



GOL PUMPS

INDUSTRIAL PUMP SEALS



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Industrial Pump Seal

					
TS MG1 01	TS MG12 01	TS G3 03	TS CR 04	TS MG13 05	TS M2N 06
					
TS M3 07	TS HJ 09	S M7N 10	TS M74 10	TS H7N 11	TS H75 11
					
TS 58U 12	TS 59U 12	TS 58UR 13	TS 58B / 59B 13	TS 502 14	TS 57U 15
					
TS WE 16	TS 109 17	TS 109B 19	TS 8-1 21	TS 8-B1 23	TS 4U 25
					
TS 1500 26	TS KB 27	TS 158 / 159 28	TS UW 29	TS PS 30	TS ST 30
					
TS UE 31	TS X 32	TS XA / XB / XC 33	TS XD 34	TS AP 35	TS WB2 36

Dry Gas Seal



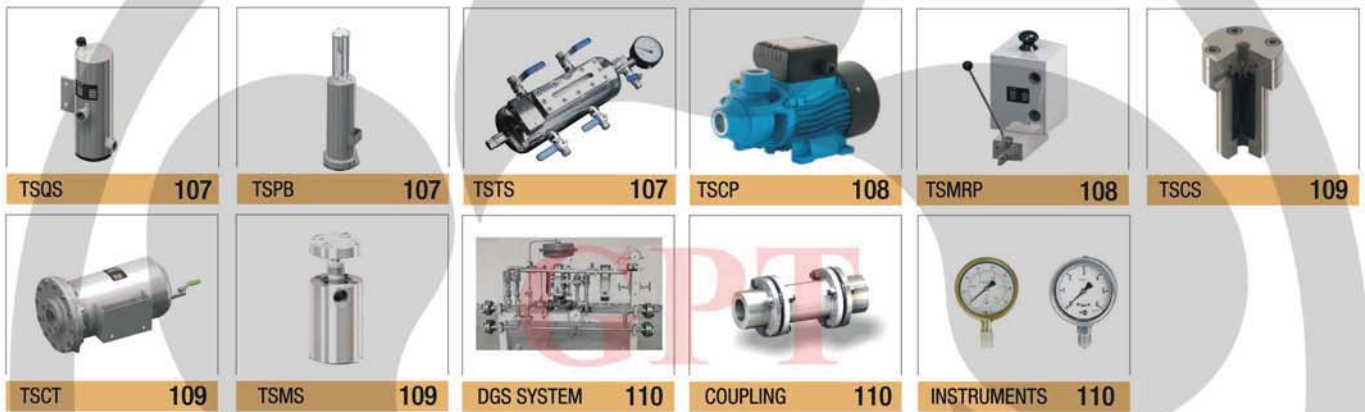
Metal Bellows Seal



Special Seal



Seal Support System



Sealing Machines and Parts





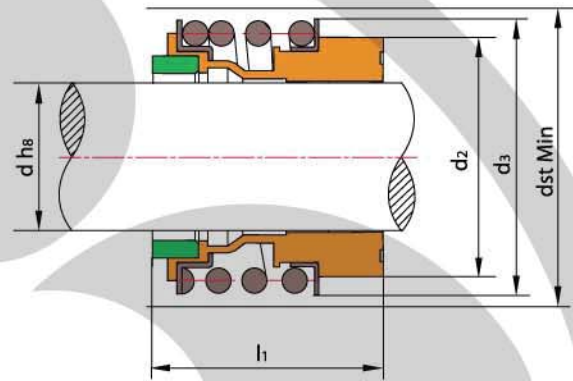
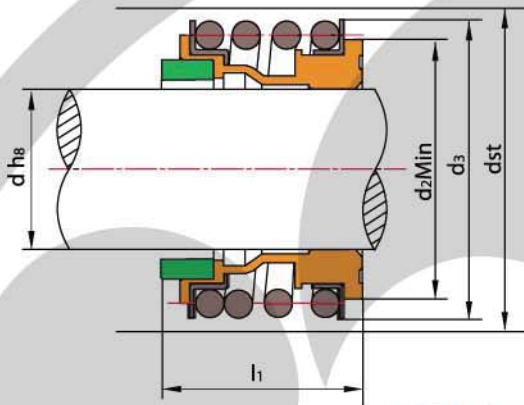
TS MG1(TSG) TS MG12(TSG2)

Operating Limits

Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 10\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +120^{\circ}\text{C}$

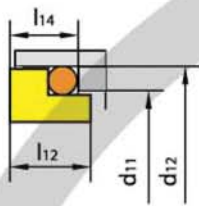
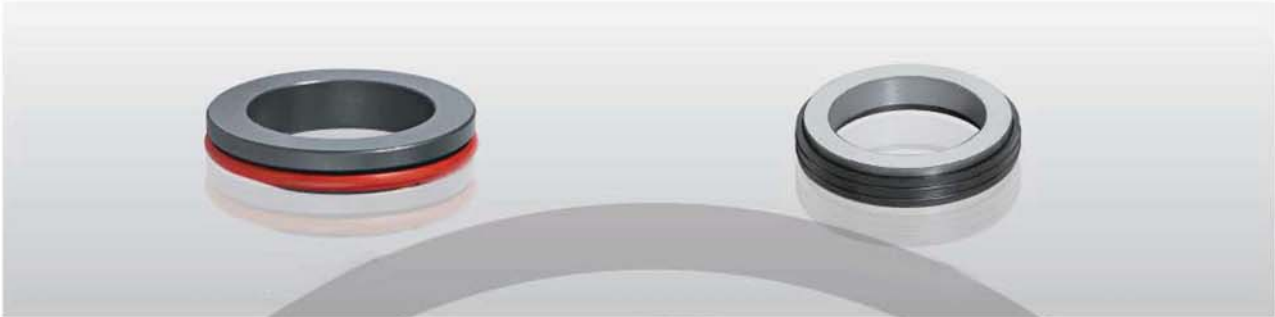


- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (Ceramic/SiC/TC)
- Secondary Seal (NBR/EPDM/VITON)
- Spring & Other Parts (SUS304/SUS316)

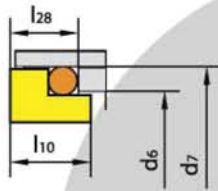
TS MG1					
Seal size d(mm)	d	d ₂	d ₃	d _{st}	l ₁
8	8	17.5	19.0	23	12.5
10	10	20.5	22.5	24	14.5
12	12	22.5	25.0	26	15.0
14	14	26.5	28.5	30	17.0
15	15	26.5	28.5	30	17.0
16	16	26.5	28.5	30	17.0
18	18	29.0	32.0	33	19.5
19	19	33.0	37.0	38	21.5
20	20	33.0	37.0	38	21.5
22	22	33.0	37.0	38	21.5
24	24	38.0	42.5	44	22.5
25	25	38.0	42.5	44	23.0
28	28	44.0	49.0	50	26.5
30	30	44.0	49.0	50	26.5
32	32	46.0	53.5	55	27.5
33	33	46.0	53.5	55	27.5
35	35	50.0	57.0	59	28.5
38	38	53.0	59.0	61	30.0
40	40	55.0	62.0	64	30.0
42	42	58.0	65.5	67	30.0
43	43	58.0	65.5	67	30.0
45	45	60.0	68.0	70	30.0
48	48	63.0	70.5	74	30.5
50	50	65.0	74.0	77	30.5
53	53	70.0	78.5	81	33.0
55	55	72.0	81.0	83	35.0
58	58	75.0	85.5	88	37.0
60	60	79.0	88.5	91	38.0
65	65	84.0	93.5	96	40.0
68	68	88.0	96.5	100	40.0
70	70	90.0	99.5	103	40.0
75	75	95.0	107.0	110	40.0
80	80	100.0	112.0	116	40.0
85	85	107.0	120.0	124	41.0
90	90	114.0	127.0	131	45.0
95	95	119.0	132.0	136	46.0
100	100	124.0	137.0	140	47.0

TS MG12					
Seal size d(mm)	d	d ₂	d _{st}	d ₃	l ₁
10	10	20.5	24	22.5	25.9
12	12	22.5	26	25.0	25.9
14	14	26.5	30	28.5	28.4
16	16	26.5	30	28.5	28.4
18	18	29.0	33	32.0	30.0
20	20	33.0	38	37.0	30.0
22	22	33.0	38	37.0	30.0
24	24	38.0	44	42.5	32.5
25	25	38.0	44	42.5	32.5
28	28	44.0	50	49.0	35.0
30	30	44.0	50	49.0	35.0
32	32	46.0	55	53.5	35.0
33	33	46.0	55	53.5	35.0
35	35	50.0	59	57.0	35.0
38	38	53.0	61	59.0	36.0
40	40	55.0	64	62.0	36.0
43	43	58.0	67	65.5	36.0
45	45	60.0	70	68.0	36.0
48	48	63.0	74	70.5	36.0
50	50	65.0	77	74.0	38.0
53	53	70.0	81	78.5	36.5
55	55	72.0	83	81.0	36.5
58	58	75.0	88	85.5	41.5
60	60	79.0	91	88.5	41.5
65	65	84.0	96	93.5	41.5
68	68	88.0	100	96.5	41.2
70	70	90.0	103	99.5	48.7
75	75	95.0	110	107.0	48.7
80	80	100.0	116	112.0	48.0
85	85	107.0	124	120.0	46.0
90	90	114.0	131	127.0	51.0
95	95	119.0	136	132.0	51.0
100	100	124.0	140	137.0	51.0

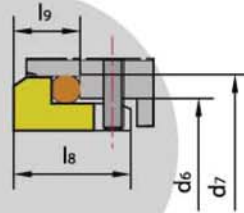
Stationary Seats



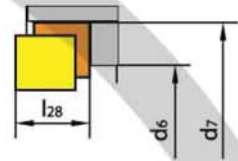
G4
(DIN24250)



G6
(DIN24960)

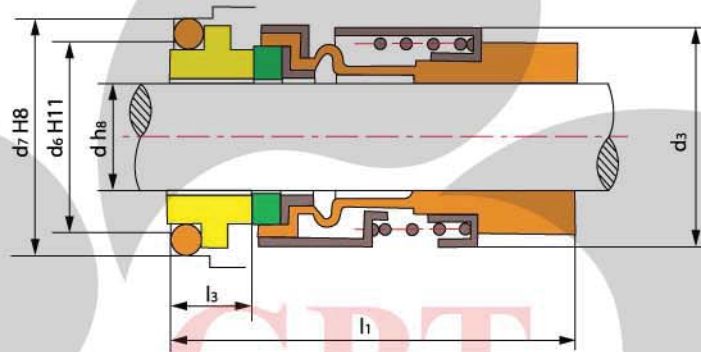


G9
(DIN24960)



G60
(DIN24960)

Seal size d(mm)	d ₂	d ₃	d _{st}	l _k	d ₆	d ₇	G4				G9		G6/G60	
							d ₁₁	d ₁₂	l ₁₂	l ₁₄	l ₈	l ₉	l ₁₀	l ₂₈
8	17.5	19.0	23	\	\	\	\	18.2	\	5.0	\	\	\	\
10	20.5	22.5	24	25.9	17	21.0	15.5	19.2	7.5	6.6	17.5	10.0	7.5	6.6
12	22.5	25.0	26	25.9	19	23.0	17.5	21.6	6.5	5.6	17.5	10.0	7.5	6.6
14	26.5	28.5	30	28.4	21	25.0	20.5	24.6	6.5	5.6	17.5	10.0	7.5	6.6
15	26.5	28.5	30	28.4	\	\	20.5	24.6	7.5	6.6	\	\	\	\
16	26.5	28.5	30	28.4	23	27.0	22.0	28.0	8.5	7.5	17.5	10.0	7.5	6.6
18	29.0	32.0	33	30.0	27	33.0	24.0	30.0	9.0	8.0	19.5	11.5	8.5	7.5
19	33.0	37.0	38	30.0	\	\	29.5	35.0	\	\	\	\	\	\
20	33.0	37.0	38	30.0	29	35.0	29.5	35.0	8.5	7.5	19.5	11.5	8.5	7.5
22	33.0	37.0	38	30.0	31	37.0	29.5	35.0	8.5	7.5	19.5	11.5	8.5	7.5
24	38.0	42.5	44	32.5	33	39.0	32.0	38.0	8.5	7.5	19.5	11.5	8.5	7.5
25	38.0	42.5	44	32.5	34	40.0	32.0	38.0	8.5	7.5	19.5	11.5	8.5	7.5
28	44.0	49.0	50	35.0	37	43.0	36.0	42.0	10.0	9.0	19.5	11.5	8.5	7.5
30	44.0	49.0	50	35.0	39	45.0	39.2	45.0	11.5	10.5	19.5	11.5	8.5	7.5
32	46.0	53.5	55	35.0	42	48.0	42.2	48.0	11.5	10.5	19.5	11.5	8.5	7.5
33	46.0	53.5	55	35.0	42	48.0	44.2	50.0	12.0	10.5	19.5	11.5	8.5	7.5
35	50.0	57.0	59	35.0	44	50.0	46.2	52.0	12.0	11.0	19.5	11.5	8.5	7.5
38	53.0	59.0	61	36.0	49	56.0	49.2	55.0	11.3	10.3	22.0	14.0	10.0	9.0
40	55.0	62.0	64	36.0	51	58.0	52.2	58.0	11.8	10.8	22.0	14.0	10.0	9.0
42	58.0	65.5	67	36.0	\	\	53.3	62.0	13.2	12.0	\	\	\	\
43	58.0	65.5	67	36.0	54	61.0	53.3	62.0	13.2	12.0	22.0	14.0	10.0	9.0
45	60.0	68.0	70	36.0	56	63.0	55.3	64.0	12.8	11.6	22.0	14.0	10.0	9.0
48	63.0	70.5	74	36.0	59	66.0	59.7	68.4	12.8	11.6	22.0	14.0	10.0	9.0
50	65.0	74.0	77	38.0	62	70.0	60.8	69.3	12.8	11.6	23.0	15.0	10.5	9.5
53	70.0	78.5	81	36.5	65	73.0	63.8	72.3	13.5	12.3	23.0	15.0	12.0	11.0
55	72.0	81.0	83	36.5	67	75.0	66.5	75.4	14.5	13.3	23.0	15.0	12.0	11.0
58	75.0	85.5	88	41.5	70	78.0	69.5	78.4	14.5	13.3	23.0	15.0	12.0	11.0
60	79.0	88.5	91	41.5	72	80.0	71.5	80.4	14.5	13.3	23.0	15.0	12.0	11.0
65	84.0	93.5	96	41.5	77	85.0	76.5	85.4	14.2	13.0	23.0	15.0	12.0	11.0
68	88.0	96.5	100	41.2	81	90.0	82.7	91.5	14.9	13.7	26.0	18.0	12.5	11.3
70	90.0	99.5	103	48.7	83	92.0	83.0	92.0	14.2	13.0	26.0	18.0	12.5	11.3
75	95.0	107.0	110	48.7	88	97.0	90.2	99.0	15.2	14.0	26.0	18.0	12.5	11.3
80	100.0	112.0	116	48.0	95	105.0	95.2	104.0	16.2	15.0	26.2	18.2	13.0	12.0
85	107.0	120.0	124	46.0	100	110.0	100.2	109.0	16.0	14.8	26.2	18.2	15.0	14.0
90	114.0	127.0	131	51.0	105	115.0	105.2	114.0	16.0	14.8	26.2	18.2	15.0	14.0
95	119.0	132.0	136	51.0	110	120.0	111.6	120.3	17.0	15.8	27.2	19.2	15.0	14.0
100	124.0	137.0	140	51.0	115	125.0	114.5	123.3	17.0	15.8	27.2	19.2	15.0	14.0



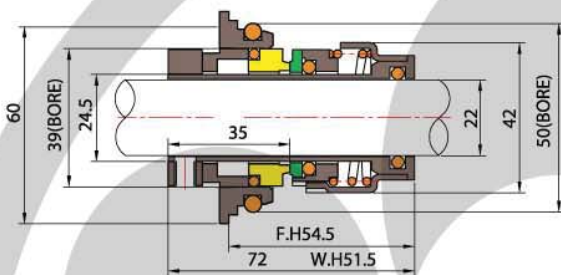
TS G3

Operating Limits

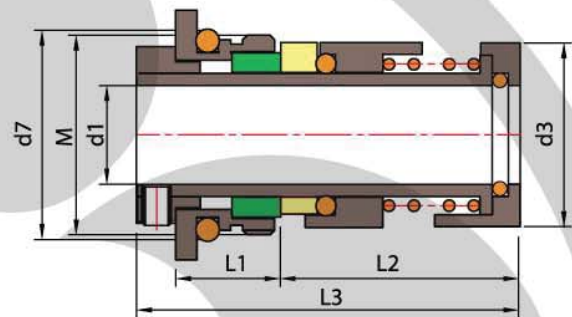
Pressure: $\leq 1.2\text{MPa}$
Speed: $\leq 10\text{m/s}$
Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon/SiC/TC)
- Secondary Seal(NBR/VITON)
- Retainer(SUS304/SUS316)
- Spring(SUS304/SUS316)

Seal size d(mm)	d ₃	d ₆	d ₇	l ₁	l ₃
12	22	19	23	39.0	7.6
12A	22	19	23	34.0	7.6
15	26	23	27	39.0	8.7
16	26	23	27	39.0	8.7



TSCR-22



TSCR-12/TSCR-16

TS CR
Operating Limits

Pressure: $\leq 1.0\text{MPa}$
Speed: $\leq 10\text{m/s}$
Temperature: $-30^{\circ}\text{C} \sim +180^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(NBR/VITON)
- Spring & Other parts(SUS304/SUS316)

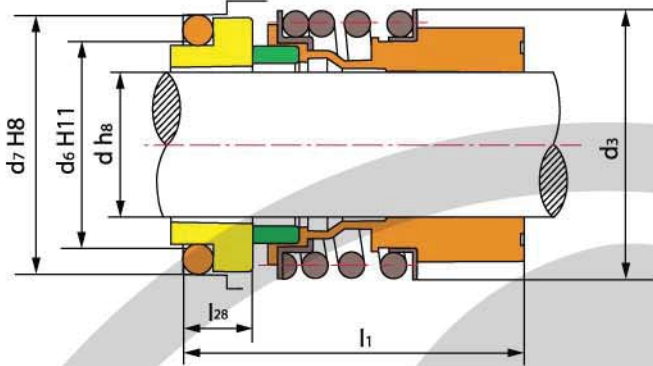
Model	d ₁	d ₃	d ₇	M	L	L ₁	L ₂
12	12	25	29	M28X1.5	55	19	30
16	16	30.5	34	M33X1.5	57.5	18	33

Mechanical seals used for stainless steel vertical multistage centrifugal pump

It is suitable to GRUNDFOS pumps.

CR1, 3, 5, 10, 15, 20, 32, 45, 64, 90 Ordinary machine—seal of water pump, O ring assembly type;

CRN1, 3, 5, 10, 15, 20, 32, 45, 64, 90 Ordinary machine—seal of water pump, O ring assembly type;



TS MG13(TS G4)

Operating Limits

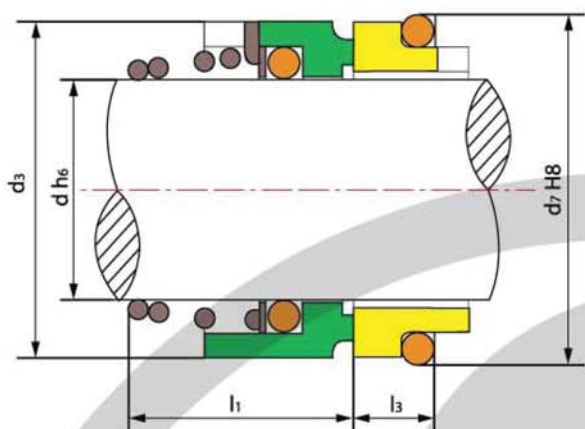
Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 10\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +180^{\circ}\text{C}$

- Rotary Ring(Carbon/SiC)
- Stationary Ring(Ceramic/SiC/TC)
- Secondary Seal(NBR/EPDM/VITON)
- Retainer(SUS304/SUS316)
- Spring(SUS304/SUS316)
- Spring Holder(SUS304/SUS316)

Seal size d(mm)	d ₃	d ₆	d ₇	l ₁	l ₂₈
20	37.0	29	35	45	7.5
22	37.0	31	37	45	7.5
24	42.5	33	39	50	7.5
25	42.5	34	40	50	7.5
28	49.0	37	43	50	7.5
30	49.0	39	45	50	7.5
32	53.5	42	48	55	7.5
35	57.0	44	50	55	7.5
38	59.0	49	56	55	9.0
40	62.0	51	58	55	9.0
42	65.5	54	61	60	9.0
43	65.5	54	61	60	9.0
45	68.0	56	63	60	9.0



TS M2N

Operating Limits

Pressure: $\leq 1\text{MPa}$

Speed: $\leq 15\text{m/s}$

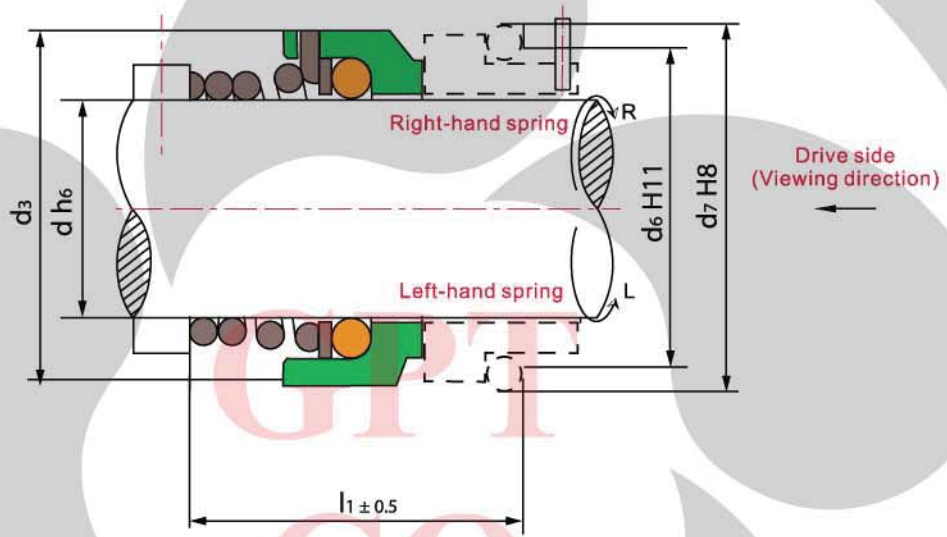
Temperature: $-20^{\circ}\text{C} \sim +180^{\circ}\text{C}$

- Rotary Ring(Carbon/SiC/TC)
- Stationary Ring(99%Ceramic/SiC /TC)
- Secondary Seal (NBR/EPDM/VITON/PTFE)
- Spring & Other Parts (SUS304/SUS316)

GPT
CO

Seal size d(mm)	d ₃	d ₇	l ₁	l ₃
6	15	\	\	\
8	18	\	\	\
10	20	21	17.5	10.0
12	22	23	17.5	10.0
14	25	25	17.5	10.0
15	27	27	19.5	10.0
16	27	27	19.5	10.0
18	30	33	20.5	11.5
20	32	35	22.0	11.5

Seal size d(mm)	d ₃	d ₇	l ₁	l ₃
22	35	37	23.5	11.5
24	38	39	25.0	11.5
25	40	40	26.5	11.5
26	41	40	26.5	11.5
28	43	43	26.5	11.5
30	47	45	26.5	11.5
32	48	48	28.5	11.5
35	53	50	28.5	11.5
38	56	56	33.5	14.0



TS M3(TS551)

Operating Limits

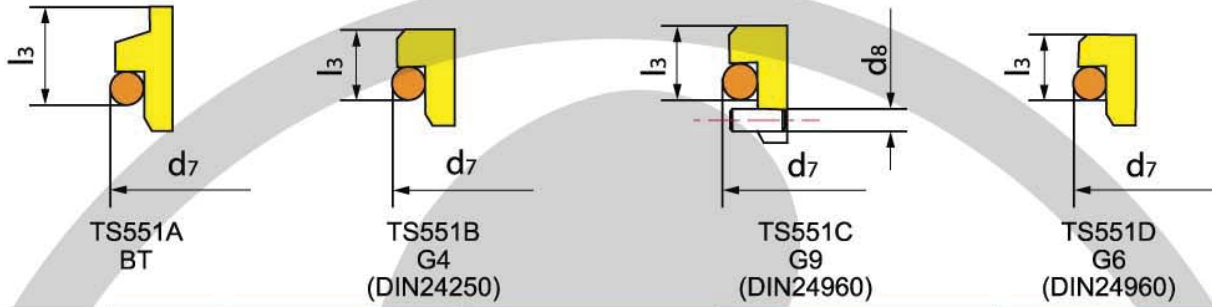
Pressure: $\leq 1\text{MPa}$

Speed: $\leq 10\text{m/s}$

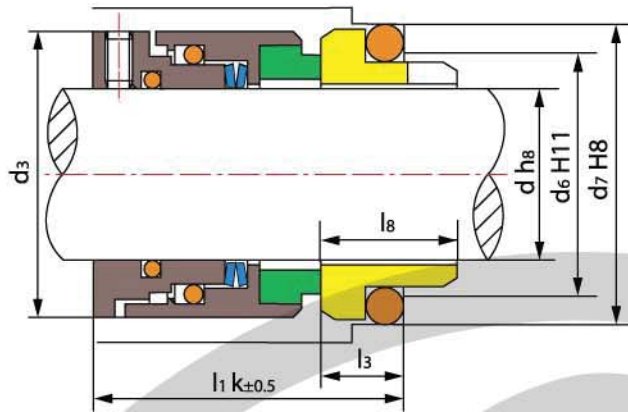
Temperature: $-20^{\circ}\text{C} \sim +180^{\circ}\text{C}$

- Rotary Ring (SUS304/SiC/TC)
- Stationary Ring (Carbon/SiC/TC)
- O-Ring (NBR/EPDM/VITON/PTFE)
- Retainer (SUS304/SUS316)
- Spring (SUS304/SUS316)

Stationary Seats



Seal size d(mm)	d ₃	BT			G4			G9				G6		
		d ₇	l ₁	l ₃	d ₇	l ₁	l ₃	d ₇	d ₈	l ₁	l ₃	d ₇	l ₁	l ₃
8	18	17.1	20.5	5.5	19.2	18.9	7.0	\	\	\	\	\	\	\
10	19	18.1	20.5	5.5	19.2	22.1	6.6	21	3	25.5	10.0	21	22.1	6.6
11	20	20.6	23.5	5.5	\	\	\	\	\	\	\	\	\	\
12	21	20.6	23.5	5.5	21.6	21.1	5.6	23	3	26.0	10.0	23	22.6	6.6
13	22	23.1	28.0	6.0	\	\	\	\	\	\	\	\	\	\
14	23	23.1	28.0	6.0	24.6	21.1	5.6	25	3	26.5	10.0	25	23.1	6.6
15	24	26.9	29.0	7.0	24.6	24.1	6.6	\	\	\	\	\	\	\
16	26	26.9	30.0	7.0	28.0	25.0	7.5	27	3	28.0	10.0	27	24.6	6.6
17	26	26.9	30.0	7.0	\	\	\	\	\	\	\	\	\	\
18	29	30.9	32.0	8.0	30.0	26.5	8.0	33	3	31.0	11.5	33	27.0	7.5
19	31	30.9	33.0	8.0	35.0	27.5	7.5	\	\	\	\	\	\	\
20	31	30.9	33.0	8.0	35.0	27.5	7.5	35	3	33.5	11.5	35	29.5	7.5
22	33	35.4	33.0	8.0	35.0	29.0	7.5	37	3	33.0	11.5	37	29.0	7.5
23	36	35.4	35.0	8.0	\	\	\	\	\	\	\	\	\	\
24	35	35.4	35.0	8.0	38.0	30.5	7.5	39	3	35.0	11.5	39	31.0	7.5
25	36	38.2	35.5	8.5	38.0	32.0	7.5	40	3	38.0	11.5	40	34.0	7.5
26	37	38.2	35.5	8.5	40.0	32.5	8.0	\	\	\	\	\	\	\
28	40	43.3	38.0	9.0	42.0	33.5	9.0	43	3	38.0	11.5	43	34.0	7.5
30	43	43.3	39.0	9.0	45.0	35.5	10.5	45	3	38.0	11.5	45	34.0	7.5
32	46	43.3	39.0	9.0	48.0	38.5	10.5	48	3	40.0	11.5	48	36.0	7.5
33	47	53.5	50.5	11.5	\	\	\	\	\	\	\	\	\	\
34	48	53.5	50.5	11.5	\	\	\	\	\	\	\	\	\	\
35	49	53.5	50.5	11.5	52.0	39.0	11.0	50	3	40.0	11.5	50	36.0	7.5
36	50	53.5	50.5	11.5	\	\	\	\	\	\	\	\	\	\
38	53	60.5	50.5	11.5	55.0	41.3	10.3	56	4	47.5	14.0	56	42.5	9.0
40	56	60.5	50.5	11.5	58.0	44.8	10.8	58	4	50.0	14.0	58	45.0	9.0
42	59	60.5	50.5	11.5	62.0	47.0	12.0	\	\	\	\	\	\	\
43	59	60.5	52.5	11.5	62.0	47.0	12.0	61	4	52.5	14.0	61	47.5	9.0
44	60	65.5	52.5	11.5	\	\	\	\	\	\	\	\	\	\
45	61	65.5	52.5	11.5	64.0	48.1	11.6	63	4	53.5	14.0	63	48.5	9.0
48	64	65.5	52.5	11.5	68.4	53.6	11.6	66	4	60.0	14.0	66	55.0	9.0
50	66	72.5	56.5	11.5	69.3	54.6	11.6	70	4	60.0	15.0	70	54.5	9.5
53	69	\	\	\	\	\	\	73	4	62.0	15.0	70	54.5	9.5
55	71	72.5	58.5	11.5	75.4	60.3	13.3	75	4	64.0	15.0	75	60.0	11.0
58	76	\	\	\	78.4	63.3	13.3	78	4	70.0	15.0	78	66.0	11.0
60	78	79.3	60.5	11.5	80.4	64.3	13.3	80	4	70.0	15.0	80	66.0	11.0
63	83	\	\	\	\	\	\	83	4	70.0	15.0	83	66.0	11.0
65	84	84.5	62.5	11.5	85.4	65.0	13.0	85	4	70.0	15.0	85	66.0	11.0
68	88	\	\	\	91.5	66.7	13.7	90	4	73.0	18.0	90	66.3	11.3
70	90	89.5	62.5	11.5	92.0	67.0	13.0	92	4	75.0	18.0	92	68.3	11.3
75	98	94.5	68.5	11.5	99.0	69.0	14.0	97	4	80.0	18.0	97	73.3	11.3
80	100	99.5	70.5	11.5	104.0	73.0	15.0	105	4	80.0	18.2	105	73.8	12.0



TS HJ

Operating Limits

Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +180^{\circ}\text{C}$

- Rotary Ring (SiC/TC/Carbon)
- Stationary Ring (Carbon/SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring)
- Metal Parts (SUS304/SUS316)
- Wave Spring (17-7PH/SUS304/SUS316)

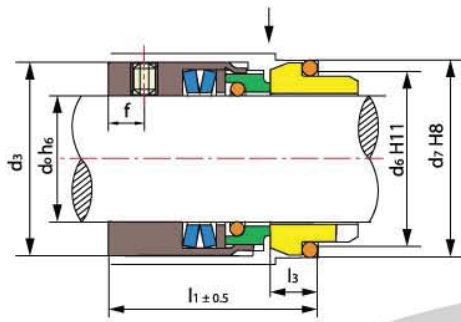
Medium: Liquid rich in solid impurity or high viscosity, such as refine sugar, sewage and paper industry.

Design Features:

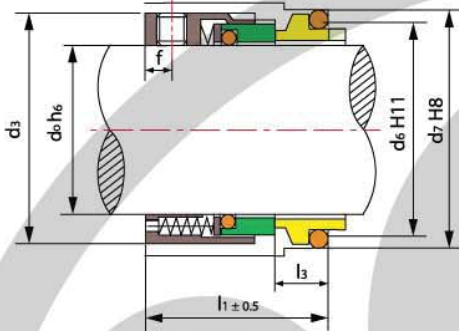
- a. Single face, balanced.
- b. Conform to the DIN24960 and GB6556 standards.

