ambient temperature -4 to +104 °F
- Nameplate with 50/60 Hz data
- Flexible adjustment of the terminal box
- Reinforced bearings (integral motor)
- Shaft system for immediate assembling of motor modules, like encoders, brakes, backstop, etc.
- Degree of protection IP55
- Thermal protection with bimetal switch and PTC thermistor
- Thermal class F
- System motor, prepared for flexible assembling of motor modules
- Certified for worldwide distribution: CE, CSA, UL, EAC

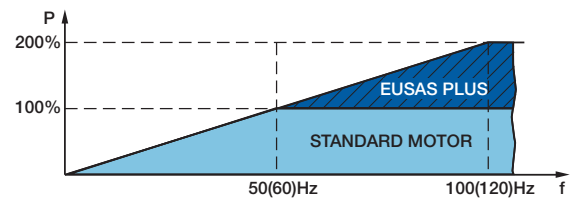
### The ideal motor for frequency inverter operation

Switchable to 100/120 Hz. Simply switch over and use the double output.

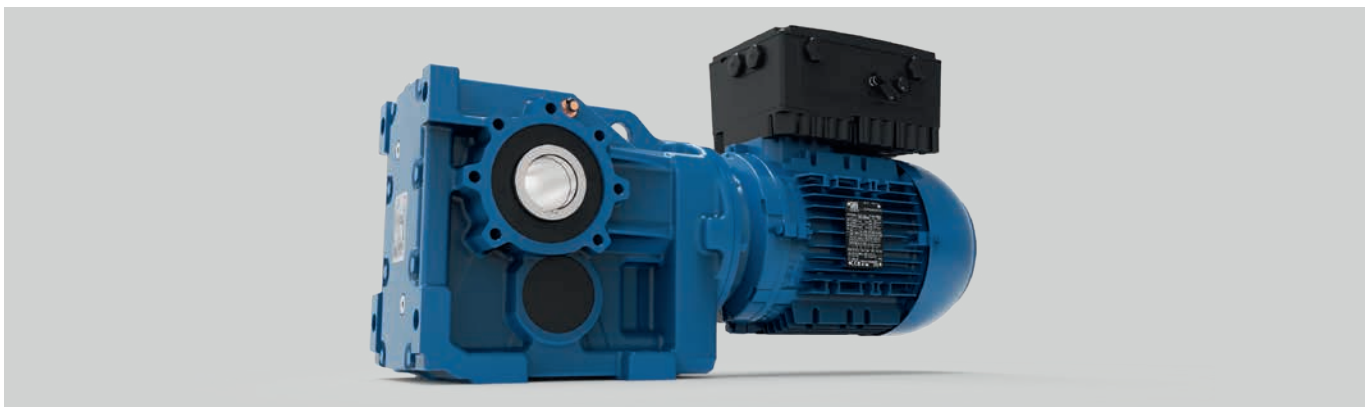
The excellent combination of the modular system motor and variable speed drives by WEG (type CFW for various applications and decentralized motor drive MW500) enables drive systems with a wide speed range.



Rated torque up to double rated speed



Two times rated power at double rated speed



WG20 geared motor with decentralized motor drive MW500

## Type code

11P-EX-L100L-04F-LT-TH-SH-K1-KB-MIP-BR..-SG-FL-SD

1 2 3 4 3 5 6 7 8 9 10 11 12 13 14 15 16

- 1** Motor series:                    11N = Aluminium motor in energy efficiency class IE1, frame sizes 63 - 80 (up to 0.75 hp)  
    11P = Aluminium motor in energy efficiency class IE3, frame sizes 80 - 132 (1 - 12.5 hp)  
    22P = Cast iron motor in energy efficiency class IE3, frame sizes 160 - 250 (15 - 100 hp)
- 2** ATEX execution:                    when operated in explosive atmospheres, see page 482
- 3** Stator length:                    L.  
    .S  
    .S/L  
    .S/M  
    .M  
    .L
- 4** IEC frame size:                    63        132  
    71        160  
    80        180  
    90        200  
    100      225  
    112      250
- 5** Number of poles:                    04 = 4 poles  
    06 = 6 poles
- 6** Power indicator:                    E  
    F  
    G
- 7** High/Low temperature execution:    see page 493
- 8** Temperature control:                    see page 493
- 9** Anti-condensation heater:                    see page 493
- 10** Climatic protection:                    see page 494
- 11** Drain:                                    see page 494
- 12** Terminal box designs:                    see page 494
- 13** Brake systems and backstop:                    see page 497
- 14** Encoder systems:                    see page 508
- 15** Ventilation systems:                    see page 511
- 16** Additional modules:                    see page 513



# Options

## 1. Basic execution

Description	Key	Page	IEC frame size														
			63	71	80	90	100	112	132	160	180	200	225	250			
Switchable voltage (4 connections)	-	482															
Temperature controller for switch off (+311 °F)	TH	493															
PTC thermistor protection for switch off (+311 °F)	TF	493															
Thermal class F (up to +311 °F)	-	482															
Fixed bearing NDE	-	-															
Fixed bearing DE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Degree of protection IP55	-	18															
Certifications (CE, EAC, UL, CSA)	-	-															

## 2. Electrical options

Description	Key	Page	IEC frame size														
			63	71	80	90	100	112	132	160	180	200	225	250			
Special voltage SPECI-Volt	-	482															
Temperature controller for warning and switch off	2TH	493															
PTC thermistor protection for warning and switch off	2TF	493															
Temperature sensor KTY	KTY	493															
Temperature sensor PT100	-	-															
Anti-condensation heater 230 V	SH	493	-														
Thermal class H (up to +356 °F)	-	-															

## 3. Mechanical options

Description	Key	Page	IEC frame size														
			63	71	80	90	100	112	132	160	180	200	225	250			
Degree of protection IP56	-	18															
Degree of protection IP65	-	18															
Degree of protection IP66	-	18															
Degree of protection IP67	-	18															
High temperature execution (max. +176 °F ambient temperature)	HT	493															
Low temperature execution	LT	493															
ATEX zone 2+22: II 3G Ex ec IIC T3 Gc / II 3D Ex tc IIIC T125°C Dc	EX	482															
Humidity protection K1	K1	494															
Corrosion protection K2	K2	494															
Drain	KB	494															
Multipin box	MIP	494															
Multi-plug-connect systems	MIG..	495															
Multi-plug-connect system for forced ventilation	MIG10-FL	495															
Non-ventilated without NDE shaft end	U	512															
Non-ventilated with NDE shaft end	UW	512															
Different position of the terminal box	-	-															
Relubrication	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Standard
- Special execution (on request)
- Not available

#### 4. Options - motor modules

Description	Key	Page	IEC frame size													
			63	71	80	90	100	112	132	160	180	200	225	250		
Spring loaded brake - IP55, 24 V	BR..	501														
Spring loaded brake - IP55, 102 V	BR..	501														
Spring loaded brake - IP55, 190 V, 195 V	BR..	501														
Double spring loaded brake in low noise execution	BBRHGD..	502	-													
Totally enclosed spring loaded brake - IP66	BRGH..	503	-													
Manual release for brake	(BR)H..	501	1)													
Locking device for manual release	(BR)HA..	501	1)													
Corrosion protection IP55 for brake	(BR)R..	501														
Dust protection IP65 for brake	(BR)S..	501	1)													
Corrosion and dust protection IP65 for brake	(BR)SR..	501	1)													
Brake in low noise execution	(BR)GD..	501	-													
Micro switch	(BR)M	501	2)	2)	2)											
Anti-condensation heater for brakes	-	503	-	-												
Fast excitation rectifier	-	505														
Backstop KKM	KKM	507						-	-	-	-	-	-	-	-	-
Backstop RSM	RSM	507	-	-	-	-										
Encoder outside the fan cover	I.	508														
Encoder inside the fan cover	S.	508	-													
Encoder (1024 pulses, HTL/TTL, IP66)	.G	508	I.	S.												
Mating plug for encoder without cable	-	-	I.	S.												
Mating plug for encoder with cable	-	-	I.	S.												
SINCOS encoder	.C	508	-	-												I. S.
Resolver	.R	508	-												-	-
Special encoder	.A	509														
SSI multiturn encoder	SS	509	-													
Heavy Duty encoder	SV	509	-	-	-											
Forced ventilation (TEFV)	FL	511														
Fly wheel fan	ZL	512	-								-	-	-	-	-	-
Hand wheel	HR	513	-													
Protection cap	SD	513														
Protection cap for encoders	ID	513	-	-	-											
Second shaft end - module shaft	ZWM	514	-													
Second shaft end - solid shaft	ZWV	514													-	-

#### 5. Additional options

Description	Key	Page	IEC frame size													
			63	71	80	90	100	112	132	160	180	200	225	250		
Special nameplate (aluminium)	-	-														
Second nameplate (not fixed, aluminium or stainless steel)	-	-														
Metal fan	ZM	512														
Vibration severity grade "B" (reduced) according to DIN IEC 60034-14	-	482														
Wide range grease (-354 °F to +1548 °F)	-	-														

1) not possible with 2 Nm (18 lb-in) brake

2) Micro switch not possible for totally closed brakes at 2 Nm (18 lb-in) and 5 Nm (44 lb-in)

	Standard		Special execution (on request)
	Optional		Not available

# General information

Frame size		63	71	(L)80	90S/L	(L)100L	112M	132S, L132M	160M,L	180M,L	200L	225S/M	250S/M	
<b>Mechanical features</b>														
Mounting form		B14R						B5R						
Housing material		aluminium EN AC-46100						cast iron EN GJL-200						
Degree of protection		IP55												
Grounding		simple grounding - one inside the terminal box										double - in the terminal box and on the frame		
Cooling method		fan - IC411 (TEFC)												
Fan material		polypropylen										aluminium		
Fan cover material		sheet steel												
Endshields material		aluminium EN AC-46100 *						cast iron EN GJL-200						
Drain		rubber drain plug												
Bearings	Locking	without bearing cap with circlip - NDE						without bearing cap with circlip - DE			internal + external bearing cap and spring washers - NDE			
	DE	6203 ZZ	6204 ZZ	6205 ZZ	6305 ZZ	6207 ZZ	6307 ZZ	6309 ZZ	6309 ZZ-C3	6312 ZZ-C3	6314 ZZ-C3	6314 ZZ-C3	6316 ZZ-C3	
	NDE	6201 ZZ	6203 ZZ	6203 ZZ	6205 ZZ	6206 ZZ	6206 ZZ	6308 ZZ	6209 ZZ-C3	6211 ZZ-C3	6212 ZZ-C3	6314 ZZ-C3	6314 ZZ-C3	
Shaft seal	Type	radial shaft seal												
	DE	17x30x7	20x30x7	25x40x7	25x40x7	35x52x7	35x52x7	45x60x8	45x60x8	60x90x10	60x90x10	70x90x10	70x90x10	
	NDE	12x22x7	17x28x5	17x28x5	25x35x7	30x40x4	30x40x4	40x56x8	45x62x7	55x70x8	60x75x8	70x85x8	70x85x8	
	Material	NBR												
Lubrication	Type of grease	Mobil Polyrex EM												
	Grease fitting	without grease fitting												
Terminal block		9 pins												
Terminal box material		aluminium EN AC 47000						cast iron EN GJL-200						
Cable entry	Main	2 x M25x0.06				2 x M32x0.06		2 x M40x0.06		2 x M50x0.06		2 x M63x0.06		
	Accessory	2 x M16x0.06												
	Plug	threaded plug for transport and storage; cable gland optional												
Shaft material		1.0511/1.1191 – C40/C45E – AISI 1040/45										1.7225 - 42CrMo4 - AISI 4140		
Direction of rotation		both directions												
Vibration		class A												
Nameplate material		stainless steel 1.4301 (AISI 304)												
Flange		FC-120					FC-160			FR-200 FR-250 FR-300 FR-400 FR-550	FR-250 FR-300 FR-400 FR-550	FR-300 FR-400 FR-550	FR-400 FR-550	FR-550
<b>Electrical features</b>														
Power [hp] 4 poles		0.16 - 0.25	0.33 - 0.50	0.75 - 1.0	1.5 - 2.0	3.0 - 4.0	5.5	7.5 - 12.5	15.0 - 20	25 - 30	40	60 - 75	100	
Power [hp] 6 poles		0.16	0.25 - 0.33	0.50 - 0.75	1.00	1.5 - 2.0	3.0	4.0 - 7.5	-	-	-	-	-	
Design		N												
Voltage / Frequency		Δ			230 V (50Hz) // 265 V (60Hz)			Δ			400 V (50 Hz) // 460 V (60 Hz)			
		ΔΔ			115 V (50 Hz) // 132 V (60Hz)			ΔΔ			200 V (50 Hz) // 230 V (60 Hz)			
		Y			400 V (50 Hz) // 460 V (60 Hz)			Y			690 V (50 Hz) // -			
		YY			200 V (50 Hz) // 230 V (60 Hz)			YY			346 V (50 Hz) // 400 V (60 Hz)			
Winding	Impregnation	dip										continuous flow impregnation		
	Insulation class	F (DT 80K)												

\* Except frame sizes L100L and L132M: endshield (NDE) made from cast iron EN GJL-200

## 1. Nameplate

The stainless steel plate is fixed on the frame and bears data for 50 Hz and 60 Hz. The information on the nameplate contains all relevant specifications of the product (see examples for motor frame sizes 90, 132 and 160).

W21 14057615									
M330015009A4YC12031G									
~ 3 AL90S/L-04									
IP55 INS CLF ΔT 80 K S1 SF 1.00 AMB 40°C									
V	Hz	kW	RPM	A	PF				
115 ΔΔ / 200 Y Y	50	1.5	1450	11.0 / 6.30	0.80				
230 Δ / 400 Y				5.50 / 3.15					
132 ΔΔ / 230 Y Y	60	1755	1755	9.72 / 5.58	0.78				
265 Δ / 460 Y				4.84 / 2.78					
50Hz	IE3	86.0 (100%)	86.0 (75%)	84.0 (50%)					
60Hz		86.5 (100%)	85.5 (75%)	82.5 (50%)					
IEC 60034-1 MOD.TE0=AOX0\$0000300647									
NEMA Eff 86.5% 2.0HP 460 V 60Hz 1755 RPM									
2.78 A PF 0.78 DES A CODE L SF 1.15 CCO29A									
→ 6305-ZZ MOBIL POLYREX EM 23 kg									
→ 6205-ZZ									
2753 Markt Piesting, Austria									

W21 14057670									
M330055013A48C16031G									
~ 3 AL132S-04									
IP55 INS CLF ΔT 80 K S1 SF 1.00 AMB 40°C									
V	Hz	kW	RPM	A	PF				
200 ΔΔ / 346 Y Y	50	5.5	1465	20.6 / 11.9	0.85				
400 Δ / 690 Y				10.3 / 5.97					
230 ΔΔ / 400 Y Y	60	1765	1765	18.1 / 10.4	0.83				
460 Δ / -				9.05 / -					
50Hz	IE3	90.7 (100%)	90.7 (75%)	90.0 (50%)					
60Hz		91.7 (100%)	91.0 (75%)	88.5 (50%)					
IEC 60034-1 MOD.TE0=AOX0\$0000302360									
NEMA Eff 91.7% 7.5HP 460 V 60Hz 1765 RPM									
9.05 A PF 0.83 DES A CODE K SF 1.15 CCO29A									
→ 6309-ZZ MOBIL POLYREX EM 69 kg									
→ 6308-ZZ									
2753 Markt Piesting, Austria									

W22 Premium									
M430110016G41R20010G									
~ 3 160M-04									
IP55 INS CLF ΔT 80 K S1 SF 1.00 AMB 40°C									
V	Hz	kW	RPM	A	PF	Eff	100%	75%	50%
200 ΔΔ / 346 Y Y	50	11	1470	41.8 / 24.1	0.83	IE3	91.6	91.8	91.1
400 Δ / 690 Y				20.9 / 12.1					
230 ΔΔ / 400 Y Y	60	1775	1775	36.9 / 21.2	0.81	92.4	92.2	91.0	
460 Δ / -				18.4 / -					
MOD.TE1BFOX0\$ IEC 60034-1									
NEMA Eff 92.4% 15HP 460 V 60Hz 1775 RPM									
18.4 A PFD.81 Des A Code K SF 1.00 CCO29A									
→ 6309-ZZ-C3									
→ 6209-ZZ-C3 MOBIL POLYREX EM									
2753 Markt Piesting, Austria									
Alt 1 000 m.a.s.l. 127 kg									

## 2. Voltage and frequency fluctuations

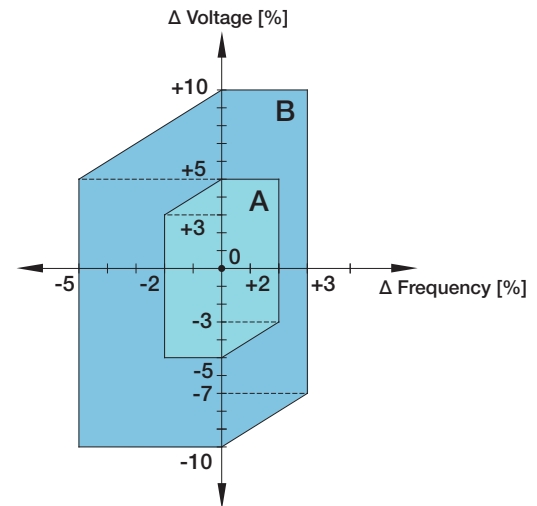
According to DIN EN 60034-1, a distinction is made between range A and range B (outside A) for voltage and frequency fluctuations. Range A and range B describe the permissible range in which frequency and voltage levels are permitted to deviate from the relevant measurement point (see illustration). The coordinate mean point "0" identifies the measurement point for the frequency and voltage in each case. The motor must be able to issue the rated torque in both ranges A and B.

### Range A

In continuous operation in range A, the characteristics are permitted to vary from the rated operation, and the heating at the limits of range A can be around 10 K higher.

### Range B

The deviations from the characteristics are permitted to be greater than in range A, the heating levels can be higher than at the measurement point. Duration and frequency of operation in range B should be limited. Corrective measures, e.g. power reduction, should be provided. If a machine has multiple rated voltages or a rated voltage range, the permissible voltage and frequency fluctuations apply for each individual value of the rated voltage.