Seal size d(mm)	d ₃	d ₆	d ₇	l ₈	l _{1k}	l ₃
18	32	27	33	15.0	37.5	7
20	34	29	35	15.0	37.5	7
22	36	31	37	15.0	37.5	7
24	38	33	39	15.0	40.0	7
25	39	34	40	15.0	40.0	7
28	42	37	43	15.0	42.5	7
30	44	39	45	15.0	42.5	7
32	47	42	48	15.0	42.5	7
33	47	42	48	15.0	42.5	7
35	49	44	50	15.0	42.5	7
38	54	49	56	16.0	45.0	8
40	56	51	58	16.0	45.0	8
43	59	54	61	16.0	45.0	8
45	61	56	63	16.0	45.0	8
48	64	59	66	16.0	45.0	8

Seal size d(mm)	d ₃	d ₆	d ₇	l ₈	l _{1k}	l ₃
50	66	62	70	17.0	47.5	9.5
53	69	65	73	17.0	47.5	9.5
55	71	67	75	17.0	47.5	9.5
58	78	70	78	18.0	52.5	10.5
60	80	72	80	18.0	52.5	10.5
63	83	75	83	18.0	52.5	10.5
65	85	77	85	18.0	52.5	10.5
68	88	81	90	18.5	52.5	11.0
70	90	83	92	19.0	60.0	11.5
75	99	88	97	19.0	60.0	11.5
80	104	95	105	19.0	60.0	11.5
85	109	100	110	19.0	60.0	11.5
90	114	105	115	20.5	65.0	13.0
95	119	110	120	20.5	65.0	13.0
100	124	115	125	20.5	65.0	13.0



TSM7N



TSM74



TS M7N



TS M7N TS M74

Operating Limits

Pressure: $\leq 1.6\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

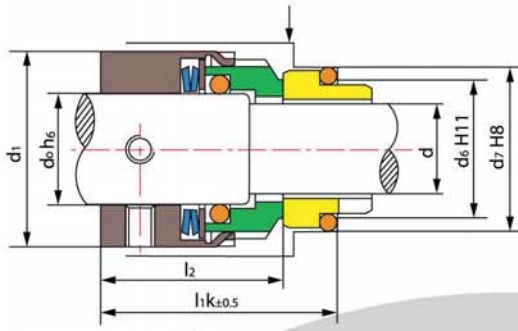
- Rotary Ring (SiC/TC/Carbon)
- Stationary Ring (Carbon/SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring)
- Metal Parts(SUS304/SUS316)
- Spring(17-7PH/SUS304/SUS316)

GPT
CO

For G4,G6,G9,G13 seat, refer to the frontal "stationary seats dimensional data list"

Seal size d(mm)	d ₃	d ₆	d ₇	l ₁	l ₃
14	25	21	25	35.0	10.0
16	27	23	27	35.0	10.0
18	33	29	33	37.5	11.5
20	35	29	35	37.5	11.5
22	37	31	37	37.5	11.5
24	39	33	39	40.0	11.5
25	40	34	40	40.0	11.5
28	43	37	43	42.5	11.5
30	45	39	45	42.5	11.5
32	47	42	48	42.5	11.5
33	48	42	48	42.5	11.5
35	50	44	50	42.5	11.5
38	55	49	56	45.0	14.0
40	57	51	58	45.0	14.0
43	60	54	61	45.0	14.0
45	62	56	63	45.0	14.0

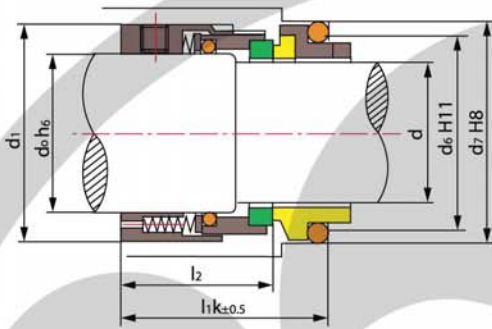
Seal size d(mm)	d ₃	d ₆	d ₇	l ₁	l ₃
48	65	59	66	45.0	14.0
50	67	62	70	47.5	15.0
53	70	65	73	47.5	15.0
55	72	67	75	47.5	15.0
58	79	70	78	52.5	15.0
60	81	72	80	52.5	15.0
63	84	75	83	52.5	15.0
65	86	77	85	52.5	15.0
68	89	81	90	52.5	18.0
70	91	83	92	60.0	18.0
75	99	88	97	60.0	18.0
80	104	95	105	60.0	18.2
85	109	100	110	60.0	18.2
90	114	105	115	65.0	18.2
95	119	110	120	65.0	17.2
100	124	115	125	65.0	17.2



TSH7N



TS H7N Wave Spring



TSH75



TS H75 Multiple Spring

TS H7N TS H75

Operating Limits

Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (SiC/TC/Carbon)
- Stationary Ring (Carbon/SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring)
- Metal Parts (SUS304/SUS316)
- Spring (17-7PH/SUS304/SUS316)

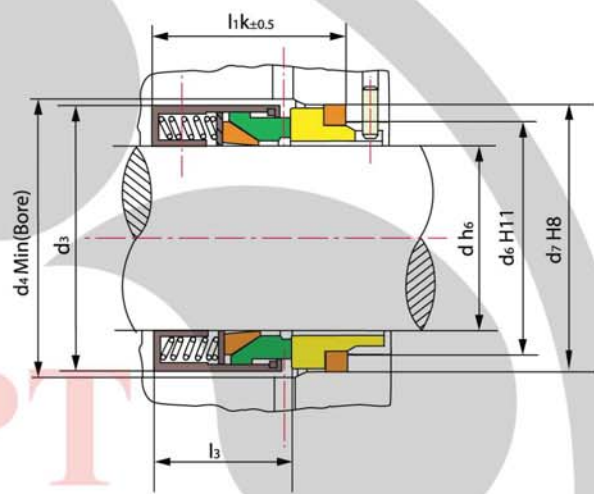
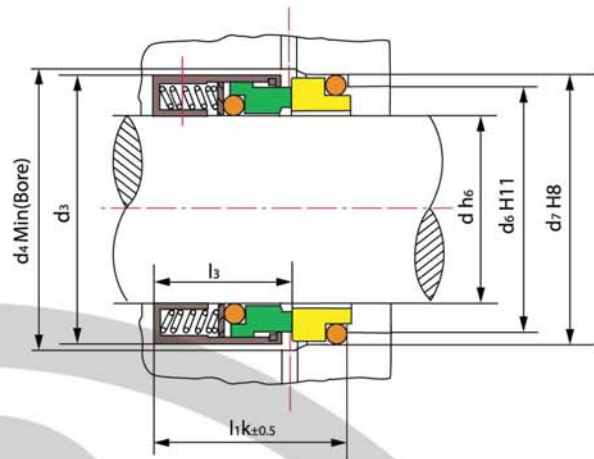
Seal size d(mm)	d ₀	d ₁	d ₆	d ₇	l ₂	l _k
25	30	45	34	40	36.0	47.5
28	33	48	37	43	38.5	50.0
30	35	50	39	45	38.5	50.0
33	38	55	42	48	38.5	50.0
35	40	57	44	50	38.5	50.0
38	43	60	49	56	38.5	52.5
40	45	62	51	58	38.5	52.5
43	48	65	54	61	38.5	52.5
45	50	67	56	63	38.5	52.5
48	53	70	59	66	38.5	52.5
50	55	72	62	70	42.5	57.5
53	58	79	65	73	42.5	57.5
55	60	81	67	75	42.5	57.5
60	65	86	72	80	47.5	62.5
65	70	91	77	85	47.5	62.5
70	75	99	83	92	52.0	70.0
75	80	104	88	97	52.0	70.0
80	85	109	95	105	51.8	70.0
85	90	114	100	110	56.8	75.0
90	95	119	105	115	56.8	75.0
95	100	124	110	120	57.8	75.0



(With O Ring)



(With Wedge Ring)



TS 58U TS 59U

Design Features:
Conform to ISO3069, DIN24960
and BS5257-1975 standards

Operating Limits

Pressure: $\leq 1.7\text{MPa}$
Speed: $\leq 25\text{m/s}$
Temperature: $-20^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring(99%Ceramic/SiC/TC)
- Secondary Seal(VITON/PTFE/Encapsulated Ring)
- Spring & Other Parts (SUS304/SUS316)

Seal size d(mm)	d ₃	d ₄	l ₁ k	l ₃	d ₆	d ₇
14	24	26	35.0	23.0	21	25
16	26	28	35.0	23.0	23	27
18	32	34	37.5	24.0	27	33
20	34	36	37.5	24.0	29	35
22	36	38	37.5	24.0	31	37
24	38	40	40.0	26.7	33	39
25	39	41	40.0	27.0	34	40
28	42	44	42.5	30.0	37	43
30	44	46	42.5	30.5	39	45
32	46	48	42.5	30.5	42	48
33	47	49	42.5	30.5	42	48

Seal size d(mm)	d ₃	d ₄	l ₁ k	l ₃	d ₆	d ₇
35	49	51	42.5	30.5	44	50
38	54	58	45.0	32.0	49	56
40	55	60	45.0	32.0	51	58
43	59	63	45.0	32.0	54	61
45	61	65	45.0	32.0	56	63
48	64	68	45.0	32.0	59	66
50	66	70	47.5	34.0	62	70
53	69	73	47.5	34.0	65	73
55	71	75	47.5	34.0	67	75
58	78	83	52.5	39.0	70	78
60	80	85	52.5	39.0	72	80

Seal size d(mm)	d ₃	d ₄	l ₁ k	l ₃	d ₆	d ₇
63	83	88	52.5	39.0	75	83
65	85	90	52.5	39.0	77	85
68	88	93	52.5	39.0	81	90
70	90	95	60.0	45.5	83	92
75	95	104	60.0	45.5	88	97
80	104	109	60.0	45.0	95	105
85	109	114	60.0	45.0	100	110
90	114	119	65.0	50.0	105	115
95	119	124	65.0	50.0	110	120
100	124	129	65.0	50.0	115	125

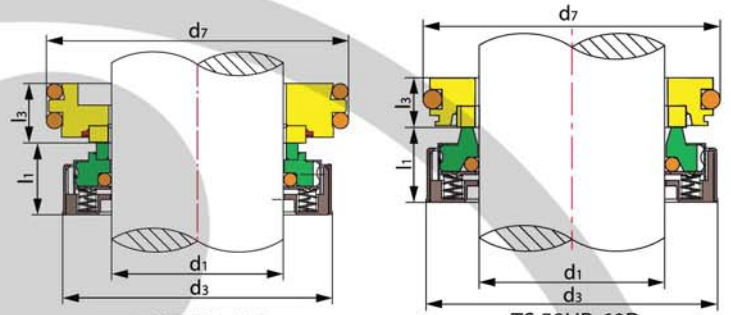


TS 58UR

Operating Limits

Pressure: $\leq 1.0\text{MPa}$
 Speed: $\leq 10\text{m/s}$
 Temperature: $-20^{\circ}\text{C} \sim +150^{\circ}\text{C}$

- Rotary Ring (Carbon/TC)
- Stationary Ring (TC)
- Secondary Seal (VITON/PTFE/NBR)
- Spring & Other Parts (SUS304/SUS316)

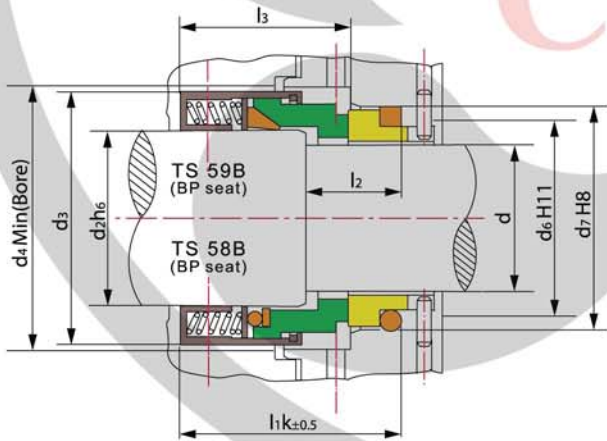


Model	d ₁ (mm)	d ₃	d ₇	l ₁	l ₃	Conform
TS58UR-60C	60	93.0	103.0	36	20.2	58UR-60B
TS58UR-60D	60	93.0	85.5	36	13.0	58UR-60A
TS58UR-90	90	116.5	115.0	32	16.0	\

TS 58B TS 59B

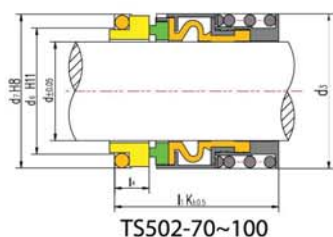
Operating Limits

Pressure: $\leq 2.5\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

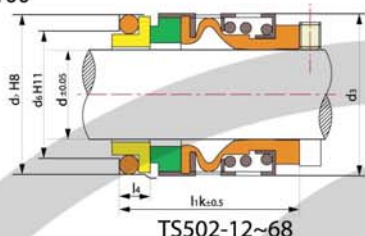


- Design Features:
- a. Conform to ISO3069 and DIN24960 standards
 - b. Balanced mechanical seal
 - c. TS 58B is rubber O-ring, TS 59B is PTFE seal ring
 - d. Materials same as TS 58U, TS 59U

Seal size d(mm)	d ₂	d ₃	d ₄	l ₁ k	l ₂	l ₃	d ₆	d ₇
14	18	32	34	42.5	18	30.5	21	25
16	20	34	36	42.5	18	30.5	23	27
18	22	36	38	45.0	20	31.5	27	33
20	24	38	40	45.0	20	31.5	29	35
22	26	40	42	45.0	20	31.5	31	37
24	28	42	44	47.5	20	34.2	33	39
25	30	44	46	47.5	20	34.5	34	40
28	33	47	49	50.0	20	37.5	37	43
30	35	49	51	50.0	20	38.0	39	45
32	38	54	58	50.0	20	38.0	42	48
33	38	54	58	50.0	20	38.0	42	48
35	40	56	60	50.0	20	38.0	44	50
38	43	59	63	52.5	23	39.5	49	56
40	45	61	65	52.5	23	39.5	51	58
43	48	64	68	52.5	23	39.5	54	61
45	50	66	70	52.5	23	39.5	56	63
48	53	69	73	52.5	25	39.5	59	66
50	55	71	75	57.5	25	44.0	62	70
53	58	78	83	57.5	25	44.0	65	73
55	60	80	85	57.5	25	44.0	67	75
58	63	83	88	62.5	25	49.0	70	78
60	65	85	90	62.5	25	49.0	72	80
63	68	88	93	62.5	25	49.0	75	83
65	70	90	95	62.5	25	49.0	77	85
70	75	95	104	70.0	28	55.5	83	92
75	80	104	109	70.0	28	55.5	88	97
80	85	109	114	70.0	28	55.0	95	105
85	90	114	119	75.0	28	60.0	100	110
90	95	119	124	75.0	28	60.0	105	115
95	100	124	129	75.0	28	60.0	110	120
100	105	129	134	75.0	28	60.0	115	125



TS502-70~100



TS502-12~68



TS 502

Operating Limits

Pressure: $\leq 4\text{MPa}$

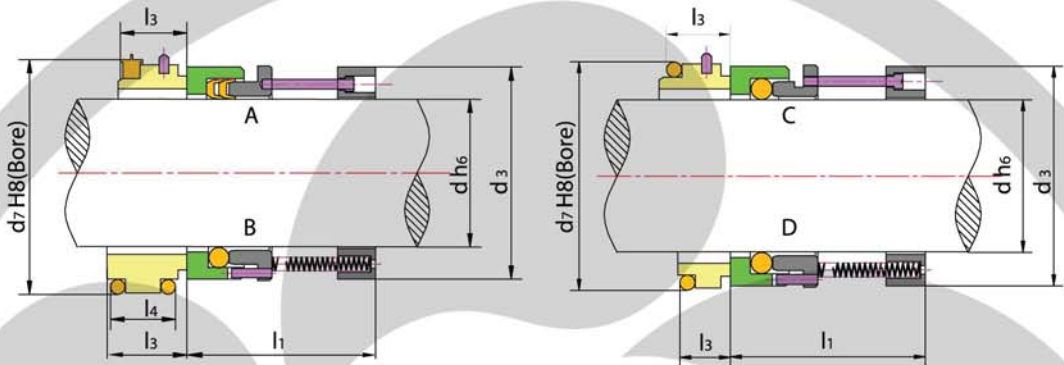
Speed: $\leq 13\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (99%Ceramic/SiC/TC)
- Secondary Seal(VITON/NBR/Eppm)
- Spring & Other Parts (SUS304/SUS316)

TS 502 seal equip with BO seat (DIN24960),Other seats can also be provided,such as BP, BC seat.

Seal size d(mm)	d ₃	d ₆	d ₇	l _{1k}	l ₄
12	22.6	18.5	22.5	32.5	12.0
14	24	21	25	35.0	12.0
16	26	23	27	35.0	12.0
18	32	27	33	37.5	13.5
20	34	29	35	37.5	13.5
22	36	31	37	37.5	13.5
24	38	33	39	40.0	13.3
25	39	34	40	40.0	13.0
28	42	37	43	42.5	12.5
30	44	39	45	42.5	12.0
32	46	42	48	42.5	12.0
33	46	42	48	42.5	12.0
35	49	44	50	42.5	12.0
38	54	49	56	45.0	13.0
40	55	51	58	45.0	13.0
43	59	54	61	45.0	13.0
45	61	56	63	45.0	13.0
48	64	59	66	45.0	13.0
50	66	62	70	47.5	13.5
55	71	67	75	47.5	13.5
60	80	72	80	52.5	13.5
65	85	77	85	52.5	13.5
70	89	83	92	60.0	14.5
75	96	88	97	60.0	14.5
80	104	95	105	60.0	15.0
85	108	100	110	60.0	15.0
90	114	105	115	65.0	15.0
95	118	110	120	65.0	15.0
100	124	115	125	65.0	15.0



TS 57U

Operating Limits

Pressure: $\leq 1.2\text{MPa}$

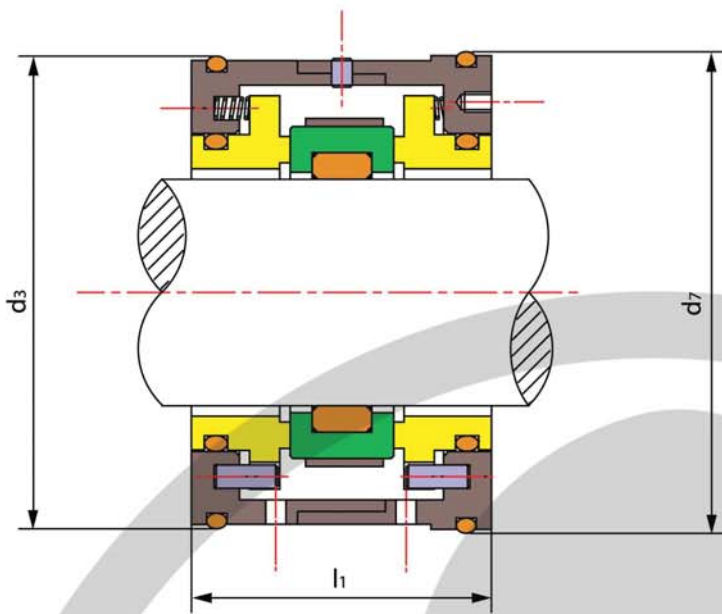
Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (99%Ceramic/SiC/TC)
- Stationary Ring (Carbon/SiC)
- Secondary Seal (PTFE/VITON)
- Spring & Screw (SUS304/SUS316)
- Other Parts (SUS304/SUS316)
- Pin and set screw (sus304/sus316)

Seal size d(mm)	d	d ₃	d ₇	l ₁	l ₃	l ₄	Type
25	25.0	39.0	50.0	34.0	19.5	\	C
28	28.0	45.0	54.0	33.2	28.0	21.3	B
35	35.0	52.0	64.0	32.5	28.0	21.3	B
40	40.0	57.0	70.0	32.0	28.0	21.3	B
55	55.0	73.0	75.0	30.0	16.5	\	D
60A	60.0	78.0	92.0	40.0	27.0	21.6	B
60B	60.0	78.0	92.0	44.0	27.0	21.6	B

Seal size (inches)	d	d ₃	d ₇	l ₁	l ₃	l ₄	Type
1 1/4"	31.750	46.0	50.8	42.0	26.5	\	D
1 5/8"	41.275	58.5	60.325	45.0	16.2	\	D
1 3/4"	44.450	60.0	62.0	44.0	20.5	\	A
2 1/8"	53.975	71.2	71.4	43.0	20.8	\	A



Double face kits including colletto suit EMU Pumps



TS WE

Operating Limits

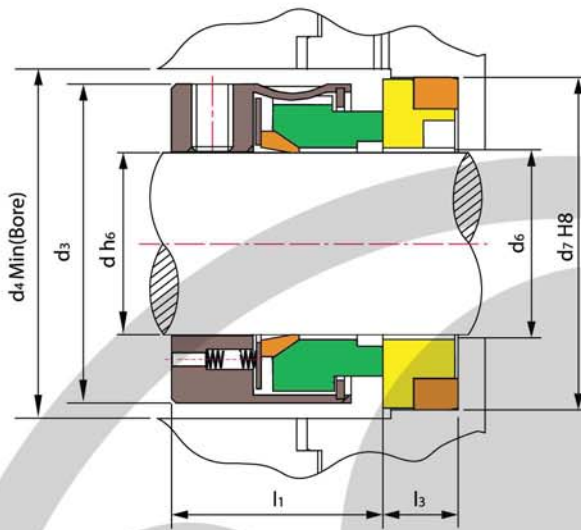
Pressure: $\leq 1.5\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (SiC/TC)
- Stationary Ring (SiC)
- Secondary Seal (NBR/EPDM /VITON)
- Spring & Other Parts (SUS304/SUS316)
- Pin (SUS304/SUS316)

Seal size d(mm)	d ₃	d ₇	l ₁
30	62	65	46
30A	62	65	46
35	67	70	46
35A	72	72	47
40	72	75	46
50	90	92	52
50A	83	89	46
60	92	99	46



TS 109

Operating Limits

Pressure: $\leq 1.7\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30^\circ\text{C} \sim +200^\circ\text{C}$

GPT
CO

Stationary Seats:

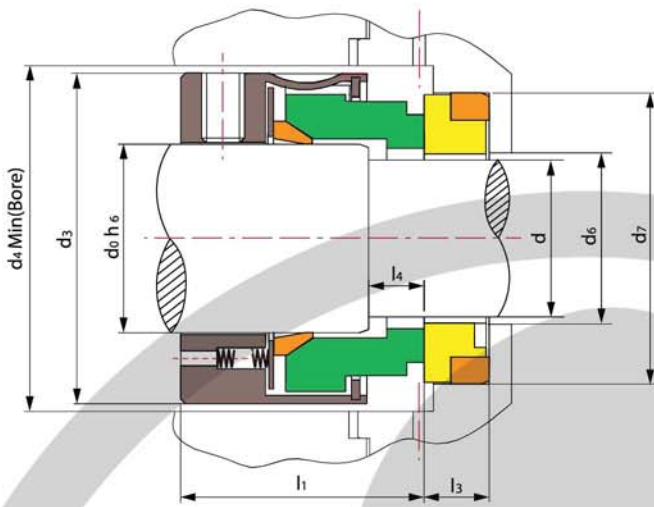
1. TS 109 equip with "A" type stationary seats.
2. P and PP type stationary seats are available

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (99%Ceramic/SiC/TC)
- Secondary Seal(PTFE)
- Spring & Other Parts (SUS304/SUS316)

Features of Structure:

1. Adopt PTFE, resistant high and super-low temperature or erosion, applied in chemical industry.
2. Applied in various rotating equipments, such as centrifugal agitators and agitator crushers.
3. Double directions mechanical driven, minimize the shaft and sleeve .
4. Multi-spring and unbalance; comply with API 610 standard.

Seal size d(inches)	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃
0.500	26.7	29	13.4	25.40	20.6	7.95
0.625	30.7	34	16.6	31.75	19.0	10.3
0.750	34.0	37	19.7	34.93	22.2	10.3
0.875	37.2	40	22.9	38.10	23.8	10.3
1.000	40.3	43	26.1	41.28	25.4	11.1
1.125	43.5	46	29.4	44.45	27.0	11.1
1.250	48.3	51	32.4	47.63	27.0	11.1
1.375	51.5	54	35.6	50.80	28.6	11.1
1.500	54.6	58	38.8	53.98	28.6	11.1
1.625	61.0	64	42.4	60.33	35.0	12.7
1.750	64.2	67	45.5	63.50	35.0	12.7
1.875	67.3	70	48.7	66.68	35.0	12.7
2.000	70.5	73	51.9	69.85	35.0	12.7
2.125	76.9	80	55.0	76.20	43.0	14.3
2.250	80.0	83	58.2	79.38	43.0	14.3
2.375	83.2	86	61.4	82.55	43.0	14.3
2.500	86.4	89	64.6	85.73	43.0	14.6
2.625	89.6	92	67.7	85.73	43.0	15.9
2.750	92.7	96	70.9	88.90	43.0	15.9
2.875	95.9	99	74.1	85.25	43.0	15.9
3.000	97.5	100	77.3	98.43	43.0	15.9
3.125	100.7	104	80.5	101.60	43.0	19.8
3.250	105.4	108	83.6	104.78	43.0	19.8
3.375	108.6	111	86.8	107.95	43.0	19.8
3.500	111.8	115	90.0	111.13	43.0	19.8
3.625	115.0	118	93.1	114.30	43.0	19.8
3.750	118.1	121	96.3	117.48	43.0	19.8
3.875	121.3	124	99.5	120.65	43.0	19.8
4.000	124.5	127	102.7	123.83	43.0	19.8
4.125	127.7	131	106.3	130.18	43.0	19.8
4.250	130.8	134	109.5	133.35	43.0	19.8
4.375	134.0	137	112.7	136.53	43.0	19.8
4.500	137.2	140	115.9	139.70	43.0	19.8
4.625	149.9	153	119.0	142.88	51.0	19.8
4.750	153.1	156	122.2	146.05	51.0	19.8
4.875	156.2	159	125.4	149.23	51.0	19.8
5.000	159.4	165	128.6	152.40	51.0	19.8
5.125	162.6	168	131.7	155.58	51.0	19.8
5.250	165.8	172	134.9	158.75	51.0	19.8
5.375	168.9	175	138.1	161.93	51.0	19.8
5.500	172.1	178	141.3	165.10	51.0	19.8
5.625	175.3	181	\	\	51.0	\
5.750	178.5	184	\	\	51.0	\
5.875	181.6	187	\	\	51.0	\
6.000	184.8	191	\	\	51.0	\



TS 109B

Operating Limits

Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

GPT
CO

Stationary Seats:

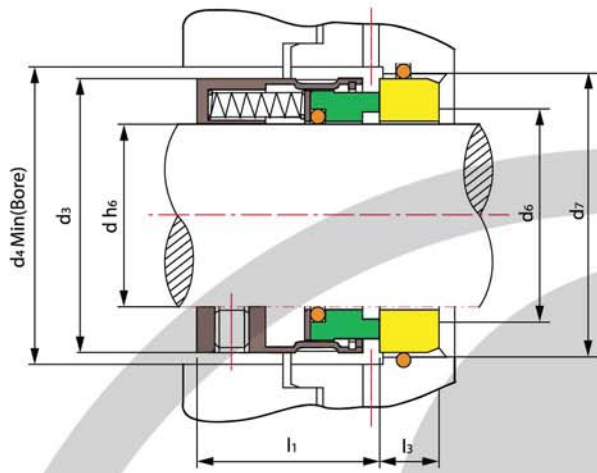
1. TS 109B equip with "A" type stationary seats.
2. P and PP type stationary seats are available

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (99%Ceramic/SiC/TC)
- Secondary Seal(PTFE)
- Spring & Other Parts (SUS304/SUS316)

Features of structure:

1. Adopt PTFE, resistant high and super-low temperature or erosion, applied in chemical industry.
2. Applied in various rotating equipments, such as: centrifugal agitators and agitator crushers.
3. Double directions mechanical driven, minimize the shaft and sleeve.
4. Multi-spring and balance; comply with API 610 standard.

Seal size (inches)	d	d ₀	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃	l ₄
0.625	12.7	15.88	30.7	34	13.4	25.40	27	7.95	4.8
0.750	15.9	19.05	34.0	37	16.6	31.75	30	10.3	4.8
0.875	19.1	22.23	37.2	40	19.7	34.93	32	10.3	6.4
1.000	22.2	25.40	40.3	43	22.9	38.10	33	10.3	6.4
1.125	25.4	28.58	43.5	46	26.1	41.28	35	11.1	7.9
1.250	28.6	31.75	48.3	51	29.3	44.45	35	11.1	7.9
1.375	28.6	34.93	51.5	54	29.3	44.45	37	11.1	8.7
1.500	31.8	38.10	54.6	58	32.4	47.63	37	11.1	8.7
1.625	34.9	41.28	61.0	64	35.6	50.80	45	11.1	8.7
1.750	38.1	44.45	64.2	67	39.8	53.98	45	11.1	9.5
1.875	41.3	47.63	67.3	70	42.4	60.33	45	12.7	9.5
2.000	44.5	50.80	70.5	73	45.5	63.50	45	12.7	9.5
2.125	47.6	53.98	76.9	80	48.7	66.68	52	12.7	11.1
2.250	50.8	57.15	80.0	83	51.9	69.86	52	12.7	11.1
2.375	54.0	60.33	83.2	86	55.0	76.20	52	14.3	11.1
2.500	57.2	63.50	86.4	89	58.2	79.38	52	14.3	11.1
2.625	60.3	66.68	89.6	92	61.4	82.55	52	14.3	11.1
2.750	63.5	69.85	92.7	96	64.6	85.73	52	14.3	11.1
2.875	66.7	73.03	95.9	99	67.7	85.73	52	14.3	11.1
3.000	69.9	76.20	97.5	100	70.9	88.90	52	15.9	11.1
3.125	73.0	79.38	100.7	104	74.1	95.25	52	15.9	11.1
3.250	76.2	82.55	105.4	108	77.3	98.43	52	15.9	14.3
3.375	79.4	85.73	108.6	111	80.5	101.60	52	19.8	14.3
3.500	82.6	88.90	111.8	115	83.6	104.78	52	19.8	14.3
3.625	85.7	92.08	115.0	118	86.8	107.95	52	19.8	14.3
3.750	88.9	95.25	118.1	121	90.0	111.13	52	19.8	14.3
3.875	92.1	98.43	121.3	124	93.1	114.30	52	19.8	14.3
4.000	95.3	101.60	124.5	127	96.3	117.48	52	19.8	14.3
4.125	98.4	104.78	127.7	131	99.5	120.65	52	19.8	14.3
4.250	101.6	107.95	130.8	134	102.7	123.83	52	19.8	14.3
4.375	104.8	111.13	134.0	137	106.3	130.18	52	19.8	14.3
4.500	108.0	114.30	137.2	140	109.5	133.35	52	19.8	14.3
4.625	108.0	117.48	149.9	153	109.5	133.35	64	19.8	15.9
4.750	111.1	120.65	153.1	156	112.7	136.35	64	19.8	15.9
4.875	114.3	123.83	156.2	159	115.9	139.70	64	19.8	15.9
5.000	117.5	127.00	159.4	165	119.0	142.88	64	19.8	15.9
5.125	120.7	130.18	162.6	168	122.2	146.05	64	19.8	15.9
5.250	123.8	133.35	165.8	172	125.4	149.23	64	19.8	15.9
5.375	127.0	136.53	168.9	175	128.6	152.40	64	19.8	15.9
5.500	130.2	139.70	172.1	178	131.7	155.58	64	19.8	15.9
5.625	133.4	142.88	175.3	181	134.9	158.75	64	19.8	15.9
5.750	136.5	146.05	178.5	184	138.1	161.93	64	19.8	15.9
5.875	139.7	149.23	181.6	187	141.3	165.10	64	19.8	15.9
6.000	142.9	152.40	184.8	191	\	\	64	\	15.9



TS 8-1

Operating Limits

Pressure: $\leq 1.7\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30\text{ }^{\circ}\text{C} \sim 200\text{ }^{\circ}\text{C}$

GPT
CO

Stationary Seats:

1. TS 8-1 equip with "P" type stationary seats.
2. A, W and PP type stationary seats are available

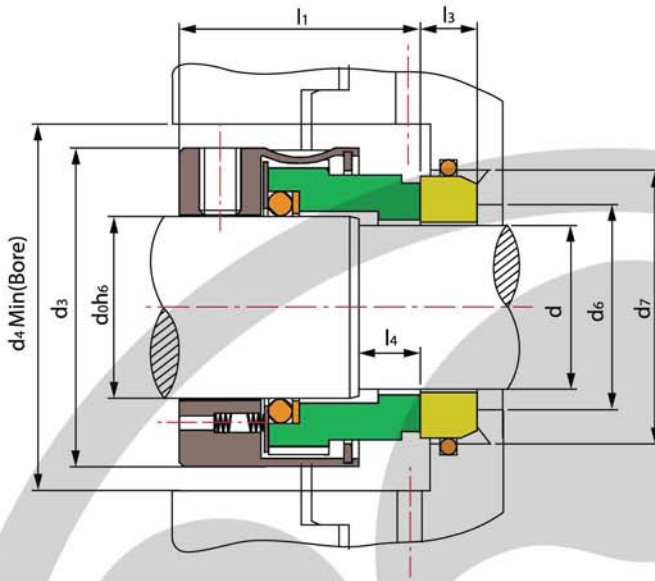
- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (99% Ceramic/SiC/TC)
- Secondary Seal (NBR/ VITON/ Encapsulated Ring)
- Spring & Other Parts (SUS304/ SUS316)



Features of structure:

1. Adopt "O" ring, applied in various hydraulic liquid. Rotary ring connected by circlip.
2. Applied in various rotating equipments, such as: centrifugal agitators and agitator crushers
3. Minimize the shaft and sleeve fretting.
4. Multi-spring and unbalance; comply with API 610 standard.

Seal size (inches)	d	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃
0.500	12.70	26.7	30	14.5	25.60	21.0	7.90
0.625	15.87	30.7	34	17.5	31.95	19.0	10.30
0.750	19.05	34.0	37	21.0	35.12	22.2	10.30
0.875	22.22	37.2	40	24.0	38.30	24.0	10.30
1.000	25.40	40.3	43	27.5	41.48	25.0	11.15
1.125	28.57	43.5	46	30.5	44.65	27.0	11.15
1.250	31.75	48.3	51	33.5	47.83	27.0	11.15
1.375	34.92	51.5	54	37.0	51.00	29.0	11.15
1.500	38.10	54.6	58	40.0	54.18	29.0	11.15
1.625	41.27	61.0	64	43.5	60.53	35.0	12.75
1.750	44.45	64.2	67	46.5	63.70	35.0	12.75
1.875	47.62	67.3	70	49.5	66.88	35.0	12.75
2.000	50.80	70.5	73	53.0	70.05	35.0	12.75
2.125	53.97	76.9	80	56.0	76.40	43.0	14.33
2.250	57.15	80.0	83	59.0	79.58	43.0	14.33
2.375	60.32	83.2	86	62.5	82.75	43.0	14.33
2.500	63.50	86.4	89	65.5	85.93	43.0	14.33
2.625	66.67	89.6	92	68.5	85.93	43.0	15.93
2.750	69.85	92.7	96	72.0	89.10	43.0	15.93
2.875	73.02	95.9	99	75.0	95.45	43.0	15.93
3.000	76.20	97.5	100	78.5	98.63	43.0	15.93
3.125	79.37	100.7	104	81.5	101.80	43.0	19.84
3.250	82.55	105.4	108	84.5	104.98	43.0	19.84
3.375	85.73	108.6	111	88.0	108.15	43.0	19.84
3.500	88.90	111.8	115	91.0	111.13	43.0	19.84
3.625	92.08	115.0	118	94.0	114.35	43.0	19.84
3.750	95.25	118.1	121	97.5	117.68	43.0	19.84
3.875	98.43	121.3	124	100.5	120.85	43.0	19.84
4.000	101.60	124.5	127	103.5	124.03	43.0	19.84
4.125	104.78	127.0	134	107.0	130.38	42.9	19.84
4.250	107.95	133.4	137	110.0	133.55	42.9	19.84
4.375	111.13	136.5	140	113.5	136.72	42.9	19.84
4.500	114.30	139.7	143	116.5	139.90	42.9	19.84
4.625	117.48	142.9	146	119.5	143.08	42.9	19.84
4.750	120.65	146.1	149	122.5	146.25	42.9	19.84
4.875	123.83	149.2	153	126.0	149.43	42.9	19.84
5.000	127.00	152.4	156	129.0	152.60	42.9	19.84
5.125	130.18	155.6	159	132.0	155.77	42.9	19.84
5.250	133.35	165.1	168	135.5	158.95	50.8	19.84
5.375	136.53	168.28	171.45	138.5	162.12	50.8	19.84
5.500	139.70	171.5	175	141.5	165.30	50.8	19.84
5.625	142.88	174.6	178	145.0	168.47	50.8	19.84
5.750	146.05	177.8	181	149.0	177.23	50.8	25.40
5.875	149.23	181.0	14	152.5	180.41	50.8	25.40
6.000	152.40	184.2	188	155.5	183.59	50.8	25.40



TS 8-B1

Operating Limits

Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim 200^{\circ}\text{C}$

GPT
CO

Stationary Seats:

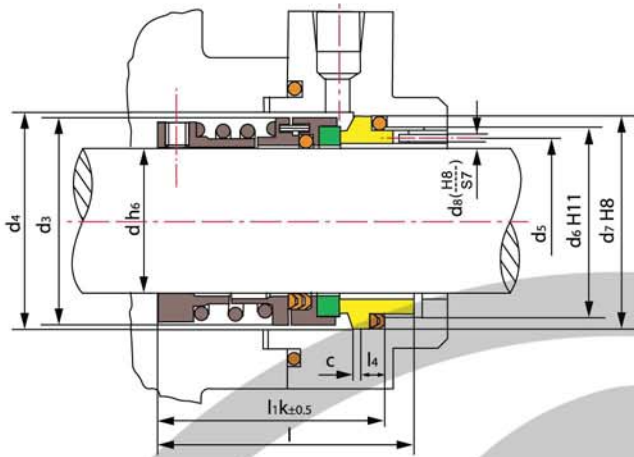
TS 8-B1 equip with "P" type stationary seats.

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (99%Ceramic/SiC/TC)
- Secondary Seal(NBR/ VITON / Encapsulated Ring)
- Spring & Other Parts (SUS304/SUS316)

Features of structure:

1. Adopt "O" ring, rotary ring connected by circlip.
2. Applied in various rotating equipments, such as centrifugal agitators and agitator crushers.
3. Double directions mechanical driven, minimize the shaft and sleeve fretting.
4. Multi-spring and balance; comply with API 610 standard.

Seal size (inches)	d	d ₀	d ₃	d ₄	d ₆	d ₇	l ₁	l ₃	l ₄
0.625	12.7	15.87	30.8	34	14.5	25.60	27.0	7.90	7.5
0.750	15.9	19.05	34.0	37	17.5	31.95	30.0	10.30	7.8
0.875	19.1	22.22	37.2	40	21.0	35.12	32.0	10.30	8.0
1.000	22.2	25.40	40.3	43	24.0	38.30	33.0	10.30	8.0
1.125	25.4	28.58	43.4	46	27.5	41.48	35.0	11.15	7.9
1.250	28.6	31.75	48.3	51	30.5	44.65	35.0	11.15	7.9
1.375	28.6	34.93	51.3	54	30.5	44.65	37.0	11.15	8.7
1.500	31.8	38.10	54.5	58	33.5	47.83	37.0	11.15	8.7
1.625	34.9	41.28	60.8	64	37.5	51.00	45.0	11.15	8.7
1.750	38.1	44.45	64.0	67	40.0	54.18	45.0	11.15	9.5
1.875	41.3	47.62	67.2	70	43.5	60.53	45.0	12.75	9.5
2.000	44.5	50.80	70.4	73	46.5	63.70	45.0	12.75	9.5
2.125	47.6	53.98	76.7	80	49.5	66.88	52.0	12.75	11.1
2.250	50.8	57.15	79.9	83	53.0	70.05	52.0	12.75	11.1
2.375	54.0	60.33	83.1	86	56.0	76.40	52.0	14.33	11.1
2.500	57.2	63.50	86.2	89	59.0	79.58	52.0	14.33	11.1
2.625	60.3	66.68	89.4	92	62.5	82.75	52.0	14.33	11.1
2.750	63.5	69.85	92.6	96	65.5	85.93	52.0	14.33	11.1
2.875	66.7	73.03	95.8	99	68.5	85.93	52.0	15.93	11.1
3.000	69.9	76.20	97.3	100	72.0	89.10	52.0	15.93	11.1
3.125	73.0	79.38	100.5	104	75.0	95.45	52.0	15.93	11.1
3.250	76.2	82.55	105.3	108	78.5	98.63	52.0	15.93	14.3
3.375	79.4	85.73	108.5	111	81.5	101.80	52.0	19.84	14.3
3.500	82.6	88.90	111.6	115	84.5	104.98	52.0	19.84	14.3
3.625	85.7	92.08	114.8	118	88.0	108.15	52.0	19.84	14.3
3.750	88.9	95.25	118.0	121	91.0	111.33	52.0	19.84	14.3
3.875	92.1	98.43	121.2	124	94.0	114.50	52.0	19.84	14.3
4.000	95.3	101.60	124.3	127	97.5	117.68	52.0	19.84	14.3
4.125	98.4	104.78	127.0	134	100.5	120.85	52.4	19.84	14.3
4.250	101.6	107.95	133.4	137	103.5	124.03	52.4	19.84	14.3
4.375	104.8	111.13	136.5	140	107.0	130.38	52.4	19.84	14.3
4.500	107.9	114.30	139.7	143	110.0	133.55	52.4	19.84	14.3
4.625	111.1	117.48	142.9	146	110.0	133.55	52.4	19.84	15.8
4.750	114.3	120.65	146.1	149	113.5	136.72	52.4	19.84	15.8
4.875	117.4	123.83	149.2	153	116.5	139.90	52.4	19.84	15.8
5.000	120.6	127.00	152.4	156	119.5	143.08	52.4	19.84	15.8
5.125	123.8	130.18	155.6	159	122.5	146.25	52.4	19.84	15.8
5.250	127.0	133.35	165.1	168	126.0	149.43	60.3	19.84	15.8
5.375	130.2	136.53	168.28	171.45	129.0	152.60	60.3	19.84	15.8
5.500	133.3	139.70	171.5	175	132.0	155.77	60.3	19.84	15.8
5.625	136.5	142.88	174.6	178	135.5	158.95	60.3	19.84	15.8
5.750	139.7	146.05	177.8	181	138.5	162.12	60.3	19.84	15.8
5.875	142.9	149.23	181.0	184	141.5	165.30	60.3	19.84	15.8
6.000	146.0	152.40	184.2	188	145.0	168.47	60.3	19.84	15.8



TS 4U(TS L)

Operating Limits

Pressure: 0~1MPa

Speed: ≤20m/s

Temperature: -20°C ~+180°C

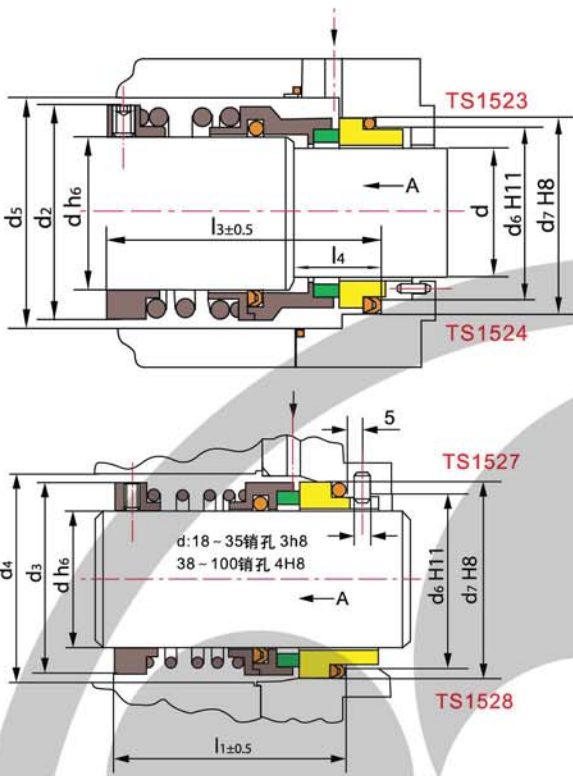
- Rotary Ring (SiC/TC)
- Stationary Ring (Carbon/SiC/TC)
- Secondary Seal (EPDM/VITON/PTFE)
- Spring & Other Parts (SUS304/SUS316)

Medium: water, oil, crystallizing acid, alkali, high viscosity liquid, paper pulp, etc.

Design Features:

Except for the install length, all other dimensions are conform to ISO3069 DIN24960 and GB6556 standards.

Seal size d(mm)	d ₃	d ₄	d ₆	d ₇	d ₅	d ₈	l (±0.5)	l _k (±0.5)	l ₄	c
		min								
18	32	34	27	33	23	3	52.0	45.0	5	2.0
20	34	36	29	35	25	3	52.0	45.0	5	2.0
22	36	38	31	37	27	3	53.0	46.0	5	2.0
24	38	40	33	39	29	3	56.0	49.0	5	2.0
25	39	41	34	40	30	3	56.0	49.0	5	2.0
28	42	44	37	43	33	3	56.5	49.5	5	2.0
30	44	46	39	45	35	3	57.0	50.0	5	2.0
32	46	48	42	48	38	3	58.5	51.5	5	2.0
33	47	49	42	48	38	3	58.8	51.5	5	2.0
35	49	51	44	50	40	3	58.5	51.5	5	2.0
38	54	58	49	56	44	4	62.0	55.0	6	2.0
40	56	60	51	58	46	4	62.0	55.0	6	2.0
43	59	63	54	61	49	4	65.0	58.0	6	2.0
45	61	65	56	63	51	4	65.0	58.0	6	2.0
48	64	68	59	66	54	4	66.0	59.0	6	2.0
50	66	70	62	70	57	4	67.0	60.0	6	2.5
53	69	73	65	73	60	4	71.5	64.5	6	2.5
55	71	75	67	75	62	4	73.5	66.5	6	2.5
58	78	83	70	78	65	4	76.5	69.5	6	2.5
60	80	85	72	80	67	4	76.5	69.5	6	2.5
63	83	88	75	83	70	4	78.5	71.5	6	2.5
65	85	90	77	85	72	4	81.5	74.5	6	2.5
68	88	93	81	90	75	4	82.5	75.5	7	2.5
70	90	95	83	92	77	4	86.5	79.5	7	2.5
75	99	104	88	97	82	4	87.0	80.0	7	2.5
80	104	109	95	105	88	4	90.5	83.5	7	3.0
85	109	114	100	110	93	4	90.5	83.5	7	3.0
90	114	119	105	115	98	4	92.5	85.5	7	3.0
95	119	124	110	120	103	4	93.5	86.5	7	3.0
100	124	129	115	125	108	4	93.5	86.5	7	3.0



TS 1500

Operating Limits

Pressure: 0~1MPa (TS1527,TS1528)
 ≤3MPa (TS1523,TS1524)

Speed: ≤15m/s

Temperature: -20°C ~+180°C

- Rotary Ring (SiC/TC/Carbon)
- Stationary Ring (Carbon/SiC/TC)
- Secondary Seal (EPDM/VITON/PTFE)
- Spring & Other Parts (SUS304/SUS316)

Design Features:

- a. Rotary direction is immobile. The springs can be assorted into right-hand or left-hand. The Spring rotating direction is determined by the direction of the shaft rotation.
- b. Except for the axial length, all other sizes conform to the ISO3069 and DIN24960 standards.

Seal size d(mm)	d ₀	d ₃	d ₄			d ₂	d ₅		l ₃	l ₁	l ₄
			min	d ₆	d ₇		min	l ₃			
18	22	32	34	27	33	36	38	55	45	20	
20	24	34	36	29	35	38	40	60	45	20	
22	26	36	38	31	37	40	42	60	45	20	
24	28	38	40	33	39	42	44	60	50	20	
25	30	39	41	34	40	44	46	60	50	20	
28	33	42	44	37	43	47	49	65	50	20	
30	35	44	46	39	45	49	51	65	50	20	
32	38	46	48	42	48	54	58	65	55	20	
33	38	47	49	42	48	54	58	65	55	20	
35	40	49	51	44	50	56	60	65	55	20	
38	43	54	58	49	56	59	63	75	55	23	
40	45	56	61	51	58	61	65	75	55	23	
43	48	59	63	54	61	64	68	75	60	23	
45	50	61	65	56	63	66	70	75	60	23	
48	53	64	68	59	66	69	73	85	60	23	

Seal size d(mm)	d ₀	d ₃	d ₄			d ₂	d ₅		l ₃	l ₁	l ₄
			min	d ₆	d ₇		min	l ₃			
50	55	66	70	62	70	71	75	85	60	25	
53	58	69	73	65	73	78	83	85	70	25	
55	60	71	75	67	75	80	85	85	70	25	
58	63	78	83	70	78	83	88	85	70	25	
60	65	80	85	72	80	85	90	95	70	25	
63	68	83	88	75	83	88	93	95	70	25	
65	70	85	90	77	85	90	95	95	80	25	
68	73	88	93	81	90	93	98	95	80	28	
70	75	90	95	83	92	99	104	95	80	28	
75	80	99	104	88	97	104	109	105	80	28	
80	85	104	109	95	105	109	114	105	90	28	
85	90	109	114	100	110	114	119	105	90	28	
90	95	114	119	105	115	119	124	105	90	28	
95	100	119	124	110	120	124	129	105	90	28	
100	105	124	129	115	125	129	134	105	90	28	



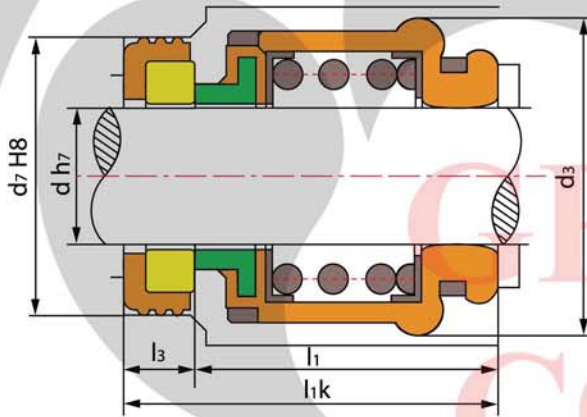
TS KB

Operating Limits :

Pressure: 0~1 MPa

Speed: ≤13m/s

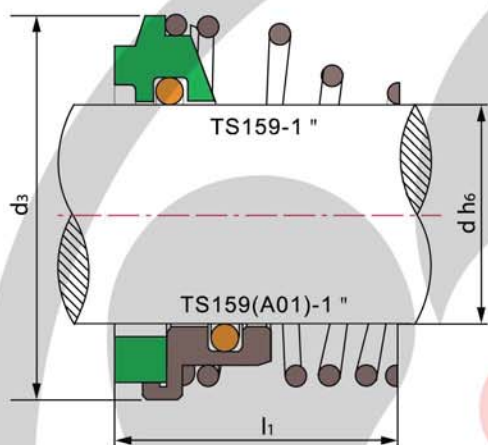
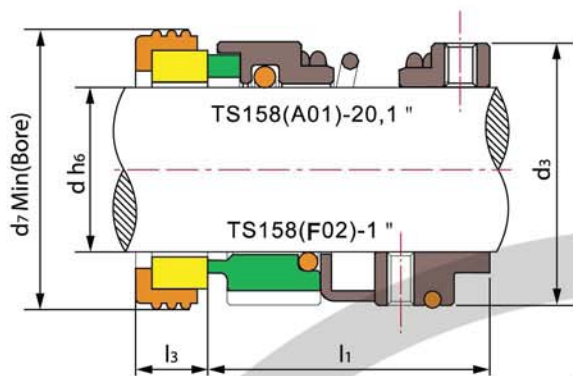
Temperature: -30°C ~+200°C



- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (Ceramic/SiC/TC)
- Secondary Seal (NBR/EPDM/VITON)
- Bellows(NBR/EPDM/VITON)
- Cup Gasket(NBR/EPDM/VITON)
- Other Parts (SUS304/SUS316)

Seal size d(mm)	d	d ₃	d ₇	l _{1k}	l ₁	l ₃
28	28	50.0	44	40.0	30.0	10.0
35	35	64.0	54	45.5	35.0	10.5
50	50	74.5	70	57.4	45.2	12.2

Seal size (inches)	d	d ₃	d ₇	l _{1k}	l ₁	l ₃
1 1/8"	28.575	50.0	44.450	41.1	30.0	11.1
1 1/2"	38.100	66.0	53.975	45.5	35.5	10.0
2"	50.800	75.5	69.850	58.2	45.2	13.0



TS 158 TS 159

Operating Limits

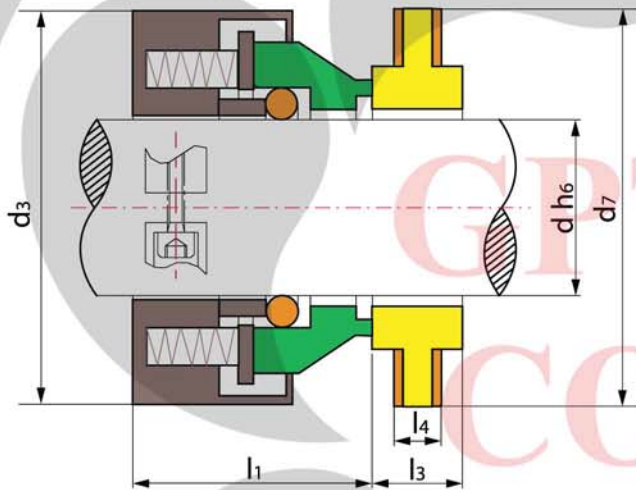
Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 10\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal(NBR/EPDM/VITON)
- Spring & Other Parts(SUS304/SUS316)

Model (mm)	d	d ₃	d ₇	l ₁	l ₃
TS158(A01)-20	20	32	38	44.2	10.0
Model (inches)	d	d ₃	d ₇	l ₁	l ₃
TS158(A01)-1"	25.4	39.0	41.275	49.7	11.1
TS158(F02)-1"	25.4	48.0	41.275	49.2	11.1
TS159-1"	25.4	46.0	\	19.1	\
TS159(A01)-1"	25.4	43.0	\	28.5	\



TS UW

Operating Limits

Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (Ceramic/SiC/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal(VITON/PTFE/Encapsulated Ring)
- Spring & Other Parts(SUS304/SUS316)

Seal size d(mm)	d ₃	d ₇	l ₁	l ₃	l ₄
28	55	65	38	27	14.2
33	60	71	38	27	14.2
35	62	71	38	27	14.2
43	70	84	38	27	14.2

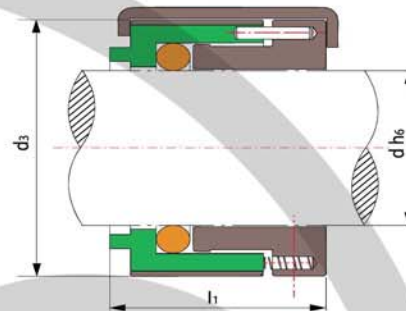


TS PS

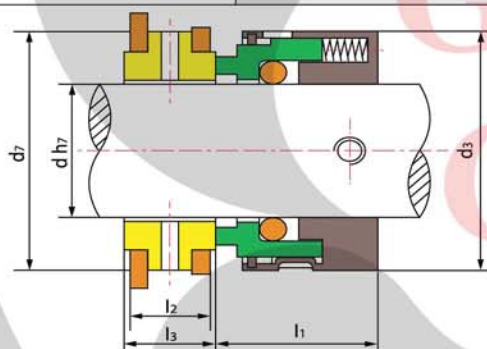
Operating Limits

Pressure: $\leq 1.2\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(Carbon/SiC/TC)
- Secondary Seal(VITON/PTFE/Encapsulated Ring)
- Spring & Other Parts(SUS304/SUS316)



Seal size (inches)	d	d ₃	l ₁
1 1/8"	28.575	48.2	33
1 3/8"	34.925	54.8	33
1 7/8"	47.625	68.6	33



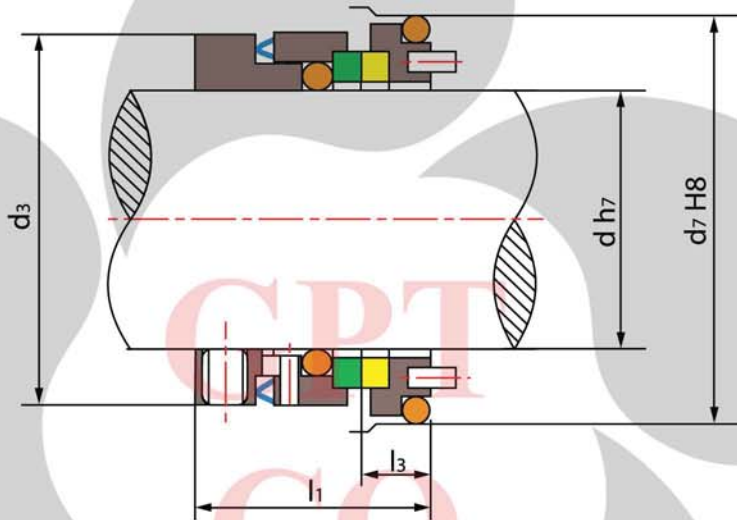
TS ST

Operating Limits

Pressure: $\leq 1.2\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (Carbon/SiC/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal(NBR/VITON/Asbestos)
- Spring & Other Parts(SUS304/SUS316)

Seal size (inches)	d	d ₃	d ₇	l ₁	l ₂	l ₃
1 1/8"	28.575	47.6	59.4	25.6	15.9	25.3
1 5/8"	41.275	62.0	71.8	29.5	15.9	25.3
2 1/8"	53.975	79.4	84.6	29.3	15.9	25.3
2 5/8"	66.675	88.9	111.0	41.3	15.9	25.3



TS UE

Operating Limits

Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (SiC/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/PTFE/Encapsulated Ring)
- Wave spring (17-7PH/SUS304/SUS316)
- Other Parts (SUS304/SUS316)

Seal size d(mm)	d ₃	d ₇	l ₁	l ₃
30	41	44.0	26.0	7.5
38	52	54.0	28.5	7.5
63	80	82.5	32.5	8.5



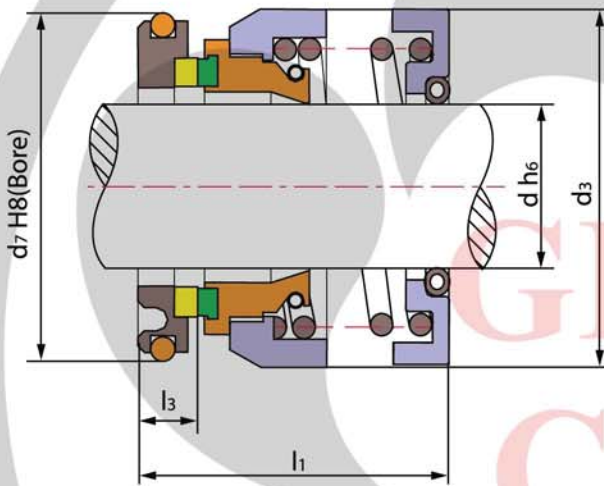
TS X

Operating Limits

Pressure: $\leq 1\text{MPa}$

Speed: $\leq 5\text{ m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

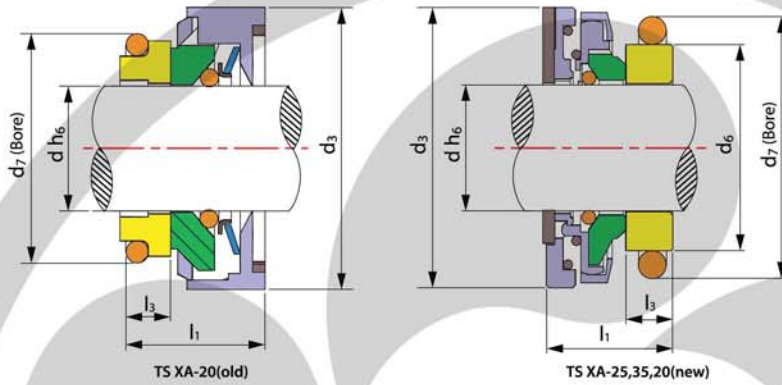


- Rotary Ring (SiC /TC)
- Stationary Ring(SiC /TC)
- O-Ring(NBR/EPDM/VITON)
- Spring (SUS304/SUS316)
- Tension Spring(1Cr18Ni9Ti)
- Stationary Seat(SUS304/SUS316)
- Spring Cover(Bakelite/Alumina)
- Retainer(Bakelite/Alumina)

Seal size d(mm)	d ₃	d ₇	l ₁	l ₃
20	42.5	55.5	36.5	11.0
22	47.0	45.5	32.6	9.0
25	54.0	50.5	38.6	10.0
28	54.0	50.5	38.6	10.0
30	54.0	50.5	38.6	10.0
35	62.0	60.5	39.8	11.0



XA-20(old)



TS XA

Operating Limits

Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 10\text{m/s}$

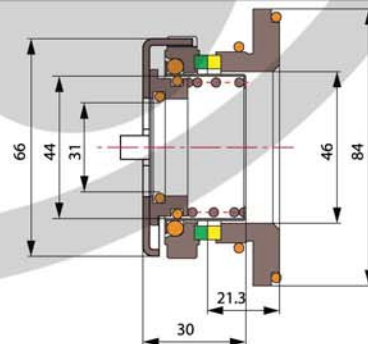
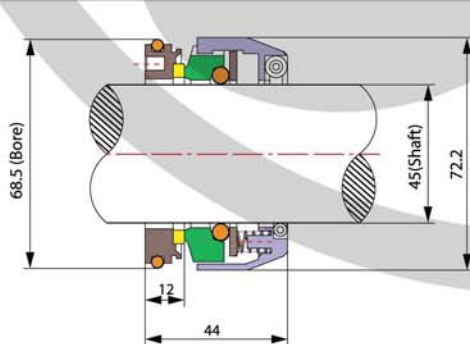
Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

Seal size d(mm)	d ₃	d ₆	d ₇	l ₁	l ₃
XA-20	45.2	\	36	21.5	7.2
XA-25	54.0	35.2	42	21.0	6.0
XA-35	69.8	50.3	56	25.7	10.2

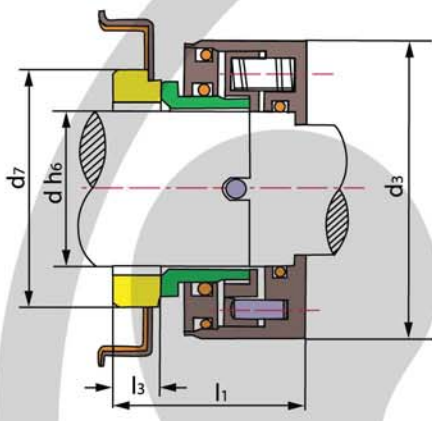
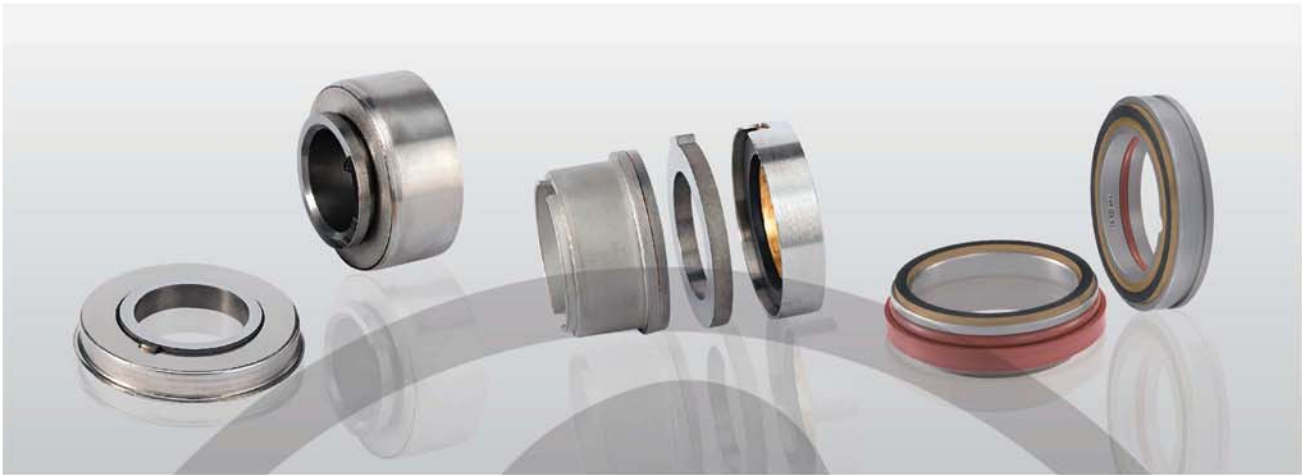


TSXC-45

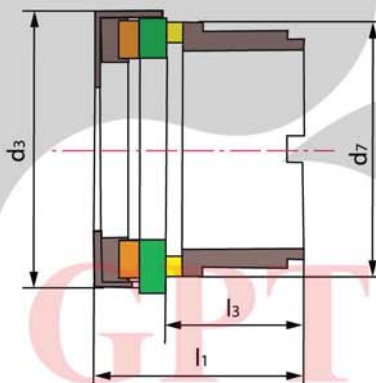
TSXB-35



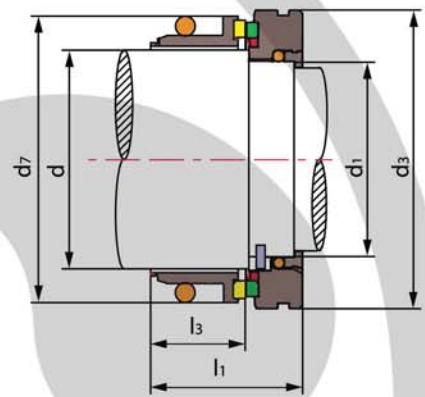
- Rotary Ring (Carbon/Ceramic/TC)
- Stationary Ring (Ceramic/TC)
- Secondary Seal (NBR/VITON)
- Spring & Other Parts (65Mn/SUS304/SUS316)
- Other Parts (Plastic)



TS XD-35



TS XD-30 / TS XD-45



TS XD-60 / TS XD-60A / TS XD-80

TS XD

Operating Limits

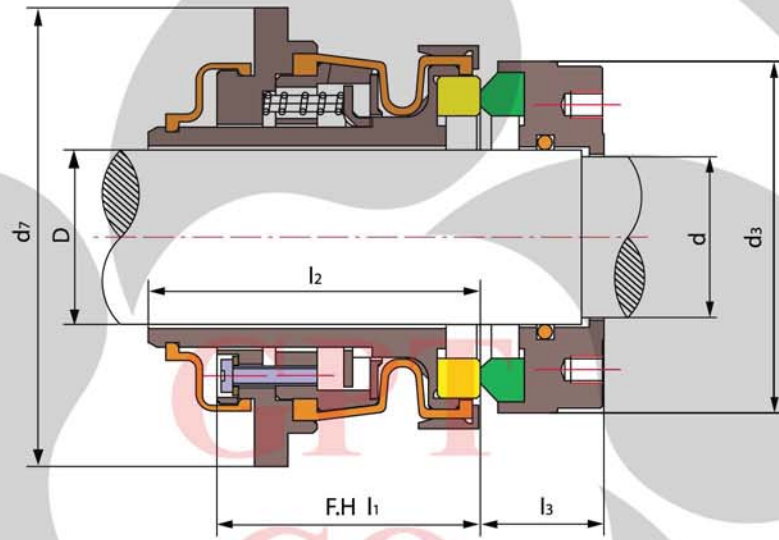
Pressure: $\leq 1.2\text{MPa}$

Speed: $\leq 10\text{ m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC)
- O-Ring(NBR/EPDM/VITON)
- Stationary Seat(NBR/SUS304)
- Spring(SUS304/SUS316)
- Rotary Seat(SUS304/SUS316)
- Retainer(SUS304/SUS316)
- Elastic Screw(SUS304/SUS316)
- Drive Ring(SUS304/SUS316)

Seal size d(mm)	d	d ₁	d ₃	d ₇	l ₁	l ₃
30	\	\	50	46.0	37.6	24.6
35	35	\	67	53.5	42.8	10.3
45	\	\	65	63.0	39.5	26.5
60	60	55	83	83.0	44.3	28.0
60A	60	55	83	80.0	44.5	28.0
80	80	75	106	100.0	47.3	30.3



TS AP

Operating Limits

Pressure: $\leq 1.5\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (SiC/TC/Carbon)
- Stationary Ring (SiC/TC)
- Secondary Seal(NBR/VITON/EPDM)
- Spring & Other Parts(SUS304/SUS316)
- Screw(SUS304/SUS316)

Seal size D(mm)	d	d ₃	d ₇	l ₁	l ₂	l ₃
35	25	70	100	68	76	27.8
45	38	80	110	68	76	27.8
50	40	85	115	68	76	28.0
60	50	95	125	68	76	30.6

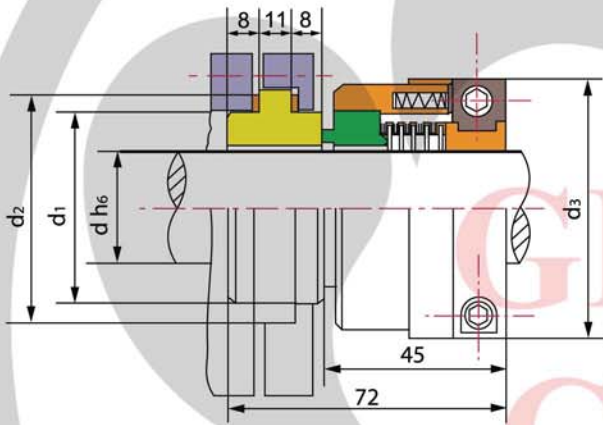
TS WB2

Operating Limits

Pressure: $\leq 0.5\text{MPa}$

Speed: $\leq 10\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +125^{\circ}\text{C}$



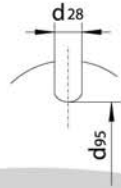
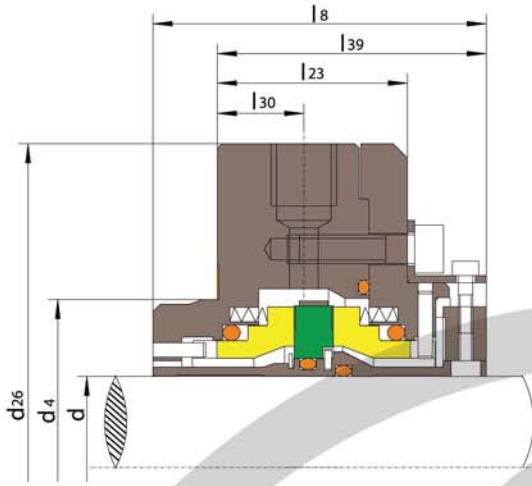
- Rotary Ring (Filled PTFE/SiC)
- Stationary Ring (99% Ceramic/SiC)
- Secondary Seal (PTFE)
- Spring & Other Parts (SUS304/SUS316)

Medium: Strong acid, strong oxidant and other strong corrosive liquid. Not apply to alkali, hydrofluoric acid and solution with impurity

Design Features:

- a. Externally mounted, single face, multiple springs and PTFE bellows
- b. Non-pusher, internal balanced structure, fine fluctuation of compensation and reliable seal

Seal size d(mm)	d ₃	d ₁	d ₂
30	61	53	66
35	71	58	70
40	76	63	76
45	81	68	82
50	86	73	86
55	91	78	90
60	96	83	95
65	111	88	100



TSDGS-J01

Operating Limits

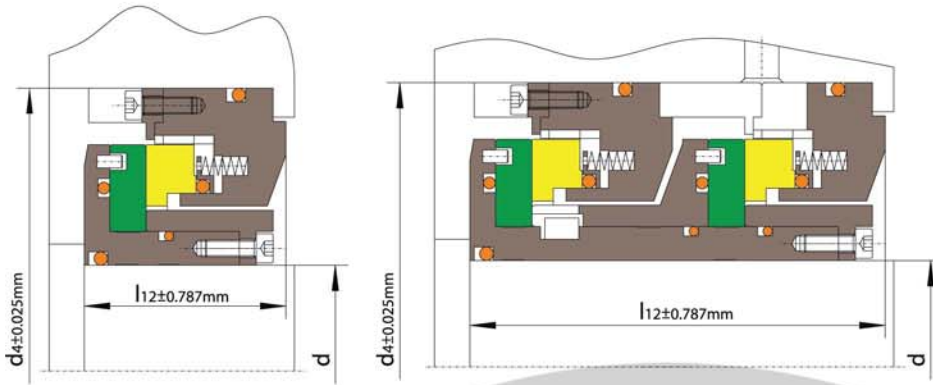
Pressure: $\leq 1.6\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim 260^{\circ}\text{C}$

- Rotary Ring (SiC/TC)
- Stationary Ring (Carbon)
- Secondary Seal (VITON/Kalrez)
- Other Parts (C-276/Duplex/SUS316)

D	d ₄ min	d ₂₆	d ₂₈	d ₉₅	l ₈	l ₂₃	l ₃₀	l ₃₉	D	d ₄ min	d ₂₆	d ₂₈	d ₉₅	l ₈	l ₂₃	l ₃₀	l ₃₉
25	41	114	12	64.7	67.8	37.5	15.5	54.5	0.875	1.500	3.750	0.437	2.295	2.574	1.398	0.513	2.028
28	44	117	12	67.7	67.8	37.5	15.5	54.5	1.000	1.625	3.750	0.437	2.421	2.574	1.398	0.513	2.028
30	46	119	12	69.7	67.8	37.5	15.5	54.5	1.125	1.750	4.250	0.437	2.469	2.574	1.398	0.513	2.028
33	49	122	14	72.7	67.8	37.5	15.5	54.5	1.250	2.000	4.250	0.437	2.669	2.574	1.398	0.513	2.028
35	51	124	14	74.7	67.8	37.5	15.5	54.5	1.375*	2.125	4.250	0.437	2.795	2.574	1.398	0.513	2.028
38	58	135	14	79.7	69.4	39.8	17.7	56.5	1.375**	2.000	4.250	0.437	2.795	2.574	1.398	0.513	2.028
40	60	137	14	81.7	69.4	39.8	17.7	56.5	1.500	2.250	4.875	0.562	3.142	2.732	1.567	0.697	2.224
43	63	140	14	84.7	69.4	39.8	17.7	56.5	1.625	2.375	4.500	0.437	2.680	2.732	1.567	0.697	2.224
45	65	142	14	86.7	69.4	39.8	17.7	56.5	1.750	2.500	5.500	0.562	3.390	2.732	1.567	0.697	2.224
50	70	147	18	91.7	69.4	41.8	17.7	56.5	1.875	2.625	5.500	0.562	3.335	2.732	1.567	0.697	2.224
53	73	150	18	94.7	69.4	41.8	17.7	56.5	2.000	2.750	4.750	0.562	3.461	2.732	1.567	0.697	2.224
55	75	152	18	96.7	69.4	41.8	17.7	56.5	2.125	2.875	6.000	0.687	3.768	2.732	1.567	0.697	2.224
60	85	157	18	101.7	69.4	41.8	17.7	56.5	2.250	3.125	6.500	0.687	3.890	2.732	1.567	0.697	2.224
65	90	180	18	106.7	71.4	43.8	19.7	58.5	2.375	3.250	6.250	0.687	4.016	2.732	1.567	0.697	2.224
80	109	195	18	121.7	71.4	43.8	19.7	58.5	2.500	3.375	6.500	0.687	4.142	2.812	1.724	0.776	2.303
100	129	215	22	141.7	71.4	43.8	19.7	58.5	2.625	3.625	6.500	0.687	4.268	2.812	1.724	0.776	2.303
									2.750	3.750	7.000	0.687	4.370	2.812	1.724	0.776	2.303
									3.000	4.000	7.000	0.687	4.642	2.812	1.724	0.776	2.303
									3.500	4.500	7.250	0.812	5.142	2.812	1.724	0.776	2.303
									4.000	5.000	7.250	0.812	5.642	2.812	1.724	0.776	2.303



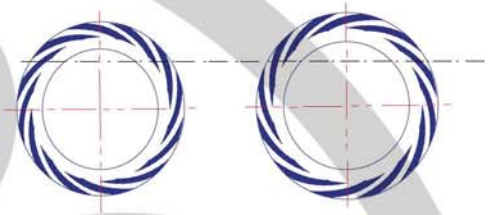
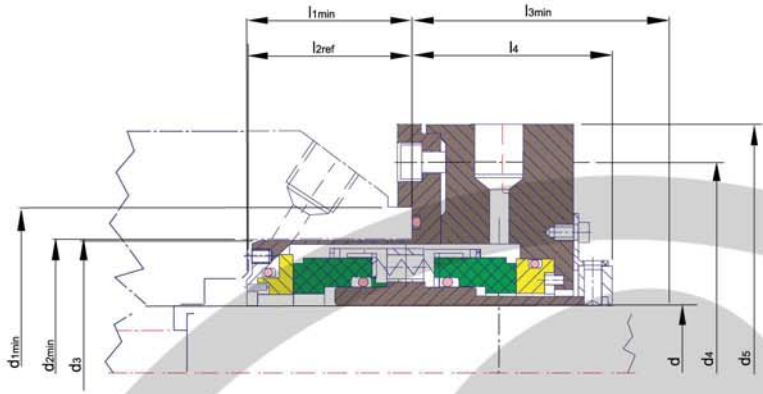
TSDGS-J02