Ranges A and B according to DIN EN 60034-1

### 3. Modes of operation

Duty type according to DIN EN 60034-1 and VDE 0530-1.

The duty type is designated by the abbreviations S1 to S10. For the duty types S4, S5 and S7 the duty cycles/hour (c/h) and the factor of inertia  $F_I$  should also be stated at the bottom.

The factor of inertia  $F_I$  is the ratio of the total load moment of inertia (referred to the motor shaft) and the motor moment of inertia, to the motor moment of inertia, i.e.

$$F_I = \frac{\sum J_{ex,red} + J_{mot}}{J_{mot}}$$

Definition		Example
S1	Continuous running duty with constant load	S1
S2	Short-time duty with constant load Duration of operation under rated conditions (recommended values: 10, 30, 60 or 90 min)	S2 10 min
S3	Intermittent periodic duty. Motor temperature not affected by starting operation Cyclic duration factor (recommended values: 15, 25, 40 or 60 %): Cycle duration (10 min unless otherwise stated)	S3 25 % 60 min
S4	Intermittent periodic duty. Motor temperature affected by starting operation Cyclic duration factor (recommended values: 15, 25, 40 or 60 %): Indication of the duty cycles per hour and of the factor of inertia $F_I$	S4 40 % 200, $F_I=2$
S5	Intermittent periodic duty. Motor temperature affected by starting operation and electric braking Cyclic duration factor (recommended values: 15, 25, 40 or 60 %): Indication of the duty cycles per hour and of the factor of inertia $F_I$	S5 15 % 300, $F_I=1$
S6	Continuous operation periodic duty. Cyclic duration factor (recommended values: 15, 25, 40 or 60 %): Cycle duration (10 min unless otherwise stated)	S6 25 % 60 min
S7	Continuous operation with starting and electric braking Indication of the duty cycles per hour and of the factor of inertia $F_I$	S7 200, $F_I=1$
S8	Continuous operation with related load/speed changes (Sequence of similar cycles) Speeds during the duty cycle Periods for which these speeds are maintained during the duty cycle Indication of the factor of inertia $F_I$	S8 3000 <sup>min-1</sup> , 10 min 1500 <sup>min-1</sup> , 15 min $F_I=1,5$
S9	Continuous operation duty with unrelated load/speed changes	S9
S10	Duty with discrete constant loads and speed	S10 $F_I=0,6$

Legend see page 504.

### 4. Rated power according to VDE 0530-1

The listed rated power of the motor corresponds to the output power according to VDE 0530-1 for continuous operation S1, frequency 50/60 Hz, max. ambient temperature +104 °F, max. altitude 3280 ft above sea level.

According to this standard at rated values (voltage and frequency) the motors may be overloaded for two minutes by 1.5 times the rated current, without damage of the winding.

The motors are calculated by rated values according to thermal class B, but produced in class F and by operation with rated values fit for higher loads:

- a. At rated power and rated voltage the ambient temperature may be increased from +104 °F to +140 °F.
- b. Provided that ambient temperature does not exceed +104 °F, the normal capacity in continuous operation can be increased by appr. 10 %.

All technical data stated applies to rated frequency of 50 Hz and supply voltage of 400 V rated voltage at rated power. If the load changes, the stated values will deviate to higher or lower.



## 5. Power correction factors

S2			
Time [min]	Motor frame size	Poles	
		2	4-8
15	63 - 132	1.20	1.25
30		1.05	1.10
60		1.00	1.00
15	160 - 200	1.40	1.45
30		1.20	1.25
60		1.10	1.10
15	225 - 250	1.45	1.45
30		1.30	1.30
60		1.15	1.15

S3			
DC [%]	Motor frame size	Poles	
		2	4-8
15	63 - 132	1.15	1.40
25		1.10	1.30
40		1.05	1.20
60		1.03	1.10
15		1.30	1.40
25	160 - 200	1.20	1.30
40		1.10	1.20
60		1.05	1.10
15		1.35	1.40
25	225 - 250	1.25	1.30
40		1.15	1.20
60		1.05	1.10

S6			
DC [%]	Motor frame size	Poles	
		2	4-8
15	63 - 132	1.20	1.30
25		1.15	1.25
40		1.10	1.20
60		1.05	1.15
15	160 - 200	1.25	1.30
25		1.20	1.25
40		1.15	1.20
60		1.10	1.15
15	225 - 250	1.30	1.35
25		1.25	1.30
40		1.15	1.25
60		1.10	1.15

- Factors for low voltage safe area motors with insulation class F/B ( $\Delta T80K$ )
- The breakdown torque should be at least 30 % higher than factors

## 6. Torque

The motors are fitted with squirrel-cage rotors suitable for direct online starting. The values of starting torque and breakdown torque, expressed as a multiple of the rated torque, are given in the performance data. A deviation in the voltage from rated value changes the torques as an approximate function of the square of the voltages.

## 7. Efficiency class

WG20 geared motors are available in NEMA Standard Efficiency and NEMA Premium Efficiency. They meet the requirements and regulations of all respective standards. List of standards see page 514. Our motors are labelled with efficiency class and factor on the nameplate.

## 8. Motor protection

The correct selection of protective equipment essentially determines the operation reliability and service life of motors. Current dependent protection and thermal protective devices are available. Fuses do not protect the motor against overloads, they only protect the supply cables or switchboards against short circuits.

## 9. Overload protection (protection relay)

It is recommended to use starters with thermal overload protection. The overloads should be adjusted to the rated current shown on the nameplate. For thermal protective devices (thermistors in windings) see page 493.

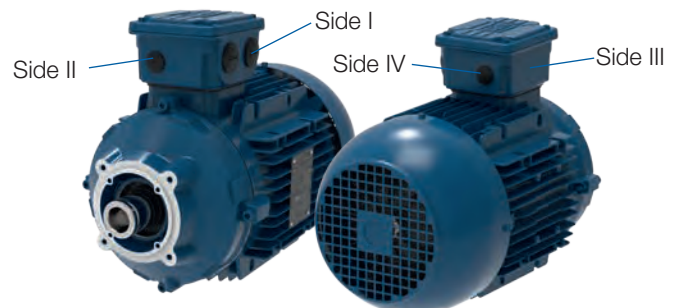
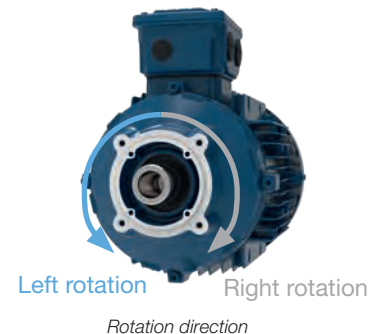
## 10. Speed and rotation direction

The rated speed is valid for the rated data (voltage, frequency). The synchronous speed depends on the line frequency.

The motors are able for operation in both directions. By connection of U1, V1, W1 to L1, L2, L3 the rotation will be to the right if you look at the shaft from the driveside. Left direction can be easily made by changing of two wires.

## 11. Cable entry

For all frames, the terminal box can be rotated in 90° increments. Terminal boxes are not delivered with cable glands as a standard. Motors are supplied with plastic threaded plugs in the cable entries to maintain the degree of protection during transport and storage. In order to guarantee the degree of protection, cable entries must comply with at least the same degree of protection indicated on the motor nameplate.



Side designation for cable entries

## 12. Motors for the Ex area according to Directive 2014/34/EU

The modular integral motors can be used in both safe area applications and explosion-proof areas. The motors are certified for category 3, zone 2+22.

Zone 2: II 3G Ex ec IIC T3 Gc  
 Zone 22: II 3D Ex tc IIIC T125°C Dc

The protection types in this case are increased safety (Ex ec) and protection by means of housing (Ex tc). The motors can be used in a temperature range of -4 to +104 °F. If temperatures deviate or additional motor options (brakes, encoders, etc.) are required, please contact us beforehand.

## 13. Cooling

The motors are totally enclosed fan cooled (TEFC) by means of external surface ventilation (IC411), as per IEC 60034-6. Maximum ambient temperature +104 °F. Please check the minimum distance “Y” (see dimension sheets from page 488) between the fan cover and adjacent wall.

### ▪ Integral fans (TEFC, IC411)

Particular attention has been dedicated to the shape in order to reduce noise and improve the efficiency of the motor. Radial construction has been selected to allow rotation in both directions.

### ▪ Fan cover

In treated steel plate, properly profiled to improve efficiency and reduce the noise produced by the fan.

### ▪ Forced ventilation (TEFV, IC416) see also page 511

For special operating conditions, e.g. increased permissible number of operations per hour or variable speed operation, the motors of IEC sizes 63 to 250 can be supplied with forced ventilation by means of a separately fitted fan motor.

## 14. Insulation

The motors in this catalog comply with the requirements of thermal class F. All windings are impregnated with varnish with a high mechanical strength. The maximum temperature of the insulation is, according to thermal class F, at +311 °F. The motors are utilized at rated values according to thermal class B (+266 °F). Copper wire insulation and the impregnation varnish have a temperature index class F and therefore there is a large margin of safety in addition to high overload capacity.

Motors from frame size 160 are equipped with the WISE® insulation system of the new W22 motor range by WEG.

## 15. Noise levels

Noise measurements were taken in accordance with standard IEC 60034-9 (see table to the right).

## 16. Balancing of rotors

Motors comply with vibration strength level "A" according to standard IEC 60034-14. On request, motors may also be balanced according to level "B".

## 17. Shaft ends

Shaft ends of motors in frame sizes 63 up to 132 are equipped with a conical bore and do not have a key, while the frame sizes 160 and 250 have a shaft with closed end keyway. On the non-driven side, modular motors have a system shaft to mount motor modules, such as brakes, encoders, backstops, etc.

## 18. Voltage, current and frequency

In standard execution the motors are delivered with following rated voltages: see Chapter 19 - Electrical connection.

### Special voltages

Motors for special voltages and/or frequencies are available on request.

### Speed and connection

Tolerance of the motor speed according to IEC 60034. Terminal board connection see page 483.

Frame size	Noise level - dB(A), Distance: 1 meter	
	60 Hz	
	4p	6p
63	48	47
71	47	47
80	48	47
90	51	49
100	54	53
112	56	52
132	58	55
160	-	-
180	-	-
200	-	-
225	-	-
250	-	-

## Connection

### ▪ Direct connection









The starting torque in direct connection amounts to 160 to 330 % of the rated torque, depending on power and number of poles. The starting current is about 2.5 to 8 times of the rated current.

### ▪ Star-delta starting




The star-delta (Y-D) starting is an easy way to reduce the starting current and starting torque. Motors can be started with this starting method whenever the supply voltage corresponds to the rated voltage of the motors in delta connections. Up from frame size 112 the standard modular motors are supplied with windings designed for this starting method (e.g. 400 V D / 690 V Y). A Y-D-starting is only possible with delta service connection (this shall be considered when selecting a motor!), as the motor is first Y-connected and is changed over to D-connection after the run-up phase. At Y-D-starting, the starting currents and torques will be reduced to about 1/3 of the values produced in case of direct-online starting. Attention should be paid to the fact that a current impulse is produced when changing over to D-connection.

## 19. Electrical connection







### Motor series 11N (IEC frame sizes 63 to 80) and 11P (IEC frame sizes 90 to 100)

Possible connection		Rated voltages*		Frequency inverter operation	
		Rated power $P_N$	Increased rated power $1,2 \times P_N$		
	Delta	230 V at 50 Hz 265 V at 60 Hz	- 265 V at 60 Hz		400 V, 87 Hz
	Delta - Delta	115 V at 50 Hz 132 V at 60 Hz	- 132 V at 60 Hz		230 V, 100 Hz
	Star (basic connection)	400 V at 50 Hz 460 V at 60 Hz	- 460 V at 60 Hz		400 V, 100 Hz
	Star - Star	200 V at 50 Hz 230 V at 60 Hz	- 230 V at 60 Hz		460 V, 120 Hz

### Motor series 11P (IEC frame size 80)

Possible connection		Rated voltages*		Frequency inverter operation	
		Rated power $P_N$	Increased rated power $1,2 \times P_N$		
	Star (basic connection)	460 V at 60 Hz	460 V at 60 Hz	-	-
	Star - Star	230 V at 60 Hz	230 V at 60 Hz		460 V, 120 Hz

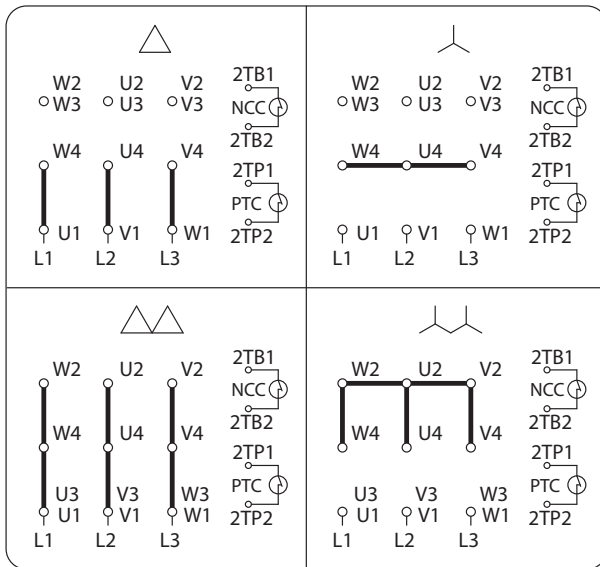
### Motor series 11P and 22P (IEC frame sizes 112 to 250)

Possible connection		Rated voltages*		Frequency inverter operation	
		Rated power $P_N$	Increased rated power $1,2 \times P_N$		
	Delta (basic connection)	400 V at 50 Hz 460 V at 60 Hz	- 460 V at 60 Hz		400 V, 100 Hz
	Delta - Delta	200 V at 50 Hz 230 V at 60 Hz	- 230 V at 60 Hz		460 V, 120 Hz
	Star	690 V at 50 Hz -	-	-	-
	Star - Star	346 V at 50 Hz 400 V at 60 Hz	- 400 V at 60 Hz	-	-

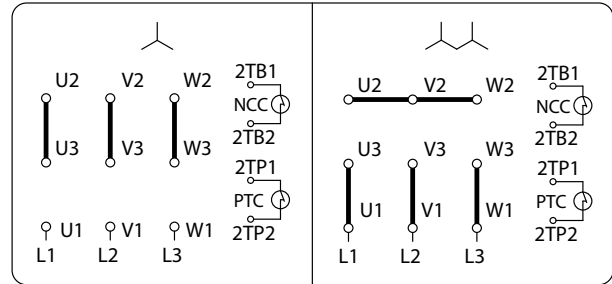
\* Tolerances of rated voltages in compliance with range A according to DIN EN 60034-1 (see page 479)

## Terminal board connection

### Motor series 11N, 11P (IEC frame sizes 90 to 100) and 22P



### Motor series 11P (IEC frame size 80)



## 20. Variable speed drive application

The stator windings of the motors are wound with class F insulation (class H optional) and are suitable for either DOL starting or - regarding the limits shown in the table below - via a variable speed drive.

Rated voltage				
220-240/380-415 V (50 Hz) 400-460 V (60 Hz)				
Motor rated voltage	Voltage spikes	dV/dt *	Rise time *	Time between pulses
	At motor terminals (phase-phase)	At motor terminals (phase-phase)		
$V_{rated} < 460 \text{ V}$	$\leq 1600 \text{ V}$	$\leq 5200 \text{ V}/\mu\text{s}$	$\geq 0.1 \mu\text{s}$	$\geq 6 \mu\text{s}$
$460 \text{ V} \leq V_{rated} < 575 \text{ V}$	$\leq 2000 \text{ V}$	$\leq 6500 \text{ V}/\mu\text{s}$		
$575 \text{ V} \leq V_{rated} \leq 1000 \text{ V}$	$\leq 2400 \text{ V}$	$\leq 7800 \text{ V}/\mu\text{s}$		

\* dV/dt and rise time definition according to NEMA MG1 - part 30

### Notes:

- In order to protect the motor insulation system, the maximum recommended switching frequency is 5 kHz.
- If one or more of the above conditions is not attended, a filter (load reactor or dV/dt filter) must be installed in the output of the VSD.
- General purpose motors with rated voltage greater than 575 V, which at the time of purchase did not have any indication of operation with VSD, are able to withstand the electrical limits set in the table above for rated voltage up to 575 V. If such conditions are not fully satisfied, output filters must be used.
- General purpose motors of the dual voltage type, for example 400/690 V or 380/660 V, which at the time of purchase did not have any indication of operation with VSD, are able to be driven by a VSD in the higher voltage only if the limits set in the table above for rated voltage up to 460 V are fully attended in the application. Otherwise, a load reactor or a dV/dt filter must be installed in the VSD output.

## Electrical basic data

### Notes for electrical basic data

The technical data according to selection tables (starting current, torques, power factor, etc.) are valid for the rated values, that means for the rated voltage and rated frequency.

If the motors are running on higher or lower voltage within the wide range voltage, the stator winding will be utilized according to thermal class F. In these cases a power increase in accordance to a. and b. on page 480 is not possible.

The design of the wide range winding permits supply voltage deviations in the indicated wide range voltage of  $\pm 5\%$  without reduction of the power.

Efficiency class	Series	IEC frame size	Type	1	2	3				4	5	6			7	8	9	10	11	12
				$P_N$ [hp]	$n_N$ [rpm]	$I_N$ at 132 V [A]	$I_N$ at 230 V [A]	$I_N$ at 400 V [A]	$I_N$ at 265 V [A]	$I_N$ at 460 V [A]	$\frac{I_A}{I_N}$	$\eta$ 4/4 [%]	$\eta$ 3/4 [%]	$\eta$ 1/2 [%]	$\cos\phi$	$T_N$ [lb-in]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	$J_{mot}$ [lb-ft <sup>2</sup> ]	$m$ [lb]

IEC frame size	Type	$P_N$ [hp]	at 380 V			at 420 V			at 440 V			at 480 V			Frequency inverter operation 460 V / 120 Hz			Brake		
			$I_N$ [A]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	$I_N$ [A]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	$I_N$ [A]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	$I_N$ [A]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	$P_N$ [hp]	$n_N$ [rpm]	$I_N$ [A]	$T_B$ [Nm]	$J_B$ [lb-in] x10 <sup>-3</sup>	$m$ [lb]

- 1  $P_N$  = Rated power
- 2  $n_N$  = Rated speed
- 3  $I_N$  = Rated current
- 4  $I_A/I_N$  = Ratio of starting current to rated current
- 5 IE class = Efficiency class
- 6  $\eta$  4/4 (3/4, 1/2) = Efficiency at rated power
- 7  $\cos\phi$  = Power factor
- 8  $T_N$  = Rated torque
- 9  $T_A/T_N$  = Ratio of starting torque to rated torque
- 10  $T_K/T_N$  = Ratio of sweeping torque to rated torque
- 11  $J_{mot}$  = Motor moment of inertia
- 12  $m$  = Weight of the motor
- 13  $T_B$  = Braking torque
- 14  $J_B$  = Brake moment of inertia
- 15  $m$  = Weight of the motor brake

### 4 poles, 1800 rpm, 60 Hz

Efficiency class	Series	IEC frame size	Type	P <sub>N</sub> [hp]	n <sub>N</sub> [rpm]	I <sub>N</sub> at 132 V [A]	I <sub>N</sub> at 230 V [A]	I <sub>N</sub> at 400 V [A]	I <sub>N</sub> at 265 V [A]	I <sub>N</sub> at 460 V [A]	$\frac{I_A}{I_N}$	$\eta$ 4/4 [%]	$\eta$ 3/4 [%]	$\eta$ 1/2 [%]	cos $\phi$	T <sub>N</sub> [lb-in]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	J <sub>mot</sub> [lb-ft <sup>2</sup> ]	m [lb]	
Standard	11N	63	11N-63-04E	0.16	1695	1.54	0.88	-	0.77	0.44	5.0	62.0	55.0	42.0	0.55	5.98	3.2	4.2	0.00712	11.0	
			11N-63-04F	0.25	1700	1.89	1.09	-	0.94	0.54	4.2	66.0	55.7	47.5	0.63	8.94	2.6	2.7	0.00949	11.5	
		71	11N-71-04E	0.33	1700	2.40	1.38	-	1.20	0.69	3.7	68.0	65.0	55.0	0.67	12.5	2.1	2.2	0.00949	13.2	
			11N-71-04F	0.5	1685	3.52	2.02	-	1.75	1.01	4.7	70.0	64.0	58.2	0.66	18.6	2.7	2.7	0.01424	15.0	
		80	11N-80-04E	0.75	1725	4.29	2.46	-	2.14	1.23	6.5	74.0	71.0	64.9	0.76	27.0	2.5	3.6	0.04509	19.4	
Premium	11P	80	11P-L80-04F	1.0	1760	-	2.90	-	-	1.45	9.0	85.5	85.4	83.0	0.76	36.0	2.8	3.0	0.08780	28	
			11P-90S/L-04E	1.5	1760	7.32	4.20	-	3.65	2.10	8.5	86.5	84.0	80.0	0.76	52.8	2.9	3.9	0.13052	35	
		90	11P-90S/L-04F	2	1755	9.86	5.66	-	4.91	2.83	8.3	86.5	85.5	82.5	0.77	72.3	3.0	3.8	0.15662	38	
			100	11P-100L-04E	3	1745	14.1	8.12	-	7.02	4.04	9.0	89.5	88.0	85.0	0.76	106	2.8	3.5	0.21357	60
		11P-L100L-04F		4	1740	19.0	10.9	-	9.46	5.43	8.6	89.5	86.5	84.0	0.77	146	4.6	4.8	0.28476	74	
		112	11P-112M-04E	5.4	1755	-	14.6	8.37	-	7.28	8.0	89.5	89.5	87.5	0.77	193	2.5	3.5	0.43189	76	
		132	11P-132S-04E	7.5	1765	-	18.1	10.4	-	9.07	8.9	91.7	91.0	88.5	0.83	264	2.6	4.3	1.25296	118	
			11P-L132M-04F	10	1770	-	24.8	14.3	-	12.4	9.0	91.7	91.5	91.0	0.83	358	2.7	4.3	1.51400	148	
			11P-L132M-04G	12.5	1765	-	30.7	17.7	-	15.4	9.0	91.7	91.5	90.4	0.82	441	2.6	3.8	1.73232	159	
		22P	160	22P-160M-04E	15	1775	-	36.9	21.2	-	18.4	8.2	92.4	92.2	91.0	0.81	524	3.0	3.7	2.82629	295
				22P-160L-04F	20	1775	-	49.4	28.4	-	24.7	7.6	93.0	92.9	92.0	0.82	714	2.9	3.5	3.64024	346
			180	22P-180M-04E	25	1775	-	61.3	35.2	-	30.6	7.7	93.6	93.0	92.0	0.81	882	3.4	3.6	4.12908	377
				22P-180L-04F	30	1775	-	72.0	41.4	-	36.0	8.5	93.6	93.2	92.1	0.82	1044	3.5	3.8	4.97626	423
			200	22P-200L-04E	40	1780	-	100	57.5	-	50.0	8.3	94.1	93.7	92.6	0.80	1425	2.9	3.5	7.59846	551
				22P-200L-04F	50	1782	-	124	71.5	-	62.2	9.3	94.5	94.0	93.0	0.79	1752	3.5	3.6	9.18128	611
			225	22P-225S/M-04F	60	1782	-	142	81.4	-	70.8	8.6	95.0	94.5	93.0	0.84	2133	3.2	3.5	15.97765	913
				22P-225S/M-04G	75	1785	-	179	103	-	89.3	9.6	95.4	94.5	93.8	0.81	2602	3.7	4.2	17.43470	1019
250	22P-250S/M-04F		100	1780	-	229	132	-	115	8.2	95.4	95.0	94.1	0.86	3567	3.2	4.1	28.95104	1248		

### 6 poles, 1200 rpm, 60 Hz

Efficiency class	Series	IEC frame size	Type	P <sub>N</sub> [hp]	n <sub>N</sub> [rpm]	I <sub>N</sub> at 132 V [A]	I <sub>N</sub> at 230 V [A]	I <sub>N</sub> at 400 V [A]	I <sub>N</sub> at 265 V [A]	I <sub>N</sub> at 460 V [A]	$\frac{I_A}{I_N}$	$\eta$ 4/4 [%]	$\eta$ 3/4 [%]	$\eta$ 1/2 [%]	cos $\phi$	T <sub>N</sub> [lb-in]	$\frac{T_A}{T_N}$	$\frac{T_K}{T_N}$	J <sub>mot</sub> [lb-ft <sup>2</sup> ]	m [lb]
Standard	11N	63	11N-63-06F	0.16	1105	1.67	0.96	-	0.83	0.48	2.9	53.2	50.4	46.6	0.59	9.20	2.0	2.0	0.01187	11.9
			71	11N-71-06E	0.25	1105	2.76	1.58	-	1.37	0.79	4.0	54.9	51.8	45.4	0.52	13.8	2.2	2.9	0.01898
		11N-71-06F		0.33	1110	3.52	2.02	-	1.75	1.01	3.7	58.5	58.0	57.5	0.53	19.0	2.6	2.6	0.02136	17.6
		80	11N-80-06E	0.50	1130	3.76	2.16	-	1.87	1.08	4.5	63.1	59.9	53.1	0.68	27.7	2.2	2.2	0.04509	21.2
			11N-80-06F	0.75	1140	5.54	3.18	-	2.76	1.59	5.0	67.0	67.0	65.0	0.65	40.4	2.5	3.4	0.07119	23.8
Pre- mium	11P	90	11P-90S/L-06E	1.0	1145	5.82	3.34	-	2.90	1.66	6.2	82.5	80.0	77.0	0.69	55.4	2.9	3.4	0.15662	39.2

Legend see page 485

### 4 poles, 1800 rpm, 60 Hz

IEC frame size	Type	P <sub>N</sub> [hp]	at 380 V			at 420 V			at 440 V			at 480 V			Frequency inverter operation 460 V / 120 Hz			Brake			
			I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	P <sub>N</sub> [hp]	n <sub>N</sub> [rpm]	I <sub>N</sub> [A]	T <sub>B</sub>		J <sub>B</sub> x10 <sup>-3</sup>	m
			[Nm]	[lb-in]	[lb-ft <sup>2</sup> ]	[lb]															
63	11N-63-04E	0.16	0.54	2.2	2.9	0.48	2.7	3.5	0.46	2.9	3.8	0.42	3.5	4.6	0.32	3390	0,93	2 4	18 35	0.36 0.36	2.4 2.2
	11N-63-04F	0.25	0.66	1.8	1.8	0.59	2.2	2.3	0.57	2.4	2.5	0.52	2.8	2.9	0.48	3400	1,14				
71	11N-71-04E	0.33	0.83	1.4	1.5	0.75	1.8	1.8	0.72	1.9	2.0	0.66	2.3	2.4	0.67	3400	1,45	4 2	35 18	0.36 0.36	2.2 2.4
	11N-71-04F	0.5	1.22	1.8	1.8	1.11	2.3	2.3	1.06	2.5	2.5	0.97	2.9	2.9	1.0	3370	2,12				
80	11N-80-04E	0.75	1.49	1.7	2.5	1.35	2.1	3.0	1.29	2.3	3.3	1.18	2.7	3.9	1.5	3450	2,58	8 4	71 35	1.45 0.36	3.5 2.2
80	11P-L80-04F	1.0	1.76	1.9	2.0	1.59	2.3	2.5	1.52	2.6	2.7	1.39	3.0	3.3	2.0	3520	3,05				
90	11P-90S/L-04E	1.5	2.54	2.0	2.7	2.30	2.4	3.3	2.20	2.7	3.6	2.01	3.2	4.2	3.0	3520	4,41	16 8	142 71	4.75 1.45	6.8 3.5
	11P-90S/L-04F	2	3.43	2.0	2.6	3.10	2.5	3.2	2.96	2.7	3.5	2.71	3.3	4.1	4.0	3510	5,94				
100	11P-100L-04E	3	4.89	1.9	2.4	4.42	2.3	2.9	4.22	2.6	3.2	3.87	3.0	3.8	6.0	3490	8,48	32 16	283 142	10.68 4.75	9.3 6.8
	11P-L100L-04F	4	6.57	3.1	3.3	5.95	3.8	4.0	5.68	4.2	4.4	5.20	5.0	5.2	8.0	3480	11,4				
112	11P-112M-04E	5.4	8.81	2.3	3.2	7.97	2.8	3.9	7.61	2.3	3.2	6.98	2.7	3.8	11.0	3510	15,3	60 32	531 283	20.41 10.68	13.9 9.3
132	11P-132S-04E	7.5	10.9	2.3	3.9	9.90	2.9	4.7	9.48	2.4	3.9	8.69	2.8	4.7	15.0	3530	19,0				
	11P-L132M-04F	10	15.1	2.4	3.9	13.6	3.0	4.7	13.0	2.5	3.9	11.9	2.9	4.7	20	3540	26,0	100 60	885 531	28.95 20.41	22 13.9
	11P-L132M-04G	12.5	18.6	2.3	3.4	16.9	2.9	4.2	16.1	2.4	3.5	14.8	2.8	4.1	25	3530	32,3				
160	22P-160M-04E	15	22.3	2.7	3.3	20.2	3.3	4.1	19.2	2.7	3.4	17.6	3.3	4.0	30	3550	38,6	150 100	1328 885	67.63 28.95	32 22
	22P-160L-04F	20	29.9	2.6	3.2	27.0	3.2	3.9	25.8	2.7	3.2	23.7	3.2	3.8	40	3550	51,9				
180	22P-180M-04E	25	37.1	3.1	3.2	33.5	3.7	4.0	32.0	3.1	3.3	29.3	3.7	3.9	50	3550	64,3	250 150	2213 1328	157.81 67.63	47 32
	22P-180L-04F	30	43.6	3.2	3.4	39.4	3.9	4.2	37.6	3.2	3.5	34.5	3.8	4.1	60	3550	75,6				
200	22P-200L-04E	40	60.5	2.6	3.2	54.8	3.2	3.9	52.3	2.7	3.2	47.9	3.2	3.8	80	3560	105	400 250	3540 2213	462.74 157.81	77 47
	22P-200L-04F	50	75.3	3.2	3.2	68.1	3.9	4.0	65.0	3.2	3.3	59.6	3.8	3.9	100	3564	131				
225	22P-225S/M-04F	60	85.7	2.9	3.2	77.5	3.5	3.9	74.0	2.9	3.2	67.9	3.5	3.8	125	3564	149	400 250	3540 2213	462.74 157.81	77 47
	22P-225S/M-04G	75	108	3.3	3.8	98.1	4.1	4.6	93.4	3.4	3.8	85.6	4.0	4.6	150	3570	188				
250	22P-250S/M-04F	100	139	2.9	3.7	126	3.5	4.5	120	2.9	3.8	110	3.5	4.5	200	3560	242	1000	8851	1067.86	161

### 6 poles, 1200 rpm, 60 Hz

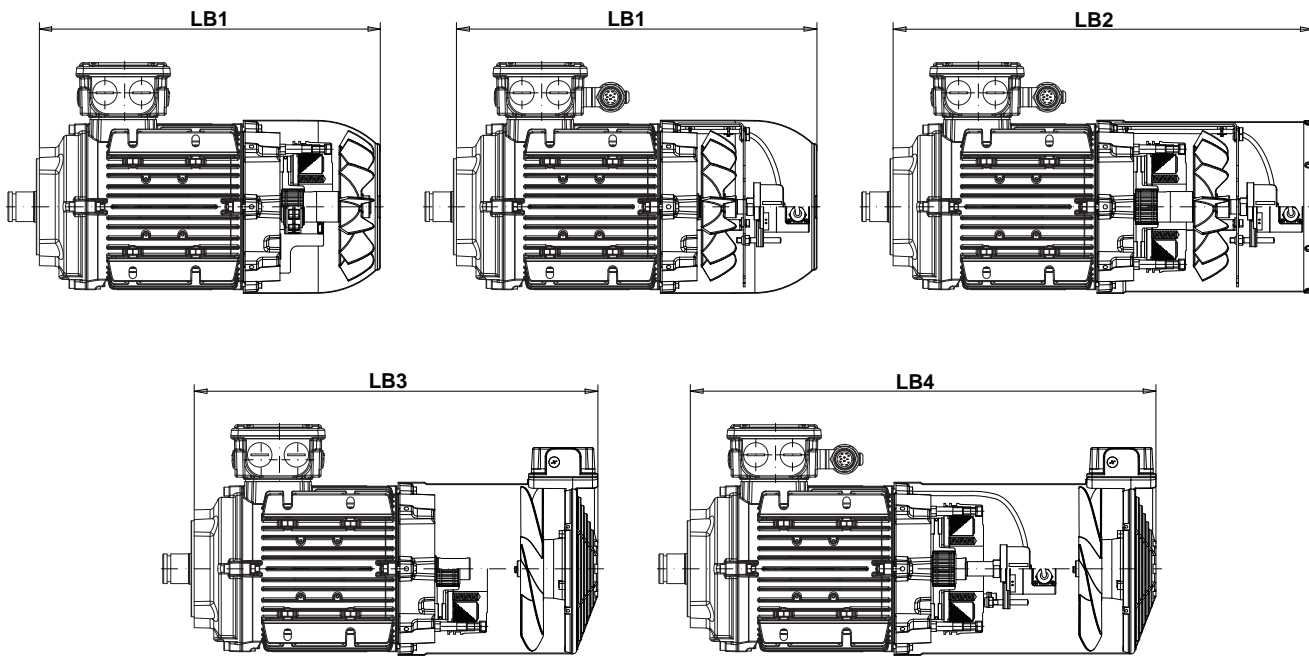
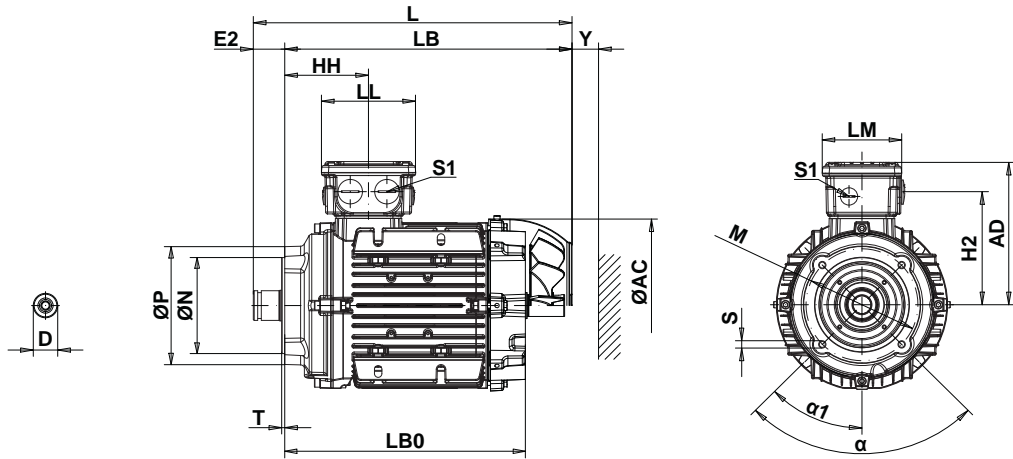
IEC frame size	Type	P <sub>N</sub> [hp]	at 380 V			at 420 V			at 440 V			at 480 V			Frequency inverter operation 460 V / 120 Hz			Brake			
			I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	I <sub>N</sub> [A]	T <sub>A</sub> T <sub>N</sub>	T <sub>K</sub> T <sub>N</sub>	P <sub>N</sub> [hp]	n <sub>N</sub> [rpm]	I <sub>N</sub> [A]	T <sub>B</sub>		J <sub>B</sub> x10 <sup>-3</sup>	m
			[Nm]	[lb-in]	[lb-ft <sup>2</sup> ]	[lb]															
63	11N-63-06F	0.16	0,58	1,4	1,4	0,52	1,7	1,7	0,50	1,8	1,8	0,46	2,2	2,2	0,32	2210	1,0	2 4	18 35	0,36 0,36	2,4 2,2
71	11N-71-06E	0.25	0,95	1,5	2,0	0,86	1,8	2,4	0,82	2,0	2,7	0,75	2,4	3,2	0,48	2210	1,7	4 2	35 18	0,36 0,36	2,2 2,4
	11N-71-06F	0.33	1,22	1,8	1,8	1,11	2,2	2,2	1,06	2,4	2,4	0,97	2,8	2,8	0,67	2220	2,1				
80	11N-80-06E	0.50	1,31	1,5	1,5	1,18	1,8	1,8	1,13	2,0	2,0	1,04	2,4	2,4	1,0	2260	2,3	8 4	71 35	1,45 0,36	3,5 2,2
	11N-80-06F	0.75	1,92	1,7	2,3	1,74	2,1	2,8	1,66	2,3	3,1	1,52	2,7	3,7	1,5	2280	3,4				
90	11P-90S/L-06E	1.0	2,01	2,0	2,3	1,82	2,4	2,8	1,74	2,7	3,1	1,59	3,2	3,7	2,0	2290	3,5	16 8	142 71	4,75 1,45	6,8 3,5