Operating Limits

Pressure: ≤12.4MPa
 Speed: ≤180m/s
 Temperature: -20°C ~260°C

- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon)
- Secondary Seal(VITON/Kalrez)
- Other Parts(C-276/Duplex/SUS316)

Seal size (mm)	d Shaft Range	d4	l ₁₂ Single Min	l ₁₂ Tandem Min	Seal size (inches)	d Shaft Range	d4	l ₁₂ Single Min	l ₁₂ Tandem Min
56	25.4-29.0	104.8	46.4	99.2	2.187	1.000-1.140	4.125	1.828	3.906
62	29.0-34.9	111.9	46.8	99.2	2.437	1.141-1.375	4.406	1.843	3.906
68	35.0-41.3	119.5	47.2	99.6	2.687	1.376-1.625	4.703	1.859	3.921
75	41.3-46.8	126.2	47.2	99.6	2.937	1.626-1.843	4.968	1.859	3.921
81	46.8-53.2	133.7	47.6	100.0	3.187	1.844-2.093	5.265	1.875	3.937
87	53.2-59.5	140.9	48.4	100.4	3.437	2.094-2.343	5.546	1.906	3.953
94	59.5-65.1	148.0	48.8	100.8	3.687	2.344-2.562	5.828	1.921	3.968
100	65.1-71.4	155.2	48.8	100.8	3.937	2.563-2.812	6.109	1.921	3.968
106	71.4-77.0	162.3	49.2	101.2	4.187	2.813-3.031	6.390	1.937	3.984
113	77.0-82.9	169.4	50.0	101.6	4.437	3.032-3.265	6.671	1.968	4.000
119	83.0-88.9	177.0	50.0	101.6	4.687	3.266-3.500	6.968	1.968	4.000
125	88.9-94.8	183.7	50.8	102.8	4.937	3.501-3.734	7.234	2.000	4.046
132	94.9-101.2	191.3	51.6	104.4	5.187	3.735-3.984	7.531	2.031	4.109
138	101.2-107.1	198.4	52.0	104.8	5.437	3.985-4.218	7.812	2.046	4.125
144	107.2-113.1	205.6	52.8	106.3	5.687	4.219-4.453	8.093	2.078	4.187
151	113.1-119.0	212.7	53.6	108.0	5.937	4.454-4.687	8.375	2.109	4.250
156	119.1-123.4	217.9	54.8	109.5	6.125	4.688-4.859	8.578	2.156	4.312
162	123.4-129.8	225.4	55.1	110.7	6.375	4.860-5.109	8.875	2.171	4.359
168	129.8-135.7	232.6	55.5	111.5	6.625	5.110-5.343	9.156	2.187	4.390
175	135.7-141.7	239.7	56.3	112.3	6.875	5.344-5.578	9.437	2.218	4.421
181	141.7-147.6	246.8	57.2	114.3	7.125	5.579-5.812	9.718	2.250	4.500
187	147.7-153.6	254.0	57.9	115.9	7.375	5.813-6.046	10.000	2.281	4.562
194	153.6-159.9	261.1	58.7	117.5	7.625	6.047-6.296	10.281	2.312	4.625
200	159.9-165.9	268.7	59.5	119.0	7.875	6.297-6.531	10.578	2.343	4.687
206	165.9-171.8	277.8	59.9	119.5	8.125	6.532-6.765	10.937	2.359	4.703
213	171.9-177.4	285.3	60.7	121.0	8.375	6.766-6.984	11.234	2.390	4.765
219	177.4-183.3	292.1	61.5	122.2	8.625	6.985-7.218	11.500	2.421	4.812
225	183.4-189.7	299.6	62.3	123.8	8.875	7.219-7.468	11.796	2.453	4.875
232	189.7-195.7	306.8	63.1	125.4	9.125	7.469-7.703	12.078	2.484	4.937
238	195.7-201.6	313.9	63.5	126.2	9.375	7.704-7.937	12.359	2.500	4.968
244	201.6-207.5	321.1	64.3	127.8	9.625	7.938-8.171	12.640	2.531	5.031
251	207.6-213.5	328.2	65.1	129.4	9.875	8.172-8.406	12.921	2.562	5.093
257	213.5-219.9	335.4	65.5	130.2	10.125	8.407-8.656	13.203	2.578	5.125



TSDGS-J03

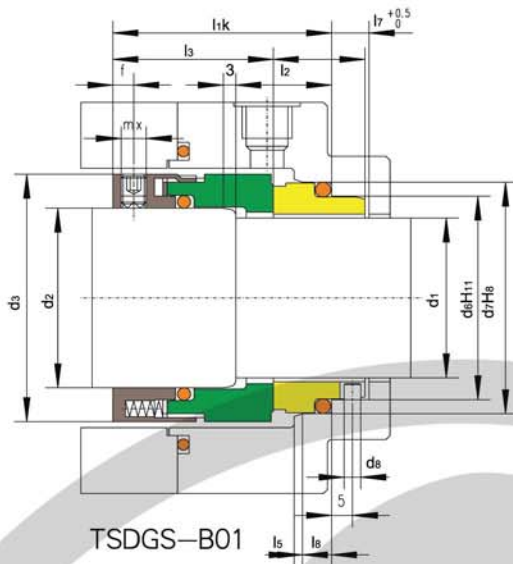
Operating Limits

Pressure: $\leq 2.1\text{MPa}$
 Speed: $\leq 1450\text{rpm}$
 Temperature: $-20^{\circ}\text{C} \sim 260^{\circ}\text{C}$

- Stationary Ring(SiC/TC)
- Rotary Ring(Carbon)
- Secondary Seal(VITON/Kalrez)
- Other Parts(C-276/Duplex/SUS316)

Seal size (inches)	D	d ₁	d ₂	d ₃	d ₄	d ₅	l ₁ '	l ₂	l ₃ '	l ₃
1.125	1.125	3.125	2.625	2.620	3.750	4.500	2.125	2.062	2.375	2.250
1.375	1.375	3.375	2.875	2.870	4.000	5.000	2.062	2.000	2.187	2.062
1.375T	1.375	3.597	2.875	2.840	4.500	5.375	2.062	2.000	2.187	2.062
1.750	1.750	4.340	3.500	3.465	5.500	6.500	2.187	2.125	2.718	2.593
1.875	1.875	4.125	3.625	3.620	5.000	5.875	2.204	2.142	3.217	3.092
2.125	2.125	4.711	3.875	3.850	6.000	7.125	2.156	2.092	2.687	2.562
2.500	2.500	5.455	4.500	4.465	6.750	7.875	2.608	2.546	2.187	2.062
2.625	2.625	5.125	4.625	4.609	6.000	7.000	2.608	2.546	2.187	2.061
2.750	2.750	5.455	4.750	4.718	6.750	7.875	2.500	2.437	2.609	2.484

Seal size (inches)	D	d ₁	d ₂	d ₃	d ₅	l ₂	l ₄
30	30	95	>85	85	129	50	65
40	40	110	>95	95	155	52	78
50	50	125	>110	110	155	55	66
60	60	140	>125	125	155	70	66



TSDGS-B01

Operating Limits

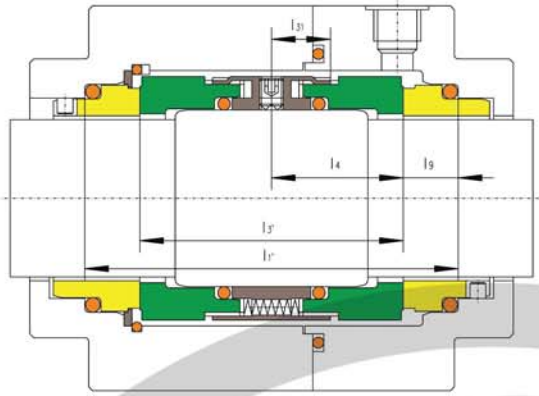
Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim 260^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon/SiC)
- Secondary Seal(VITON/Kalrez)
- Other Parts(C-276/Duplex/SUS316)

d ₁	d ₂	d ₃	d ₆	d ₇	d ₈	l _{1k}	l ₁	l ₂	l ₃	l ₃	l ₄	l ₅	l ₆	l ₇	l ₈	l ₉	l ₃₁	f	mx
28	33	48	37	43	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
30	35	50	39	45	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
32	38	55	42	48	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
33	38	55	42	48	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
35	40	57	44	50	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
38	43	60	49	56	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
40	45	62	51	58	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
43	48	65	54	61	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
45	50	67	56	63	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
48	53	70	59	66	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
50	55	72	62	70	4	57.5	99	25	42.5	69	34.5	2.5	6	9	23	15	16.5	5	M6
53	58	79	65	73	4	57.5	104	25	42.5	74	37	2.5	6	9	23	15	17	5	M6
55	60	81	67	75	4	57.5	106	25	42.5	76	38	2.5	6	9	23	15	17	5	M6
58	63	84	70	78	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
60	65	86	72	80	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
63	68	89	75	83	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
65	70	91	77	85	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
70	75	99	83	92	4	70	118	28	52	82	41	2.5	7	9	26	18	19	7	M8
75	80	104	88	97	4	70	120	28	52	84	42	2.5	7	9	26	18	19	7	M8
80	85	109	95	105	4	70	120	28	51.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
85	90	114	100	110	4	75	120	28	56.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
90	95	119	105	115	4	75	120	28	56.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
95	100	124	110	120	4	75	120	28	57.8	85.6	42.8	3	7	9	25.2	17.2	19	7	M8
100	105	129	115	125	4	75	120	28	57.8	85.6	42.8	2	7	9	25.2	17.2	19	7	M8
105	115	148	122.2	134.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
110	120	153	128.2	140.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
115	125	158	136.2	148.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
120	130	163	138.2	150.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
125	135	168	142.2	154.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8



TSDGS-B02



TSDGS-B02

Operating Limits

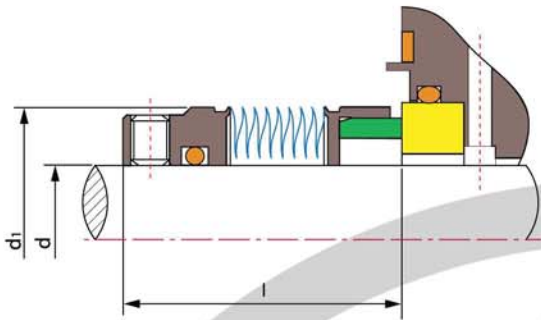
Pressure: $p_1 \leq 2.3\text{MPa}$ $p_3 \leq 2.5\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-20^\circ\text{C} \sim 260^\circ\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon/SiC)
- Secondary Seal(VITON/Kalrez)
- Other Parts(C-276/Duplex/SUS316)

d ₁	d ₂	d ₃	d ₆	d ₇	d ₈	l _{1k}	l _{1'}	l ₂	l ₃	l _{3'}	l ₄	l ₅	l ₆	l ₇	l ₈	l ₉	l ₃₁	f	mx
28	33	48	37	43	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
30	35	50	39	45	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
32	38	55	42	48	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
33	38	55	42	48	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
35	40	57	44	50	3	50	89	20	38.5	66	33	2	5	9	19.5	11.5	16.5	5	M6
38	43	60	49	56	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
40	45	62	51	58	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
43	48	65	54	61	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
45	50	67	56	63	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
48	53	70	59	66	4	52.5	95	23	38.5	67	33.5	2	6	9	22	14	16.5	5	M6
50	55	72	62	70	4	57.5	99	25	42.5	69	34.5	2.5	6	9	23	15	16.5	5	M6
53	58	79	65	73	4	57.5	104	25	42.5	74	37	2.5	6	9	23	15	17	5	M6
55	60	81	67	75	4	57.5	106	25	42.5	76	38	2.5	6	9	23	15	17	5	M6
58	63	84	70	78	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
60	65	86	72	80	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
63	68	89	75	83	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
65	70	91	77	85	4	62.5	112	25	47.5	82	41	2.5	6	9	23	15	19	7	M8
70	75	99	83	92	4	70	118	28	52	82	41	2.5	7	9	26	18	19	7	M8
75	80	104	88	97	4	70	120	28	52	84	42	2.5	7	9	26	18	19	7	M8
80	85	109	95	105	4	70	120	28	51.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
85	90	114	100	110	4	75	120	28	56.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
90	95	119	105	115	4	75	120	28	56.8	83.6	41.8	3	7	9	26.2	18.2	19	7	M8
95	100	124	110	120	4	75	120	28	57.8	85.6	42.8	3	7	9	25.2	17.2	19	7	M8
100	105	129	115	125	4	75	120	28	57.8	85.6	42.8	2	7	9	25.2	17.2	19	7	M8
105	115	148	122.2	134.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
110	120	153	128.2	140.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
115	125	158	136.2	148.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
120	130	163	138.2	150.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8
125	135	168	142.2	154.3	5	73	133	32	53	93	46.5	2	10	\	30	20	22.5	7	M8



TSMB-J01(TS 676.670.680)

Operating Limits

Pressure: $\leq 2.1\text{MPa}$

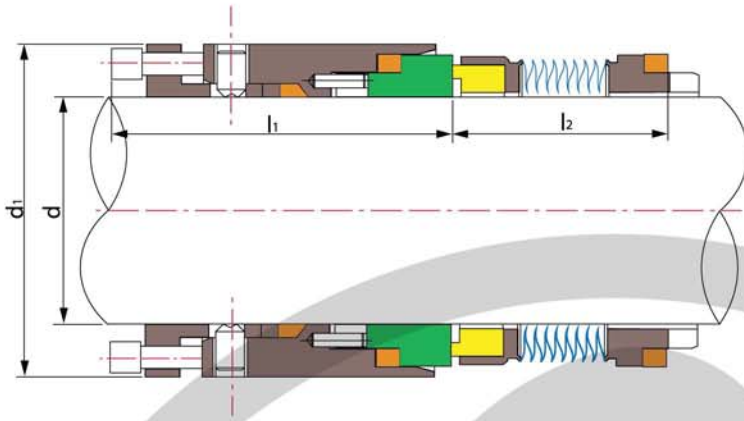
Speed: $\leq 25\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

Seal size d(inches)	d ₁	l
0.750	1.312	1.250
0.875	1.437	1.250
0.937	1.500	1.250
1.000	1.562	1.250
1.125	1.687	1.250
1.250	1.812	1.312
1.375	1.937	1.437
1.500	2.062	1.437
1.625	2.187	1.437
1.750	2.312	1.437
1.875	2.437	1.500
2.000	2.562	1.500
2.125	2.687	1.500
2.250	2.812	1.562
2.375	2.937	1.562
2.500	3.187	1.562
2.625	3.312	1.625
2.750	3.437	1.625
2.875	3.625	1.687
3.000	3.750	1.687
3.125	3.875	1.750
3.250	4.000	1.750
3.375	4.125	1.750
3.500	4.250	1.875
3.625	4.375	1.875
3.750	4.500	1.875
3.875	4.625	1.875
4.000	4.750	1.875
4.250	5.187	1.903
4.500	5.437	1.903
4.750	5.687	1.903
5.000	5.937	1.903
5.250	6.213	1.903
5.500	6.463	1.903
5.750	6.714	1.903
6.000	6.964	1.903

Seal size d(mm)	d ₁	l
18	32.0	27.5
20	33.3	27.5
22	36.0	27.5
24	38.1	30.0
25	39.0	30.0
28	42.0	32.5
30	44.0	32.5
32	46.0	32.5
33	47.0	32.5
35	49.2	32.5
38	52.4	34.0
40	55.6	34.0
43	58.7	34.0
45	58.7	34.0
48	61.9	34.0
50	65.1	34.5
53	68.3	34.5
55	71.0	34.5
60	74.6	39.5
65	84.1	39.5
70	87.3	45.0
75	95.3	45.0
80	98.4	44.5
85	104.8	44.5
90	108.0	49.5
95	114.3	49.5
100	120.7	49.5
105	131.7	48.3
110	138.1	48.3
115	144.5	48.3
120	144.5	48.3
125	150.8	48.3
130	157.8	48.3
140	170.5	48.3
150	176.9	48.3



TSMB-J04(TS 604)

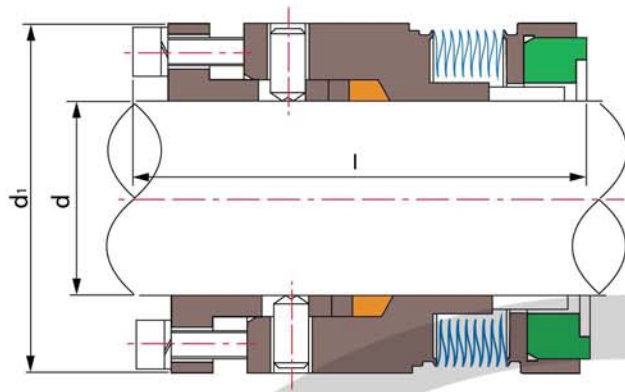
Operating Limits

Pressure: $\leq 2\text{MPa}$ (single wave slice)
 $\leq 6.9\text{MPa}$ (double wave slice)
 Speed: $\leq 25\text{m/s}$
 Temperature: $-75^{\circ}\text{C} \sim +425^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon)
- Secondary Seal(Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

Shaft (inches)	d	d ₁	l ₁	l ₂
1.000	1.000	1.937	1.969	1.138
1.125	1.125	2.062	1.969	1.138
1.250	1.250	2.187	1.969	1.138
1.375	1.375	2.312	1.938	1.138
1.500	1.500	2.562	2.063	1.191
1.625	1.625	2.562	2.060	1.222
1.750	1.750	2.687	2.060	1.254
1.875	1.875	2.812	2.062	1.254
2.000	2.000	2.937	2.060	1.285
2.125	2.125	3.187	2.182	1.316
2.250	2.250	3.312	2.218	1.384
2.375	2.375	3.437	2.186	1.379
2.500	2.500	3.562	2.184	1.410
2.625	2.625	3.687	2.250	1.443
2.750	2.750	3.937	2.250	1.608
2.875	2.875	4.062	2.281	1.608
3.000	3.000	4.187	2.250	1.608
3.125	3.125	4.312	2.250	1.608
3.250	3.250	4.437	2.219	1.608
3.375	3.375	4.562	2.282	1.608
3.500	3.500	4.687	2.373	1.650
3.625	3.625	4.812	2.375	1.650
3.750	3.750	4.937	2.375	1.650
3.875	3.875	5.062	2.375	1.650

Shaft (mm)	d	d ₁	l ₁	l ₂
25.00	25	49.20	50.01	28.91
30.00	30	52.37	50.01	28.91
32.00	32	55.55	50.01	28.91
35.00	35	58.72	49.23	28.91
38.00	38	65.07	52.40	30.25
40.00	40	65.07	52.32	31.04
45.00	45	68.25	52.32	31.85
48.00	48	71.42	52.37	31.85
50.00	50	74.60	52.32	32.64
55.00	55	80.95	55.42	33.43
60.00	60	87.30	55.52	35.03
65.00	65	90.47	55.47	35.81
70.00	70	100.00	57.15	40.84
75.00	75	106.35	57.15	40.84
80.00	80	109.52	57.15	40.84
85.00	85	115.87	57.96	40.84
90.00	90	119.05	60.27	41.91
95.00	95	125.40	60.33	41.91
100.00	100	128.57	60.33	41.91



TSMB-J05(TS 606)

Operating Limits

Pressure: $\leq 2\text{MPa}$ (single wave slice)
 $\leq 6.9\text{MPa}$ (double wave slice)

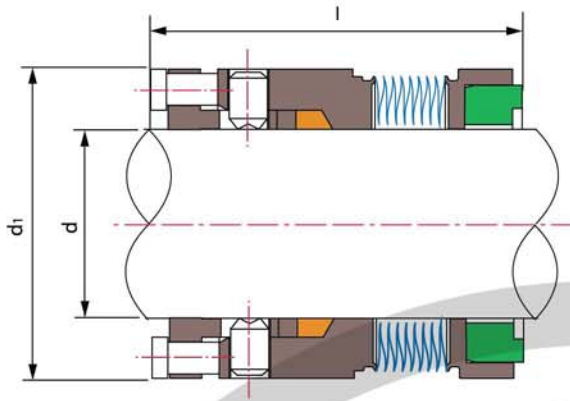
Speed: $\leq 25\text{m/s}$

Temperature: $-75^{\circ}\text{C} \sim +425^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

Shaft (inches)	d	d ₁	l
0.750	0.750	1.625	2.312
0.875	0.875	1.750	3.343
1.000	1.000	1.875	2.343
1.125	1.125	2.000	2.375
1.250	1.250	2.125	2.375
1.375	1.375	2.250	2.468
1.500	1.500	2.375	2.500
1.625	1.625	2.500	2.500
1.750	1.750	2.625	2.531
1.875	1.875	2.750	2.531
2.000	2.000	2.875	2.562
2.125	2.125	3.000	2.562
2.250	2.250	3.250	2.750
2.375	2.375	3.375	2.781
2.500	2.500	3.500	2.781
2.625	2.625	3.687	2.875
2.750	2.750	3.812	3.000
2.875	2.875	4.000	3.000
3.000	3.000	4.125	3.000
3.125	3.125	4.250	3.000
3.250	3.250	4.375	3.000
3.375	3.375	4.500	3.000
3.500	3.500	4.625	3.000
3.625	3.625	4.750	3.000
3.750	3.750	4.875	3.000

Shaft (mm)	d	d ₁	l
20	20	41.28	58.72
22	22	44.45	59.51
25	25	47.63	59.51
30	30	50.80	60.33
32	32	53.98	60.33
35	35	57.15	62.69
38	38	60.33	63.50
40	40	63.50	63.50
45	45	66.68	64.29
48	48	69.85	64.29
50	50	73.03	65.07
55	55	76.20	65.07
60	60	85.73	70.64
65	65	88.90	70.64
70	70	96.82	76.20
75	75	104.78	76.20
80	80	107.95	76.20
85	85	114.30	76.20
90	90	117.48	76.20
95	95	123.83	76.20
100	100	130.18	76.20



TSMB-J06(TS 609)

Operating Limits

Pressure: $\leq 2\text{MPa}$ (single wave slice)
 $\leq 6.9\text{MPa}$ (double wave slice)

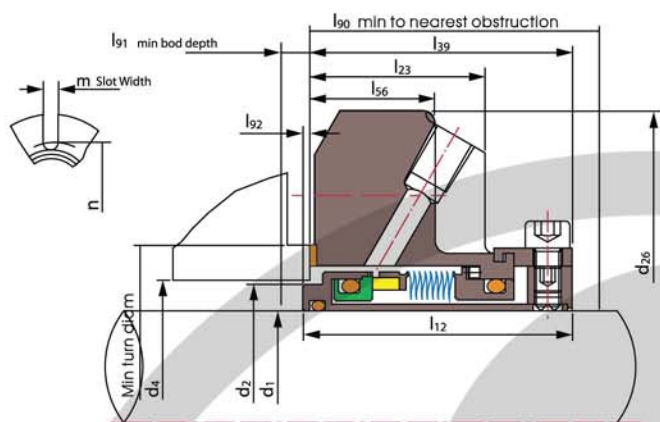
Speed: $\leq 25\text{m/s}$

Temperature: $-75^{\circ}\text{C} \sim +425^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

Shaft (inches)	d	d ₁	l
1.000	1.000	1.625	1.531
1.125	1.125	1.750	1.562
1.250	1.250	1.875	1.593
1.375	1.375	2.000	1.593
1.500	1.500	2.125	1.593
1.625	1.625	2.250	1.593
1.750	1.750	2.375	1.625
1.875	1.875	2.500	1.625
2.000	2.000	2.625	1.656
2.125	2.125	2.750	1.656
2.250	2.250	2.875	1.719
2.375	2.375	3.000	1.719
2.500	2.500	3.250	1.750
2.625	2.625	3.375	1.781
2.750	2.750	3.500	1.781
2.875	2.875	3.687	1.875
3.000	3.000	3.812	1.875
3.125	3.125	4.000	1.875
3.250	3.250	4.125	1.875
3.375	3.375	4.250	1.875
3.500	3.500	4.375	1.875
3.625	3.625	4.500	1.875
3.750	3.750	4.625	1.875
3.875	3.875	4.750	1.875
4.000	4.000	4.875	1.875

Shaft (mm)	d	d ₁	l
25	25	41.28	38.89
28	28	44.45	39.67
32	32	47.63	40.46
35	35	50.80	40.46
38	38	53.98	40.46
40	40	57.15	40.46
45	45	60.33	41.28
48	48	63.50	41.28
50	50	66.68	42.06
55	55	69.85	42.06
60	60	76.20	43.66
65	65	82.55	44.45
70	70	88.90	45.24
75	75	96.82	47.63
80	80	101.60	47.63
85	85	107.95	47.63
90	90	111.13	47.63
95	95	117.48	47.63
100	100	123.83	47.63



TSMB-J07

Operating Limits

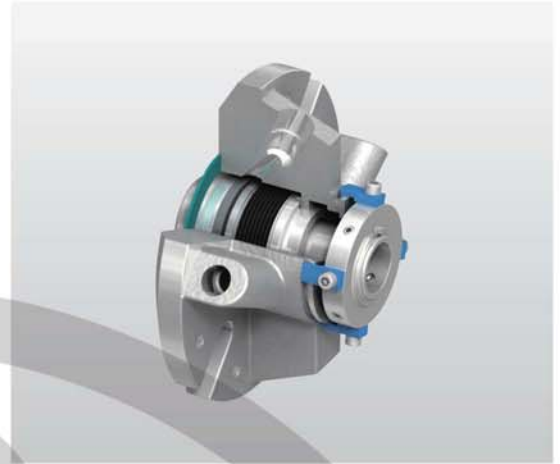
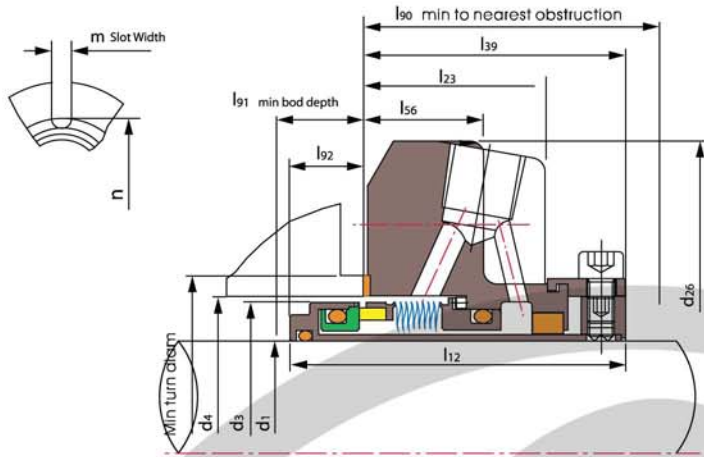
Pressure: ≤ 2.1 MPa

Speed: ≤ 25 m/s

Temperature: $-30^{\circ}\text{C} \sim +205^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (inches)	d ₂	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
1.000	1.375	1.445	1.889	4.000	1.989	1.353	1.954	0.531	2.000	0.160	0.035	0.525	2.805
1.125	1.500	\	2.015	4.125	2.062	1.446	2.062	0.531	2.125	0.125	\	0.525	2.933
1.250	1.625	\	2.294	4.250	2.062	1.446	2.062	0.531	2.125	0.125	\	0.525	3.213
1.375	1.750	\	2.421	4.375	2.062	1.446	2.062	0.531	2.125	0.125	\	0.525	3.338
1.500	1.937	2.007	2.680	4.875	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.525	3.599
1.625	2.062	2.132	2.812	5.000	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.766
1.750	2.170	2.240	2.918	5.250	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.875
1.875	2.312	2.382	2.918	5.250	2.156	1.487	2.125	0.593	2.187	0.156	0.031	0.562	3.875
2.000	2.437	2.507	3.015	5.500	2.375	1.601	2.312	1.063	2.375	0.187	0.062	0.562	4.000
2.125	2.562	2.632	3.360	5.859	2.375	1.601	2.312	0.593	2.375	0.187	0.062	0.687	4.469
2.250	2.687	2.757	3.485	6.500	2.375	1.601	2.312	0.593	2.375	0.187	0.062	0.687	4.566
2.375	2.812	2.882	3.610	6.500	2.484	1.717	2.466	0.625	2.528	0.143	0.018	0.687	4.719
2.500	3.062	\	3.891	6.750	2.484	1.717	2.563	0.625	2.625	0.125	\	0.687	5.000
2.625	3.312	\	4.062	6.750	2.500	1.625	2.500	0.625	2.562	0.125	\	0.687	5.170
2.750	3.312	\	4.062	6.750	2.500	1.625	2.500	0.625	2.562	0.125	\	0.687	5.170
2.875	3.375	\	4.186	7.000	2.500	1.725	2.500	0.625	2.562	0.125	\	0.687	5.312
3.000	3.625	\	4.469	7.750	2.500	1.787	2.562	0.685	2.625	0.125	\	0.812	5.720



TSMB-J08

Operating Limits

Pressure: $\leq 2.1\text{MPa}$

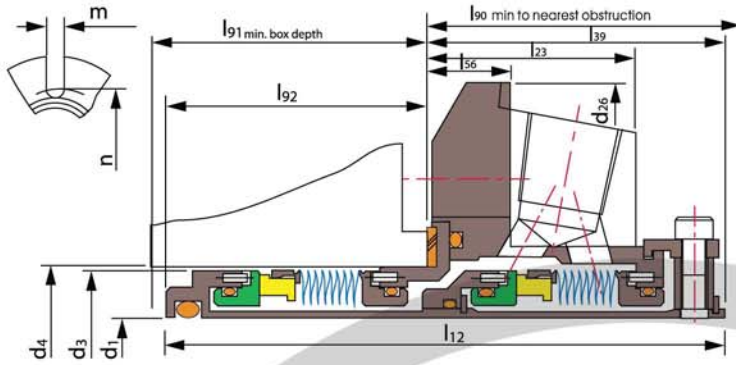
Speed: $\leq 25\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +205^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (inches)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
1.000	1.564	1.625	1.889	4.000	2.575	1.353	1.954	0.531	2.000	0.746	0.621	0.525	2.805
1.125	1.689	1.750	2.015	4.125	2.651	1.446	2.062	0.531	2.125	0.714	0.589	0.525	2.933
1.250	1.812	1.875	2.294	4.250	2.728	1.446	2.062	0.531	2.125	0.791	0.666	0.525	3.213
1.375	1.939	2.000	2.421	4.375	2.728	1.446	2.062	0.531	2.125	0.791	0.666	0.525	3.338
1.500	2.187	2.250	2.680	4.875	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.525	3.599
1.625	2.312	2.375	2.812	5.000	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.562	3.766
1.750	2.406	2.480	2.918	5.250	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.562	3.875
1.875	2.549	2.625	2.918	5.250	2.744	1.487	2.125	0.593	2.187	0.744	0.619	0.562	3.875
2.000	2.687	2.750	3.015	5.500	2.963	1.601	2.312	1.063	2.375	0.775	0.650	0.562	4.000
2.125	2.798	2.875	3.360	5.859	2.963	1.601	2.312	0.593	2.375	0.775	0.650	0.687	4.469
2.250	2.937	3.000	3.485	6.500	2.963	1.601	2.312	0.593	2.375	0.775	0.650	0.687	4.566
2.375	3.062	3.125	3.610	6.500	3.063	1.717	2.466	0.625	2.528	0.722	0.597	0.687	4.719
2.500	3.301	3.375	3.891	6.750	2.980	1.717	2.563	0.625	2.625	0.542	0.417	0.687	5.000
2.625	3.551	3.625	4.062	6.750	3.088	1.625	2.500	0.625	2.562	0.713	0.588	0.687	5.170
2.750	3.551	3.625	4.062	6.750	3.088	1.625	2.500	0.625	2.562	0.713	0.588	0.687	5.170
2.875	3.687	3.750	4.186	7.000	3.088	1.725	2.500	0.625	2.562	0.713	0.588	0.687	5.312
3.000	3.937	4.000	4.469	7.750	3.088	1.787	2.562	0.685	2.625	0.651	0.526	0.812	5.720

d ₁ (mm)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
24	39.7	41.3	48.0	101.6	65.4	34.4	49.6	13.5	50.8	18.9	15.8	13.3	71.2
25	39.7	41.3	48.0	101.6	65.4	34.4	49.6	13.5	50.8	18.9	15.8	13.3	71.2
28	42.9	44.5	51.2	104.8	67.3	36.7	52.4	13.5	54.0	18.1	15.0	13.3	74.5
30	44.5	46.1	56.5	108.0	65.1	36.7	52.4	13.5	54.0	15.9	12.7	13.3	79.9
32	46.0	47.6	58.3	108.0	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	81.6
33	49.3	50.8	61.5	111.1	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	84.8
35	49.3	50.8	61.5	111.1	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	84.8
38	55.5	57.2	68.1	123.8	69.7	37.8	54.0	15.1	55.5	18.9	15.7	13.3	91.4
40	58.7	60.3	71.4	127.0	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	95.7
43	61.1	63.0	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
45	61.1	63.0	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
48	65.1	66.7	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
50	68.3	70.0	76.6	139.7	75.3	40.7	58.7	27.0	60.3	19.7	16.5	14.3	101.6
53	71.4	73.0	85.3	148.8	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	113.5
55	72.9	75.0	85.3	148.8	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	113.5
58	74.6	76.2	88.5	165.1	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	116.0
60	77.8	79.4	91.7	165.1	77.8	43.6	62.6	15.9	64.2	18.3	15.2	17.4	119.9
63	84.1	85.7	98.8	171.5	75.7	43.6	65.1	15.9	66.7	13.8	10.6	17.4	127.0
65	84.1	85.7	98.8	171.5	75.7	43.6	65.1	15.9	66.7	13.8	10.6	17.4	127.0
68	90.5	92.1	103.2	171.5	78.4	41.3	63.5	15.9	65.1	18.1	14.9	17.4	131.3
70	90.5	92.1	103.2	171.5	78.4	41.3	63.5	15.9	65.1	18.1	14.9	17.4	131.3
75	100.0	101.6	113.5	196.9	78.4	45.4	65.1	17.4	66.7	16.5	13.4	20.6	145.3



TSMB-J09

Operating Limits

Pressure: $\leq 2.1\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-29^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (inches)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
1.000	1.564	1.625	1.889	4.000	3.705	1.353	1.954	0.531	2.000	1.876	1.751	0.525	2.805
1.125	1.689	1.750	2.015	4.125	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	2.933
1.250	1.812	1.875	2.294	4.250	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	3.213
1.375	1.939	2.000	2.421	4.375	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	3.338
1.500	2.187	2.250	2.680	4.875	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.525	3.599
1.625	2.312	2.375	2.812	5.000	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.766
1.750	2.420	2.480	2.918	5.250	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.875
1.875	2.562	2.625	2.918	5.250	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.875
2.000	2.687	2.750	3.015	5.500	4.355	1.601	2.312	1.063	2.375	2.167	2.042	0.562	4.000
2.125	2.812	2.875	3.360	5.859	4.355	1.601	2.312	0.593	2.375	2.167	2.042	0.687	4.469
2.250	2.937	3.000	3.485	6.500	4.355	1.601	2.312	0.593	2.375	2.167	2.042	0.687	4.566
2.375	3.062	3.125	3.610	6.500	4.545	1.717	2.466	0.625	2.528	2.204	2.079	0.687	4.719
2.500	3.312	3.375	3.891	6.750	4.545	1.717	2.563	0.625	2.625	2.107	1.982	0.687	5.000
2.625	3.562	3.625	4.062	6.750	4.594	1.625	2.500	0.625	2.562	2.219	2.094	0.687	5.170
2.750	3.562	3.625	4.062	6.750	4.594	1.625	2.500	0.625	2.562	2.219	2.094	0.687	5.170
2.875	3.687	3.750	4.186	7.000	4.594	1.725	2.500	0.625	2.562	2.219	2.094	0.687	5.312
3.000	3.937	4.000	4.469	7.750	4.594	1.787	2.562	0.685	2.625	2.157	2.032	0.812	5.720

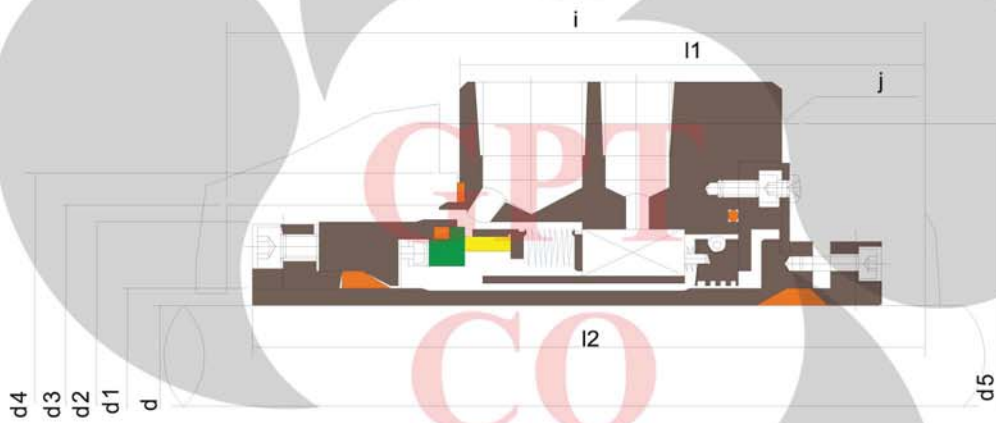
d ₁ (mm)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
24	39.7	41.3	48.0	101.6	94.1	34.4	49.6	13.5	50.8	47.7	44.5	13.3	71.2
25	39.7	41.3	48.0	101.6	94.1	34.4	49.6	13.5	50.8	47.7	44.5	13.3	71.2
28	42.9	44.5	51.2	104.8	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	74.5
30	44.8	46.1	56.5	108.0	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	79.9
32	46.0	47.6	58.3	108.0	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	81.6
33	49.3	50.8	61.5	111.1	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	84.8
35	49.3	50.8	61.5	111.1	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	84.8
38	55.6	57.2	68.1	123.8	101.5	37.8	54.0	15.1	55.5	50.7	47.5	13.3	91.4
40	58.7	60.3	71.4	127.0	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	95.7
43	61.5	63.0	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
45	61.5	63.0	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
48	65.1	66.7	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
50	68.3	70.0	76.6	139.7	110.6	40.7	58.7	27.0	60.3	55.0	51.9	17.4	101.6
53	71.4	73.0	85.3	148.8	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	113.5
55	73.0	75.0	85.3	148.8	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	113.5
58	74.6	76.2	88.5	165.1	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	116.0
60	77.8	79.4	91.7	165.1	115.4	43.6	62.6	15.9	64.2	56.0	52.8	17.4	119.9
63	84.1	85.7	98.8	171.5	115.4	43.6	65.1	15.9	66.7	53.5	50.3	17.4	127.0
65	84.1	85.7	98.8	171.5	115.4	43.6	65.1	15.9	66.7	53.5	50.3	17.4	127.0
68	90.5	92.1	103.2	171.5	116.7	41.3	63.5	15.9	65.1	56.4	53.2	17.4	131.3
70	90.5	92.1	103.2	171.5	116.7	41.3	63.5	15.9	65.1	56.4	53.2	17.4	131.3
75	100.0	101.6	113.5	196.9	116.7	45.4	65.1	17.4	66.7	54.8	51.6	20.6	145.3



TSMB-J10

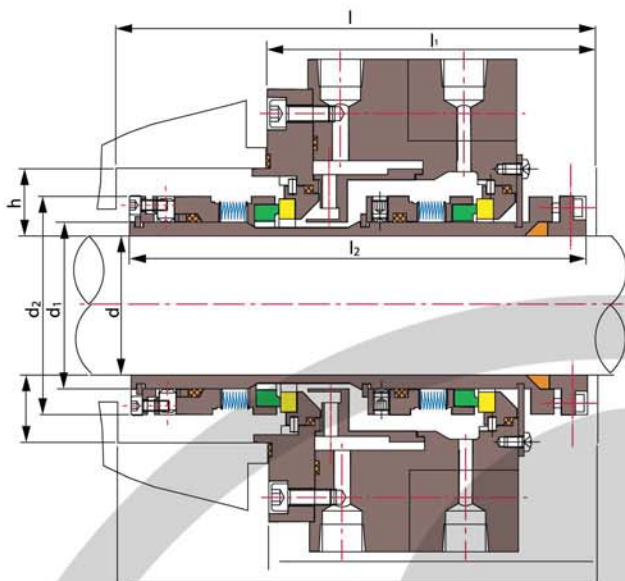
Operating Limits

Pressure: $\leq 2\text{MPa}$ (single wave slice)
 $\leq 6.9\text{MPa}$ (double wave slice)
 Speed: $\leq 25\text{m/s}$
 Temperature: $-75^{\circ}\text{C} \sim +425^{\circ}\text{C}$



- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC/Carbon)
- Secondary Seal(Encapsulated Ring/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₃	d ₂	d ₁	l ₂	l	l ₁	d ₅	J	d ₄
0.787	2.756	2.187	1.125	5.421	5.900	3.940	4.130	1/2	3.346
1.181	3.150	2.562	1.500	5.508	6.100	3.940	4.530	1/2	3.740
1.575	3.543	3.187	2.000	5.765	6.300	3.940	4.920	1/2	4.134
1.968	3.937	3.562	2.375	5.859	6.500	4.330	5.510	5/8	4.528
2.362	4.724	4.063	2.750	6.109	6.690	4.330	6.300	5/8	5.315
2.756	5.118	4.563	3.250	6.109	6.890	4.330	6.690	5/8	5.709
3.150	5.512	4.812	3.500	6.266	7.030	4.330	7.090	5/8	6.102
3.543	6.299	5.312	4.000	6.266	7.280	4.720	8.070	3/4	6.890
3.937	6.693	5.812	4.500	6.266	7.480	4.720	8.460	3/4	7.283
4.331	7.087	6.437	5.000	6.422	7.690	4.720	8.860	3/4	7.677



TSMB-J11

Operating Limits

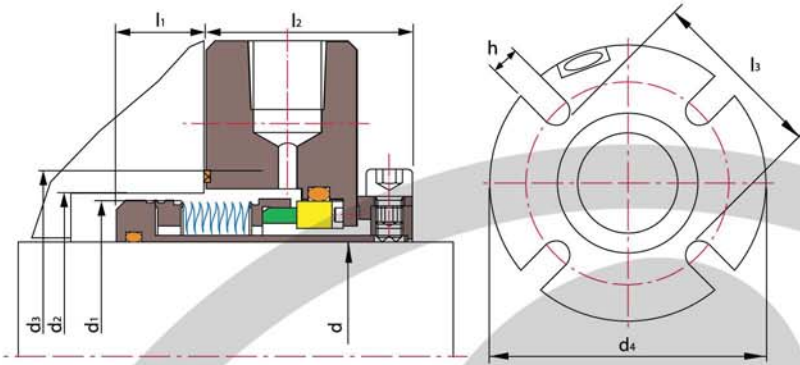
Pressure: $\leq 2\text{MPa}$ (single wave slice)
 $\leq 6.9\text{MPa}$ (double wave slice)

Speed: $\leq 25\text{m/s}$

Temperature: $-75^{\circ}\text{C} \sim +425^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Encapsulated Ring/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	h	d ₂	d ₁	l ₂	l	l ₁
1.125	1.000	2.125	1.500	5.540	5.750	3.332
1.250	1.000	2.250	1.625	5.604	5.750	3.396
1.375	1.000	2.375	1.750	5.680	5.750	3.313
1.500	1.000	2.500	1.875	5.720	5.750	3.453
1.625	1.000	2.625	2.000	5.751	5.750	3.453
1.750	1.000	2.750	2.125	5.944	5.750	3.448
1.875	1.000	2.875	2.250	6.002	5.750	3.448
2.000	1.000	3.000	2.375	6.002	5.750	3.448
2.125	1.125	3.250	2.500	6.058	6.500	3.427
2.250	1.125	3.375	2.625	6.163	6.500	3.553
2.375	1.125	3.500	2.750	6.163	6.500	3.556
2.500	1.125	3.687	2.875	6.212	6.500	3.467
2.625	1.125	3.812	3.000	6.307	6.500	3.461
2.750	1.125	4.000	3.125	6.313	6.500	3.538
2.875	1.125	4.125	3.250	6.313	6.500	3.535
3.000	1.125	4.250	3.375	6.313	6.500	3.533
3.125	1.250	4.375	3.500	6.344	7.000	3.869
3.250	1.250	4.625	3.750	6.428	7.000	3.953
3.375	1.250	4.750	3.875	6.500	7.000	4.025
3.500	1.250	4.875	4.000	6.479	7.000	4.004
3.625	1.250	5.187	4.250	6.500	7.000	4.025
3.750	1.250	5.187	4.250	6.500	7.000	4.025
3.875	1.250	5.438	4.500	6.500	7.000	4.025
4.000	1.250	5.438	4.500	6.500	7.000	4.025



TSMB-J13

Operating Limits

Pressure: $\leq 2\text{MPa}$

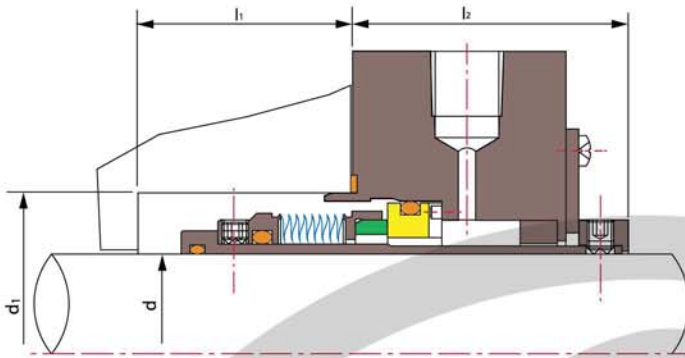
Speed: $\leq 25\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	h	d ₄
1.125	1.687	1.937	2.375	0.687	1.687	2.437	0.562	4.375
1.125	1.687	1.937	3.250	0.687	1.687	3.312	0.437	4.500
1.375	1.937	2.062	2.375	0.687	1.562	2.437	0.562	4.375
1.375	1.937	2.812	3.250	0.687	1.562	3.437	0.500	5.250
1.500	2.187	2.937	2.750	0.750	1.687	2.812	0.562	5.125
1.625	2.312	2.437	2.812	0.750	1.687	2.875	0.562	5.250
1.750	2.437	2.562	3.125	0.750	1.687	3.187	0.562	5.250
1.750	2.437	3.437	4.250	0.750	1.687	4.562	0.562	6.500
1.875	2.562	2.687	3.250	0.750	1.687	3.312	0.562	5.375
1.875	2.562	3.562	4.250	0.750	1.687	4.437	0.562	6.500
2.000	2.687	2.812	3.250	0.750	1.750	3.312	0.687	5.500
2.125	2.812	2.937	3.500	0.875	1.687	3.562	0.687	5.437
2.500	3.312	3.437	4.250	1.000	1.687	4.312	0.812	6.250
2.500	3.312	4.375	5.500	1.000	1.687	5.625	0.750	8.000
2.625	3.437	3.562	4.375	1.187	1.625	4.437	0.562	6.500
2.625	3.437	4.375	5.375	1.187	1.625	5.437	0.565	7.000
2.750	3.625	3.750	4.500	1.062	1.625	4.562	0.750	7.000
3.000	3.875	4.000	4.812	1.125	1.656	4.875	0.812	7.750
3.250	4.125	4.250	4.937	1.125	1.656	5.000	0.812	7.500
3.500	4.375	4.687	5.625	1.250	1.656	5.687	0.812	8.500

d (mm)	d ₁	d ₂	d ₃	l ₁	l ₂	l ₃	h	d ₄
28	42.8	49.2	60.3	17.4	42.9	61.9	14.3	111.1
33	49.2	52.4	60.3	17.4	39.7	61.9	14.3	106.0
35	49.2	52.4	60.3	17.4	39.7	61.9	14.3	106.0
38	55.5	58.7	69.8	19.0	42.9	71.5	14.3	130.2
40	58.7	61.9	71.4	19.1	42.8	73.0	14.3	133.4
43	61.9	65.7	79.4	19.1	42.9	81.0	14.3	133.4
45	61.9	65.1	79.4	19.1	42.9	81.0	14.3	133.4
48	65.1	68.3	82.6	19.0	44.5	84.2	17.4	139.7
50	68.2	71.4	82.6	19.0	44.5	84.2	17.4	138.0
53	71.4	74.6	88.9	22.2	42.9	90.5	17.4	138.0
55	71.4	74.6	88.9	22.2	42.9	90.5	17.4	138.0
60	80.9	84.1	96.8	25.4	41.3	98.4	17.4	158.8
65	87.3	90.5	109.5	30.2	41.2	111.1	17.4	177.8
70	92.1	95.2	114.3	27.0	41.2	115.9	17.5	190.0
75	98.4	101.6	122.2	28.5	42.1	123.8	20.6	196.9
80	104.8	108.0	125.4	28.5	42.1	127.0	19.1	190.0
85	108.0	111.1	125.4	31.7	42.1	127.0	19.1	203.2
100	128.6	131.8	154.0	34.9	42.1	155.6	22.2	228.6



TSMB-FS02

Operating Limits

Pressure: $\leq 2.7\text{MPa}$

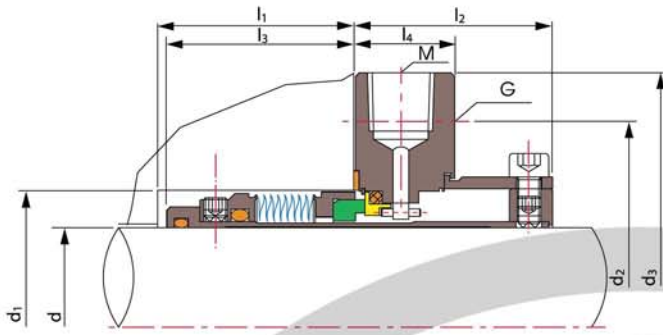
Speed: $\leq 23\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (inches)	d	l ₁	l ₂
1.625	0.750	1.437	1.937
1.687	0.812	1.468	1.968
1.750	0.875	1.468	1.968
1.875	1.000	1.406	2.000
2.000	1.125	1.281	2.312
2.125	1.250	1.375	2.312
2.250	1.375	1.531	2.343
2.562	1.437	1.625	2.375
2.687	1.562	1.937	2.500
2.812	1.687	1.968	2.500
2.937	1.812	1.937	2.531
3.187	1.937	1.906	2.656
3.312	2.062	1.906	2.656
3.437	2.187	1.906	2.718
3.562	2.250	2.062	2.718
3.562	2.375	2.062	2.718
3.687	2.500	2.125	2.875
3.937	2.625	2.062	3.000
4.062	2.750	2.062	3.000
4.250	2.875	2.156	3.156
4.375	3.000	2.156	3.156
4.500	3.125	2.156	3.156
4.625	3.250	2.156	3.156
4.875	3.500	2.156	3.156
5.187	3.750	2.156	3.375
5.500	4.000	2.156	3.406
5.750	4.250	2.156	3.406
6.250	4.750	2.250	3.406

d (mm)	d ₁	l ₁	l ₂
41.3	19.0	28.6	30.2
42.8	20.6	29.4	50.0
44.4	22.2	29.4	30.2
47.6	25.4	27.8	30.2
50.8	28.6	24.6	34.9
54.0	31.8	26.2	34.9
57.1	34.9	30.2	34.9
65.1	36.5	32.5	34.9
68.3	39.7	34.1	34.9
71.4	42.9	34.9	34.9
74.8	46.0	34.1	34.9
81.0	49.2	33.3	34.9
84.1	52.4	33.3	34.9
87.3	55.6	33.3	34.9
90.5	57.1	37.3	34.9
90.5	60.3	37.3	34.9
93.7	63.5	38.9	34.9
100.0	66.7	38.1	38.1
103.2	69.9	38.1	38.1
107.9	73.0	39.7	42.9
111.1	76.2	39.7	42.9
114.3	79.4	39.7	42.9
117.5	82.5	39.7	42.9
123.8	88.9	39.7	42.9
131.8	95.3	39.7	42.9
139.7	101.6	39.7	86.5
146.1	107.9	39.7	43.7
158.8	120.6	39.7	43.7



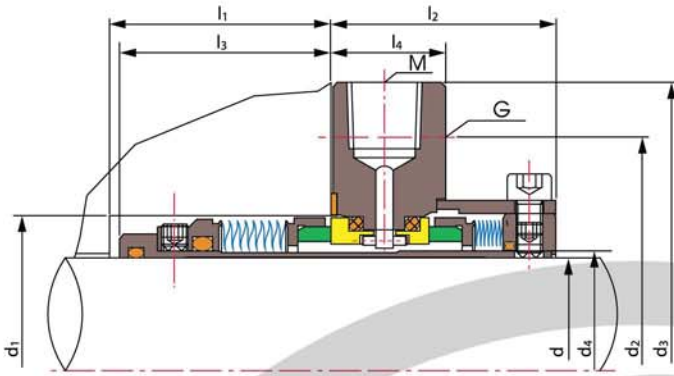
TSMB-FS06

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁		l ₁ min	l ₃	l ₂	l ₄	G		d ₃	M
	min	max					max	min		
1.000	1.750	1.875	1.780	1.690	2.000	1.020	0.375	2.750	3.750	3/8
1.125	1.750	2.000	1.780	1.690	2.000	1.020	0.500	3.000	3.880	3/8
1.250	2.000	2.125	1.970	1.880	2.000	1.020	0.500	3.120	4.250	3/8
1.375	2.000	2.250	1.970	1.880	2.000	1.020	0.375	3.250	4.250	3/8
1.500	2.250	2.500	1.970	1.880	2.000	1.020	0.375	3.750	4.750	3/8
1.625	2.375	2.625	1.970	1.880	2.000	1.020	0.500	3.750	4.750	3/8
1.750	2.500	2.750	1.970	1.880	2.000	1.020	0.500	3.750	5.000	3/8
1.875	2.625	2.875	1.970	1.880	2.000	1.020	0.500	3.880	5.000	3/8
2.000	2.750	3.000	1.970	1.880	2.000	1.020	0.625	4.120	5.120	3/8
2.125	2.875	3.250	1.970	1.880	2.000	1.020	0.625	4.380	6.000	3/8
2.250	3.000	3.375	1.970	1.880	2.000	1.020	0.625	4.620	6.500	3/8
2.375	3.250	3.625	2.160	2.060	2.090	1.110	0.625	5.000	6.380	3/8
2.500	3.375	3.750	2.160	2.060	2.090	1.110	0.625	5.000	6.620	3/8
2.625	3.500	3.875	2.160	2.060	2.090	1.110	0.750	5.750	7.250	3/8
2.750	3.750	\	2.160	2.060	2.620	1.580	As Required			3/4
2.750	3.875	\	2.160	2.060	2.620	1.580				3/4
2.875	3.875	\	2.160	2.060	2.620	1.580				3/4
2.875	4.000	\	2.160	2.060	2.620	1.580				3/4
3.000	4.000	\	2.160	2.060	2.620	1.580				3/4
3.000	4.125	\	2.160	2.060	2.620	1.580				3/4
3.125	4.250	\	2.160	2.060	2.620	1.580				3/4
3.250	4.375	\	2.190	2.190	2.750	1.710				3/4
3.375	4.500	\	2.190	2.190	2.750	1.710				3/4
3.500	4.625	\	2.190	2.190	2.750	1.710				3/4
3.625	4.750	\	2.190	2.190	2.750	1.710				3/4
3.750	4.875	\	2.190	2.190	2.750	1.710				3/4
3.875	5.000	\	2.190	2.190	2.750	1.710				3/4



TSMB-FS07

Operating Limits

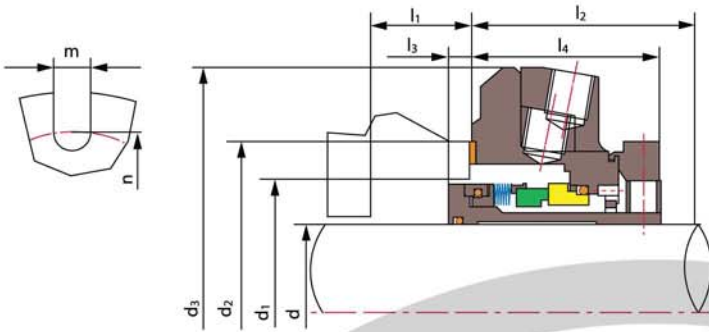
Pressure: $\leq 2\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₄ (inches)	d	d ₁		l ₁ min	l ₃	l ₂	l ₄	G	d ₂	d ₃	M
		min	max					max	min		
1.125	1.000	1.750	1.875	1.780	1.690	2.000	1.020	0.375	2.750	3.750	3/8
*1.250	1.125	1.750	2.000	1.780	1.690	2.000	1.020	0.500	3.000	3.880	3/8
1.375	1.250	2.000	2.125	1.970	1.880	2.000	1.020	0.500	3.120	4.250	3/8
*1.500	1.375	2.000	2.250	1.970	1.880	2.000	1.020	0.375	3.250	4.250	3/8
1.625	1.500	2.250	2.500	1.970	1.880	2.000	1.020	0.375	3.750	4.750	3/8
1.750	1.625	2.375	2.625	1.970	1.880	2.000	1.020	0.500	3.750	4.750	3/8
1.875	1.750	2.500	2.750	1.970	1.880	2.000	1.020	0.500	3.750	5.000	3/8
2.000	1.875	2.625	2.875	1.970	1.880	2.000	1.020	0.500	3.880	5.000	3/8
2.125	2.000	2.750	3.000	1.970	1.880	2.000	1.020	0.625	4.120	5.120	3/8
2.250	2.125	2.875	3.250	1.970	1.880	2.000	1.020	0.625	4.380	6.000	3/8
2.375	2.250	3.000	3.375	1.970	1.880	2.000	1.020	0.625	4.620	6.500	3/8
2.500	2.375	3.250	3.625	2.160	2.060	2.090	1.110	0.625	5.000	6.380	3/8
2.625	2.500	3.375	3.750	2.160	2.060	2.090	1.110	0.625	5.000	6.620	3/8
2.750	2.625	3.500	3.875	2.160	2.060	2.090	1.110	0.750	5.750	7.250	3/8
2.875	2.750	3.750	\	2.160	2.060	2.620	1.580	As Required			3/4
**3.000	2.750	3.875	\	2.160	2.060	2.620	1.580				3/4
3.000	2.875	3.875	\	2.160	2.060	2.620	1.580				3/4
**3.125	2.875	4.000	\	2.160	2.060	2.620	1.580				3/4
3.125	3.000	4.000	\	2.160	2.060	2.620	1.580				3/4
**3.250	3.000	4.125	\	2.160	2.060	2.620	1.580				3/4
3.375	3.125	4.250	\	2.160	2.060	2.620	1.580				3/4
3.500	3.250	4.375	\	2.280	2.190	2.750	1.710				3/4
3.625	3.375	4.500	\	2.280	2.190	2.750	1.710				3/4
3.750	3.500	4.625	\	2.280	2.190	2.750	1.710				3/4
3.875	3.625	4.750	\	2.280	2.190	2.750	1.710				3/4
4.000	3.750	4.875	\	2.280	2.190	2.750	1.710				3/4
4.125	3.875	5.000	\	2.280	2.190	2.750	1.710	3/4			



TSMB-FS08

Operating Limits

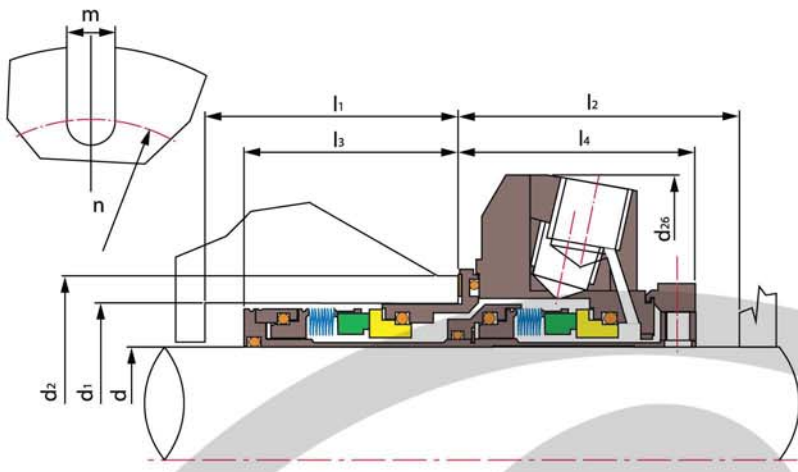
Pressure: $\leq 2\text{MPa}$

Speed: $\leq 23\text{m/s}$

Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁		d ₂	d ₃	l ₃	l ₁ min	l ₄	l ₂	n	m
	min	max								
1.000	1.625	1.875	2.115	3.69~3.75	0.212	0.274	1.913	1.975	2.750	0.440
1.125	1.750	2.000	2.240	3.69~3.75	0.212	0.274	1.913	1.975	2.875	0.440
1.250	1.890	2.245	2.495	4.19~4.25	0.212	0.274	1.913	1.975	3.125	0.562
1.375	2.000	2.375	2.615	3.94~4.00	0.212	0.264	1.913	1.975	3.250	0.440
1.437	2.250	2.688	2.775	4.72~4.78	0.222	0.284	1.973	2.035	3.750	0.560
1.500	2.250	2.525	2.775	4.69~4.75	0.202	0.264	1.973	2.035	3.750	0.560
1.625	2.375	2.780	3.030	4.69~4.75	0.202	0.264	1.973	2.035	3.750	0.560
1.750	2.500	2.875	3.150	4.94~5.00	0.202	0.264	1.973	2.035	3.875	0.560
1.875	2.625	2.875	3.150	4.94~5.00	0.202	0.264	1.973	2.035	3.875	0.560
1.937	2.690	2.920	\	\	0.207	0.269	1.973	2.035	\	\
2.000	2.750	3.030	3.280	5.00~5.12	0.202	0.264	1.973	2.035	4.120	0.688
2.125	2.875	3.125	3.430	5.94~6.00	0.202	0.264	1.973	2.035	4.250	0.750
2.250	3.000	3.280	\	\	0.206	0.268	1.973	2.035	\	\
2.375	3.125	3.687	3.975	6.32~6.38	0.202	0.264	1.973	2.035	4.875	0.750
2.437	3.375	3.450	\	6.32~6.38	0.233	0.295	1.942	2.004	4.875	0.750
2.500	3.375	3.687	3.975	6.32~6.38	0.202	0.264	1.973	2.035	4.875	0.750
2.625	3.625	4.312	4.615	7.19~7.25	0.204	0.266	2.726	2.788	5.625	0.880
2.750	3.750	4.312	4.615	7.19~7.25	0.204	0.266	2.726	2.788	5.625	0.880



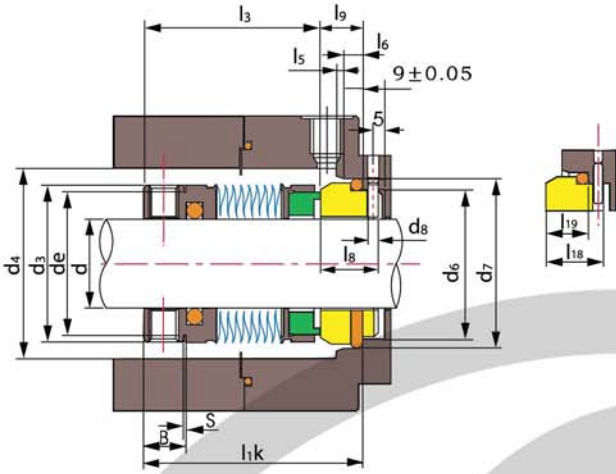
TSMB-FS09

Operating Limits

Pressure: < 2.1MPa (shaft diameter ≤ 75mm)
 < 1.3MPa (shaft diameter > 75mm)
 Speed: ≤ 25m/s
 Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/Carbon/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Metal Bellows (SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁		d ₂	d ₂₆	l ₃	l ₁	l ₄	l ₂	n	m
	min	max								
1.000	1.625	1.875	2.115	3.69~3.75	1.838	1.900	2.062	2.124	2.750	0.440
1.125	1.750	2.000	2.240	3.69~3.75	1.838	1.900	2.062	2.124	2.875	0.440
1.250	1.890	2.245	2.495	4.19~4.25	1.838	1.900	2.062	2.124	3.125	0.562
1.375	2.000	2.375	2.615	3.94~4.00	1.838	1.900	2.062	2.124	3.250	0.440
1.437	2.250	2.688	2.775	4.72~4.78	1.903	1.965	2.122	2.184	3.750	0.560
1.500	2.250	2.525	2.775	4.69~4.75	1.903	1.965	2.122	2.184	3.750	0.560
1.625	2.375	2.780	3.030	4.69~4.75	1.903	1.965	2.122	2.184	3.750	0.560
1.750	2.500	2.875	3.150	4.94~5.00	1.903	1.965	2.122	2.184	3.875	0.560
1.875	2.625	2.875	3.150	4.94~5.00	1.903	1.965	2.122	2.184	3.875	0.560
1.937	2.690	2.920	\	\	1.903	1.965	2.122	2.184	\	\
2.000	2.750	3.030	3.280	5.00~5.12	1.903	1.965	2.122	2.184	4.120	0.688
2.125	2.875	3.125	3.430	5.94~6.00	1.903	1.965	2.122	2.184	4.250	0.750
2.250	3.000	3.280	\	\	1.903	1.965	2.122	2.184	\	\
2.375	3.125	3.687	3.975	6.32~6.38	1.903	1.965	2.122	2.184	4.875	0.750
2.437	3.375	3.450	\	6.32~6.38	1.934	1.996	2.091	2.153	4.875	0.750
2.500	3.375	3.687	3.975	6.32~6.38	1.903	1.965	2.122	2.184	4.875	0.750
2.625	3.625	4.312	4.615	7.19~7.25	2.429	2.491	2.906	2.968	5.625	0.880
2.750	3.750	4.312	4.615	7.19~7.25	2.429	2.491	2.906	2.968	5.625	0.880



TSMB-B01

Operating Limits

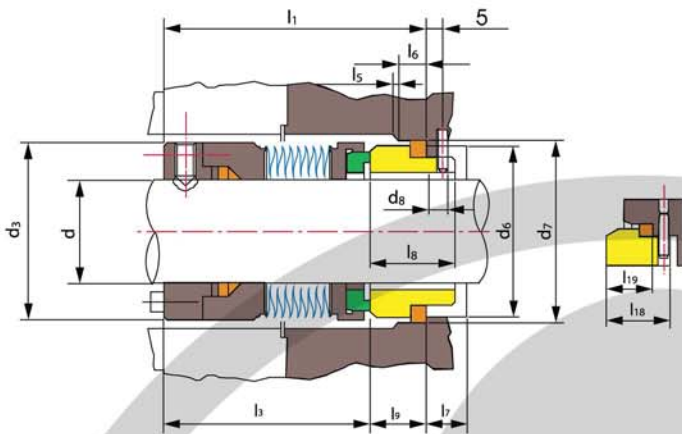
Pressure: ≤ 2.5 MPa

Speed: ≤ 20 m/s

Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₃	d ₆	d ₇	d ₈	d _e	d ₄	l _{1k}	l ₃	l ₅	l ₆	l ₈	l ₉	l ₁₈	l ₁₉	S	B
16	30.0	23	27	3	25.0	38	42.5	32.5	1.5	4	17.5	10.0	\	\	1.6	9.0
18	32.0	27	33	3	28.0	39	37.5	30.5	2.0	5	14.0	11.5	15.0	7.0	1.6	10.0
20	33.5	29	35	3	29.5	41	37.5	30.5	2.0	5	14.0	11.5	15.0	7.0	1.6	10.0
22	36.5	31	37	3	32.0	44	37.5	30.5	2.0	5	14.0	11.5	15.0	7.0	1.6	10.0
24	39.0	33	39	3	34.5	47	40.0	28.5	2.0	5	19.5	11.5	15.0	7.0	1.6	8.2
25	39.6	34	40	3	35.5	48	40.0	28.5	2.0	5	19.5	11.5	15.0	7.0	1.6	8.5
28	42.8	37	43	3	38.5	51	42.5	31.0	2.0	5	19.5	11.5	15.0	7.0	1.6	9.0
30	45.0	39	45	3	40.5	53	42.5	31.0	2.0	5	19.5	11.5	15.0	7.0	1.6	8.5
32	46.0	42	48	3	42.0	55	42.5	31.0	2.0	5	19.5	11.5	15.0	7.0	1.6	9.2
33	48.0	42	48	3	43.0	56	42.5	31.0	2.0	5	19.5	11.5	15.0	7.0	1.6	9.2
35	49.2	44	50	3	45.5	58	42.5	31.0	2.0	5	19.5	11.5	15.0	7.0	1.6	9.5
38	52.3	49	56	4	48.0	61	45.0	31.0	2.0	6	22.0	14.0	16.0	8.0	1.6	9.2
40	55.5	51	58	4	50.0	64	45.0	31.0	2.0	6	22.0	14.0	16.0	8.0	1.6	9.2
43	57.5	54	61	4	53.0	67	45.0	31.0	2.0	6	22.0	14.0	16.0	8.0	1.6	9.2
45	58.7	56	63	4	55.0	69	45.0	31.0	2.0	6	22.0	14.0	16.0	8.0	1.6	9.5
48	61.9	59	66	4	58.0	72	45.0	31.0	2.0	6	22.0	14.0	16.0	8.0	1.6	9.2
50	65.0	62	70	4	60.5	74	47.5	32.5	2.5	6	23.0	15.0	17.0	9.5	1.6	10.5
53	68.2	65	73	4	64.0	77	47.5	32.5	2.5	6	23.0	15.0	17.0	9.5	1.6	10.5
55	70.0	67	75	4	65.5	80	47.5	32.5	2.5	6	23.0	15.0	17.0	9.5	1.6	10.0
58	71.7	70	78	4	67.0	83	52.5	37.5	2.5	6	23.0	15.0	18.0	10.5	3.0	14.0
60	74.6	72	80	4	69.5	85	52.5	37.5	2.5	6	23.0	15.0	18.0	10.5	3.0	14.0
63	79.0	75	83	4	72.5	88	52.5	37.5	2.5	6	23.0	15.0	18.0	10.5	3.0	14.0
65	84.1	77	85	4	78.0	95	52.5	37.5	2.5	6	23.0	15.0	18.0	10.5	3.0	14.0
68	87.3	81	90	4	82.0	96	52.5	34.5	2.5	7	26.0	18.0	18.5	11.0	1.6	10.0
70	87.3	83	92	4	81.0	96	60.0	42.0	2.5	7	26.0	18.0	19.0	11.5	3.0	17.0
75	95.0	88	97	4	87.0	104	60.0	42.0	2.5	7	26.0	18.0	19.0	11.5	3.0	16.0
80	98.4	95	105	4	91.0	109	60.0	41.8	3.0	7	26.2	18.0	19.0	11.5	3.0	16.0
85	104.7	100	110	4	96.0	114	60.0	41.8	3.0	7	26.2	18.0	19.0	11.5	3.0	16.0
90	111.0	105	115	4	103.0	119	65.0	46.8	3.0	7	26.2	18.0	20.5	13.0	3.0	21.0
95	114.0	110	120	4	106.0	124	65.0	47.8	3.0	7	25.2	17.2	20.5	13.0	3.0	21.0
100	117.4	115	125	4	111.0	129	65.0	47.8	3.0	7	25.2	17.2	20.5	13.0	3.0	20.0