Legend see page 485

# Dimension sheets

## Integral motor frame sizes 63 - 132

M



Description of the dimensions L, LB, LB0,... see page 492

Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
D	≤ Ø 30 mm (1.186 in)	j6
	> Ø 30 mm (1.186 in) to Ø 50 mm (1.186 in)	k6
	> Ø 50 mm (1.186 in)	m6
N	≤ Ø 250 mm (9.884 in)	j6
	> Ø 250 mm (9.884 in)	h6

Dimension tolerances		
Dimension name	Dimensions	Permissible deviation
M	≤ 200 mm (7.907 in)	± 0.25 mm (0.010 in)
	> 200 (7.907 in), ≤ 500 mm (19.768 in)	± 0.5 mm (0.020 in)
	> 500 mm (19.768 in)	± 1.0 mm (0.040 in)
	> 500 mm (19.768 in)	± 1.0 mm (0.040 in)

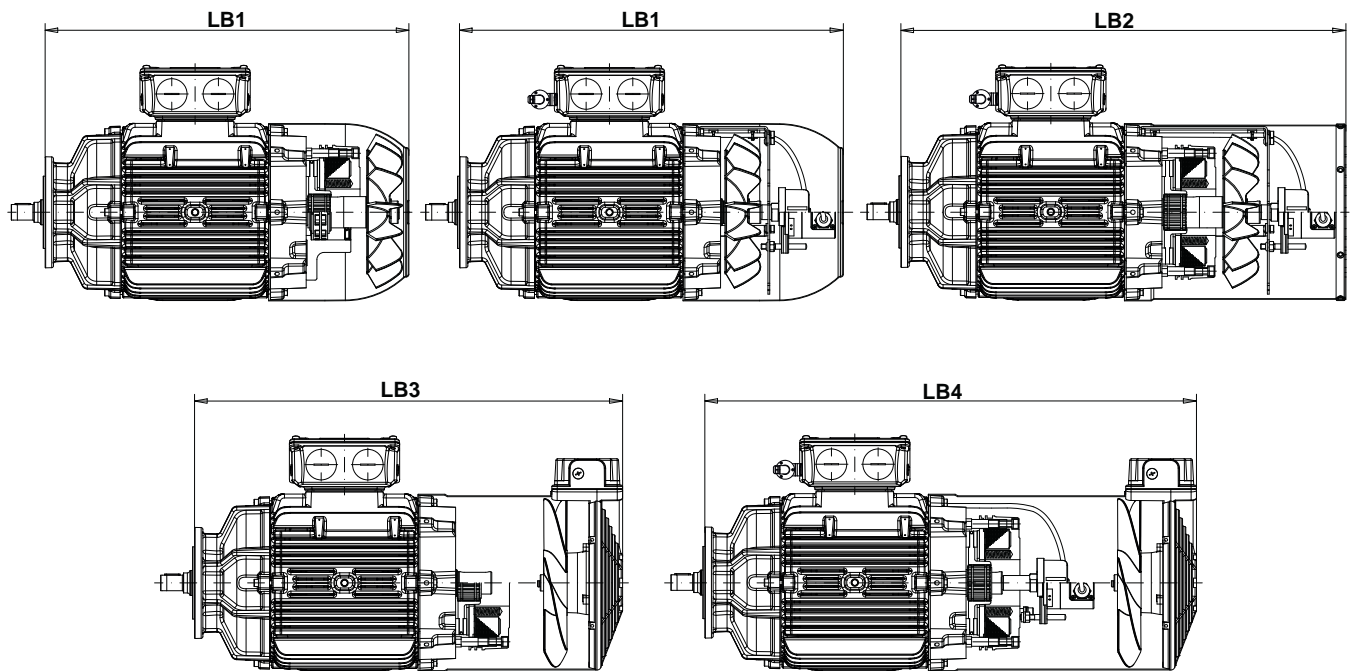
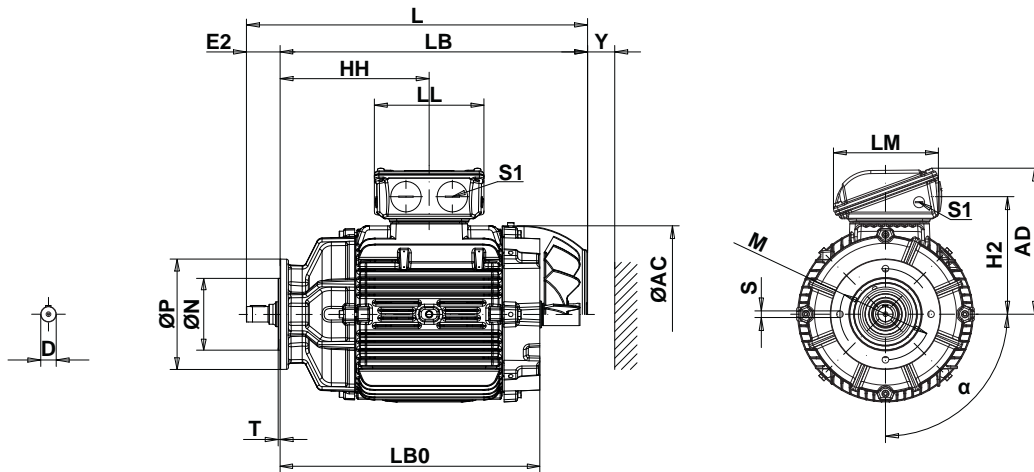
Dimensions in inch. Motor dimensions are typical values. Subject to change.



IEC frame size	63	71	80	L80	90	100	L100	112	132	L132
AC	4.96	5.55	6.26	6.26	7.01	7.83	7.83	8.70	10.28	10.28
AD	5.04	5.35	5.71	5.71	6.10	6.50	6.50	7.28	8.07	8.07
D	0.63	0.75	0.94	0.94	0.94	1.34	1.34	1.34	1.65	1.65
E2	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.42	1.42	1.42
HH	3.27	3.58	3.46	3.46	3.46	4.21	4.21	4.61	4.80	4.80
H2	3.58	3.90	4.25	4.25	4.65	5.04	5.04	5.67	6.46	6.46
LL	4.25	4.25	4.25	4.25	4.25	4.25	4.25	5.39	5.39	5.39
LM	3.62	3.62	3.62	3.62	3.62	3.62	3.62	4.65	4.65	4.65
M	3.94	3.94	3.94	3.94	3.94	3.94	3.94	5.12	5.12	5.12
N	3.15	3.15	3.15	3.15	3.15	3.15	3.15	4.33	4.33	4.33
P	3.70	3.70	3.70	3.70	3.70	3.70	3.70	5.31	5.31	5.31
S	M6	M6	M6	M6	M6	M6	M6	M8	M8	M8
S1	2 x M25 x 0.06 + 2 x M16 x 0.06							2 x M32 x 1.5 + 2 x M16 x 0.06		
T	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.14	0.14	0.14
Y	0.98	1.02	1.18	1.18	1.30	1.42	1.42	1.61	1.97	1.97
$\alpha$	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°	4 x 90°
$\alpha_1$	45°	45°	45°	45°	45°	45°	45°	45°	45°	45°
L	9.06	10.39	10.71	11.65	12.36	14.33	15.83	15.12	17.68	19.17
LB	8.03	9.37	9.69	10.63	11.34	13.31	14.80	13.70	16.26	17.76
LB0	6.81	7.72	8.07	9.02	9.53	11.22	12.72	11.42	14.13	15.63
LB1	9.76	11.30	11.97	12.91	14.21	16.61	18.11	17.13	20.91	22.40
LB2	-	14.09	15.00	15.94	17.20	19.69	21.18	20.12	24.17	25.67
LB3	12.68	13.66	14.37	15.31	16.61	18.74	20.24	19.41	23.54	25.04
LB4	15.43	16.42	17.13	18.07	19.09	20.94	22.44	21.61	25.59	27.09

Integral motor frame sizes 160 to 250

M



Description of the dimensions L, LB, LB0,... see page 492

Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
D	$\geq \varnothing 28 \text{ mm (1.107 in)}$	n6
N	$\leq \varnothing 250 \text{ mm (9.884 in)}$	j6
	$> \varnothing 250 \text{ mm (9.884 in)}$	h6

Dimension tolerances		
Dimension name	Dimensions	Permissible deviation
M	$\leq 200 \text{ mm (7.907 in)}$	$\pm 0.25 \text{ mm (0.010 in)}$
	$> 200 \text{ mm (7.907 in), } \leq 500 \text{ mm (19.768 in)}$	$\pm 0.5 \text{ mm (0.020 in)}$
	$> 500 \text{ mm (19.768 in)}$	$\pm 1.0 \text{ mm (0.040 in)}$

Dimensions in inch. Motor dimensions are typical values. Subject to change.

IEC frame size	160M					160L				
Motor flange	FR-200	FR-250	FR-300	FR-400	FR-550	FR-200	FR-250	FR-300	FR-400	FR-550
AC	12.95					12.95				
AD	10.47					10.47				
D	1.10					1.10				
E2	2.40	2.60	2.80	3.31	3.94	2.40	2.60	2.80	3.31	3.94
HH	10.63	10.43	10.24	10.12	9.49	10.63	10.43	10.24	10.12	9.49
H2	8.39					8.39				
LL	7.83					7.83				
LM	7.48					7.48				
M	6.50	8.46	10.43	11.81	15.75	6.50	8.46	10.43	11.81	15.75
N	5.12	7.09	9.06	11.81	17.72	5.12	7.09	9.06	11.81	17.72
P	7.87	9.84	11.81	15.75	21.65	7.87	9.84	11.81	15.75	21.65
S	0.47	0.59	0.59	0.75	0.75	0.47	0.59	0.59	0.75	0.75
S1	2 x M40x0.06 + 2 x M16x0.06					2 x M40x0.06 + 2 x M16x0.06				
T	0.14	0.16	0.16	0.20	0.20	0.14	0.16	0.16	0.20	0.20
Y	2.56					2.56				
α	4 x 90°					4 x 90°				
L	23.86					25.59				
LB	21.46	21.26	21.06	20.55	19.92	23.19	22.99	22.80	22.28	21.65
LB0	18.90	18.70	18.50	17.99	17.36	20.63	20.43	20.24	19.72	19.09
LB1	26.34	26.14	25.94	25.43	24.80	28.07	27.87	27.68	27.17	26.54
LB2	29.41	29.21	29.02	28.50	27.87	31.14	30.94	30.75	30.24	29.61
LB3	29.80	29.61	29.41	28.90	28.27	31.54	31.34	31.14	30.63	30.00
LB4	32.40	32.20	32.01	31.50	30.87	34.13	33.94	33.74	33.23	32.60

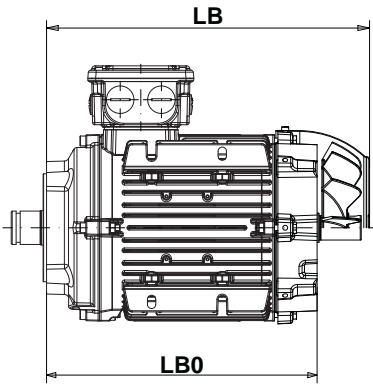
IEC frame size	180M				180L			
Motor flange	FR-250	FR-300	FR-400	FR-550	FR-250	FR-300	FR-400	FR-550
AC	13.66				13.66			
AD	11.06				11.06			
D	1.26				1.26			
E2	2.60	2.80	3.31	3.94	2.60	2.80	3.31	3.94
HH	11.93	11.73	11.22	10.59	11.93	11.73	11.22	10.59
H2	8.98				8.98			
LL	7.83				7.83			
LM	7.48				7.48			
M	8.46	10.43	11.81	15.75	8.46	10.43	11.81	15.75
N	7.09	9.06	11.81	17.72	7.09	9.06	11.81	17.72
P	9.84	11.81	15.75	21.65	9.84	11.81	15.75	21.65
S	0.59	0.59	0.75	0.75	0.59	0.59	0.75	0.75
S1	2 x M40x0.06 + 2 x M16 x0.06				2 x M40x0.06 + 2 x M16 x0.06			
T	0.16	0.16	0.20	0.20	0.16	0.16	0.20	0.20
Y	2.68				2.68			
α	4 x 90°				4 x 90°			
L	26.54				28.03			
LB	23.94	23.74	23.23	22.60	25.43	25.24	24.72	24.09
LB0	20.91	20.71	20.20	19.57	22.40	22.20	21.69	21.06
LB1	28.58	28.39	27.87	27.24	30.08	29.88	29.37	28.74
LB2	33.03	32.83	32.32	31.69	34.53	34.33	33.82	33.19
LB3	32.60	32.40	31.89	31.26	34.09	33.90	33.39	32.76
LB4	35.16	34.96	34.45	33.82	36.65	36.46	35.94	35.31

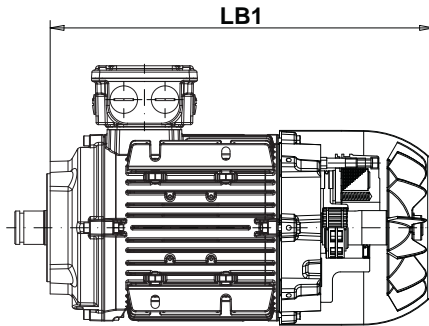
IEC frame size	200L			225S/M		250S/M
Motor flange	FR-300	FR-400	FR-550	FR-400	FR-550	FR-550
AC	15.20			17.83		18.98
AD	12.48			15.16		15.87
D	1.50			1.50		1.89
E2	2.80	3.31	3.94	3.31	3.94	3.94
HH	13.70	13.19	12.56	11.26	10.63	10.28
H2	10.24			11.97		12.64
LL	9.06			10.59		10.55
LM	8.58			11.26		11.26
M	10.43	11.81	15.75	11.81	15.75	15.75
N	9.06	11.81	17.72	11.81	17.72	17.72
P	11.81	15.75	21.65	15.75	21.65	21.65
S	0.59	0.75	0.75	0.75	0.75	0.75
S1	2 x M50x0.06 + 2 x M16x0.06			2 x M50x0.06 + 2 x M16x0.06		2 x M63x0.06 + 2 x M16x0.06
T	0.16	0.20	0.20	0.20	0.20	0.20
Y	3.07			3.35		3.35
α	4 x 90°			8 x 45°		8 x 45°
L	31.65			35.91		37.44
LB	28.86	28.35	27.72	32.60	31.97	33.50
LB0	24.76	24.25	23.62	28.11	27.48	29.02
LB1	33.82	33.31	32.68	37.24	36.61	38.15
LB2	38.46	37.95	37.32	41.81	41.18	42.72
LB3	36.57	36.06	35.43	43.31	42.68	44.21
LB4	39.72	39.21	38.58	43.31	42.68	44.21

Length description motor modules

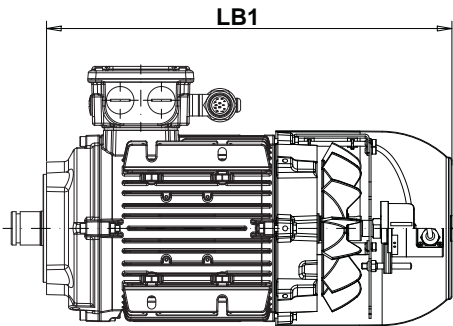
M



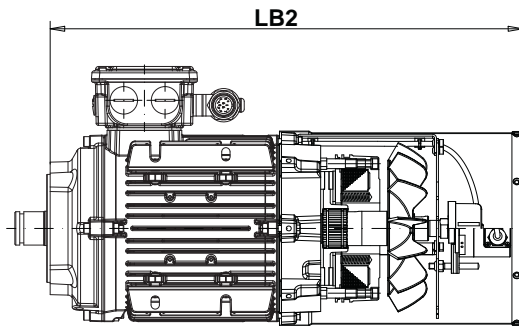
**LB** Self ventilated  
**LB0** Non-ventilated



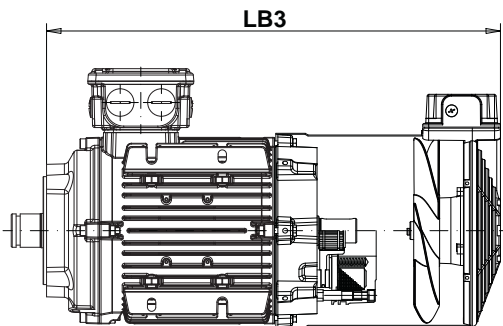
**LB1** Self ventilated with brake  
 or backstop type RSM



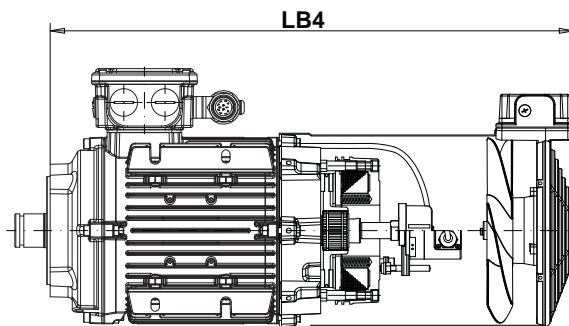
**LB1** Self ventilated with standard encoder,  
 SSI multiturn encoder or resolver



**LB2** Self ventilated with brake and standard encoder,  
 SSI multiturn encoder or resolver



**LB3** Forced ventilation with or without brake



**LB4** Forced ventilation with/without brake and standard encoder,  
 SSI multiturn encoder or resolver

# Motor modules

## High / Low temperature execution

<b>HT</b>	High temperature execution
<b>LT</b>	Low temperature execution

To ensure steady operation even at increased or very low ambient temperatures, we offer specially adjusted motor executions with more resistant components.