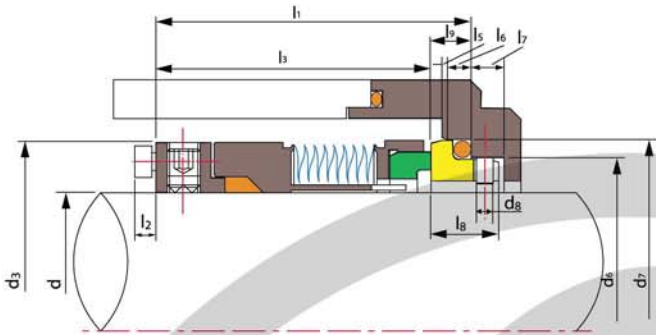
TSMB-B03

Operating Limits

Pressure: $\leq 2.5\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-20^{\circ}\text{C} \sim +400^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Encapsulated Ring/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₃	d ₆	d ₇	d ₈	l ₁	l ₃	l ₅	l ₆	l ₇	l ₈	l ₉	l ₁₈	l ₁₉
16	38	29.0	35.0	3	58.0	46.5	2.0	5	9	19.5	11.5	\	\
18	40	31.0	37.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
20	42	34.0	40.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
22	44	37.0	43.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
24	46	37.0	43.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
25	47	39.0	45.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
28	50	42.0	48.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
30	52	44.0	50.0	3	58.0	46.5	2.0	5	9	19.5	11.5	15.0	7.0
32	54	49.0	56.0	4	60.5	46.5	2.0	6	9	22.0	14.0	15.0	7.0
33	55	49.0	56.0	4	60.5	46.5	2.0	6	9	22.0	14.0	15.0	7.0
35	57	51.0	58.0	4	60.5	46.5	2.0	6	9	22.0	14.0	15.0	7.0
38	60	54.0	61.0	4	60.5	46.5	2.0	6	9	22.0	14.0	16.0	8.0
40	66	56.0	63.0	4	61.5	47.5	2.0	6	9	22.0	14.0	16.0	8.0
43	69	59.0	66.0	4	61.5	47.5	2.0	6	9	22.0	14.0	16.0	8.0
45	71	62.0	70.0	4	62.5	47.5	2.5	6	9	23.0	15.0	16.0	8.0
48	74	65.0	73.0	4	62.5	47.5	2.5	6	9	23.0	15.0	16.0	8.0
50	76	67.0	75.0	4	62.5	47.5	2.5	6	9	23.0	15.0	17.0	9.5
53	79	70.0	78.0	4	62.5	47.5	2.5	6	9	23.0	15.0	17.0	9.5
55	81	72.0	80.0	4	62.5	47.5	2.5	6	9	23.0	15.0	17.0	9.5
58	85	75.0	83.0	4	68.0	53.0	2.5	6	9	23.0	15.0	18.0	10.5
60	87	77.0	85.0	4	68.0	53.0	2.5	6	9	23.0	15.0	18.0	10.5
63	90	81.0	90.0	4	71.0	53.0	2.5	7	9	26.0	18.0	18.0	10.5
65	92	83.0	92.0	4	71.0	53.0	2.5	7	9	26.0	18.0	18.0	10.5
68	95	88.0	97.0	4	71.0	53.0	2.5	7	9	26.0	18.0	18.5	11.0
70	97	88.0	97.0	4	71.0	53.0	2.5	7	9	26.0	18.0	19.0	11.5
75	102	95.0	105.0	4	71.0	52.8	3.0	7	9	26.2	18.2	19.0	11.5
80	107	100.0	110.0	4	71.0	52.8	3.0	7	9	26.2	18.2	19.0	11.5
85	112	105.0	115.0	4	71.0	52.8	3.0	7	9	26.2	18.2	19.0	11.5
90	117	110.0	120.0	4	71.0	53.8	3.0	7	9	25.2	17.2	20.5	13.0
95	122	115.0	125.0	4	71.0	53.8	3.0	7	9	25.2	17.2	20.5	13.0
100	127	122.2	134.3	5	74.0	54.0	3.0	9	11	30.0	20.0	20.5	13.0



TSMB-B04

Operating Limits

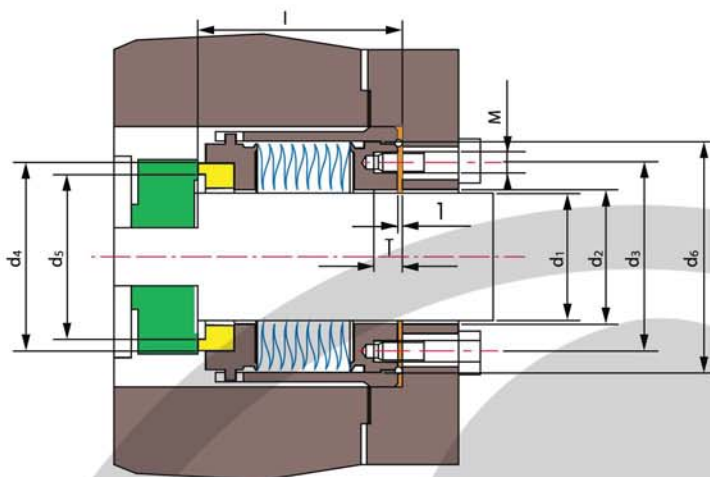
Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-100^\circ\text{C} \sim +400^\circ\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d_3	d_6	d_7	d_8	l_1	l_3	l_5	l_6	l_7	l_8	l_9	l_{10}
16	38	29.0	35.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
18	40	31.0	37.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
20	42	34.0	40.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
22	44	37.0	43.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
24	46	37.0	43.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
25	47	39.0	45.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
28	50	42.0	48.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
30	52	44.0	50.0	3	58.0	46.5	2.0	5	9	19.5	11.5	5
32	54	49.0	56.0	4	60.5	46.5	2.0	6	9	22.0	14.0	5
33	55	49.0	56.0	4	60.5	46.5	2.0	6	9	22.0	14.0	5
35	57	51.0	58.0	4	60.5	46.5	2.0	6	9	22.0	14.0	5
38	60	54.0	61.0	4	60.5	46.5	2.0	6	9	22.0	14.0	5
40	66	56.0	63.0	4	61.5	47.5	2.0	6	9	22.0	14.0	6
43	69	59.0	66.0	4	61.5	47.5	2.0	6	9	22.0	14.0	6
45	71	62.0	70.0	4	62.5	47.5	2.5	6	9	23.0	15.0	6
48	74	65.0	73.0	4	62.5	47.5	2.5	6	9	23.0	15.0	6
50	76	67.0	75.0	4	62.5	47.5	2.5	6	9	23.0	15.0	6
53	79	70.0	78.0	4	62.5	47.5	2.5	6	9	23.0	15.0	6
55	81	72.0	80.0	4	62.5	47.5	2.5	6	9	23.0	15.0	6
58	85	75.0	83.0	4	68.0	53.0	2.5	6	9	23.0	15.0	6
60	87	77.0	85.0	4	68.0	53.0	2.5	6	9	23.0	15.0	6
63	90	81.0	90.0	4	71.0	53.0	2.5	7	9	26.0	18.0	6
65	92	83.0	92.0	4	71.0	53.0	2.5	7	9	26.0	18.0	6
68	95	88.0	97.0	4	71.0	53.0	2.5	7	9	26.0	18.0	6
70	97	88.0	97.0	4	71.0	53.0	2.5	7	9	26.0	18.0	6
75	102	95.0	105.0	4	71.0	52.8	3.0	7	9	26.2	18.2	6
80	107	100.0	110.0	4	71.0	52.8	3.0	7	9	26.2	18.2	6
85	112	105.0	115.0	4	71.0	52.8	3.0	7	9	26.2	18.2	6
90	117	110.0	120.0	4	71.0	53.8	3.0	7	9	25.2	17.2	6
95	122	115.0	125.0	4	71.0	53.8	3.0	7	9	25.2	17.2	6
100	127	122.2	134.3	5	74.0	54.0	3.0	9	11	30.0	20.0	6



TSMB-B05

Operating Limits

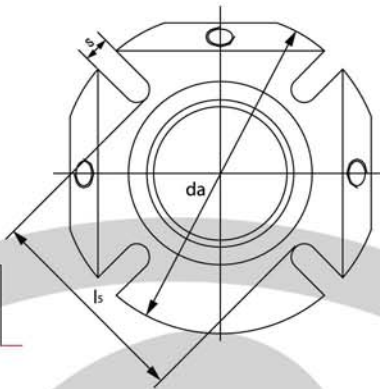
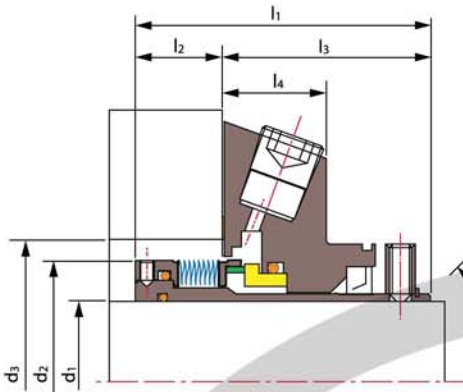
Pressure: $\leq 2.5\text{MPa}$

Speed: $\leq 30\text{m/s}$

Temperature: $-20^{\circ}\text{C} \sim +400^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(Encapsulated Ring/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

shaft (inches)	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	l	M	T
19	16~19	20.5	29	30.3	25.3	45.0	33.5	4 x M4	6
24	20~24	25.5	35	38.8	33.8	49.0	33.5	4 x M4	6
30	25~30	31.5	40	43.6	38.6	55.0	34.5	6 x M4	6
35	31~35	36.0	45	45.8	40.8	59.0	33.0	6 x M4	6
40	36~40	41.0	50	51.5	46.5	65.0	30.5	6 x M4	6
45	41~45	46.0	55	55.2	50.2	69.0	35.5	6 x M4	6
51	46~51	52.0	63	64.7	59.7	76.5	40.5	6 x M5	7
60	52~60	61.0	70	70.6	65.6	84.0	32.0	6 x M5	7
70	61~70	71.0	80	82.8	76.8	95.0	38.0	6 x M5	7
82	71~82	83.5	95	98.0	92.0	112.0	41.0	6 x M6	7
88	83~88	89.5	100	107.7	101.7	120.0	47.0	6 x M6	7
100	89~100	101.0	112	112.7	106.7	130.0	47.0	6 x M6	7



TSMB-B06

Operating Limits

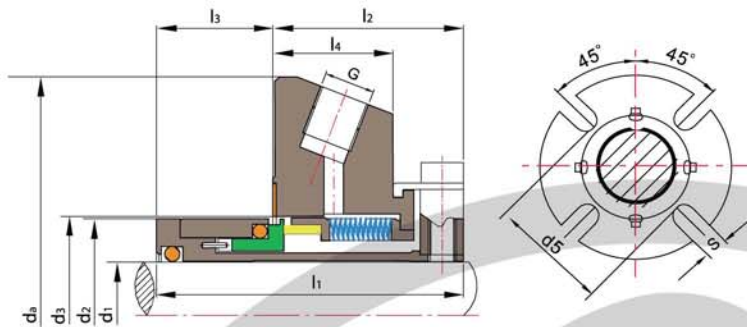
Pressure: $\leq 2\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₂	d ₃		l ₁	l ₂	l ₃	l ₄	d _a	l ₅	s
		min	max							
25	45.0	47.0	51.0	79.5	26.1	53.4	25.4	105.0	62.0	13.2
30	49.4	52.0	56.0	78.4	25.0	53.4	25.4	105.0	67.0	13.2
32	52.3	54.5	57.0	78.4	25.0	53.4	25.4	108.0	70.0	13.2
33	52.3	54.5	57.0	78.4	25.0	53.4	25.4	108.0	70.0	13.2
35	54.8	58.0	61.5	78.4	25.0	53.4	25.4	113.0	72.0	13.2
38	57.5	60.0	66.0	78.4	25.0	53.4	25.4	123.0	75.0	14.0
40	58.8	62.0	68.0	78.2	24.8	53.4	25.4	123.0	77.0	14.2
43	61.9	64.5	70.5	78.4	25.0	53.4	25.4	133.0	80.0	14.2
45	65.0	68.5	73.0	78.4	25.0	53.4	25.4	138.0	82.0	14.2
48	68.4	71.0	75.0	78.7	25.3	53.4	25.4	138.0	85.0	14.2
50	70.0	73.0	78.0	79.1	25.7	53.4	25.4	148.0	87.0	14.2
53	71.9	75.0	87.0	77.8	24.4	53.4	25.4	148.0	97.0	18.0
55	74.6	77.0	83.0	78.9	25.5	53.4	25.4	148.0	92.0	18.0
60	83.9	87.0	91.0	80.1	26.7	53.4	25.4	157.0	102.0	18.0
65	87.5	90.0	98.5	80.0	26.6	53.4	25.4	163.0	109.3	18.0
70	93.0	98.0	108.0	81.5	28.1	53.4	25.4	178.0	118.3	18.0
75	96.8	101.6	118.0	94.4	30.5	63.9	28.0	190.0	129.0	18.0
80	104.7	108.0	124.0	94.4	30.4	64.0	28.0	195.0	135.0	18.0



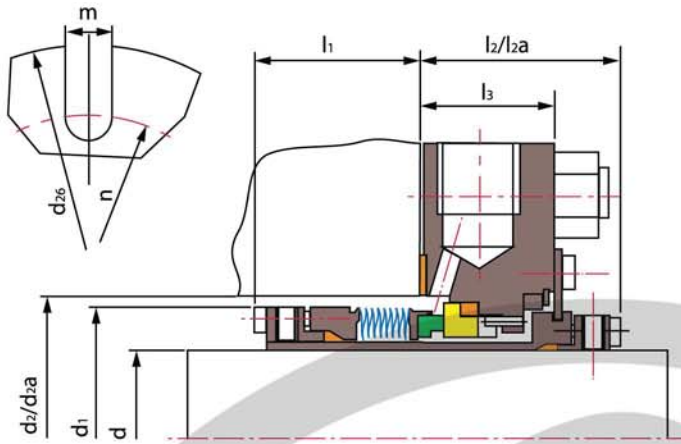
TSMB-B07(TS 700)

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon/SiC/TC)
- Secondary Seal(VITON/PTFE/Encapsulated Ring)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium)
- Other Parts(300 Series Stainless Steel)

Seal size d(mm)	d ₁	d ₂	d ₃		d _a	l ₁	l ₂	l ₃	l ₄	S	G (Inches)	m	d ₅
			min	max									
25	25	43.0	44.0	51.0	105	67	42.4	24.6	25.4	14	1/4"	6	62
28	28	46.0	47.0	52.0	105	67	42.4	24.6	25.4	14	1/4"	6	62
30	30	48.0	49.0	56.0	105	67	42.4	24.6	25.4	14	1/4"	6	65
32	32	49.8	51.0	57.0	110	67	42.4	24.6	25.4	14	1/4"	6	67
33	33	49.8	51.0	57.0	110	67	42.4	24.6	25.4	14	1/4"	6	67
35	35	53.0	54.0	61.5	113	67	42.4	24.6	25.4	14	1/4"	6	71
38	38	56.0	57.0	66.0	123	67	42.4	24.6	25.4	14	1/4"	6	76
40	40	58.0	59.0	68.0	123	67	42.4	24.6	25.4	16	3/8"	6	76
42	42	60.5	61.5	69.5	133	67	42.4	24.6	25.4	16	3/8"	6	80
43	43	60.5	61.5	70.5	133	67	42.4	24.6	25.4	16	3/8"	6	80
45	45	62.5	64.0	73.0	138	67	42.4	24.6	25.4	16	3/8"	6	83
48	48	65.6	67.0	75.0	138	67	42.4	24.6	25.4	16	3/8"	6	85
50	50	68.0	69.0	78.0	148	67	42.4	24.6	25.4	16	3/8"	6	88
53	53	72.0	73.0	83.0	148	67	42.4	24.6	25.4	18	3/8"	6	98
55	55	73.0	74.0	87.0	148	67	42.4	24.6	25.4	18	3/8"	6	97
60	60	78.0	79.0	91.0	157	67	42.4	24.6	25.4	18	3/8"	6	102
65	65	83.0	84.5	98.5	163	67	42.4	24.6	25.4	18	3/8"	6	109
70	70	93.0	95.0	108.0	178	67	42.4	24.6	25.4	18	3/8"	6	118
75	75	100.0	101.6	118.0	190	84	57.4	26.6	28.0	18	3/8"	8	129
80	80	106.4	108.0	124.0	195	84	57.4	26.6	28.0	18	3/8"	8	135
85	85	109.5	111.1	128.0	198	84	57.4	26.6	28.0	22	3/8"	8	139
90	90	115.9	117.5	135.0	205	84	57.4	26.6	28.0	22	3/8"	8	145
95	95	119.1	120.7	138.0	208	84	57.4	26.6	28.0	22	3/8"	8	148
100	100	125.4	127.0	144.0	218	84	57.4	26.6	28.0	22	3/8"	8	154



TSMB-C02

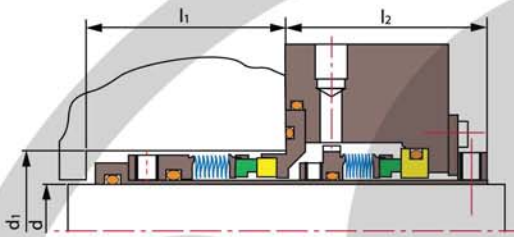
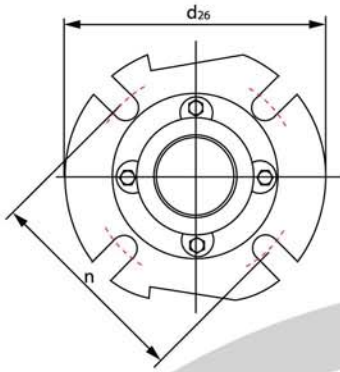
Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-73^{\circ}\text{C} \sim +427^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂₆	d ₂	d _{2a}	d ₁	l ₁	l ₂	l _{2a}	n			m	l ₃	NPT
	max	min	min	max	min	max	max	3/8"	1/2"	5/8"	max	max	
1.125	4.250	2.000	2.250	1.940	1.640	1.920	2.050	3.120	3.240	\	0.500	1.260	3/8
1.125	4.250	1.880	2.130	0.810	1.580	1.920	2.050	2.870	\	\	0.440	1.260	3/8
1.250	4.500	2.250	2.380	2.170	1.680	1.920	2.050	3.190	3.310	\	0.500	1.260	3/8
1.375	4.750	2.380	2.630	2.300	1.680	1.990	2.110	3.490	3.620	\	0.560	1.320	3/8
1.375	4.250	2.130	2.380	2.060	1.640	1.920	2.050	3.240	\	\	0.440	1.260	3/8
1.500	5.250	2.500	2.750	2.420	1.680	1.990	2.110	3.620	3.740	\	0.560	1.320	1/2
1.625	5.500	2.630	2.880	2.550	1.680	1.990	2.110	3.740	3.870	\	0.560	1.320	1/2
1.750	5.750	2.750	3.000	2.670	1.680	1.990	2.110	3.870	3.990	\	0.560	1.320	1/2
1.875	6.000	2.880	3.250	2.800	1.800	2.050	2.170	4.120	4.240	\	0.560	1.380	1/2
2.000	6.250	3.000	3.380	2.920	1.800	2.050	2.170	4.240	4.370	4.490	0.690	1.380	1/2
2.125	6.250	3.130	3.500	3.050	1.800	2.050	2.170	4.370	4.490	4.620	0.690	1.380	1/2
2.250	6.500	3.250	3.630	3.190	1.800	2.050	2.170	4.490	4.620	4.740	0.690	1.380	1/2
2.375	6.500	3.380	3.630	3.310	1.800	2.110	2.240	4.490	4.620	4.740	0.690	1.450	1/2
2.500	6.500	3.500	3.750	3.440	1.800	2.110	2.240	4.620	4.740	4.870	0.690	1.450	1/2
2.625	6.750	3.750	4.000	3.630	1.830	2.110	2.240	4.870	4.990	5.120	0.690	1.450	1/2

d (mm)	d ₂₆	d ₂	d _{2a}	d ₁	l ₁	l ₂	l _{2a}	n			m	l ₃	NPT
	max	min	min	max	min	max	max	10mm	12mm	16mm	max	max	
25	108	48	54	46	42	49	52	76	78	\	13	32	3/8
30	108	51	57	49	42	49	52	79	82	\	13	32	3/8
32	114	57	60	55	43	49	52	81	99	\	13	32	3/8
35	121	60	67	58	43	50	54	89	92	\	14	34	3/8
38	133	64	70	61	43	50	54	92	95	\	14	34	1/2
40	140	67	73	65	43	50	54	95	98	\	14	34	1/2
42	140	67	73	65	43	50	54	95	98	\	14	34	1/2
45	146	70	76	68	43	50	54	98	101	\	14	34	1/2
50	159	76	80	74	46	52	55	108	111	114	18	35	1/2
55	159	79	89	77	46	52	55	111	114	117	18	35	1/2
60	165	86	92	84	46	54	57	114	117	120	18	37	1/2
65	165	89	95	87	46	54	57	117	120	123	18	37	1/2



TSMB-C03

Operating Limits

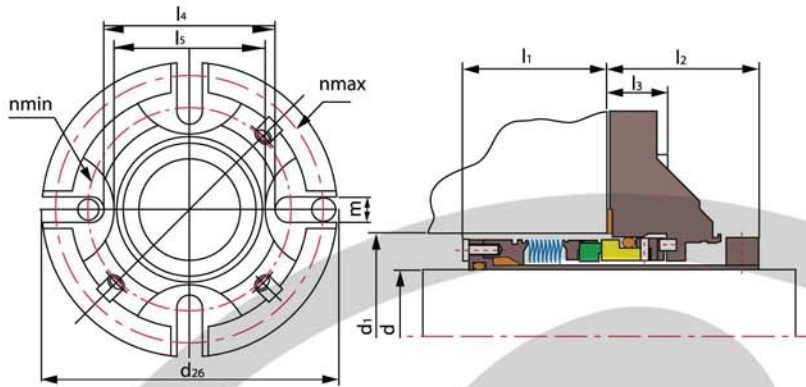
Pressure: $\leq 2\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Metal Bellows(SUS316L/AM350/Inconel718
/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂₆	d ₁		l ₁ min	l ₂	n		
	max	min	max			3/8"	1/2"	5/8"
1.000	4.130	1.750	1.880	2.030	2.060	2.900	\	\
1.125	4.250	1.750	1.880	2.030	2.060	2.900	\	\
1.250	4.250	2.000	2.130	2.060	2.130	3.020	\	\
1.375	4.250	2.000	2.190	2.060	2.030	3.250	\	\
1.500	4.500	2.250	2.380	2.250	2.130	3.500	3.630	\
1.625	5.000	2.380	2.500	2.210	2.130	3.560	3.690	\
1.750	5.500	2.500	2.560	2.340	2.130	3.630	3.750	\
1.875	5.500	2.630	2.690	2.340	2.130	3.750	3.880	\
2.000	5.500	2.750	2.940	2.340	2.130	4.010	4.130	\
2.125	6.000	3.000	3.190	2.400	2.130	4.250	4.380	4.500
2.250	6.250	3.130	3.190	2.400	2.130	4.250	4.380	4.500
2.375	6.250	3.250	3.440	2.310	2.250	4.380	4.500	4.630
2.500	6.500	3.380	3.440	2.410	2.190	4.560	4.810	4.810



TSMB-A04

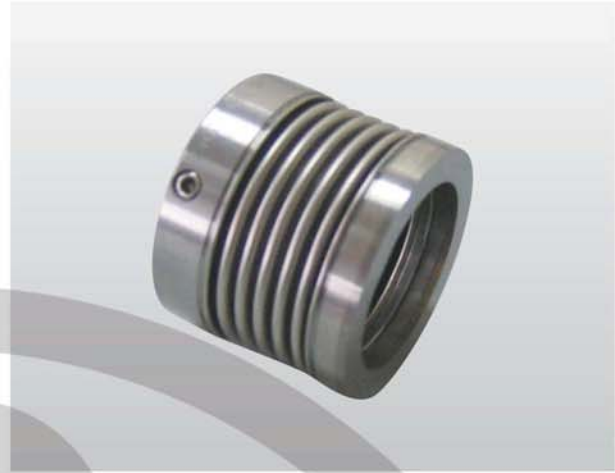
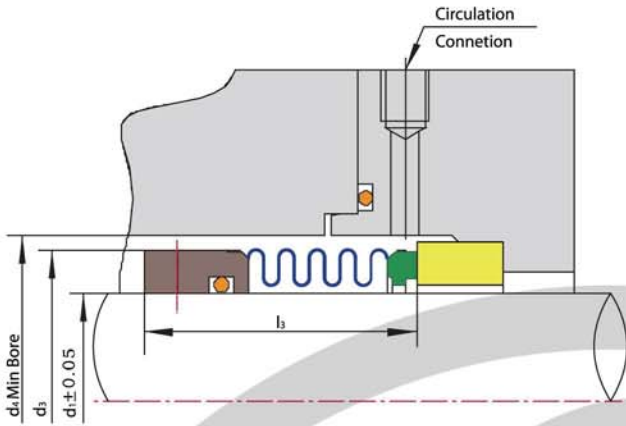
Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VTON/Encapsulated Ring/PTFE/Flexible Carbon)
- Metal Bellows(SUS316L/AM350/Inconel718 /Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂₆	l ₄	l ₅	l ₃	d ₁		n		m max	l ₁	l ₂
					min	max	min	max			
1.000	4.125	2.125	1.937	0.519	1.625	1.937	2.687	3.562	1/2	1.531	1.590
1.125	4.250	2.250	2.063	0.519	1.750	2.062	2.812	3.687	1/2	1.531	1.590
1.250	4.375	2.375	2.187	0.519	1.875	2.187	2.937	3.812	1/2	1.531	1.590
1.375	4.375	2.500	2.312	0.519	2.000	2.250	3.062	3.812	1/2	1.531	1.590
1.500	5.000	2.812	2.562	0.644	2.250	2.375	3.375	4.437	1/2	1.687	1.752
1.625	5.000	2.812	2.562	0.644	2.375	2.500	3.375	4.437	1/2	1.687	1.752
1.750	5.500	3.187	2.812	0.644	2.500	2.750	3.750	4.937	1/2	1.687	1.752
1.875	5.500	3.187	2.812	0.644	2.625	2.875	3.750	4.937	1/2	1.687	1.752
2.000	6.000	3.562	3.063	0.644	2.750	3.000	4.125	5.437	1/2	1.750	1.752
2.000-AC	5.250	3.450	3.035	0.644	2.750	3.000	4.000	4.750	1/2	1.750	1.752
2.125	6.000	3.562	3.063	0.644	2.875	3.125	4.125	5.437	1/2	1.750	1.752
2.250	6.500	3.812	3.312	0.644	3.000	3.250	4.500	5.812	5/8	1.750	1.752
2.375	6.500	3.812	3.312	0.644	3.125	3.375	4.500	5.812	5/8	1.750	1.752
2.500	7.000	4.312	3.812	0.769	3.375	3.625	5.000	6.312	5/8	2.031	1.877
2.625	7.000	4.312	3.812	0.769	3.500	3.750	5.000	6.312	5/8	2.031	1.877
2.750	7.000	4.312	3.812	0.769	3.625	3.875	5.000	6.312	5/8	2.031	1.877
2.875	7.500	4.937	4.250	0.769	3.750	4.125	5.625	6.812	5/8	2.031	1.877
3.000	7.500	4.937	4.250	0.769	3.875	4.250	5.625	6.812	5/8	2.150	1.877
3.125	7.500	4.937	4.250	0.769	4.000	4.375	5.625	6.812	5/8	2.150	1.877
3.250	8.000	5.312	4.625	0.769	4.125	4.500	6.125	7.187	3/4	2.150	1.877
3.375	8.000	5.312	4.625	0.769	4.250	4.625	6.125	7.187	3/4	2.150	1.877
3.500	8.000	5.312	4.625	0.769	4.375	4.750	6.125	7.187	3/4	2.150	1.877
3.625	8.500	5.937	5.000	0.769	4.500	5.000	6.750	7.687	3/4	2.150	1.877
3.750	8.500	5.937	5.000	0.769	4.625	5.125	6.750	7.687	3/4	2.150	1.877
3.875	9.000	6.625	5.375	0.769	4.875	5.500	7.437	8.187	3/4	2.150	1.877
4.000	9.000	6.625	5.375	0.769	4.875	5.500	7.437	8.187	3/4	2.150	1.877

d (mm)	d ₂₆	l ₄	l ₅	l ₃	d ₁		n		m max	l ₁	l ₂
					min	max	min	max			
24	104.8	54.0	49.2	13.2	41.0	49.0	67.0	90.5	12	38.9	40.5
25	104.8	54.0	49.2	13.2	41.0	49.0	67.0	90.5	12	38.9	40.5
28	108.0	57.2	52.4	13.2	44.0	52.3	70.3	93.6	12	38.9	40.5
30	111.0	60.4	55.6	13.2	46.0	55.5	73.5	96.8	12	38.9	40.5
32	111.0	60.4	55.6	13.2	48.0	55.5	73.5	96.8	12	38.9	40.5
33	111.0	60.4	55.6	13.2	49.0	55.5	73.5	96.8	12	38.9	40.5
35	111.0	63.5	58.8	13.2	51.0	57.5	76.6	96.8	12	38.9	40.5
38	127.0	71.5	65.0	16.4	57.2	60.4	85.7	114.3	12	42.9	44.5
40	127.0	71.5	65.0	16.4	58.0	60.4	85.7	114.3	12	42.9	44.5
43	139.7	81.0	71.4	16.4	61.0	69.9	95.3	127.0	12	42.9	44.5
45	139.7	81.0	71.4	16.4	63.5	69.9	95.3	127.0	12	42.9	44.5
48	139.7	81.0	71.4	16.4	66.7	73.0	95.3	127.0	12	42.9	44.5
50	152.4	90.5	77.8	16.4	68.0	76.2	104.8	139.7	12	44.5	44.5
53	152.4	90.5	77.8	16.4	71.0	76.2	104.8	139.7	12	44.5	44.5
55	165.1	96.8	84.1	16.4	74.0	82.5	114.3	149.2	16	44.5	44.5
58	165.1	96.8	84.1	16.4	76.2	82.6	114.3	149.2	16	44.5	44.5
60	165.1	96.8	84.1	16.4	79.4	85.7	114.3	149.2	16	44.5	44.5
63	177.8	109.5	96.8	19.6	85.8	92.1	127.0	160.3	16	51.6	47.7
65	177.8	109.5	96.8	19.6	88.9	95.3	127.0	160.3	16	51.6	47.7
68	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	51.6	47.7
70	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	51.6	47.7
75	190.5	125.4	108.0	19.6	98.5	108.0	142.9	173.0	16	54.6	47.7
80	190.5	125.4	108.0	19.6	101.6	111.1	142.9	173.0	16	54.6	47.7
85	203.2	135.0	117.5	19.6	108.0	117.5	155.6	182.5	20	54.6	47.7
90	215.9	150.8	127.0	19.6	114.3	127.0	171.5	195.2	20	54.6	47.7
95	215.9	150.8	127.0	19.6	117.5	130.2	171.5	195.2	20	54.6	47.7
100	228.6	168.3	136.5	19.6	123.9	139.7	188.9	207.9	20	54.6	47.7



TSMB-PZ02

Operating Limits

Pressure: $\leq 2\text{MPa}$

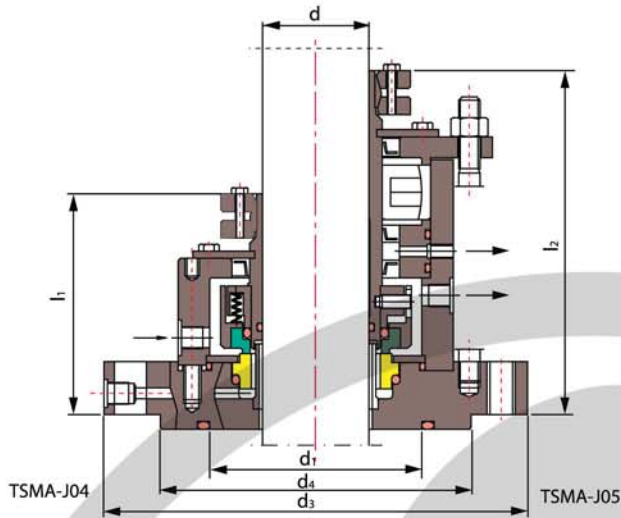
Speed: $\leq 25\text{m/s}$

Temperature: $-40^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(Carbon/SiC/SSiC/TC)
- Stationary Ring(Carbon/SiC/SSiC)
- Expand Metal Bellows(SUS304/SUS316/AM350/Inconel718/Titanium/Hastelloy-C/Alloy-20)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

seal size (mm)	d ₁	d ₃	d ₄	l ₃
0.750	19.05	31.00	34.90	31.50
0.875	22.23	36.00	38.10	37.00
1.000	25.40	39.00	41.30	37.50
1.125	28.58	42.00	44.50	38.00
1.250	31.75	46.00	47.60	43.00
1.375	34.93	48.50	50.80	43.00
1.500	38.10	51.50	57.20	42.00
1.625	41.28	58.40	60.30	47.00
1.750	44.45	58.40	63.50	47.00
1.875	47.63	63.70	66.70	46.50
2.000	50.80	63.70	69.90	46.50
2.125	53.98	69.00	73.00	56.50
2.250	57.15	73.30	76.20	56.50
2.375	60.33	76.70	79.40	56.50
2.500	63.50	79.40	82.60	56.50
2.625	66.68	83.00	85.70	66.50
2.750	69.85	87.80	96.00	65.50
2.875	73.02	94.00	99.00	65.50
3.000	76.20	94.00	100.00	65.50
3.125	79.37	100.60	104.00	75.00
3.250	82.55	100.60	108.00	75.00
3.375	85.72	106.00	111.00	75.00
3.500	88.90	110.30	115.00	75.00
3.625	92.07	114.90	118.00	75.00
3.750	95.25	114.90	121.00	75.00
3.875	98.42	121.30	124.00	75.00
4.000	101.60	121.30	127.00	75.00

seal size (mm)	d ₁	d ₃	d ₄	l ₃
18	18	31.0	34	31.5
20	20	31.0	36	31.5
22	22	31.0	38	31.5
4	4	36.0	40	36.7
25	25	36.0	41	37.0
28	28	39.0	44	37.5
30	30	42.0	46	38.0
32	32	46.0	48	43.0
33	33	46.0	49	43.0
35	35	48.5	51	43.0
38	38	51.5	58	42.0
40	40	54.0	60	42.0
43	43	58.4	63	47.0
45	45	58.4	65	47.0
48	48	63.7	68	47.0
50	50	63.7	70	46.5
53	53	69.0	73	56.5
55	55	71.0	75	56.5
58	58	73.3	83	56.5
60	60	76.7	85	56.5
63	63	79.4	88	56.5
65	65	83.0	90	66.5
68	68	87.8	93	66.5
70	70	87.8	95	65.5
75	75	94.0	104	65.5
80	80	100.6	109	75.0
85	85	106.0	114	75.0
90	90	110.3	119	75.0
95	95	114.9	124	75.0
100	100	121.3	129	75.0



TSMA-J04 TSMA-J05

Operating Limits

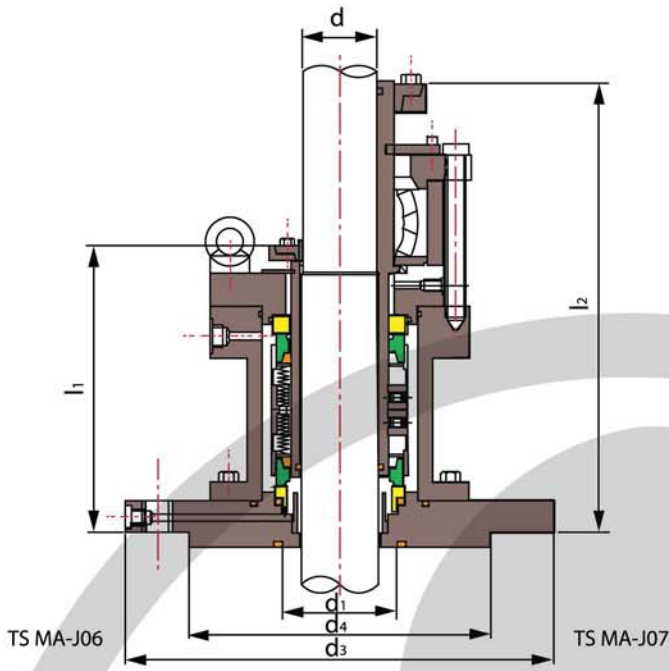
Pressure: $\leq 0.6\text{MPa}$

Speed: $\leq 1000\text{rpm}$

Temperature: $-60^{\circ}\text{C} \sim +260^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Ceramic/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₁	d ₃	d ₄	l ₁	l ₂
40	91	175	110	115	165
50	107	240	176	115	175
60	120	240	176	125	195
80	149	275	204	140	215
100	174	305	234	140	230
125	199	330	260	160	255
140	218	395	313	170	275
160	237	395	313	170	275
180	263	445	364	190	300
200	288	445	364	190	320
220	326	505	422	200	335