## Temperature control

<b>TH</b>	Bimetal switch for switch off	<b>TF</b>	PTC thermistor for switch off
<b>2TH</b>	Bimetal switch for warning and switch off	<b>2TF</b>	PTC thermistor for warning and switch off
<b>KTY</b>	Temperature sensor		

In the standard version, the motors are designed with motor protection in the motor winding. In order to protect the winding of a three-phase induction motor against thermal overloads, resulting for example from overloading and operation with only two phases, one of the following devices can be provided:

### TH - Bimetal switch “NC contact“ (+311 °F)

The contact is normally closed (NC); the disc opens when the winding’s temperature reaches limits dangerous for the insulation system. When a limit temperature is reached, these bimetal switches (NC contacts) can deactivate an auxiliary circuit. The circuit can only be reclosed following a considerable fall in temperature. When the motor current rises quickly (e.g. with a locked rotor), these switches are not suitable due to their large thermal time constants.

### TF - PTC thermistor (+311 °F)

The most comprehensive protection against thermal overloading caused in starting against heavy masses, heavy alternating load and high frequency starting resp. brake operation or high ambient temperatures of the motor is provided by PTC thermistors installed in the motor winding. The sensors are temperature sensitive resistors (PTC) which change value almost instantaneously at their response temperature. The switch off level corresponds to the thermal class of the insulation. This characteristic is used in combination with tripping devices (on request) to monitor the temperature of the motor. For warning purposes additional bimetal switches or PTC thermistors with lower switch off temperature can be fitted. These correspond to the key **2TH** and **2TF**.

### KTY - Temperature sensor

This sensor is a semiconductor that changes its resistance depending on temperature in accordance with a defined characteristic. The evaluation is made by an extra tripping device (on request). The temperature sensor is embedded in the winding head of the motor in the same manner as a PTC thermistor. Evaluation is performed, for example, in the frequency inverter.

## Anti-condensation heater

<b>SH</b>	Anti-condensation heater
-----------	--------------------------

Windings of motors, which are operating at conditions of extreme temperature changes or extreme climatic conditions, are endangered of condensation water. The built in anti-condensation heater warms up the motor windings after switching off and prevents condensation inside the motor.

**During motor operation the anti-condensation heater must not be switched on.  
The limit temperature of the winding (+311 °C in thermal class F) must not be exceeded!  
Temperature control is advisable!**

The anti-condensation heater must be supplied with a separate voltage.

Supply voltage: 230 V (1~)

Voltage range for IEC frame sizes: 71 to 200: 220 - 240 V, 50/60 Hz

IEC frame size	Heating performance [W]
71	13
80	25
90	
100	
112	50
132	
160	
180	75
200	
225	
250	100

## Climatic protection

<b>K1</b>	Humidity protection
<b>K2</b>	Corrosion protection

The following standardized climatic protection executions are available for motors exposed to extreme climatic conditions:

### K1 - Humidity protection

Humid warm climate or humid variable climate with max. relative air humidity of 92 %, also for areas on the seaside

### K2 - Corrosion protection

Relative air humidity of more than 92 % (extreme formation of condensation water), furthermore against chemically aggressive gases and vapours of increased concentration

## Drain

<b>KB</b>	Drain
-----------	-------

In cases of increased air humidity, periodic duty, installation in the open air or when subject to extreme climatic conditions, the motors are endangered by the formation of condensation. The endshields have holes for drainage of water that may condense inside the frame. These holes are supplied with rubber drain plugs, which leave the factory in closed position and must be opened periodically to allow the exit of condensed water.

**To determine the correct position of the hole the exact mounting position of the motor must be defined.**

## Terminal box designs

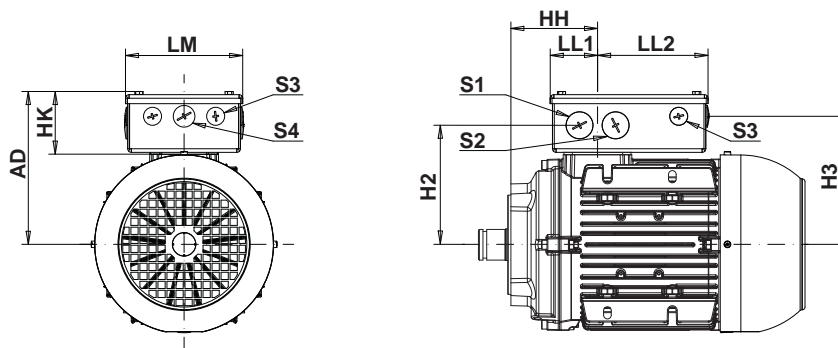
<b>MIP</b>	Multipin box
<b>MIG..</b>	MIG - connect systems

### MIP - Multipin box

IEC frame sizes: 63 to 250

This extended terminal box was designed to permit additional options, such as brakes, incremental encoders, thermal elements, anti-condensation heaters and the like, to be connected in an orderly fashion in the box.

The terminal box can be equipped with up to 22 sockets, including a brake rectifier. The terminal used are two-wire terminals fitted with cage clamp connectors. These are suitable for single-wire, multi-wire and fine-wire lines with diameters up to #12 AWG.



IEC frame size	MIP box												
	AD	HH	HK	H2	H3	LM	LL1	LL2	S1	S2	S3	S4	
63	5.20	3.54	2.72	3.74	3.90	5.12	2.05	4.80	2xM25	2xM25	4xM16	1xM20	
71	5.51	3.90	2.72	4.06	4.21	5.12	2.05	4.80	2xM25	2xM25	4xM16	1xM20	
80	5.87	3.74	2.72	4.41	4.57	5.12	2.05	4.80	2xM25	2xM25	4xM16	1xM20	
90	6.26	3.78	2.72	4.80	4.96	5.12	2.05	4.80	2xM25	2xM25	4xM16	1xM20	
100	6.65	4.29	2.72	5.20	5.35	5.12	2.05	4.80	2xM25	2xM25	4xM16	1xM20	
112	7.17	5.12	2.76	5.67	6.06	5.51	2.68	5.43	2xM32	2xM32	4xM16	1xM25	
132	7.95	4.84	2.76	6.46	6.85	5.51	2.68	5.43	2xM32	2xM32	4xM16	1xM25	
160	FR-200	10.59	10.63	4.09	8.31	8.66	8.07	4.13	6.73	2xM50	2xM40	4xM16	1xM25
	FR-250		10.43										
	FR-300		10.24										
	FR-400		10.12										
180	FR-500	11.18	9.49	4.09	9.09	9.45	8.07	4.13	6.73	2xM50	2xM40	4xM16	1xM25
	FR-250		11.93										
	FR-300		11.73										
	FR-400		11.22										
200	FR-550	11.81	10.59	4.09	9.84	10.08	8.07	4.13	6.97	2xM50	2xM40	4xM16	1xM25
	FR-300		13.70										
	FR-400		13.19										
225	FR-550	13.54	12.56	4.09	11.38	11.61	8.07	4.13	6.97	2xM50	2xM40	4xM16	1xM25
	FR-400		11.26										
250	FR-550	14.21	10.63	4.09	12.05	12.28	8.07	4.13	6.97	2xM50	2xM40	4xM16	1xM25

Dimensions in inch

### MIG - connect system

Models: MIG10B, MIG16, MIG40, MIG10-FL  
IEC frame sizes: 63 to 180 (MIG10-FL up to 250)

The MIG (Multiplug) - connect system is a standardized distributed connection system. It is used for the integration of power and control cabling into a single motor connector. The plug is assembled in-house and replaces the terminal box.

#### Most important advantages:

- Quick installation and service at site
- Avoiding wiring faults
- Motor replacement without electrical manipulation

For motor frame sizes 63 to 180 three MIG types of different power ratings are used. For each MIG model mating connectors are available.

#### MIG10B:

With 18 PINs and ground this most compact plug enables connection to motors up to a rated current of 10 A with voltages up to 400/690 V and protection degrees up to IP67. Beside the power wires a variety of auxiliary wires can be connected as well.

#### MIG16:

This MIG for mid-sized motors supports a maximum current of 16 A at 500 V with 10 PINs in total. In case a wider variety of auxiliary PINs is necessary a mixed holding can be offered (6 PINs - 16 A; 12 PINs - auxiliary).

#### MIG40:

To achieve all contacts to be connected with one plug a mixed holding of PINs has to be used in this case. 6 PINs for 40 A at 400/690 V together with 12 PINs auxiliary guarantees full connectivity.

For motor frame sizes 63 to 250 with forced ventilation the following MIG type is available:

#### MIG10-FL:

On demand this MIG can replace the normal forced ventilation connection. Thereby this motor module has all advantages of a MIG - connect plug system. The plug is equipped with 3 PINs and grounding and can be mounted on every forced ventilation size.

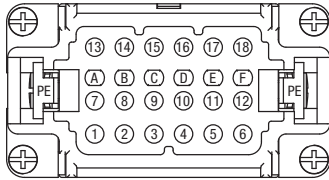


MIG40 execution

### MIG - connect system overview table

IEC frame size		63	71	80	90	100	112	132	160	180
400 V, 50 Hz	4p	10B	10B	10B	10B	10B	16	16	40	40
	6p	10B	10B	10B	10B	10B	16	16	40	40
230 V, 50 Hz	4p	10B	10B	10B	10B	16	-	-	-	-
	6p	10B	10B	10B	10B	16	-	-	-	-
400 V, 100 Hz	4p	10B	10B	10B	10B	16	40	40	-	-
	6p	10B	10B	10B	10B	10B	16	40	-	-
460 V, 60 Hz	4p	10B	10B	10B	10B	10B	16	16	40	40
	6p	10B	10B	10B	10B	10B	16	16	40	40
460 V, 120 Hz	4p	10B	10B	10B	10B	16	16	40	-	-
	6p	10B	10B	10B	10B	10B	16	40	-	-

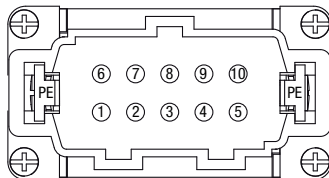
#### PIN assignment MIG10B



PIN	Assignment
PE	Grounding terminal
1	Winding connection U1
2	Winding connection V1
3	Winding connection W1
4*	Bimetal release 1 TH1
5	Brake heating tape
6	Anti-condensation heater
7	Winding connection W4
8	Winding connection U4
9	Winding connection V4
10*	Bimetal release 1 TH1
11	Brake heating tape
12	Anti-condensation heater

PIN	Assignment
13	Brake
14	Brake
15	Brake microswitch
16	Brake microswitch
17*	Bimetal release 2 TH2
18*	Bimetal release 2 TH2
*alternatively	
4	PTC thermistor 1 TF1
10	PTC thermistor 1 TF1
17	PTC thermistor 2 TF2
17	Resistance thermometer KTY1
18	PTC thermistor 2 TF2
18	Resistance thermometer KTY 1

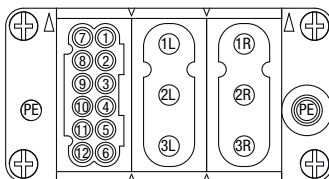
#### PIN assignment MIG16



PIN	Assignment
PE	Grounding terminal
1	Winding connection U1
2	Winding connection V1
3	Winding connection W1
4*	Brake
5*	Brake
6	Winding connection W4
7	Winding connection U4

PIN	Assignment
8	Winding connection V4
9*	Temperature sensor 1
10*	Temperature sensor 1
*alternatively	
9	Anti-condensation heater
10	Anti-condensation heater
4	Temperature sensor 2
5	Temperature sensor 2

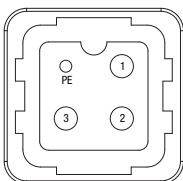
#### PIN assignment MIG40



PIN	Assignment
PE	Grounding terminal
1R	Winding connection U1
2R	Winding connection V1
3R	Winding connection W1
1L	Winding connection W4
2L	Winding connection U4
3L	Winding connection V4
1	Brake
2	Temperature sensor 1
3	Temperature sensor 2

PIN	Assignment
4	Temperature sensor 3
5	Anti-condensation heater
6	
7	Brake
8	Temperature sensor 1
9	Temperature sensor 2
10	Temperature sensor 3
11	Anti-condensation heater
12	

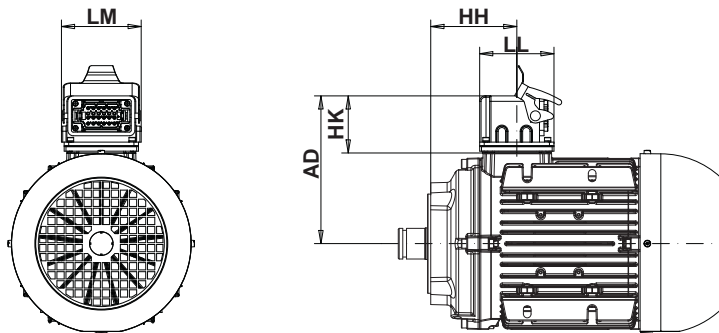
#### PIN assignment MIG10-FL



PIN	Assignment
PE	Grounding terminal
1	Power connection L1
2	Power connection L2
3	Power connection L3



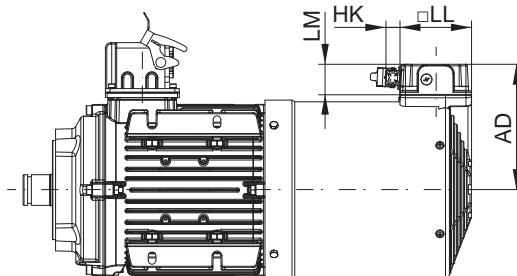
### Dimension sheet MIG10B, MIG16, MIG40



IEC frame size	MIG - connect system						
	MIG Type	AD	HH	HK	LL	LM	
63	10B	4.88	3.54	2.40	3.23	3.39	
71	10B	5.20	3.90	2.40	3.23	3.39	
80	10B	5.55	3.74	2.40	3.23	3.39	
90	10B	5.94	3.78	2.40	3.23	3.39	
100	10B / 16	6.34	4.29	2.40	3.23	3.39	
112	16 / 40	6.81	5.12	2.40	3.23	3.39	
132	16 / 40	7.60	4.84	2.40	3.23	3.39	
160	FR-200	40	8.90	10.63	2.40	3.23	3.39
	FR-250			10.43			
	FR-300			10.24			
	FR-400			10.12			
	FR-550			9.50			
180	FR-250	40	9.49	11.93	2.40	3.23	3.39
	FR-300			11.73			
	FR-400			11.22			
	FR-550			10.59			

Dimensions in inch

### Dimension sheet MIG10-FL



IEC frame size	MIG10-FL			
	AD	HK	□LL	LM
63	4.53	1.10	4.21	1.26
71	4.84			
80	5.20			
90	5.59			
100	5.94			
112	6.42			
132	7.20			
160	8.27			
180				
200				
225				
250				

Dimensions in inch

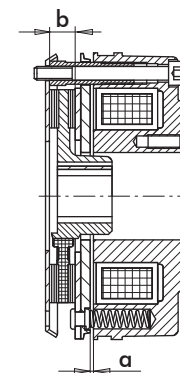
## Brake systems and Backstop

<b>BR..</b>	Spring loaded brake
<b>BBRHGD..</b>	Double spring loaded brake
<b>BRGH..</b>	Totally enclosed spring loaded brake (Heavy Duty)
<b>KKM</b>	Backstop (frame sizes 63 to 90)
<b>RSM</b>	Backstop (frame sizes 100 to 250)

The mounted spring loaded brake is a single-disc brake with two friction surfaces. It is released electromagnetically and brakes by spring pressure, when the brake is de-energized. The DC-brake coil is supplied from a rectifier which is located in the motor terminal box and will be delivered as standard for AC-side connection.

### Product information

- Voltages: 24 V DC and 195 V DC (102 V DC special execution)
- All bare parts corrosion protected
- Short switching times
- Large reserve for abrasion
- Designed for 100 % duty cycle and max. admissible temperature limit of +293 °F
- Degree of protection IP55 (standard)



a - air gap  
b - brake lining thickness

On motors with brake-endshield on the non-driven side subsequent installation of brakes is possible (brake-motor-set available).

### Function and adjustment (see illustration below)

When the brake is de-energized, the springs are pressing the armature disc (9) against the brake disc (7) and the friction plate (5). The motor shaft (3) is braked via the brake disc (7) and the gear hub (6). When the brake is energized, a magnetic field is built up and the armature disc (9) is pulled against the magnetic case with the coil (10). When the motor is running, the brake disc (7) can rotate freely from the brake surfaces. In the case of power failure, the brake functions automatically by spring force. A manual release (11) is optionally available (subsequent assembling is also possible).

### Braking torque adjustment

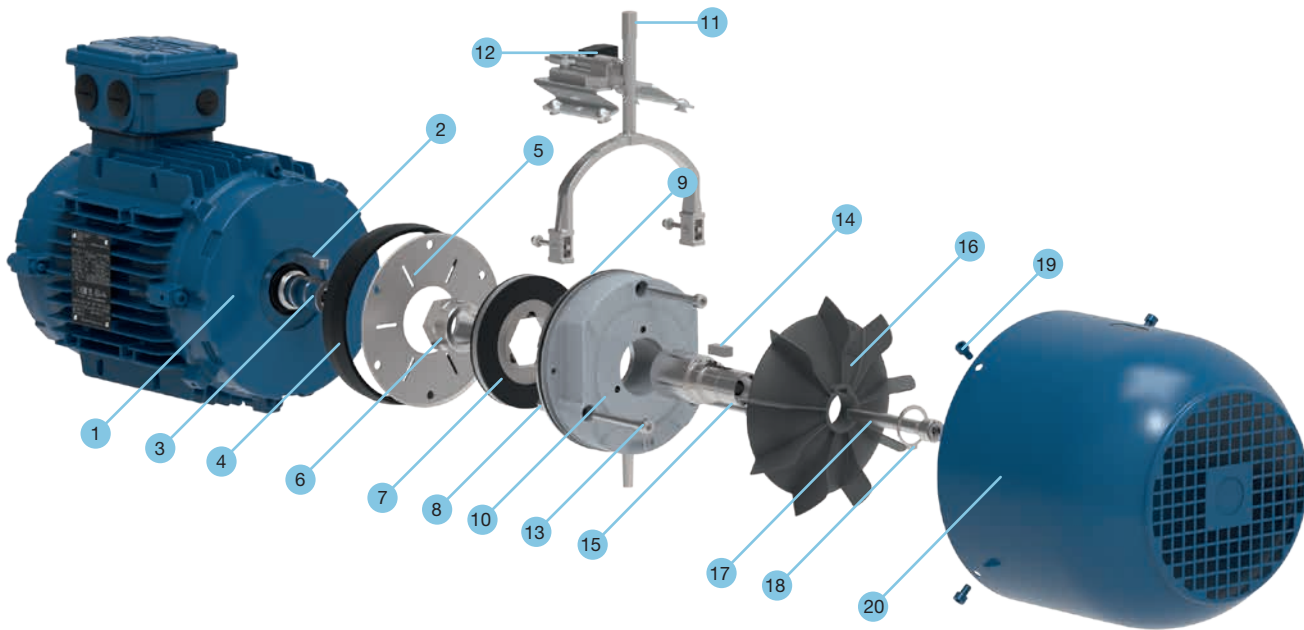
Upon delivery, the brakes and the brake motors are adjusted to the brake torque  $T_B$ . Brake torque reduction is done by removal of springs. Reduced brake torque values on request.

### Maintenance

Due to abrasion of the friction linings (7) the air gap between magnetic case (10) and armature disc (9) expands. It is necessary to check and readjust the air gap "a" in certain intervals or replace the brake disc (7).

### Readjustment of the air gap

First of all the three fixing screws (13) must be loosened half a turn. Now the sleeve screws (8) can be screwed into the magnetic case (10) by turning counter-clockwise. By turning the three fixing screws (13) clockwise, the magnetic case (10) can be moved in direction to the armature disc (9), until the nominal air gap  $a_{normal}$  (see table on page 500) is obtained. Now the three sleeve screws (8) will be unscrewed clockwise from the magnetic case (10) and the fixing screws (13) will be fixed. Please confirm the air gap "a" is consistent around the diameter of the brake. If not, adjust as necessary.



- |                                    |                                    |
|------------------------------------|------------------------------------|
| 1 Brake endshield                  | 11 Manual release lever (optional) |
| 2 Key                              | 12 Locking device                  |
| 3 Motor shaft                      | 13 Socket cap screw                |
| 4 Dust protection ring             | 14 Key                             |
| 5 Friction plate                   | 15 Brake shaft extension           |
| 6 Gear hub                         | 16 Fan                             |
| 7 Brake disc with friction linings | 17 Socket cap screw                |
| 8 Sleeve screws                    | 18 Retaining ring                  |
| 9 Armature disc                    | 19 Fan cover screws                |
| 10 Magnetic case                   | 20 Fan cover (brake execution)     |

Exploded view: Brake with manual release and locking device, frame size 100

## Brake selection

As shown in the following selection table, it is possible to supply brake motors with different brake torques to correspond to the largest number of possible applications. It is also possible to achieve an optimal adaption, by means of the mode of connection of the brake. If exact values about the application are available, we recommend to calculate the braking torque according to the following formulas on page 504, otherwise the proportion between motor rated torque ( $T_N$ ) and braking torque ( $T_B$ ) can be taken as an indication for the sizing of the brake and if the safety factor is sufficient.

For normal applications we recommend sizing the brake 1.5 - 2 times the motor rated torque ( $T_N$ ), for special applications (lifting gears, switching operation, etc.) 2 - 3 times the motor torque and as holding brake approx. 1 time the rated torque.

- **Execution A - working brake**

$T_B$  approx. 1.5 - 2 times  $T_N$ , or applications with medium masses to be accelerated and medium number of starts

- **Execution B - holding brake**

$T_B$  approx. 1 time  $T_N$  for drives with small masses to be accelerated and number of starts resp. for keeping the drive stopped

## Brake selection table

IEC frame size	BR.. Standard brake				BBRHGD.. Double brake				BRGH.. Totally enclosed brake			
	Standard Execution A $T_B$		Execution B $T_B$		Standard Execution A $T_B$		Execution B $T_B$		Standard Execution A $T_B$		Execution B $T_B$	
	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]
63	2	18	4	35	-	-	-	-	-	-	-	-
71	4	35	2	18	2 x 6	2 x 53	-	-	5	44	-	-
80	8	71	4	35	2 x 12.5	2 x 111	2 x 6	2 x 53	10	89	5	44
90	16	142	8	71	2 x 25	2 x 221	2 x 12.5	2 x 111	20	177	10	89
100	32	283	16	142	2 x 50	2 x 443	2 x 25	2 x 221	40	354	20	177
112	60	531	32	283	2 x 75	2 x 664	2 x 50	2 x 443	60	531	40	354
132	100	885	60	531	2 x 125	2 x 1106	2 x 75	2 x 664	100	885	60	531
160	150	1328	100	885	2 x 187	2 x 1655	2 x 125	2 x 1106	150	1328	100	885
180	250	2213	150	1328	2 x 300	2 x 2655	2 x 187	2 x 1655	250	2213	150	1328
200	400	3540	250	2213	2 x 500	2 x 4425	2 x 300	2 x 2655	400	3540	250	2213
225	400	3540	250	2213	2 x 500	2 x 4425	2 x 300	2 x 2655	400	3540	250	2213
250	1000	8851	-	-	2 x 1200	2 x 10621	-	-	1000	8851	-	-

Spring loaded brake: electrical characteristics																		
$U_{2nenn}$	$U_2$	Brake size		2**	4*	5**	8*	10**	16*	20**	32*	40**	60**	100**	150**	250**	400**	1000**
[V]	[V]	$T_B$	[lb-in]	18	35	44	71	89	142	177	283	354	531	885	1328	2213	3540	8851
			[Nm]	2	4	5	8	10	16	20	32	40	60	100	150	250	400	1000
190* 195**	170-210 162-236	Coil current	[A]	0.13	0.11	0.13	0.13	0.18	0.16	0.20	0.21	0.26	0.32	0.42	0.50	0.65	0.85	0.83
		Power	[W]	26	20	26	25	36	30	38	40	50	63	82	99	127	165	162
		Resistance	[Ω]	1475	1805	1475	1444	1070	1203	990	903	754	600	464	385	300	230	235
24	19-28	Coil current	[A]	1.14	0.83	1.14	1.04	1.44	1.25	1.70	1.66	2.10	2.70	3.30	4.00	5.20	7.30	-
		Power	[W]	27	20	27	25	34	30	41	40	50	65	80	96	125	175	-
		Resistance	[Ω]	21	29	21	23	17	19	14	14	12	8.9	7.2	6.0	4.6	3.3	-
102 <sup>1)</sup> ** 103 <sup>1)</sup> *	85-133 93-113	Coil current	[A]	0.30	0.19	0.30	0.24	0.38	0.31	0.45	0.39	0.53	0.60	0.85	0.94	1.23	1.76	-
		Power	[W]	31	20	31	25	38	32	46	40	54	60	87	95	125	179	-
		Resistance	[Ω]	340	531	340	424	271	332	228	265	192	174	120	109	83	58	-

■ standard brake

<sup>1)</sup> special execution (on demand)

Spring loaded brake: mechanical characteristics																
Brake size		2	4	5	8	10	16	20	32	40	60	100	150	250	400	1000
$T_B$	[lb-in]	18	35	44	71	89	142	177	283	354	531	885	1328	2213	3540	8851
	[Nm]	2	4	5	8	10	16	20	32	40	60	100	150	250	400	1000
$T_{BS}$	[lb-in]	-	53	66	106	133	212	266	425	531	797	1328	1991	3319	5310	13276
$P_{20}$	[W]	26	20	26	25	36	30	38	40	50	63	82	100	127	165	162
$J_B$	[lb-ft <sup>2</sup> x10 <sup>-3</sup> ]	0.36	0.36	0.36	1.45	1.07	4.75	4.08	10.68	10.68	20.41	28.95	67.63	157.81	462.74	1067.86
$P_R$	[hp]	0.11	*	0.11	*	0.13	*	0.17	*	0.21	0.27	0.34	0.40	0.47	0.54	0.60
$W_{Rmax}$	[cal <sub>15</sub> x10 <sup>4</sup> ]	7	7	7	18	14	29	29	57	60	84	119	179	251	358	478
$W_{RN}$	[cal <sub>15</sub> x10 <sup>8</sup> ]	12	20	12	38	29	63	48	127	84	143	299	478	812	1003	1075
$a_{normal}$	[in]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
$a_{max}$	[in]	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.07
$b_{min}$	[in]	0.18	0.18	0.18	0.22	0.22	0.30	0.30	0.31	0.37	0.45	0.49	0.57	0.65	0.65	0.83
$m$	[lb]	2.4	2.2	2.4	3.5	4.2	6.8	6.8	9.3	10.1	13.9	22	32	47	77	161
$t_{2=}$	[ms]	35	45	35	57	45	76	60	115	80	120	160	200	220	300	320
$t_{1≈}$	[ms]	70	*	70	*	95	*	140	*	175	210	280	350	500	800	3000
$t_{1=}$	[ms]	30	28	30	31	45	47	60	53	75	90	120	150	180	200	160
Fits on IEC motor frame size		63, 71	63, 71, 80	63, 71, 80	80, 90	80, 90	90, 100	90, 100	100, 112	100, 112	112, 132	132, 160	160, 180	180, 200, 225	200, 225	250

\* on request

	Designation	Unit
Rated torque of spring loaded brake	$T_B$	[lb-in] / [Nm]
Holding torque of the spring loaded brake	$T_{BS}$	[lb-in]
Brake coil power consumption	$P_{20}$	[W]
Brake moment of inertia	$J_B$	[lb-ft <sup>2</sup> ]
Friction performance	$P_R$	[hp]
Friction per switch cycle	$W_{Rmax}$	[cal <sub>15</sub> ]
Friction until readjustment	$W_{RN}$	[cal <sub>15</sub> ]
Air gap	$a$	[in]

	Designation	Unit
Minimum brake rotor thickness	$b$	[in]
Mass of moved machine parts	$m$	[lb]
Engaging time	$t_1$	[ms]
Release time of brake	$t_2$	[ms]
Output voltage DC rectifier	$U_{2=}$	[V]
For DC switching	=	-
For AC switching	≈	-

## BR.. - Spring loaded brake

Degree of protection IP55.

<p><b>BR..</b> Spring loaded brake without additional options</p> <p><b>Possible options:</b></p> <p><b>BRH..</b> With manual release</p> <p><b>BRHA..</b> With manual release and locking device</p> <p><b>BRR..</b> With corrosion protection IP55</p> <p><b>BRS..</b> With dust protection IP65</p> <p><b>BRSR..</b> With dust and corrosion protection IP65</p> <p><b>BRGD..</b> Low noise execution</p>		<p><b>Ordering examples:</b></p> <p><b>BR4</b> Brake 4 Nm (35 lb-in)</p> <p><b>BRHASRGD32</b> Brake 32 Nm (283 lb-in) with manual release, locking device, dust and corrosion protection and low noise execution</p>
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### BRM - Micro switch

When brake release monitoring is necessary, a micro switch (5) can be fitted to indicate brake release. This signal can be used to start the electric motor. When air gap “a” (see page 497) is at its maximum and the armature is no longer attracted to the magnet body the motor will not start and air gap “a” must be adjusted.

The installation of the micro switch is possible for brake sizes 5, 10, 20, 40, 60, 100, 150, 250, 400 and 1000.

### BRH.. - Manual release

The installation of the manual release is possible for brakes > 4 Nm (35 lb-in). The manual release (1) is necessary for manually releasing the brake in cases of power failure. Brakes will be supplied with manual releases fitted by factory. The adjustment of the manual release may not be changed, not even when air gap “a” (see page 497) is readjusted, as safety can be adversely affected.

### BRHA.. - Manual release with locking device

In case of service the manual release can be fastened with a locking device. Take care that in rated condition the brake is released (see illustration on page 502). The 0° position of the manual release with locking device is **only possible** with motor frame sizes 225 and 250.

### BRR.. - Corrosion protection

Protection class IP55. Consists of painted brake endshield and friction plate (3), which is made of non-corrosive material.

### BRS.. - Dust protection

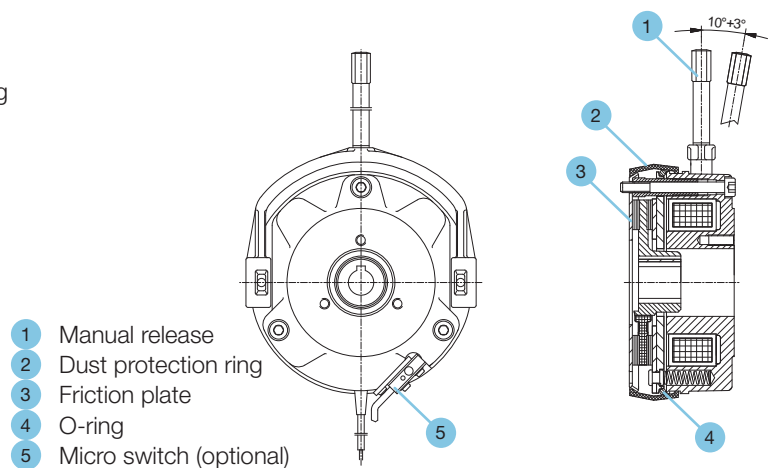
Protection class IP65. Consists of friction plate (3), which is made of non-corrosive material, dust protection ring (2) and shaft seal.

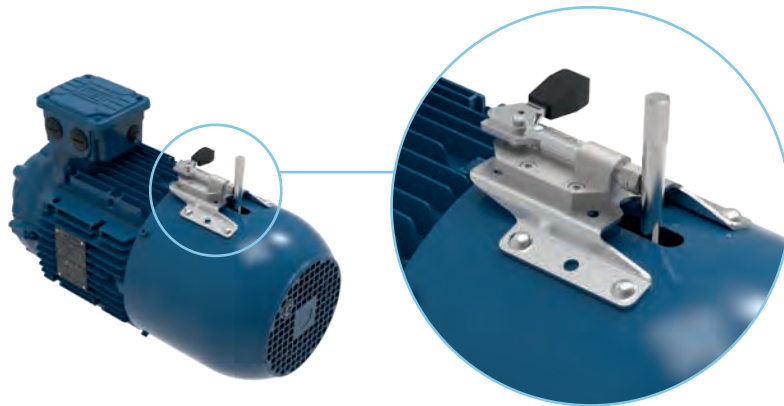
### BRSR.. - Corrosion and dust protection

Protection class IP65. Consists of painted brake endshield, friction plate (3), which is made of a non-corrosive material, dust protection ring (2) and shaft seal.

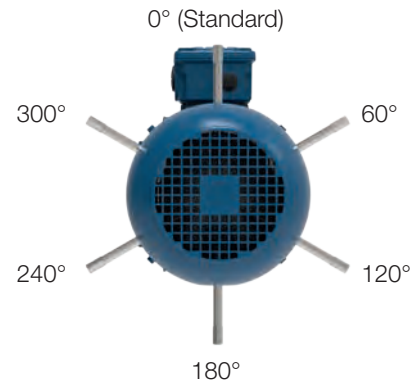
### BRGD.. - Low noise execution

To reduce the switching noises of the spring loaded brake, the o-ring (4) can be inserted between armature plate and brake body.





Manual release with locking device (from brake size 4)



Possible positions of the manual release from the view of the motor fan cover. (The 0° position of the manual release with locking device is only possible with motor frame sizes 225 and 250.)

### BBRHGD.. - Double spring loaded brake

Double brakes (from motor frame size 71) are two specially designed low noise brakes working independently of each other meeting high demands on safety.

As option a micro switch (5) is monitoring the function of the brakes. The brakes are executed per default in low noise execution and with manual release.

<p><b>BBRHGD..</b> Double brake in low noise execution with manual release (standard)</p> <p><b>Possible options:</b></p> <p><b>BBRHSGD..</b> With dust protection IP65</p> <p><b>BBRGD..</b> Without manual release</p>	➔	<p><b>Ordering examples:</b></p> <p><b>BBRHGD6</b> Double brake 2 x 6 Nm (53 lb-in) in low noise execution with manual release</p> <p><b>BBRHSGD187</b> Double brake 2 x 187 Nm (1655 lb-in) in low noise execution with manual release and dust protection</p>
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### BBRM - Micro switch

When brake release monitoring is necessary, a micro switch (5) can be fitted to indicate brake release.

This signal can be used to start the electric motor. When air gap "a" (see page 497) is at its maximum and the armature is no longer attracted to the magnet body the motor will not start and air gap "a" must be readjusted.

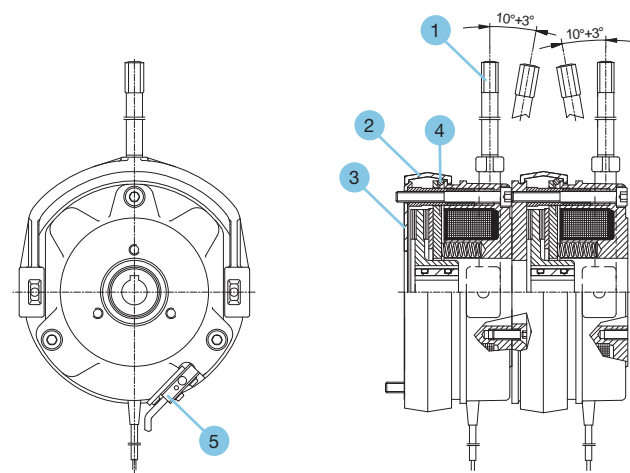
### BBRHSGD.. - Dust protection

Protection class IP65. Consists of friction plate (3), which is made of non-corrosive material, dust protection ring (2) and shaft seal.

### BBRHGD.. - Manual release

The manual release (1) for manually releasing of the brake in cases of power failure. Brakes will be supplied as a standard with manual release fitted by factory. The adjustment of the manual release may not be changed, not even when air gap "a" (see page 497) is readjusted, as security can be adversely affected.

Possible positions of the manual release see on page 502.



- 1 Manual release
- 2 Dust protection ring
- 3 Friction plate
- 4 O-ring
- 5 Micro switch (optional)

### BRGH - Totally enclosed spring loaded brake “heavy duty“

The fully encapsulated brake design with dust and waterproof cable glands is in accordance with protection degree IP66. On ventilated motor executions IC411 the shaft passage is sealed by seal rings. The brake is executed with manual release as a standard. On the brake disc a lining for high loads is fitted. Brake selection table see page 499.