TSMA-J06 TSMA-J07

Operating Limits

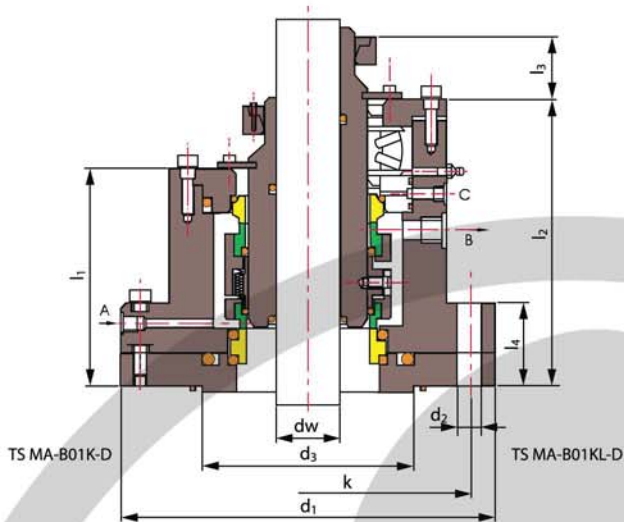
Pressure: $\leq 1.6\text{MPa}$

Speed: $\leq 1000\text{rpm}$

Temperature: $-60^{\circ}\text{C} \sim +260^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Ceramic/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₁	d ₃	d ₄	l ₁	l ₂
40	91	175	110	160	205
50	107	240	176	170	220
60	120	240	176	185	240
80	149	275	204	200	270
100	174	305	234	205	285
125	199	330	260	225	315
140	218	395	313	255	345
160	237	395	313	235	330
180	263	445	364	260	355
200	288	445	364	280	385
220	326	505	422	305	415



TSMA-B01

Operating Limits

Pressure: $\leq 2.5\text{MPa}/\leq 4\text{MPa}$

Speed: $\leq 5\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C} / -80^{\circ}\text{C} \sim +350^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC/Ceramic)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

dw(mm)	d ₁	Nxd ₂	d ₃	k	l ₁	l ₂	l ₃	l ₄
40	200	6x18	80	170	115	170	35	45
50	230	8x18	100	200	120	185	35	55
60	255	8x18	120	225	140	210	35	60
80	295	8x23	145	260	145	230	44	60
100	315	8x23	170	280	160	245	44	65
120	345	8x23	190	310	160	250	50	65
140	380	12x23	215	345	165	265	50	65
160	440	12x27	240	395	185	300	50	75
180	475	12x27	260	430	185	310	55	75
200	465	12x27	290	420	190	290	55	75

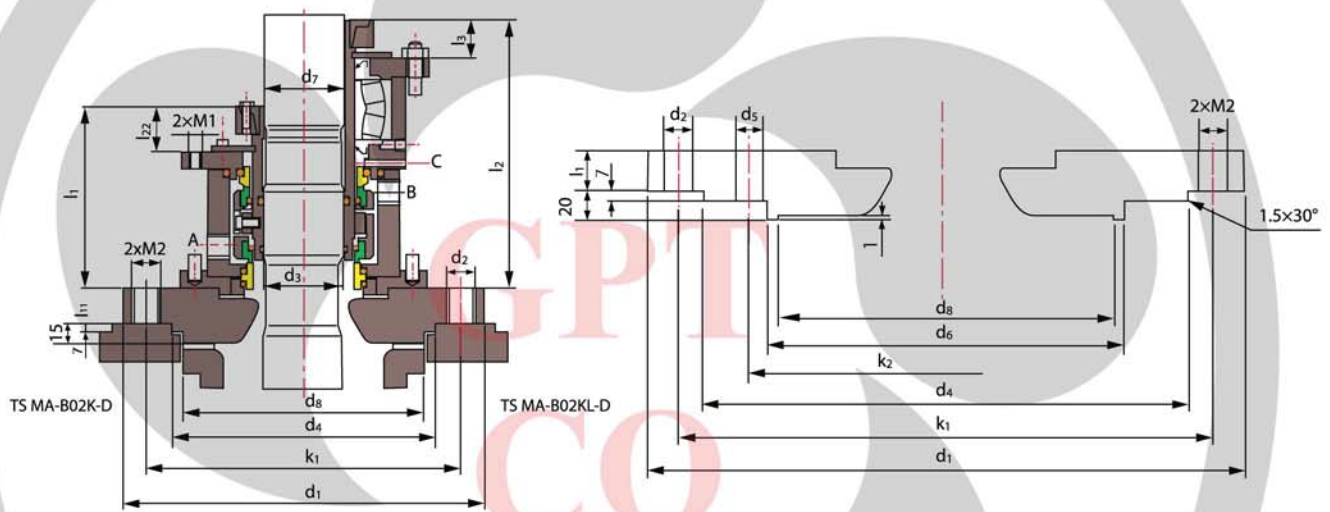
TSMA-B02

Operating Limits

Pressure: $\leq 0.6\text{MPa}/\leq 1.6\text{MPa}$

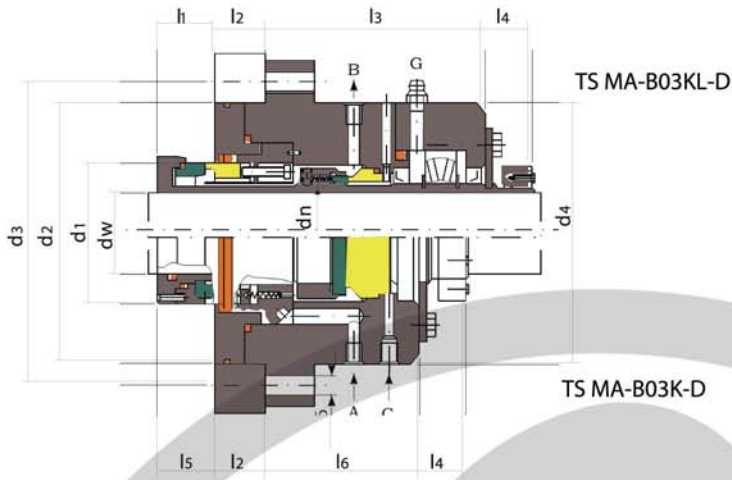
Speed: $\leq 2\text{m/s}/\leq 5\text{m/s}$

Temperature: $-30^\circ\text{C} \sim +200^\circ\text{C}/-80^\circ\text{C} \sim +250^\circ\text{C}$



- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC/Ceramic)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₃ (mm)	d ₇	d ₁	Nxd ₂	d ₄	Nxd ₅	d ₆	d ₈	k ₁	k ₂	l ₁	l ₂	l ₁₁	l ₂₂	l ₃	l ₄	l ₅	M ₁	M ₂	A,B
40	38	175	4x18	110	\	\	102	145	\	142	184	25	35	28	50	50	M12	M16	G3/8
50	48	240	8x18	176	\	\	138	210	\	147	195	25	40	28	50	50	M12	M16	G3/8
60	58	275	8x22	204	\	\	188	240	\	158	203	25	42	28	50	60	M12	M20	G3/8
80	78	305	8x22	234	\	\	212	270	\	170	240	30	45	34	60	60	M16	M20	G1/2
100	98	395	12x22	313	\	\	268	350	\	177	240	30	52	34	60	60	M16	M20	G1/2
100	98	395	12x22	313	\	\	268	350	\	177	240	30	52	34	60	60	M16	M20	G1/2
125	120	505	4x22	422	12x22	320	306	460	350	208	266	30	75	40	60	80	M20	M20	G1/2
140	135	505	4x22	422	12x22	320	306	460	350	223	282	30	79	40	60	80	M20	M20	G1/2
160	150	565	4x22	422	12x22	320	306	460	350	228	282	30	77	40	60	85	M20	M20	G1/2
160	150	505	4x22	422	12x22	320	306	460	350	228	282	30	77	40	60	85	M20	M20	G1/2
160	150	565	4x26	474	12x22	370	356	515	400	228	282	30	77	40	60	85	M20	M20	G1/2



TSMA-B03

Operating Limits

Pressure: $\leq 0.6\text{MPa}/\leq 1\text{MPa}$

Speed: $\leq 10\text{m/s}/\leq 20\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C} / -20^{\circ}\text{C} \sim +300^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

dn (mm)	dw	d ₁	d ₂	d ₃	d ₄	l ₁	l ₂	l ₃	l ₄	l ₅	l ₆	A,B	C
30	20	52	117	140	118	35	30	114	30	22	75	G3/8	G1/8
35	25	58	124	150	128	35	30	127	30	22	85	G3/8	G1/8
40	30	62	134	165	138	35	30	129	30	24	87	G3/8	G1/8
45	35	68	140	175	148	35	30	130	30	24	87	G3/8	G1/8
50	40	75	145	175	148	35	30	133	34	26	90	G3/8	G1/8
55	45	82.7	150	175	148	35	30	135	34	26	90	G3/8	G1/8
60	50	85	160	185	158	41	30	150	34	30	105	G3/8	G1/8
65	50	90	170	195	168	41	30	160	34	30	105	G3/8	G1/8
70	55	95	175	205	178	41	30	160	34	30	105	G3/8	G1/8
75	60	100	180	205	178	41	30	160	34	30	105	G3/8	G1/8
80	65	110	190	220	188	41	40	190	44	30	105	G3/8	G1/8
85	70	115	195	230	198	41	40	190	44	30	105	G3/8	G1/8
90	75	120	200	230	198	41	40	190	44	30	105	G3/8	G1/8
95	80	127	205	235	203	41	40	190	44	30	105	G3/8	G1/8
100	80	130	210	240	208	41	40	190	44	30	105	G3/8	G1/8
105	85	135	215	250	218	41	40	190	44	30	105	G1/2	G1/4
110	90	140	230	260	228	41	40	190	44	31	110	G1/2	G1/4
115	95	145	235	270	238	41	40	190	44	31	110	G1/2	G1/4
120	100	150	240	270	238	42	40	200	50	31	120	G1/2	G1/4
130	110	160	255	290	258	42	40	200	50	31	120	G1/2	G1/4
140	120	172	265	305	268	43	50	220	50	41	130	G1/2	G1/4
150	130	185	275	315	278	43	50	220	50	41	130	G1/2	G1/4
160	140	195	290	335	298	43	50	220	50	41	130	G1/2	G1/4
170	150	205	300	335	323	47	50	220	50	45	130	G1/2	G1/4
180	160	220	330	355	358	47	50	250	50	45	140	G1/2	G1/4
190	170	230	345	375	358	47	50	250	55	45	140	G1/2	G1/4
200	180	240	365	395	378	47	50	250	55	45	140	G1/2	G1/4
210	190	260	385	415	378	50	50	250	55	45	140	G1/2	G1/4
220	190	270	395	425	388	50	50	250	55	45	140	G1/2	G1/4
230	200	280	395	425	388	50	50	300	55	45	160	G1/2	G1/4

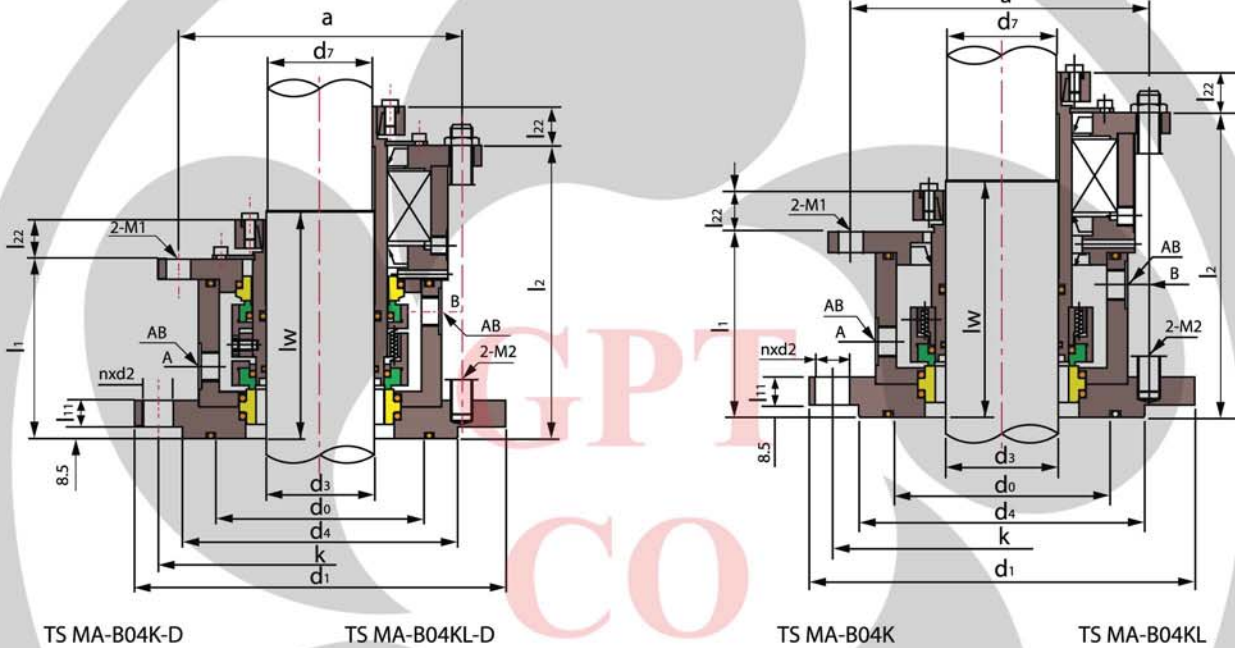
TSMA-B04

Operating Limits

Pressure: $\leq 0.6\text{MPa}/\leq 1.6\text{MPa}$

Speed: $\leq 2\text{m/s}/\leq 5\text{m/s}$

Temperature: $-30^\circ\text{C} \sim +200^\circ\text{C} / -80^\circ\text{C} \sim +250^\circ\text{C}$



- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC/Ceramic)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d_3' (mm)	d_7'	d_1	$n \times d_2$	d_4	d_0	k	l_1	l_2	lw^2	l_{11}	l_{12}	a	M_1	M_2	A,B
40	38	175	4x18	110	90	145	110.5	159.5	143	15	28	122	M12	M16	G3/8
50	48	240	8x18	176	135	210	114.5	174.5	148	17	28	157	M12	M16	G3/8
60	58	240	8x18	176	135	210	119.0	181.5	158	17	28	168	M12	M16	G3/8
80	78	275	8x22	204	155	240	133.0	217.5	168	20	34	203	M16	M20	G1/2
100	98	305	8x22	234	190	270	137.5	218.5	178	20	34	228	M16	M20	G1/2
125	120	330	8x22	260	215	295	138.5	233.5	203	20	40	268	M20	M20	G1/2
140	135	395	12x22	313	250	350	152.5	250.5	208	20	40	285	M20	M20	G1/2
160	150	395	12x22	313	265	350	161.0	253.0	213	25	40	297	M20	M20	G1/2
180	170	445	12x22	364	310	400	166.0	263.5	233	25	45	332	M24	M20	G1/2
200	190	445	12x22	364	310	400	171.0	271.0	243	25	45	352	M24	M20	G1/2
220	210	505	16x22	422	340	460	\	\	263	25	\	\	M24	M20	G1/2

1)shaft diameters D3 and D7 to DIN 28154
2)shaft step to DIN 28154

T SMA-A03

Operating Limits

Pressure: $\leq 2.1\text{MPa}$

Speed: $\leq 25\text{m/s}$

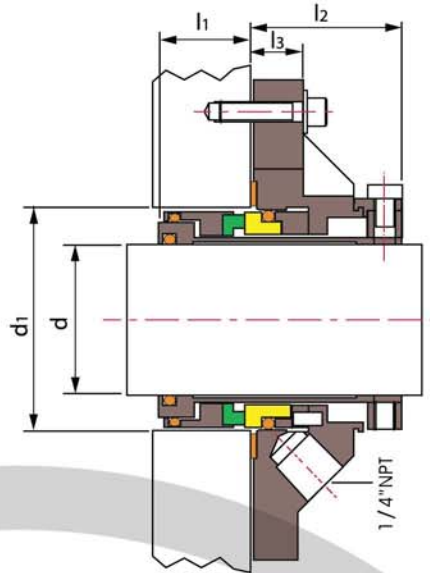
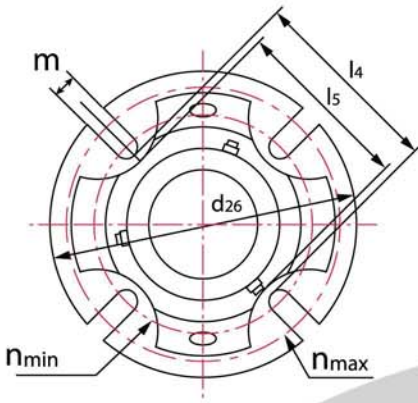
Temperature: $-30^{\circ}\text{C} \sim +220^{\circ}\text{C}$



d (inches)	d ₂₆	l ₄	l ₅	l ₃	d ₁			n		m	l ₁	l ₂	K
					min	mint	max	min	max	max			max
1.000	4.125	2.125	1.937	0.519	1.625	1.665	1.937	2.687	3.562	1/2	1.125	1.590	0.040
1.125	4.250	2.250	2.063	0.519	1.750	1.790	2.062	2.812	3.687	1/2	1.125	1.590	0.040
1.250	4.375	2.375	2.187	0.519	1.875	1.915	2.187	2.937	3.812	1/2	1.125	1.590	0.040
1.375	4.375	2.500	2.312	0.519	2.000	2.040	2.250	3.062	3.812	1/2	1.125	1.590	0.040
1.500	5.000	2.812	2.562	0.644	2.250	2.290	2.375	3.375	4.437	1/2	1.125	1.752	0.040
1.625	5.000	2.812	2.562	0.644	2.375	2.415	2.500	3.375	4.437	1/2	1.125	1.752	0.040
1.750	5.500	3.187	2.812	0.644	2.500	2.540	2.750	3.750	4.937	1/2	1.125	1.752	0.040
1.875	5.500	3.187	2.812	0.644	2.625	2.665	2.875	3.750	4.937	1/2	1.125	1.752	0.040
2.000	6.000	3.562	3.063	0.644	2.750	2.790	3.000	4.125	5.437	1/2	1.125	1.752	0.040
2.000-AC	5.250	3.450	3.035	0.644	2.750	2.790	3.000	4.000	4.750	1/2	1.125	1.752	0.040
2.125	6.000	3.562	3.063	0.644	2.875	2.915	3.125	4.125	5.437	1/2	1.125	1.752	0.040
2.250	6.500	3.812	3.312	0.644	3.000	3.040	3.250	4.500	5.812	5/8	1.125	1.752	0.040
2.375	6.500	3.812	3.312	0.644	3.125	3.165	3.375	4.500	5.812	5/8	1.125	1.752	0.040
2.500	7.000	4.312	3.812	0.769	3.375	3.435	3.625	5.000	6.312	5/8	1.250	1.877	0.060
2.625	7.000	4.312	3.812	0.769	3.500	3.560	3.750	5.000	6.312	5/8	1.250	1.877	0.060
2.750	7.000	4.312	3.812	0.769	3.625	3.685	3.875	5.000	6.312	5/8	1.250	1.877	0.060
2.875	7.500	4.937	4.250	0.769	3.750	3.810	4.125	5.625	6.812	5/8	1.250	1.877	0.060
3.000	7.500	4.937	4.250	0.769	3.875	3.935	4.250	5.625	6.812	5/8	1.250	1.877	0.060
3.125	7.500	4.937	4.250	0.769	4.000	4.060	4.375	5.625	6.812	5/8	1.250	1.877	0.060
3.250	8.000	5.312	4.625	0.769	4.125	4.185	4.500	6.125	7.187	3/4	1.250	1.877	0.060
3.375	8.000	5.312	4.625	0.769	4.250	4.310	4.625	6.125	7.187	3/4	1.250	1.877	0.060
3.500	8.000	5.312	4.625	0.769	4.375	4.435	4.750	6.125	7.187	3/4	1.250	1.877	0.060
3.625	8.500	5.937	5.000	0.769	4.500	4.560	5.000	6.750	7.687	3/4	1.250	1.877	0.060
3.750	8.500	5.937	5.000	0.769	4.625	4.685	5.125	6.750	7.687	3/4	1.250	1.877	0.060
3.875	8.500	5.937	5.000	0.769	4.750	4.810	5.250	6.750	7.687	3/4	1.250	1.877	0.060
4.000	9.000	6.625	5.375	0.769	4.875	4.935	5.500	7.437	8.187	3/4	1.250	1.877	0.060
4.125	9.000	6.625	5.375	0.769	5.125	5.185	5.875	7.437	8.187	3/4	1.250	1.877	0.060
4.250	9.000	6.625	5.375	0.769	5.125	5.185	5.875	7.437	8.187	3/4	1.250	1.877	0.060
4.375	9.500	7.000	5.750	0.769	5.375	5.435	6.250	7.812	8.687	3/4	1.250	1.877	0.060
4.500	9.500	7.000	5.750	0.769	5.375	5.435	6.250	7.812	8.687	3/4	1.250	1.877	0.060
4.625	10.000	7.345	6.125	0.769	5.625	5.685	6.625	8.312	9.062	7/8	1.250	1.877	0.060
4.750	10.000	7.345	6.125	0.769	5.625	5.685	6.625	8.312	9.062	7/8	1.250	1.877	0.060
4.875	10.000	7.345	6.125	0.769	5.875	5.935	6.625	8.312	9.062	7/8	1.250	1.877	0.060
5.000	10.000	7.345	6.125	0.769	5.875	5.935	6.625	8.312	9.062	7/8	1.250	1.877	0.060

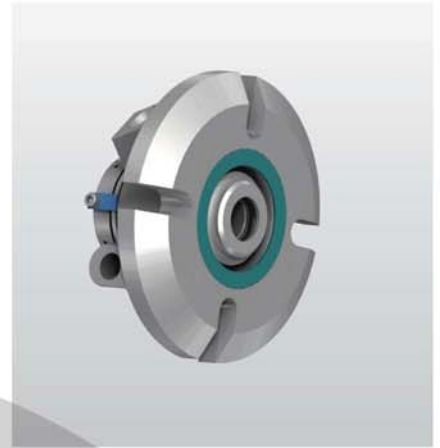
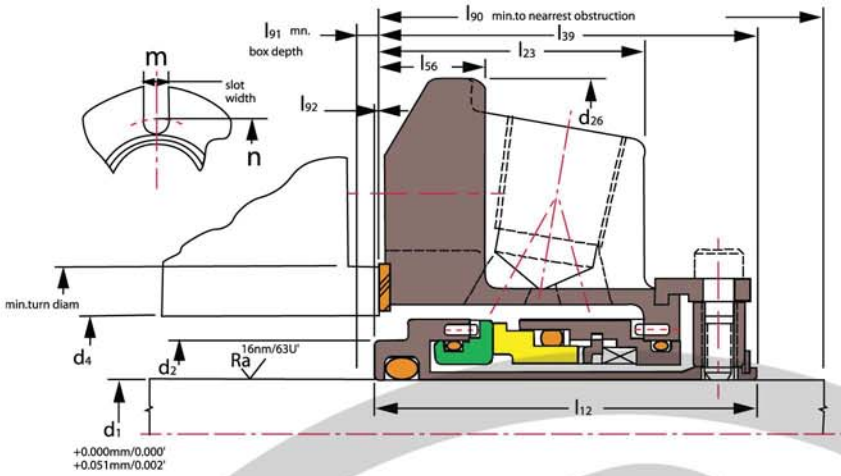


TSMA-A03



- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d_{26}	l_4	l_5	l_3	d_1			n		l_1	l_2	K max
					min	mint	max	min	max			
24	104.8	54.0	49.2	13.2	40.0	41.0	46.0	67.0	90.5	28.6	40.5	1.0
25	104.8	54.0	49.2	13.2	41.0	42.0	49.0	67.0	90.5	28.6	40.5	1.0
28	108.0	57.2	52.4	13.2	44.0	45.0	52.3	70.3	93.6	28.6	40.5	1.0
30	111.0	60.4	55.6	13.2	46.0	47.0	55.5	73.5	96.8	28.6	40.5	1.0
32	111.0	60.4	55.6	13.2	48.0	49.0	55.5	73.5	96.8	28.6	40.5	1.0
33	111.0	60.4	55.6	13.2	49.0	50.0	55.5	73.5	96.8	28.6	40.5	1.0
35	111.0	63.5	58.8	13.2	51.0	52.0	57.5	76.6	96.8	28.6	40.5	1.0
38	127.0	71.5	65.0	16.4	57.2	58.2	60.4	85.7	114.3	28.6	44.5	1.0
40	127.0	71.5	65.0	16.4	58.0	59.0	60.4	85.7	114.3	28.6	44.5	1.0
43	139.7	81.0	71.4	16.4	61.0	62.0	69.9	95.3	127.0	28.6	44.5	1.0
45	139.7	81.0	71.4	16.4	63.5	64.5	69.9	95.3	127.0	28.6	44.5	1.0
48	139.7	81.0	71.4	16.4	66.7	67.7	73.0	95.3	127.0	28.6	44.5	1.0
50	152.4	90.5	77.8	16.4	68.0	69.0	76.2	104.8	139.7	28.6	44.5	1.0
53	152.4	90.5	77.8	16.4	71.0	72.0	76.2	104.8	139.7	28.6	44.5	1.0
55	165.1	96.8	84.1	16.4	74.0	75.0	82.5	114.3	149.2	28.6	44.5	1.0
58	165.1	96.8	84.1	16.4	76.2	77.2	82.5	114.3	149.2	28.6	44.5	1.0
60	165.1	96.8	84.1	16.4	79.4	80.4	85.7	114.3	149.2	28.6	44.5	1.0
63	177.8	109.5	96.8	19.6	85.8	87.3	92.1	127.0	160.3	31.8	47.7	1.5
65	177.8	109.5	96.8	19.6	88.9	90.4	95.3	127.0	160.3	31.8	47.7	1.5
68	177.8	109.5	96.8	19.6	92.1	93.6	98.4	127.0	160.3	31.8	47.7	1.5
70	177.8	109.5	96.8	19.6	92.1	93.6	98.4	127.0	160.3	31.8	47.7	1.5
75	190.5	125.4	108.0	19.6	98.5	100.0	108.0	142.9	173.0	31.8	47.7	1.5
80	190.5	125.4	108.0	19.6	101.6	103.1	111.1	142.9	173.0	31.8	47.7	1.5
85	203.2	135.0	117.5	19.6	108.0	109.5	117.5	155.6	182.5	31.8	47.7	1.5
90	215.9	150.8	127.0	19.6	114.3	115.8	127.0	171.5	195.2	31.8	47.7	1.5
95	215.9	150.8	127.0	19.6	117.5	119.0	130.2	171.5	195.2	31.8	47.7	1.5
100	228.6	168.3	136.5	19.6	123.9	125.4	139.7	188.9	208.0	31.8	47.7	1.5
105	228.6	168.3	136.5	19.6	130.1	131.6	149.2	188.9	208.0	31.8	47.7	1.5
110	241.3	177.8	146.1	19.6	136.5	138.0	158.8	198.4	220.6	31.8	47.7	1.5
115	254.0	186.6	155.8	19.6	142.9	144.4	168.3	211.1	230.2	31.8	47.7	1.5
120	254.0	186.6	155.8	19.6	142.9	144.4	168.3	211.1	230.2	31.8	47.7	1.5
125	254.0	186.6	155.8	19.6	149.2	150.7	168.3	211.1	230.2	31.8	47.7	1.5



TSSC-J01

Operating Limits

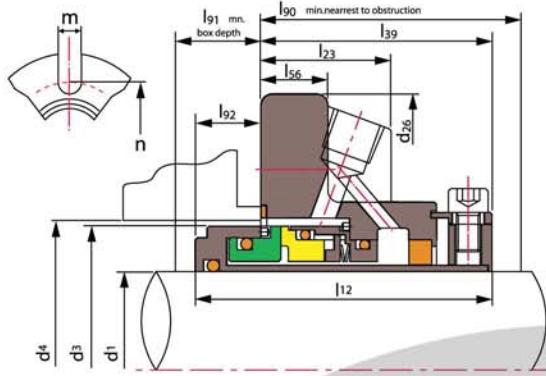
Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/TC)
- Stationary Ring (SiC/Carbon)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₂	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
25	34.9	36.7	48.0	101.6	50.5	34.4	49.6	13.5	50.8	4.0	0.9	13.3	71.2
28	38.1	\	51.2	104.8	52.4	36.7	52.4	13.5	54.0	3.2	\	13.3	74.5
30	40.0	\	56.5	108.0	52.4	36.7	52.4	13.5	54.0	3.2	\	13.3	79.9
32	41.3	\	58.3	108.0	52.4	36.7	52.4	13.5	54.0	3.2	\	13.3	81.6
33	44.5	\	61.5	111.1	52.4	36.7	52.4	13.5	54.0	3.2	\	13.3	84.8
35	44.5	\	61.5	111.1	52.4	36.7	52.4	13.5	54.0	3.2	\	13.3	84.8
38	49.2	51.0	68.1	123.8	54.8	37.8	54.0	15.1	55.5	4.0	0.8	13.3	91.4
40	52.4	54.2	71.4	127.0	54.8	37.8	54.0	15.1	55.5	4.0	0.8	14.3	95.7
43	55.1	56.9	74.1	133.4	54.8	37.8	54.0	15.1	55.5	4.0	0.8	14.3	98.4
45	55.1	56.9	74.1	133.4	54.8	37.8	54.0	15.1	55.5	4.0	0.8	14.3	98.4
48	58.7	60.5	74.1	133.4	54.8	37.8	54.0	15.1	55.5	4.0	0.8	14.3	98.4
50	61.9	63.7	76.6	139.7	60.3	40.7	58.7	27.0	60.3	4.7	1.6	14.3	101.6
53	65.1	66.9	85.3	148.8	60.3	40.7	58.7	15.1	60.3	4.7	1.6	17.4	113.5
55	66.7	75.0	85.3	148.8	60.3	40.7	58.7	15.1	60.3	4.7	1.6	17.4	113.5
58	68.2	70.0	88.5	165.1	60.3	40.7	58.7	15.1	60.3	4.7	1.6	17.4	116.0
60	71.4	73.2	91.7	165.1	63.1	43.6	62.6	15.9	64.2	3.6	1.6	17.4	119.9
63	77.8	\	98.8	171.5	63.1	43.6	65.1	15.9	66.7	3.2	0.5	17.4	127.0
65	77.8	\	98.8	171.5	63.1	43.6	65.1	15.9	66.7	3.2	\	17.4	127.0
68	84.1	\	103.2	171.5	63.5	41.3	63.5	15.9	65.1	3.2	\	17.4	131.3
70	84.1	\	103.2	171.5	63.5	41.3	63.5	15.9	65.1	3.2	\	17.4	131.3
75	92.1	\	113.5	196.9	63.5	45.4	65.1	17.4	66.7	3.2	1.36	20.6	145.3
80	95.3	97.9	116.8	196.9	65.1	40.5	63.8	\	66.9	4.5	\	20.6	148.4
85	101.6	104.8	123.2	206.4	65.1	40.5	65.1	\	68.3	3.2	\	20.1	154.8
90	107.1	110.3	129.5	212.7	65.1	40.5	65.1	\	68.3	3.2	\	17.4	158.8
95	110.3	113.5	132.1	222.3	65.1	40.5	65.1	\	68.3	3.2	\	17.4	172.0
100	116.7	119.8	139.7	228.6	65.1	40.5	65.1	\	68.3	3.2	\	20.6	171.7
105	119.8	123.0	142.9	228.6	65.1	40.5	65.1	\	68.3	3.2	\	20.6	174.9
110	129.4	132.5	152.4	241.3	65.1	40.5	65.1	\	68.3	3.2	\	20.6	184.4
115	129.4	132.5	152.4	241.3	65.1	40.5	65.1	\	68.3	3.2	\	20.6	184.4
120	135.7	138.9	160.4	263.5	65.1	40.5	65.1	\	68.3	3.2	\	20.6	192.4
125	148.4	151.6	184.4	304.8	75.0	44.4	77.3	\	80.5	3.2	\	20.6	254.0
130	154.8	157.9	190.8	311.2	75.0	44.4	77.3	\	80.5	3.2	\	20.6	260.4
135	161.1	164.3	203.2	322.3	75.0	44.4	77.3	\	80.5	3.2	\	23.8	266.7
140	161.1	164.3	203.2	322.3	75.0	44.4	77.3	\	80.5	3.2	\	23.8	266.7



TSSC-J02

Operating Limits

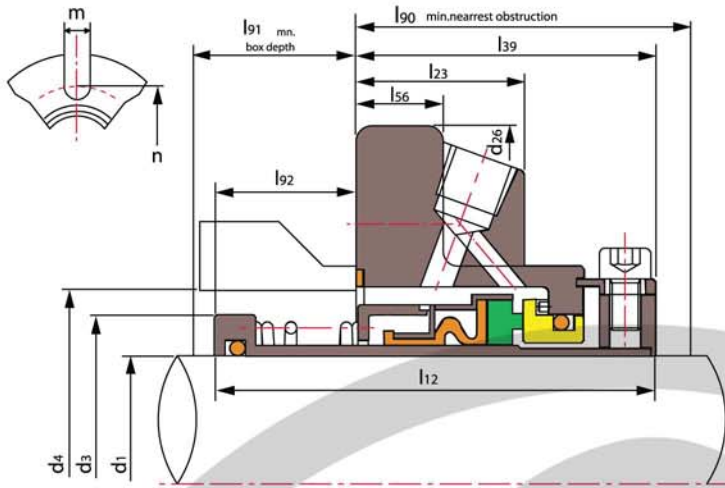
Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/TC)
- Stationary Ring (SiC/Carbon)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
24	39.7	41.3	48.0	101.6	65.4	34.4	49.6	13.5	50.8	18.9	15.8	13.3	71.2
25	39.7	41.3	48.0	101.6	65.4	34.4	49.6	13.5	50.8	18.9	15.8	13.3	71.2
28	42.9	44.5	51.2	104.8	67.3	36.7	52.4	13.5	54.0	18.1	15.0	13.3	74.5
30	44.5	46.1	56.5	108.0	65.1	36.7	52.4	13.5	54.0	15.9	12.7	13.3	79.9
32	46.0	47.6	58.3	108.0	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	81.6
33	49.3	50.8	61.5	111.1	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	84.8
35	49.3	50.8	61.5	111.1	69.3	36.7	52.4	13.5	54.0	20.1	16.9	13.3	84.8
38	55.5	57.2	68.1	123.8	69.7	37.8	54.0	15.1	55.5	18.9	15.7	13.3	91.4
40	58.7	60.3	71.4	127.0	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	95.7
43	61.1	63.0	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
45	61.1	63.0	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
48	64.7	66.7	74.1	133.4	69.7	37.8	54.0	15.1	55.5	18.9	15.7	14.3	98.4
50	67.9	70.0	76.6	139.7	75.3	40.7	58.7	27.0	60.3	19.7	16.5	14.3	101.6
53	71.1	73.0	85.3	148.8	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	113.5
55	72.9	75.0	85.3	148.8	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	113.5
58	74.2	76.2	88.5	165.1	75.3	40.7	58.7	15.1	60.3	19.7	16.5	17.4	116.0
60	77.4	79.4	91.7	165.1	77.8	43.6	62.6	15.9	64.2	18.3	15.2	17.4	119.9
63	83.8	85.7	98.8	171.5	75.7	43.6	65.1	15.9	66.7	13.8	10.6	17.4	127.0
65	83.8	85.7	98.8	171.5	75.7	43.6	65.1	15.9	66.7	13.8	10.6	17.4	127.0
68	90.2	92.1	103.2	171.5	78.4	41.3	63.5	15.9	65.1	18.1	14.9	17.4	131.3
70	90.2	92.1	103.2	171.5	78.4	41.3	63.5	15.9	65.1	18.1	14.9	20.6	131.3
75	98.1	99.9	113.5	196.9	78.4	45.4	65.1	17.4	66.7	16.5	13.4	20.6	145.3
80	102.2	104.8	116.8	189.0	80.2	40.5	63.8	\	66.9	18.0	14.8	20.6	148.5
85	107.9	111.1	123.2	206.4	80.2	40.5	65.1	\	68.3	18.3	15.1	17.4	154.8
90	114.3	117.5	129.5	212.7	80.2	40.5	65.1	\	68.3	18.3	15.1	17.4	158.8
95	117.5	120.0	132.1	222.3	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	172.0
100	123.8	127.0	139.7	228.6	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	171.7
105	127.0	130.2	142.9	228.6	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	174.9
110	136.5	139.7	152.4	241.3	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	184.4
115	136.5	139.7	152.4	241.3	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	184.4
120	142.9	146.1	160.4	263.5	80.2	40.5	65.1	\	68.3	18.3	15.1	20.6	192.4
125	155.6	158.8	184.4	304.8	91.7	91.4	77.3	\	80.5	17.6	14.4	20.6	254.0
130	161.9	165.1	190.8	311.2	91.7	91.4	77.3	\	80.5	17.6	14.4	20.6	260.4
135	168.3	171.5	203.2	322.3	91.7	91.4	77.3	\	80.5	17.6	14.4	23.8	266.7
140	168.3	171.5	203.2	322.3	91.7	91.4	77.3	\	80.5	17.6	14.4	23.8	266.7