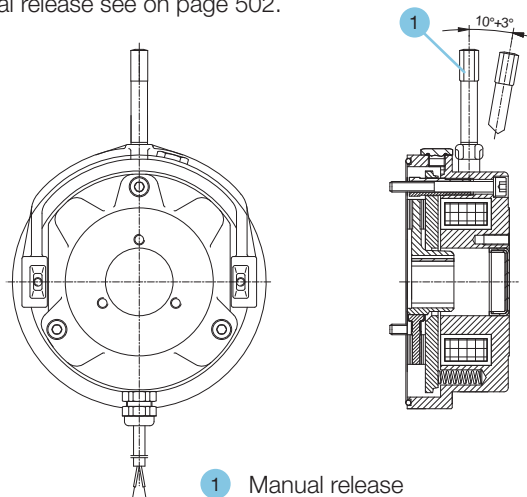
<p><b>BRGH..</b> Totally closed spring loaded brake with manual release</p> <p><b>Possible options:</b></p> <p><b>BRGHA..</b> With manual release and locking device</p> <p><b>BRG..</b> Without manual release</p>	➔	<p><b>Ordering examples:</b></p> <p><b>BRGH10</b> Brake 10 Nm (89 lb-in) with manual release</p> <p><b>BRGHA150</b> Brake 150 Nm (1328 lb-in) with manual release and locking device</p>
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#### BRGH.. - Manual release

The manual release (1) is necessary for manually releasing the brake in cases of power failure. Brakes will be supplied as a standard with manual release fitted by factory.

The adjustment of the manual release may not be changed, not even when air gap “a” (see page 497) is readjusted, as safety can be adversely affected.

Possible positions of the manual release see on page 502.



1 Manual release

#### Anti-condensation heater for brakes

When operating at conditions of extreme temperature changes or extreme climatic conditions, the windings are endangered from condensation water. The built-in anti-condensation heater warms up the magnet windings after switching off and prevents condensation inside the brake.

The anti-condensation heater must be supplied with a separate voltage.

Supply voltage 230 V (1~)

Voltage range: 220 - 230 V, 50/60 Hz

Brake		Performance
[Nm]	[lb-in]	[W]
10	89	16
20	177	29
40	354	33
60	531	35
100	885	48
150	1328	53
250	2213	70
400	3540	128
1000	8851	131

## Calculation of the brake torque

If the mass moment of inertia, the rotation speed and the permissible braking time of the machine are known, the torque of the spring loaded brake can be calculated.

	Formula	Unit
Load moment (static load)	$T_L = F \cdot r \cdot 12$	[lb-in]
Braking torque (dynamic load) There is a pure dynamic load if fly-wheels, rolls, etc. have to be slowed down and when the static load is very insignificant.	$T_a = 39 \cdot J_{zus} \cdot \frac{n}{t - t_1}$ $T_{aerf} = T_a \cdot K \leq T_B$	[lb-in]
Braking torque (dynamic and static load) in most applications there is also dynamic load in addition to static load.	$T_{aerf} = (T_a \pm T_L) \cdot K$ $T_{aerf} = (39 \cdot J_{zus} \cdot \frac{n}{t - t_1} \pm T_L) \cdot K$ $T_{aerf} \leq T_B$	[lb-in]
Estimated determination of braking torque	$T_{aerf} = 63025 \cdot \frac{P}{n} \cdot K$ $T_{aerf} \leq T_B$	[lb-in]
Deceleration time	$t = t_B + t_1$	[ms]
Acceleration time	$t_A = \frac{J_{ges} \cdot n_1}{102.8 \cdot (T_A \pm T_L)} + t_2$ $J_{ges} = J_E + J_{zus}$	[s] [lb-ft <sup>2</sup> ]
Braking time	$t_B = \frac{J_{ges} \cdot n_1}{102.8 \cdot (T_A \pm T_L)}$ $J_{ges} = J_E + J_{zus}$	[s] [lb-ft <sup>2</sup> ]
The conversion of several mass moments of inertia with different rotation speeds in a mass moment of inertia reduced to the motor shaft	$J_{zus} = \frac{J_2 \cdot n_2^2 + J_3 \cdot n_3^2 \dots}{n_1^2}$	[lb-ft <sup>2</sup> ]
Conversion of straight-line moved machine parts into a corresponding J on the motor shaft	$J = \frac{m \cdot v^2}{39.5 \cdot n_1^2}$	[lb-ft <sup>2</sup> ]
Friction per switch cycle	$W_R = \frac{J_{zus} \cdot n^2}{18128} \cdot \frac{T_B}{T_B \pm T_L}$ $W_R < W_{Rmax}$	[cal <sub>15</sub> ]
Friction performance	$P_R = \frac{W_R \cdot S}{178}$ $P_R < P_{Rmax}$	[hp]

Designation	Unit	Description
$T_L$	[lb-in]	Load moment Sign + : when the load moment acts decelerating (lifts when going up) Sign - : when the load moment acts accelerating (lifts when going down)
$T_{aerf}$	[lb-in]	Necessary braking torque
$T_a$	[lb-in]	Braking torque
$T_A$	[lb-in]	Starting torque of motor
$T_B$	[lb-in]	Rated torque of spring loaded brake
K	-	Safety factor according to the operating conditions (1...3)
F	[lb]	Force
$F_I$	-	Factor of inertia
r	[in]	Lever arm
m	[lb]	Mass of moved machine parts
$J, J_1, J_2$	[lb-ft <sup>2</sup> ]	Mass moment of inertia
$J_E$	[lb-ft <sup>2</sup> ]	Proper mass moment of inertia
$J_{ges}$	[lb-ft <sup>2</sup> ]	Total mass moment of inertia
$J_{mot}$	[lb-ft <sup>2</sup> ]	Mass moment of inertia of the motor

Designation	Unit	Description
$J_{zus}$	[lb-ft <sup>2</sup> ]	Additional mass moment of inertia
K	-	Safety factor $K \geq 2$
P	[hp]	Power
$P_R$	[hp]	Friction performance
$P_{Rmax}$	[hp]	Maximum friction performance
n	[rpm]	Rotation speed
$n_1$	[rpm]	Rotation speed of motor
$n_2, n_3$	[rpm]	Rotation speeds
t	[ms]	Deceleration time
$t_A$	[s]	Acceleration time
$t_B$	[s]	Braking time
$t_1$	[ms]	Engaging time
$t_2$	[ms]	Release time of brake
v	[fpm]	Speed
$W_R$	[cal <sub>15</sub> ]	Friction work per switch cycle
$W_{Rmax}$	[cal <sub>15</sub> ]	Permissible friction per switch cycle
S	[s <sup>-1</sup> ]	Number of switch cycle per second



## Rectifier

### Power supply

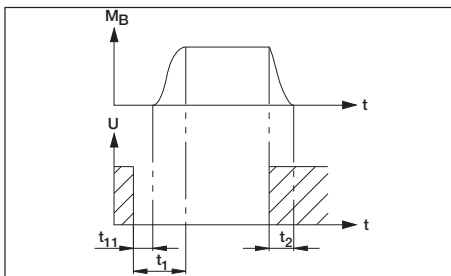
The DC-brake coil is normally supplied by a half wave rectifier incorporated in the motor terminal box and is also available for coil voltages 162-236 V DC, 85-133 V DC or 24 V DC (24 V with block terminal for external power supply!) Corresponding rectifiers and coil voltages are optionally available for all special voltages. The rectifiers are equipped with varistors to protect them against over-voltages.

If number of starts is more than 1/s, please contact us for rectifier loading capacity.

### Switching modes

By default, brake motors will be delivered with connected rectifier for AC-side switching. For DC-side switching the bridge between terminals 5 and 6 must be removed and a switching contact must be connected. Start-up of motor only with connecting brake.

- **AC-side switching** is executed before the rectifier on AC-side. Here the magnetic field is de-energized slowly, the brake interrupts softly with delay. (Release time  $t_{1\approx}$ )
- **DC-side switching** is executed between rectifier and coil. Thereby an extremely low degree of overrunning is achieved. For all gear units, which require exact braking, especially for lifting gears, a DC-side switching of the brake is absolutely required. (Release time  $t_{1\approx}$ )



	Designation	Unit
Braking torque	$T_B$	[lb-in]
Voltage	U	[V DC]
Engaging time	$t_1$	[ms]
Response delay (time from switching power off until braking torque increases)	$t_{11}$	[ms]
Release time (time from switching power on until braking torque begins to decrease)	$t_2$	[ms]

### Rectifier selection

- *Half-wave and bridge rectifier*

The half wave rectifier which halves the supply voltage is the most cost effective. The bridge rectifier produces 90 % DC voltage from the AC supply voltage. Both rectifiers are available for switching on AC or DC side. Varistors in the input and output protect the rectifiers against surge voltages.

Half-wave rectifier:  $U_{2=} = 0.45 \times U_{1\sim}$   $I_{max} = 1 \text{ A}$

Bridge rectifier:  $U_{2=} = 0.9 \times U_{1\sim}$   $I_{max} = 2 \text{ A}$

- *Fast excitation rectifier*

For motor frame sizes 63-132 this rectifier can't be installed in the standard terminal box.

The high-speed rectifier uses special connections to make different direct voltages available on the terminals. This means that the following brake operating modes can be selected:

1. Rapid response: Brake voltage level equal to the holding voltage of the fast excitation rectifier: The ventilation time of the brake is reduced.
2. Power reduction: Brake voltage level equal to overexcitation voltage of the fast excitation rectifier: reduced performance losses in the brake coil, engage time of the brake is reduced.

Max. connection voltage:  $U_{1\sim} = 500 \text{ V AC}$

Max. permissible connections: 600 connections/h

Max. permissible switching capacity: 210 W

Rectifier type	System	$U_N$ [V]	$I_N$ [A]
PMEAF500-S	Half-wave rectifier	500	1
PMBAF400-S	Bridge rectifier	400	2
PMG480-S	Fast excitation rectifier	500	2

Overexcitation phase (voltage)	$T = 0 - 500 \text{ ms } (\pm 200 \text{ ms})$	$U_{2=} = 0.9 \times U_{1\sim}$	$I_N = 4 \text{ A}$
Holding phase (voltage)	$T > 500 \text{ ms}$	$U_{2=} = 0.45 \times U_{1\sim}$	$I_N = 2 \text{ A}$

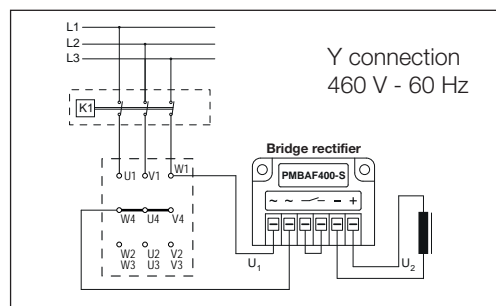
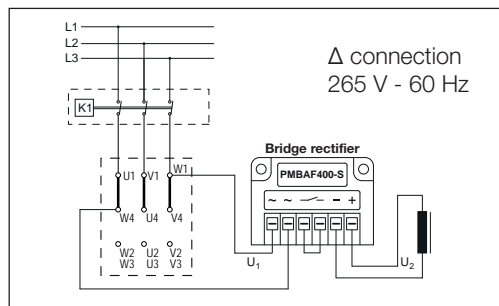
## Connection examples

Motor frame size	Connection	3~ $U_N$ [V] 60 Hz	$U_{1\sim}$ [V] 60 Hz	Rectifier type	$U_{2=}$ [V] 60 Hz	Brake coil voltage [V]
63-100	$\Delta$	265	265	PMBAF400-S	239	190 / 195
	$Y$	460	265	PMBAF400-S	239	190 / 195
112-250	$\Delta$	460	460	PMEAF500-S	207	190 / 195
	$Y$	not possible				

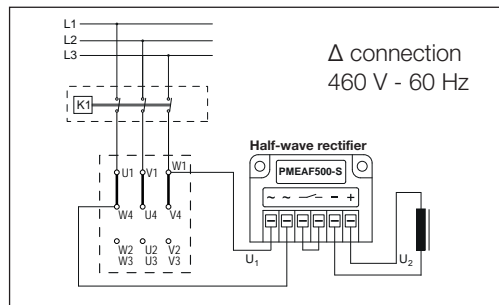
	Designation	Unit
Maximum rated output current DC rectifier	$I_N$	[A]
3~ rated motor voltage	3~ $U_N$	[V]
Maximum rated input voltage AC rectifier	$U_N$	[V]
Supply voltage AC rectifier	$U_{1\sim}$	[V]
Output voltage DC rectifier	$U_{2=}$	[V]

## Switching diagram for braking motor

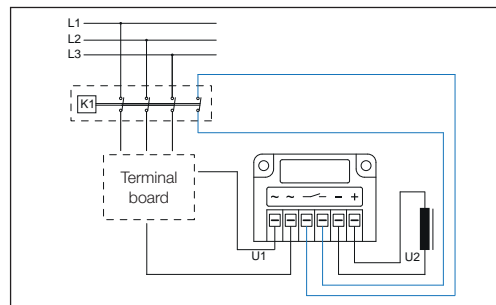
- AC switching - Motor frame sizes 63-100



- AC switching - Motor frame sizes 112-250



- DC switching



## Backstop

Installing a backstop guarantees that the motor

- can start only in one direction
- can't be turned in wrong direction from counteracting torques

- KKM** Backstop (IEC frame size 63 to 90)
- RSM** Backstop (IEC frame size 100 to 250)

The applied freewheels of the clamping bodies are mounted on the motor endshield (NDE) in such a manner that the standard motor dimension LB up to motor size 90 will not be lengthened. From motor size 100 the motor dimension LB1 is valid.

The backstop size has been selected to corresponds approx. to the motor starting torque ( $T_A$ ) to prevent damage in case of short-time-starting against the backstop at switchings made by error. Nevertheless, the free direction of rotation must be determined first, especially at big motor powers and we recommend for the first starting the star connection and only then the delta connection at correct rotation.

**Fields of application:**

- Drives for elevators and inclined lifts
- Pumps and fans with backpressure ratchet
- Geared motors for conveyors with non-reversing characteristic

**KKM - Backstop (ball bearing freewheel clutch)**

The elements have bearing characteristics and are used instead of the bearing on the fan side. The outer dimensions are identical to the deep-groove ball bearings.

▪ *Function*

Rolling elements and spring loaded clamping bodies are built in between the inner and outer ring. The rolling elements and ratchet elements are fixed in a plastic cage. Torque transmission is made by tight fits on the inner and outer ring. The elements are pre lubricated with grease and are maintenance-free for 10,000 to 20,000 hours under normal working conditions.

▪ *Mounting*

The KKM backstop will be mounted instead of the bearing on the non-driven side.

**RSM - Backstop (with centrifugal mechanism)**

Because the mounted backstops have no bearing properties, they are mounted directly near the non-drive bearing. Above the lifting speed the centrifugal elements are working contactless and so they are maintenance-free under normal conditions.

▪ *Mounting*

The centrifugal elements are mounted directly near the non-driven side bearing between bearing and fan under the fan cover. The inner ring of the backstop is connected to the motor shaft with a key DIN 6885-1.

▪ *Direction of rotation*

The direction of rotation has to be given when ordering.

▪ *Backstop direction*

Backstop direction when viewing the output shaft right or left.  
By turning the entire backstop system by 180°, the backstop direction can be reversed (applies only for RSM!).



**Backstop overview**

IEC frame size	Backstop type	Torque [lb-in]	Motor length dimension (see from page 488)
63	KKM	65	LB
71	KKM	119	LB
80	KKM	354	LB
90	KKM	602	LB
100	RSM	1328	LB1
112	RSM	1328	LB1
132	RSM	3452	LB1
160	RSM	5133	LB1
180	RSM	5133	LB1
200	RSM	9293	LB1
225	RSM	9293	LB1
250	RSM	18587	LB1

## Encoder systems

- I. Encoder outside the fan cover
- S. Encoder inside the fan cover

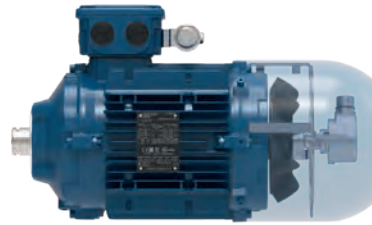
M



Encoder outside the fan cover



Standard position connector (M23)



Encoder inside the fan cover

### Modular design

We are using encoders with hollow shaft ( $\varnothing$  0.5 in) open at one end. The modular motor shafts are pre-machined to attach an encoder kit. The mounting of encoders is therefore easy and immediately possible. Add-on kits are easy to retrofit.

### Mounting of encoders

The encoders are equipped with an integral bearing and connected directly on the non-driven motor shaft side. During angular acceleration of the shaft the stator coupling must absorb only the torque resulting from friction in the bearing.

### IG, SG - Standard encoder

Available for IEC motor frame sizes 63 to 250 (IG) / 71 to 250 (SG)

Type: Kübler Sendix 5020

Pulses per revolution: 1024

Output signal: HTL or TTL

Voltage supply: 10-30 V at HTL, 5 V at TTL

Degree of protection: IP66

IG standard: with PIN connector (M23) on the encoder

SG standard: with PIN connector (M23) on the terminal box (mating connector not included in delivery)

Other numbers of pulses per revolution on request.

### IC, SC - SINCOS encoder

Available for IEC motor frame sizes 80 to 225 (IC) / 80 to 250 (SC)

Pulses per revolution: 1024

Output signal: Sinus 1VSS

Voltage supply: 10-30 V or 5 V

IC standard: with PIN connector (M23) on the encoder

SC standard: with PIN connector (M23) on the terminal box (mating connector not included in delivery)

Other numbers of pulses per revolution on request.

Encoders in standard mechanical designs can also be implemented as electric SINCOS versions. In this case, signals A and B are available on the output as sinusoidal voltage signals with a signal level of 1 VSS or one 0 pulse once per rotation. These can be used in many different ways in the downstream electronics. Via interpolation of the two signals shifted by  $90^\circ$ , very high resolutions are achieved and can therefore also be used with very slow movements for speed control.

### IR, SR - Resolver

Available for IEC motor frame sizes 71 to 200

Degree of protection: IP54 (IP66 on request)

IR standard: with 2 ft cable (open one way, 6 strands)

SR standard: with 2 ft cable (open one way, 6 strands)

Resolvers are primarily 2-pole, electromagnetic measuring transducers for converting the angle position of a rotor into an electrical value. Resolvers are wear-free and robust, as the most important elements for acquiring the information consist only of an iron core and copper coils. Contamination therefore plays a lesser role. The configuration consists of 2 stator coils positioned at an offset of 90° (S1/S3 and S2/S4) and a rotating rotor coil (R1/R2). In this process, the rotor coil supply is inductive, in other words, brushless. The R1/R2 rotor coil is excited using a sinusoidal alternating voltage. The amplitudes of the voltages induced in stator coils S1/S3 and S2/S4 depend on the rotor angle.

Input voltage:  $E_{(R1/R2)} = E \times \sin(\omega t)$

Output:  $E_{(S1/S3)} = T_r \times E_{(R1/R2)} \times \cos(\varphi)$   
 $E_{(S2/S4)} = T_r \times E_{(R1/R2)} \times \sin(\varphi)$

Standard input voltage:  $E_{(R1/R2)} = 7 \text{ V}$

Standard transformation ratio:  $T_r = 0.5$

### IS, SS - SSI multi turn encoder

Available for IEC motor frame sizes 71 to 250

Digits per revolution: 8192 at 4096 possible rotations

Output signal: TTL

Voltage supply: 5 V

Degree of protection: IP66

SS standard execution: with PIN connector on the terminal box

The SSI multiturn absolute encoder signals a precisely defined position to the drive frequency controller. Maximum permissible number of motor revolutions can be 4096. The resolution is 8192 steps per revolution. The serial communication is corresponding to the specification of the SSI-protocol. SSI means Synchronous Serial Interface.

The permissible cable length is at least 328 ft if EMC-compatible wiring is guaranteed.

### IV, SV - Heavy Duty encoder

Available for IEC motor frame sizes 90 to 250

Pulses per revolution: 1024

Output signal: HTL or TTL

Voltage supply: 10 - 30 V at HTL, 5 V at TTL

Degree of protection: IP65

Optional insulation inserts available to protect against shaft currents.

The Heavy Duty encoder boasts a high degree of ruggedness in a very compact design. Its special construction makes it perfect for all applications in very harsh environments.

### IA, SA - Special encoder

The mounting of special encoders is possible on request.

#### Type of signal

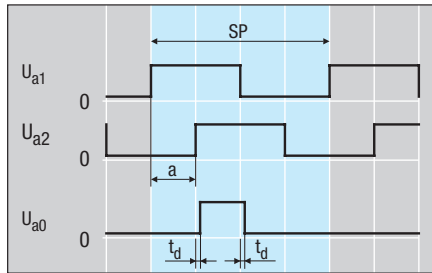
##### HTL-/TTL - output signal

Encoders with HTL/TTL square-wave output signals incorporate a circuit that digitizes scanning signals, providing two 90° (el.) phase-shifted HTL-/TTL square-wave pulse trains  $U_{a1}$  and  $U_{a2}$  and a reference pulse  $U_{a0}$ , which is gated with the incremental signals  $U_{a1}$  and  $U_{a2}$ . The integrated electronics also generate the inverse signals of all square-wave pulse trains. The distance between two successive edges of the combined pulse trains  $U_{a1}$  and  $U_{a2}$  is one measuring step. HTL/TTL square-wave signals can be transmitted to the subsequent electronics (without inverting: max. cable length 328 ft; with inverting: 820 ft), provided that the specified  $5 \text{ V} \pm 5 \%$  supply voltage is maintained at the encoder. Extended cable length is possible with fiber-optic cable.

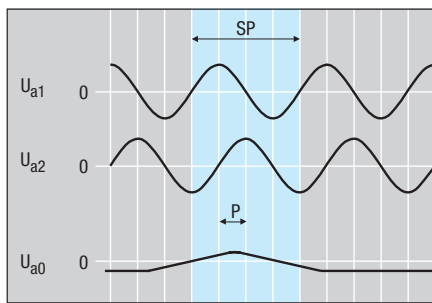
##### 1VPP - output signals

The sinusoidal incremental signals  $U_{a1}$  and  $U_{a2}$  are phase-shifted by 90° and have signal levels of approximately 1VPP. The signal peaks from the reference mark signal have a usable component of approximately 0.5 V. Signal interpolation and digitalization can be performed by electronics, which output TTL-compatible signals.

Voltage signals can be transmitted to the subsequent electronics unit over cables as long as 164 ft, provided that the specified  $5\text{ V} \pm 5\%$  supply voltage is maintained at the encoder. Encoders that produce voltage signals have sensor line connections for detection of the supply voltage at the encoder; corresponding control systems in the subsequent electronics can then maintain the voltage tolerance.



HTL/TTL



1VSS

#### HTL signal levels

$U_H \geq 2.1\text{ V}$  at  $I_H = 20\text{ mA}$

$U_L \leq 2.8\text{ V}$  at  $I_L = 20\text{ mA}$

with power supply +24 V, without cable

#### TTL signal levels

$U_H \geq 2.5\text{ V}$  at  $I_H = 20\text{ mA}$

$U_L \leq 0.5\text{ V}$  at  $I_L = 20\text{ mA}$

	Designation
Encoder signals	$U_{a1}, U_{a2}$
Reference pulse	$U_{a0}$
Signal level HIGH	$U_H$
Signal level LOW	$U_L$
Edge separation	$a$
Phase shift	$P$
Current at signal level HIGH	$I_H$
Current at signal level LOW	$I_L$
Signal period	$SP$
Delay time	$t_d$

## Ventilation systems

<b>FL</b>	Forced ventilation
<b>ZL</b>	Fly wheel fan
<b>ZM</b>	Metal fan
<b>U</b>	Non-ventilated without NDE shaft end
<b>UW</b>	Non-ventilated with NDE shaft end

### FL - Forced ventilation (TEFV, IC416)

IEC frame sizes: 63 to 250

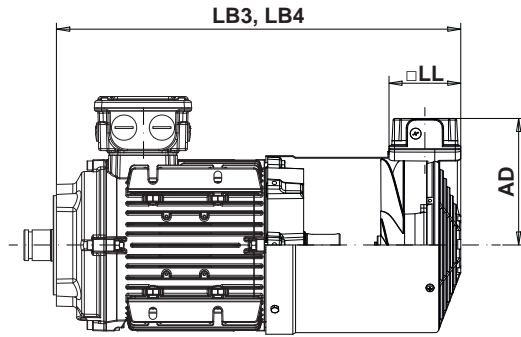
At applications with high starting frequencies, starts against heavy masses, heavy alternating load and operations with frequency inverters, self ventilation of the motor sometimes will not be sufficient and forced ventilation is necessary.

At frequencies under 30 Hz forced ventilation is recommended in order to not thermally overstrain the motor.

### Forced ventilation currents

IEC frame size	Phases Connection	Capacitor  μF	60 Hz				
			Voltage range	Current	Power	Air current capacity	Noise level
			V	A <sup>1)</sup>	W <sup>1)</sup>	cfm	dB(A)
63	3~Y	-	380-575	0.08	29	41	52
	3~Δ	-	220-332	0.14	29		
	1~1Δ	1.5	230-277	0.21	54		
71	3~Y	-	380-575	0.07	28	58	56
	3~Δ	-	220-332	0.13	28		
	1~1Δ	1.5	230-277	0.21	56		
80	3~Y	-	380-575	0.07	36	89	58
	3~Δ	-	220-332	0.13	36		
	1~1Δ	1.5	230-277	0.22	59		
90	3~Y	-	380-575	0.18	71	152	63
	3~Δ	-	220-332	0.32	71		
	1~1Δ	3.0	220-277	0.23	61		
100	3~Y	-	380-575	0.18	80	193	65
	3~Δ	-	220-332	0.30	80		
	1~1Δ	3.0	220-277	0.28	73		
112	3~Y	-	380-575	0.17	93	246	66
	3~Δ	-	220-332	0.29	93		
	1~1Δ	3.0	220-277	0.36	88		
132	3~Y	-	380-575	0.32	180	383	71
	3~Δ	-	220-332	0.55	180		
	1~1Δ	6.0	230-277	0.61	163		
160	3~Y	-	380-575	0.62	391	683	77
	3~Δ	-	220-332	1.08	391		
	1~1Δ	12	230-277	1.52	390		
180	3~Y	-	380-575	0.62	391	812	80
	3~Δ	-	220-332	1.08	391		
	1~1Δ	12	230-277	1.52	390		
200	3~Y	-	380-575	0.62	391	927	81
	3~Δ	-	220-332	1.08	391		
	1~1Δ	12	230-277	1.52	390		
225	3~Y	-	380-575	0.62	391		
	3~Δ	-	220-332	1.08	391		
	1~1Δ	12	230-277	1.52	390		
250	3~Y	-	380-575	0.62	391		
	3~Δ	-	220-332	1.08	391		
	1~1Δ	12	230-277	1.52	390		

1) maximum permissible values



IEC frame size	AD	□LL
63	4.65	4.13
71	4.88	4.13
80	5.28	4.13
90	5.63	4.13
100	5.98	4.13
112	6.46	4.13
132	7.28	4.13
160	8.31	4.13
180	8.31	4.13
200	8.31	4.13
250	8.31	4.13

Dimensions in inch.  
Dimensions LB3 and LB4 see drawings from page 488

### ZL - Fly wheel fan

IEC frame size: 71 to 132 (special execution)

Fly wheel fans increase the inertial moment of the standard motors by a multiple and help to decrease the start up time of the motors. Motors with fly wheel fan are often used with crane drives or machine-systems where a soft start up is required. Available for motor sizes 71 to 132 on request, exchangeable without modification with standard fan, pay attention to the reduced starting frequency! Braking by reversal and driving up against a buffer stop is not permissible.

Motor without brake:  $J_{ges} = J_{mot} + J_{ZL}$

Brake motor:  $J_{ges} = J_{mot} + J_{ZL} + J_B$

	Designation	Unit
Total mass moment of inertia	$J_{ges}$	[lb-ft <sup>2</sup> ]
Mass moment of motor	$J_{mot}$	[lb-ft <sup>2</sup> ]
Mass moment of brake	$J_B$	[lb-ft <sup>2</sup> ]
Mass moment of fly wheel fan	$J_{ZL}$	[lb-ft <sup>2</sup> ]
Weight of fly wheel fan	m	[lb]

IEC frame size	$J_{ZL}$ [lb-ft <sup>2</sup> ] x 10 <sup>-3</sup>	m [lb]
71	47.5	2.9
80	47.5	2.9
90	71.2	3.5
100	237.3	7.3
112	237.3	7.3
132	332.2	8.4

### ZM - Metal fan

IEC frame size: 63 to 250

For ambient temperatures which are less than or greater than the operation temperatures of the standard plastic fan, the ventilation can be provided via a metal fan. These can be manufactured from aluminium, steel plate or cast iron. Using a metal fan can be appropriate in the event of difficult climatic conditions.

### U - Non-ventilated without NDE shaft end (TENV)

IEC frame size: 63 to 250

In this version, there is no fan or fan cover. The NDE is completely enclosed. A cover plate is used as the sealing component. This prevents dirt, water, etc. from entering the motor.



### UW - Non-ventilated with NDE shaft end (TENV)

IEC frame size: 63 to 250

This design is realized by omitting the fan. The standard fan cover is used as contact protection for the remaining NDE rotating shaft. Motors of these designs are intended for use in systems where fans or fan covers integrated into the motor are not appropriate due to the environmental conditions, for design reasons or at the customer's request. The motors are therefore designed without integrated fans or fan covers.

In the non-ventilated version, the resulting reduction in nominal motor output must be observed!





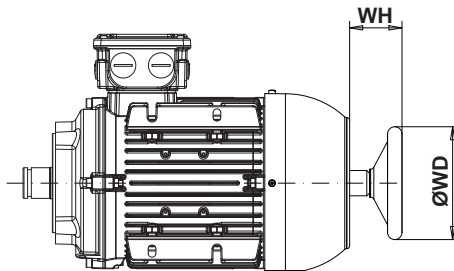
## Additional modules

<b>HR</b>	Hand wheel
<b>SD</b>	Protection cap
<b>ID</b>	Protection cap for encoders
<b>ZWM</b>	Second shaft end - module shaft
<b>ZWV</b>	Second shaft end - solid shaft

### HR - Hand wheel

IEC frame sizes: 71 to 250

By using a second shaft end it is possible to fit a hand wheel.



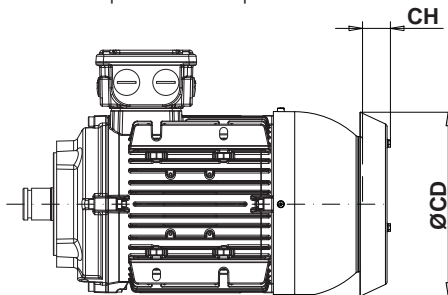
IEC frame size	ØWD	WH
71	4.92	2.01
80	4.92	2.01
90	4.92	2.01
100	4.92	2.01
112	4.92	2.01
132	7.87	2.36
160	7.87	2.36
180	7.87	2.36
200	7.87	2.36
225	7.87	2.36
250	7.87	2.36

Dimensions in inch.

### SD - Protection cap

IEC frame sizes: 63 to 250

When installed vertically with the shaft downward, e.g. IM V1, the air intake opening can be protected against water and foreign substance by means of a protective cap.



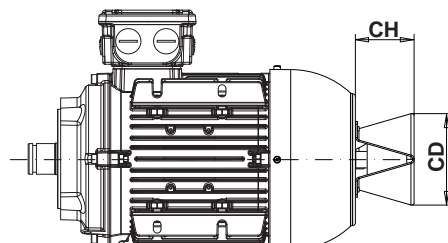
IEC frame size	ØCD	CH
63	4.88	0.79
71	5.47	0.79
80	6.18	0.79
90	6.93	0.79
100	7.76	1.26
112	8.62	1.38
132	10.0	1.38
160	10.47	2.05
180	12.20	2.24
200	14.96	2.64
225	16.81	2.83
250	16.81	2.83

Dimensions in inch.

### ID - Protection cap for encoders

IEC frame sizes: 90 to 250

If mounted outside the fan cover, the encoder may be protected against foreign matter and other external influence by a separate protection cap.



Protection cap for	CD	CH
IG standard encoder	2.91	4.57
IV Heavy Duty encoder	4.53	7.20

Dimensions in inch.

## ZW. - Second shaft end

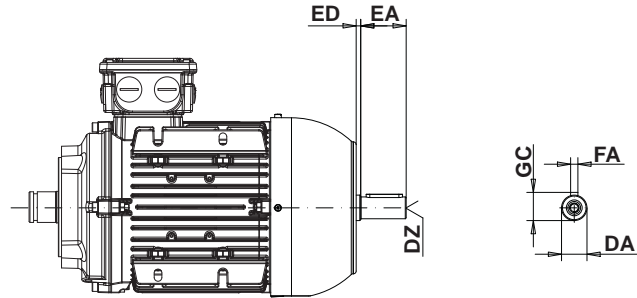
Motors with or without brake can be supplied with a second free shaft end.

### ZWM: Module shaft

IEC frame sizes: 71 to 250. This shaft end can be used to transfer half the rated output of the motor.

### ZWV: Solid shaft

IEC frame sizes: 63 to 200. Available on request.



IEC frame size	DA	DZ <sup>2)</sup>	EA	ED	FA	GC
63 <sup>1)</sup>	0.43	M4	0.91	-	0.16	0.49
71	0.55	M5	1.18	0.20	0.20	0.63
80	0.55	M5	1.18	0.20	0.20	0.63
90	0.75	M6	1.57	0.20	0.24	0.85
100	0.94	M8	1.97	0.20	0.31	1.06
112	0.94	M8	1.97	0.20	0.31	1.06
132	1.10	M10	2.36	0.20	0.31	1.22
160	1.50	M12	3.15	0.20	0.39	1.61
180	1.50	M12	3.15	0.20	0.39	1.61
200	1.50	M12	3.15	0.20	0.39	1.61
225 <sup>2)</sup>	1.50	M12	3.15	0.20	0.39	1.61
250 <sup>2)</sup>	1.50	M12	3.15	0.20	0.39	1.61

Tolerances		
Dimension name	ISO tolerance DIN EN ISO 286-2	
DA	≤ Ø 30 mm (1.181 in)	j6
	> Ø 30 mm (1.181 in) up to Ø 50 mm (1.969 in)	k6

Dimensions in inch. <sup>1)</sup> ZWV only <sup>2)</sup> center hole with thread according to DIN 332-1

## Standards

The motors comply with the competent standards and specifications, especially with the following:

Title	Code	
<b>NEMA</b>		
Motor and Generators	CSA C22.2 No. 100-04	
Test methods, marking requirements and energy efficiency levels for three-phase induction motors	CSA C390	
IEEE standard test procedure for polyphase induction motors and generators	IEEE STD 112	
Motors and Generators	NEMA MG-1	
Rotating electrical machines - general requirements	UL 1004-1	
<b>IEC</b>		
Rotating electrical machines Rating and performance	IEC 60034-1 IEC 60085	DIN EN 60034-1
Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)	IEC 60034-2-1	DIN EN 60034-2-1
Degrees of protection provided by integral design of rotating electrical machines (IP Code)	IEC 60034-5	DIN EN 60034-5
Methods of cooling (IC Code)	IEC 60034-6	DIN EN 60034-6
Classification of types of construction, mounting arrangements and terminal box position (IM Code)	IEC 60034-7	DIN EN 60034-7
Terminal markings and direction of rotation	IEC 60034-8	DIN EN 60034-8
Noise limits	IEC 60034-9	DIN EN 60034-9
Starting performance of single-speed three-phase cage induction motors	IEC 60034-12	DIN EN 60034-12
Mechanical vibration of certain machines with shaft heights 56 mm and higher - measurement, evaluation and limits of vibration severity	IEC 60034-14	DIN EN 60034-14
Dimensions and output series for rotating electrical machines	IEC 60072-1	DIN EN 50347
Thermal protection	IEC 60034-11	DIN EN 60034-11
CENELEC standard voltages	IEC 60038	DIN EN 60038

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 +1-800-ASK-4WEG

 [info-us@weg.net](mailto:info-us@weg.net)

 WEG Electric Corporation  
6655 Sugarloaf Parkway  
Duluth, GA 30097

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