TSSC-J03

Operating Limits

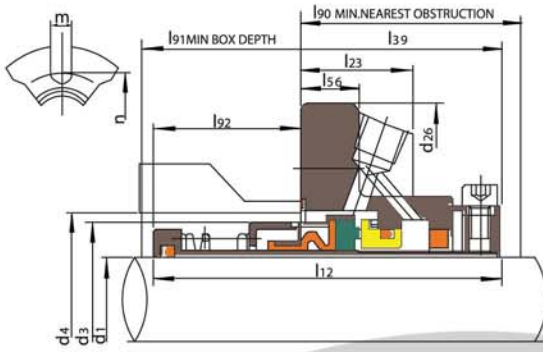
Pressure: $\leq 2.8\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30\text{ }^\circ\text{C} \sim 205\text{ }^\circ\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/ TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d1 (mm)	d3	d4		d26	l12	l23	l39	l56	l90	l91	l92	m	n
		min	max										
25	34.9	38.1	48.0	101.6	69.6	34.4	49.6	13.5	50.8	23.1	20.0	13.3	71.2
28	38.1	41.3	51.2	104.8	65.9	36.7	52.4	13.5	54.0	16.7	13.5	13.3	74.5
30	42.8	46.0	56.5	108.0	69.0	36.7	52.4	13.5	54.0	19.8	16.7	13.3	81.6
32	42.8	46.0	58.3	108.0	69.0	36.7	52.4	13.5	54.0	19.8	16.7	13.3	81.6
33	46.0	49.2	61.5	111.1	66.7	36.7	52.4	13.5	54.0	17.5	14.3	13.3	84.8
35	46.0	49.2	61.5	111.1	66.7	36.7	52.4	13.5	54.0	17.5	14.3	13.3	84.8
38	50.8	54.0	68.1	123.8	75.2	37.8	54.0	15.1	55.6	24.4	21.2	13.3	91.4
40	54.0	57.2	71.4	127.0	76.8	37.8	54.0	15.1	55.6	26.0	22.8	14.3	95.7
43	57.2	60.3	74.1	133.4	77.2	37.8	54.0	15.1	55.6	26.4	23.2	14.3	98.4
45	57.2	60.3	74.1	133.4	77.2	37.8	54.0	15.1	55.6	26.4	23.2	14.3	98.4
48	60.3	63.5	74.1	133.4	77.2	37.8	54.0	15.1	55.6	26.4	23.2	14.3	98.4
50	68.2	69.9	76.6	139.7	87.7	40.7	58.7	27.0	60.3	32.2	29.0	14.3	101.6
53	71.4	73.0	85.3	148.8	87.7	40.7	58.7	15.1	60.3	32.2	29.0	17.4	113.5
55	69.9	73.0	85.3	148.8	90.9	40.7	58.7	15.1	60.3	35.4	32.2	17.4	113.5
58	69.9	75.0	88.5	165.1	90.9	40.7	58.7	15.1	60.3	35.4	32.2	17.4	116.0
60	77.8	79.4	91.7	165.1	88.1	43.6	62.6	15.9	64.2	28.6	25.5	17.4	119.9
63	82.6	85.7	98.8	171.5	97.3	43.6	65.1	15.9	66.7	35.4	32.2	17.4	127.0
65	82.6	85.7	98.8	171.5	97.3	43.6	65.1	15.9	66.7	35.4	32.2	17.4	127.0
68	88.9	92.1	103.2	171.5	101.0	41.2	63.5	15.9	65.1	40.7	37.5	17.4	131.3
70	88.9	92.1	103.2	171.5	101.0	41.2	63.5	17.4	65.1	40.7	37.5	17.4	131.3
75	100.0	101.6	113.5	196.9	106.0	45.4	65.1	\	66.7	44.1	40.9	20.6	145.3
80	103.2	104.8	116.8	188.9	106.4	40.5	63.8	\	66.9	45.8	42.6	20.6	148.5
85	109.5	111.1	123.2	206.4	111.1	40.5	65.1	\	68.3	49.2	46.1	20.6	154.8
90	115.9	117.5	129.5	212.7	117.5	40.5	65.1	\	68.3	55.6	52.4	17.4	158.8
95	117.7	120.0	132.1	222.3	112.7	40.5	65.1	\	68.3	50.8	47.6	17.4	172.0
100	125.4	127.8	139.7	228.6	122.2	40.5	65.1	\	68.3	60.3	57.2	20.6	171.7
125	165.1	167.5	184.4	304.8	146.0	41.4	77.3	\	80.5	71.9	68.8	20.6	254.0



TSSC-J04

Operating Limits

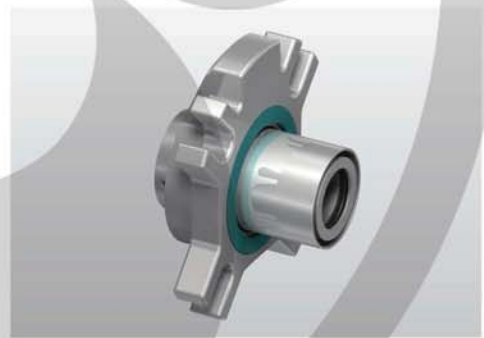
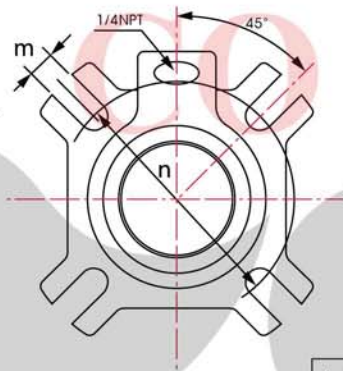
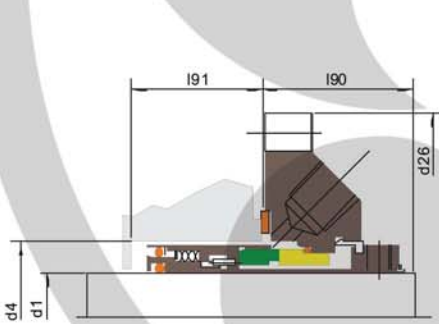
Pressure: $\leq 2.8\text{MPa}$

Speed: $\leq 25\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +205^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
25	39.7	41.3	48.0	101.6	84.5	34.4	49.6	13.5	50.8	38.0	34.9	13.3	71.2
28	42.9	44.5	51.2	104.8	80.8	36.7	52.4	13.5	54.0	31.6	28.5	13.3	74.5
30	44.5	46.1	56.5	108.0	81.7	36.7	52.4	13.5	54.0	32.5	29.4	13.3	81.6
32	45.0	47.6	58.3	108.0	86.1	36.7	52.4	13.5	54.0	36.9	33.7	13.3	81.6
33	49.2	50.8	61.5	111.1	83.6	36.7	52.4	13.5	54.0	34.4	31.2	13.3	84.8
35	49.2	50.8	61.5	111.1	83.6	36.7	52.4	13.5	54.0	34.4	31.2	13.3	84.8
38	54.8	56.3	68.1	123.8	90.1	37.8	54.0	15.1	55.6	39.3	36.1	13.3	91.4
40	57.9	59.5	71.4	127.0	91.7	37.8	54.0	15.1	55.6	40.9	37.7	14.3	95.7
43	61.1	63.0	74.1	133.4	92.1	37.8	54.0	15.1	55.6	41.3	38.1	14.3	98.4
45	61.1	63.0	74.1	133.4	92.1	37.8	54.0	15.1	55.6	41.3	38.1	14.3	98.4
48	64.3	66.7	74.1	133.4	92.1	37.8	54.0	15.1	55.6	41.3	38.1	14.3	98.4
50	68.2	70.0	76.6	139.7	102.7	40.7	58.7	27.0	60.3	47.1	43.9	14.3	101.6
53	71.4	73.0	85.3	148.8	102.7	40.7	58.7	15.1	60.3	47.1	43.9	17.4	113.5
55	74.6	76.7	85.3	148.8	105.8	40.7	58.7	15.1	60.3	50.3	47.1	17.4	113.5
58	74.6	76.2	88.5	165.1	105.8	40.7	58.7	15.1	60.3	50.3	47.1	17.4	116.0
60	77.8	79.4	91.7	165.1	103.2	43.6	62.6	15.9	64.2	43.7	40.5	17.4	119.9
63	82.6	85.7	98.8	171.5	109.9	43.6	65.1	15.9	66.7	48.0	44.8	17.4	127.0
65	82.6	85.7	98.8	171.5	109.9	43.6	65.1	15.9	66.7	48.0	44.8	17.4	127.0
68	88.9	92.1	103.2	171.5	116.0	41.2	63.5	15.9	65.1	55.7	52.5	17.4	131.3
70	88.9	92.1	103.2	171.5	116.0	41.2	63.5	15.9	65.1	55.7	52.5	17.4	131.3
75	100.0	101.6	113.5	196.9	120.7	45.4	65.1	17.4	66.7	58.8	55.6	20.6	145.3
80	103.2	104.8	116.8	188.9	119.8	40.5	63.8	\	66.9	59.3	56.1	20.6	148.4
85	109.5	111.1	123.2	206.4	126.2	40.5	65.1	\	68.3	64.3	61.1	20.6	154.8
90	115.9	117.5	129.5	212.7	132.5	40.5	65.1	\	68.3	70.6	67.5	17.4	158.8
95	119.1	121.4	132.1	222.3	127.8	40.5	65.1	\	68.3	65.9	62.7	17.4	172.0
100	127.5	129.9	139.7	228.6	137.3	40.5	65.1	\	68.3	75.4	72.2	20.6	171.7
125	165.1	167.5	184.4	304.8	162.7	44.4	77.2	\	80.5	88.5	88.4	20.6	254.0



TSSC-J05

Operating Limits

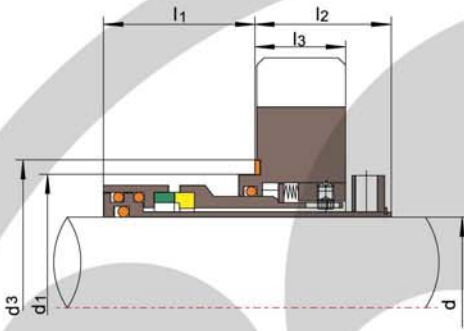
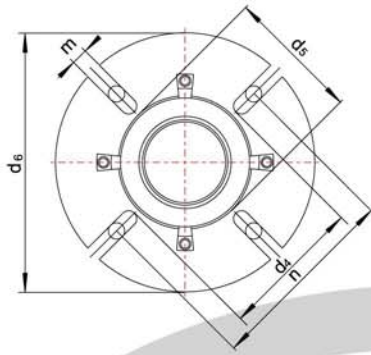
Pressure: $\leq 2.1\text{MPa}$

Speed: $\leq 18\text{m/s}$

Temperature: $\leq +205^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₄		d ₂₆	l ₉₀	l ₉₁	n		m
	min	max				min	max	
24	40.0	49.2	104.8	36.0	32	66.7	95.3	11.1
25	41.0	49.2	104.8	36.0	32	66.7	95.3	11.1
28	44.0	52.4	108.0	36.0	32	69.9	98.4	11.1
30	46.0	55.6	111.0	36.0	32	73.0	101.6	11.1
32	47.6	55.6	111.0	36.0	32	73.0	101.6	11.1
33	49.0	58.7	114.3	36.0	32	73.0	101.6	11.1
35	50.8	58.7	114.3	36.0	32	77.8	104.8	11.1
38	57.2	63.5	127.0	37.0	33	87.3	114.3	14.3
40	60.0	63.5	127.0	37.0	33	87.3	114.3	14.3
43	63.0	66.7	133.4	37.0	33	90.5	120.7	14.3
45	63.5	66.7	133.4	37.0	33	90.5	120.7	14.3
48	66.7	76.2	139.7	37.0	33	98.4	127.0	14.3
50	69.8	76.2	139.7	37.0	33	98.4	127.0	14.3
53	73.0	84.1	146.0	37.0	33	111.1	130.2	17.5
55	73.0	84.1	146.0	37.0	33	111.1	130.2	17.5
58	79.4	90.5	152.4	37.0	33	117.5	136.5	17.5
60	79.4	90.5	152.4	37.0	33	117.5	136.5	17.5
63	82.6	98.4	158.8	37.0	36	123.8	142.9	17.5
65	88.9	98.4	158.8	37.5	36	123.8	142.9	17.5
70	95.0	98.4	158.8	37.5	36	123.8	142.9	17.5



TSSC-J06

Operating Limits

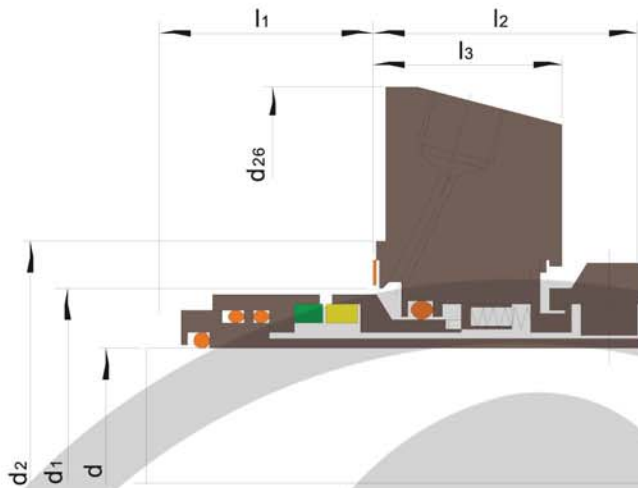
Pressure: $\leq 1.5\text{MPa}$

Speed: $\leq 20\text{m/s}$

Temperature: $-20\text{ }^\circ\text{C} \sim 120\text{ }^\circ\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	l ₁	l ₂	m	l ₃	d ₁	d ₃	d ₄	n	d ₅	d ₆
								min		
35	42	44	13.0	25	51	67	67	79	55	130
38	42	44	13.0	25	58	75	75	86	65	130
40	42	44	13.5	25	60	76	76	90	66	130
43	42	44	13.5	25	65	78	78	90	70	150
45	42	44	13.0	25	65	81	81	93	68	145
48	42	44	13.0	25	68	84	84	100	73	150
50	42	44	13.0	25	70	86	86	98	73	160
53	42	44	13.0	25	75	91	91	103	80	160
55	42	44	13.0	25	75	91	91	103	80	160
58	42	44	13.0	25	83	97	97	109	85	160
60	42	44	13.0	25	85	97	97	109	87	160
63	47	51	17.0	30	90	100	100	112	92	180
65	47	51	17.0	30	90	105	105	121	92	180
68	47	51	17.0	30	95	112	112	127	95	180
70	47	51	17.0	30	95	112	112	155	99	200
75	54	51	17.0	30	104	115	115	132	106	200
80	54	51	17.0	30	109	122	122	138	111	210
85	54	51	17.0	30	114	127	127	158	116	220
90	54	51	17.0	30	124	132	132	165	117	220
95	54	51	17.0	30	124	138	138	165	126	220
100	54	51	17.0	30	129	148	148	165	131	220
105	54	51	17.0	30	135	160	160	175	134	220



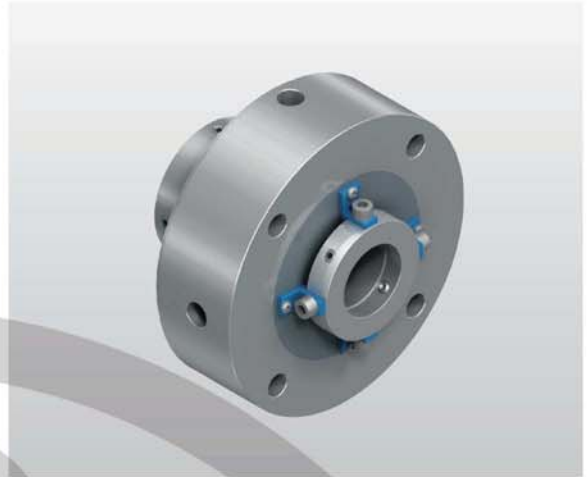
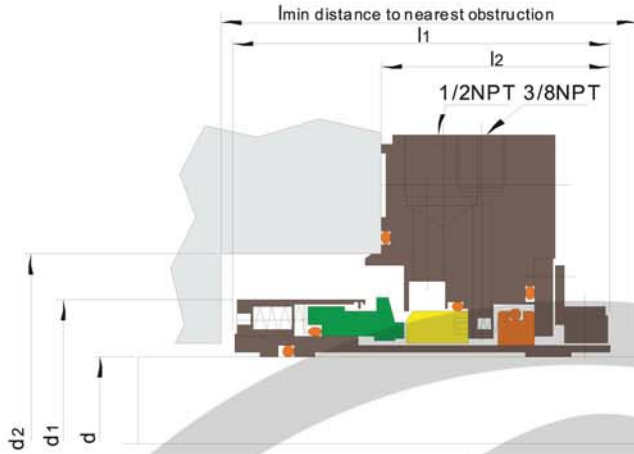
TSSC-J07

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 20\text{m/s}$
 Temperature: $-20^\circ\text{C} \sim 120^\circ\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂₆	d ₁		d ₂	l ₁	l ₂	l ₃	m	n	
		min	max						J-3/8	J-1/2
1.000	3.780	1.625	2.000	2.39	1.25	1.84	1.27	0.55	2.77	2.90
1.125	3.940	1.750	2.090	2.52	1.25	1.84	1.27	0.55	2.91	3.03
1.250	4.130	1.875	2.240	2.63	1.28	1.84	1.27	0.55	3.01	3.13
1.375	4.330	2.000	2.320	2.76	1.28	1.84	1.27	0.55	3.15	3.27
1.500	4.490	2.125	2.450	2.88	1.28	1.84	1.27	0.55	3.26	3.38
1.625	4.960	2.375	2.680	3.11	1.33	1.84	1.27	0.55	3.49	3.61
1.750	5.470	2.500	2.870	3.23	1.33	1.84	1.31	0.55	3.60	3.73
1.875	5.470	2.625	2.910	3.35	1.33	1.84	1.31	0.55	3.73	3.85
2.000	5.510	2.750	3.190	3.46	1.33	1.84	1.31	0.55	3.86	3.98
2.125	5.980	2.875	3.270	3.58	1.33	1.84	1.31	0.71	3.96	4.09
2.250	6.100	3.000	3.400	3.71	1.33	1.84	1.31	0.71	4.09	4.21
2.375	6.300	3.125	3.500	3.90	1.33	1.84	1.33	0.71	4.28	4.40
2.500	6.380	3.250	3.690	4.01	1.33	1.84	1.33	0.71	4.41	4.52
2.625	6.380	3.375	3.750	4.13	1.33	1.84	1.33	0.71	4.51	4.65
2.750	7.950	3.750	4.140	4.84	1.33	1.84	1.33	0.71	5.30	5.42
2.875	7.950	3.875	4.250	4.61	1.33	1.84	1.33	0.71	4.99	5.11
3.000	7.950	4.000	4.410	4.73	1.13	1.84	1.33	0.71	5.11	5.23
3.125	8.250	4.125	4.500	4.84	1.13	1.84	1.33	0.71	5.22	5.34
3.250	8.270	4.250	4.680	4.98	1.13	1.84	1.33	0.71	5.36	5.48
3.375	8.460	4.375	4.760	5.08	1.13	1.84	1.33	0.71	5.46	5.58
3.500	8.470	4.500	4.850	5.24	1.13	1.84	1.33	0.71	5.62	5.74
3.625	8.610	4.625	4.960	5.35	1.13	1.84	1.33	0.90	5.73	5.85
3.750	8.740	4.750	5.140	5.46	1.13	1.84	1.33	0.90	5.84	5.96
3.875	8.870	4.875	5.210	5.60	1.13	1.84	1.33	0.90	5.98	6.10
4.000	9.000	5.000	5.580	5.98	1.23	2.17	1.53	0.90	6.36	6.48
4.125	9.000	5.125	5.710	6.10	1.23	2.17	1.53	0.90	6.48	6.60
4.250	9.100	5.250	5.830	6.22	1.23	2.17	1.53	0.90	6.60	6.72
4.375	9.230	5.375	5.970	6.36	1.23	2.17	1.53	0.90	6.74	6.86
4.500	9.500	5.500	6.090	6.48	1.23	2.17	1.53	0.90	6.86	6.98
4.625	9.500	5.625	6.220	6.61	1.23	2.17	1.53	0.90	6.99	7.11
4.750	9.610	5.750	6.300	6.73	1.23	2.17	1.53	0.90	7.11	7.23
4.875	9.740	5.875	6.470	6.86	1.23	2.17	1.53	0.90	7.24	7.36
5.000	10.000	6.000	6.590	6.98	1.23	2.17	1.53	0.90	7.36	7.48



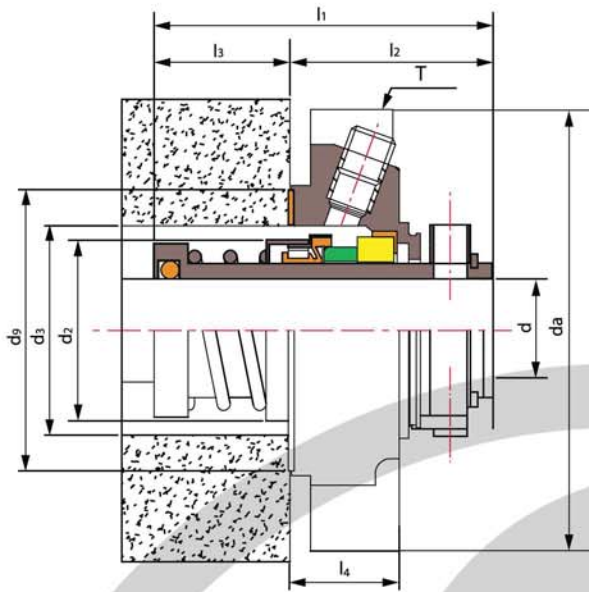
TSSC-J08

Operating Limits

Pressure: $\leq 6.9\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-40^{\circ}\text{C} \sim +260^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(Encapsulated Ring/PTFE/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁	d ₂	l ₁	l ₂	l
1.000	2.125	2.500	3.812	2.562	5.750
1.125	2.375	2.750	4.125	2.562	5.750
1.250	2.500	2.875	4.125	2.562	5.750
1.375	2.625	3.000	4.125	2.562	5.750
1.500	2.750	3.125	4.125	2.562	5.750
1.625	3.000	3.375	4.437	2.562	5.750
1.750	3.125	3.500	4.437	2.562	5.750
1.875	3.250	3.625	4.437	2.562	5.750
2.000	3.375	3.750	4.437	2.562	6.500
2.125	3.500	3.875	4.437	2.562	6.500
2.250	3.625	4.000	4.437	2.625	6.500
2.375	3.750	4.125	4.500	2.625	6.500
2.500	3.812	4.187	4.500	2.625	6.500
2.625	3.937	4.312	4.500	2.625	6.500
2.750	4.125	4.500	4.500	2.781	6.500
2.875	4.250	4.625	4.656	2.781	6.500
3.000	4.375	4.750	4.656	2.781	6.500
3.125	4.500	4.875	4.656	2.781	7.000
3.250	4.625	5.000	4.656	2.781	7.000
3.375	4.750	5.125	4.656	2.781	7.000
3.500	4.875	5.250	4.656	2.781	7.000
3.625	5.125	5.500	4.656	2.781	7.000
3.750	5.250	5.625	4.656	2.781	7.000
3.875	5.375	5.750	4.656	2.781	7.000
4.000	5.500	5.875	4.656	2.781	7.000
4.125	5.625	6.000	4.656	2.781	7.000
4.250	5.750	6.125	4.656	2.781	7.000



TSSC-B02

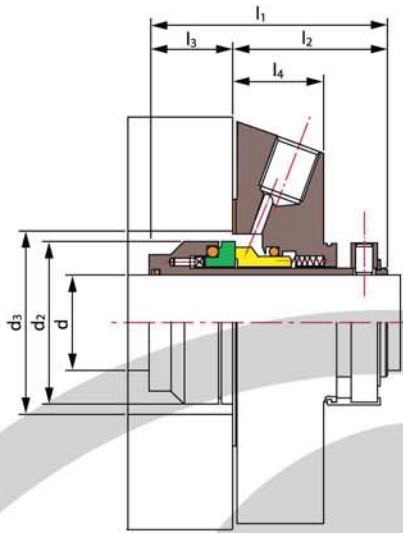
Operating Limits

Pressure: $\leq 1.2\text{MPa}$
 Speed: $\leq 10\text{m/s}$
 Temperature: $-20^{\circ}\text{C} \sim +90^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Ceramic/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE/NBR/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂	d ₃		d ₉	d _a	l ₁	l ₂	l ₃	l ₄	T
		min	max							
1.000	1.512	1.634	2.000	2.362	4.134	2.579	1.614	0.965	0.906	1/4NPT
1.125	1.669	1.750	2.050	2.362	4.134	2.677	1.634	1.043	0.906	1/4NPT
1.250	1.772	1.890	2.250	2.559	4.331	2.736	1.654	1.083	0.906	1/4NPT
1.375	1.933	2.000	2.420	2.677	4.213	2.854	1.732	1.122	1.024	1/4NPT
1.500	2.020	2.146	2.625	2.874	4.843	2.854	1.732	1.122	1.024	1/4NPT
1.750	2.354	2.480	2.812	3.110	5.118	3.012	1.752	1.260	1.024	1/4NPT
1.875	2.433	2.559	2.940	3.228	5.118	3.071	1.772	1.299	1.024	1/4NPT
2.000	2.551	2.677	3.190	3.346	5.827	3.169	1.850	1.319	1.102	3/8NPT
2.125	2.795	2.875	3.437	3.740	5.512	3.287	1.850	1.437	1.102	3/8NPT
2.250	2.874	2.992	3.560	3.780	6.181	3.287	1.850	1.437	1.102	3/8NPT
2.375	3.012	3.110	3.590	3.937	6.181	3.366	1.850	1.516	1.102	3/8NPT
2.500	3.209	3.287	3.800	4.173	6.693	3.465	1.909	1.555	1.102	3/8NPT
2.625	3.268	3.374	3.937	4.252	6.378	3.465	1.909	1.555	1.102	3/8NPT

d (mm)	d ₂	d ₃		d ₉	d _a	l ₁	l ₂	l ₃	l ₄	T
		min	max							
25	38.4	41.5	51.0	60	105	65.5	41.0	24.5	23	1/4NPT
28	42.4	44.5	52.0	60	105	68.0	41.5	26.5	23	1/4NPT
30	42.4	45.5	56.0	63	105	68.0	41.5	26.5	23	1/4NPT
33	45.0	48.0	57.0	65	110	69.5	42.0	27.5	23	1/4NPT
35	49.1	50.8	61.5	68	107	72.5	44.0	28.5	26	1/4NPT
38	51.3	54.5	66.0	73	123	72.5	44.0	28.5	26	1/4NPT
40	54.3	57.5	68.0	75	123	75.5	44.5	31.0	26	1/4NPT
43	56.3	59.5	70.5	78	133	76.5	44.5	32.0	26	1/4NPT
45	59.8	63.0	73.0	79	130	76.5	44.5	32.0	26	1/4NPT
48	61.8	65.0	75.0	82	130	78.0	45.0	33.0	26	1/4NPT
50	64.8	68.0	78.0	85	148	80.5	47.0	33.5	28	3/8NPT
53	66.8	70.0	87.0	95	148	81.5	47.0	34.5	28	3/8NPT
55	71.0	73.0	83.0	90	148	83.5	47.0	36.5	28	3/8NPT
60	76.5	79.0	91.0	100	157	85.5	47.0	38.5	28	3/8NPT
65	83.0	85.7	98.5	108	162	88.0	48.5	39.5	28	3/8NPT
70	88.0	94.0	108.0	116	178	92.0	48.5	43.5	28	3/8NPT
75	93.4	98.4	118.0	125	190	93.5	49.0	44.5	28	3/8NPT



TSSC-B03

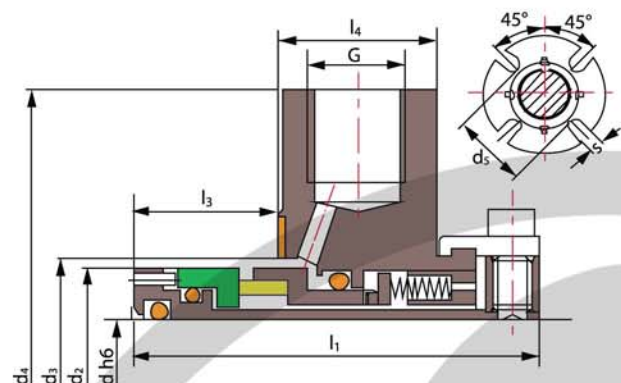
Operating Limits

Pressure: $\leq 2.5\text{MPa}$
 Speed: $\leq 16\text{m/s}$
 Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC/Carbon)
- Secondary Seal(VITON/Encapsulated Ring/PTFE/NBR/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂	d ₃		l ₁	l ₂	l ₃	l ₄
		min	max				
1.000	1.693	1.750	2.000	2.640	1.669	0.969	1.000
1.125	1.811	1.875	2.050	2.640	1.669	0.969	1.000
1.250	1.960	2.000	2.250	2.640	1.669	0.969	1.000
1.375	2.086	2.125	2.420	2.640	1.669	0.969	1.000
1.500	2.200	2.250	2.625	2.640	1.669	0.969	1.000
1.625	2.340	2.375	2.700	2.640	1.669	0.969	1.000
1.750	2.460	2.500	2.812	2.640	1.669	0.969	1.000
1.875	2.582	2.625	2.940	2.640	1.669	0.969	1.000
2.000	2.677	2.750	3.190	2.640	1.669	0.969	1.000
2.125	2.834	2.875	3.437	2.640	1.669	0.969	1.000
2.250	2.960	3.000	3.560	2.640	1.669	0.969	1.000
2.375	3.070	3.125	3.590	2.640	1.669	0.969	1.000
2.500	3.212	3.250	3.800	2.640	1.669	0.969	1.000
2.625	3.338	3.375	3.937	2.640	1.669	0.969	1.000
2.750	3.660	3.750	4.250	2.640	1.669	0.969	1.000
2.875	3.811	3.875	4.567	3.307	2.260	1.047	1.000
3.000	3.937	4.000	4.646	3.307	2.260	1.047	1.102
3.125	4.063	4.125	4.764	3.307	2.260	1.047	1.102
3.250	4.189	4.250	4.882	3.307	2.260	1.047	1.102
3.375	4.311	4.374	5.039	3.307	2.260	1.047	1.102
3.500	4.437	4.500	5.157	3.307	2.260	1.047	1.102
3.625	4.563	4.625	5.315	3.307	2.260	1.047	1.102
3.750	4.689	4.750	4.433	3.307	2.260	1.047	1.102
4.000	4.937	5.000	5.669	3.307	2.260	1.047	1.102

d (mm)	d ₂	d ₃		l ₁	l ₂	l ₃	l ₄
		min	max				
25	43.0	44.0	51.5	67	42.4	24.6	25.4
28	46.0	47.0	52.0	67	42.4	24.6	25.4
30	48.0	49.0	56.0	67	42.4	24.6	25.4
32	49.8	51.0	57.0	67	42.4	24.6	25.4
33	49.8	51.0	57.0	67	42.4	24.6	25.4
35	53.0	54.0	61.5	67	42.4	24.6	25.4
38	56.0	57.0	66.0	67	42.4	24.6	25.4
40	58.0	59.0	68.0	67	42.4	24.6	25.4
42	60.5	61.5	69.0	67	42.4	24.6	25.4
43	60.5	61.5	70.5	67	42.4	24.6	25.4
45	62.5	64.0	73.0	67	42.4	24.6	25.4
48	65.6	67.0	75.0	67	42.4	24.6	25.4
50	68.0	69.0	78.0	67	42.4	24.6	25.4
53	72.0	73.0	87.0	67	42.4	24.6	25.4
55	73.0	74.0	83.0	67	42.4	24.6	25.4
60	78.0	79.0	91.0	67	42.4	24.6	25.4
65	84.8	85.7	98.5	67	42.4	24.6	25.4
70	93.0	95.0	108.0	67	42.4	24.6	25.4
75	100.0	101.6	118.0	84	57.4	26.6	28.0
80	106.4	108.0	124.0	84	57.4	26.6	28.0
85	109.5	111.1	128.0	84	57.4	26.6	28.0
90	115.9	117.5	135.0	84	57.4	26.6	28.0
95	119.1	120.7	138.0	84	57.4	26.6	28.0
100	125.4	127.0	144.0	84	57.4	26.6	28.0



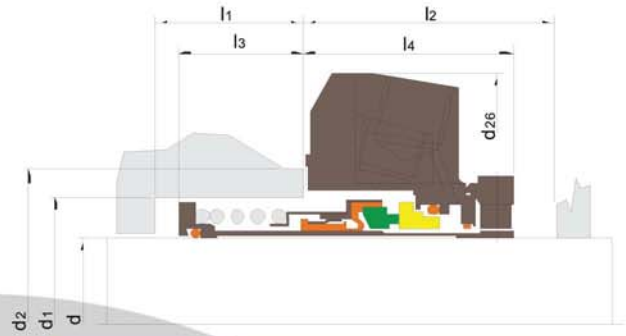
TSSC-B04(TS K1)

Operating Limits

Pressure: $\leq 2.5\text{MPa}$
 Speed: $\leq 16\text{m/s}$
 Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC/Carbon)
- Secondary Seal(VITON/Encapsulated Ring/PTFE/NBR/EPDM)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

Seal size d(mm)	d ₂	d ₃		d ₄	l ₁	l ₃	l ₄	d ₅	S	G (Inches)
		min	max							
25	43.0	44.0	51.0	105	67	24.6	25.4	62	14	1/4"
28	46.0	47.0	52.0	105	67	24.6	25.4	62	14	1/4"
30	48.0	49.0	56.0	105	67	24.6	25.4	65	14	1/4"
33	50.0	51.0	57.0	110	67	24.6	25.4	67	14	1/4"
35	53.0	54.0	61.0	113	67	24.6	25.4	70	14	1/4"
38	56.0	57.0	66.0	123	67	24.6	25.4	75	14	3/8"
40	58.0	59.0	68.0	123	67	24.6	25.4	75	16	3/8"
43	60.0	61.5	70.5	133	67	24.6	25.4	80	16	3/8"
45	62.5	64.0	73.0	138	67	24.6	25.4	81	16	3/8"
48	65.5	67.0	75.0	138	67	24.6	25.4	84	16	3/8"
50	68.0	69.0	78.0	148	67	24.6	25.4	87	16	3/8"
55	73.0	74.0	83.0	148	67	24.6	25.4	90	18	3/8"
60	78.0	79.0	91.0	157	67	24.6	25.4	102	18	3/8"
65	83.0	84.5	98.5	163	67	24.6	25.4	109	18	3/8"
70	93.0	95.0	108.0	178	67	24.6	25.4	118	18	3/8"
75	100.0	101.6	118.0	190	84	26.6	28.0	129	18	3/8"
80	106.4	108.0	124.0	195	84	26.6	28.0	135	18	3/8"
85	109.5	111.1	128.0	198	84	26.6	28.0	139	22	3/8"
90	115.9	117.5	135.0	205	84	26.6	28.0	145	22	3/8"
95	119.1	120.7	138.0	208	84	26.6	28.0	148	22	3/8"
100	125.4	127.0	144.0	218	84	26.6	28.0	154	22	3/8"



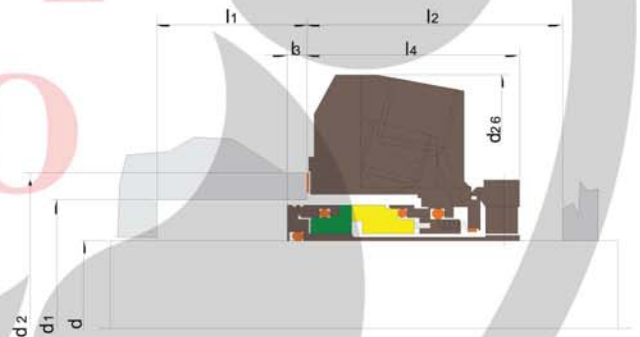
TSSC-FS02

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 23\text{m/s}$
 Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁		d ₂	d ₂₆	l ₄	l ₂	l ₃	l ₁
	min	max						
1.000	1.625	1.875	2.115	3.69~3.75	1.913	1.975	0.962	1.024
1.125	1.750	2.000	2.240	3.69~3.75	1.913	1.975	\	\
1.250	1.890	2.245	2.495	4.19~4.25	1.913	1.975	\	\
1.375	2.000	2.375	2.615	3.94~4.00	1.913	1.975	1.127	1.189
1.437	2.250	2.688	2.775	4.72~4.78	1.973	2.035	\	\
1.500	2.250	2.525	2.775	4.69~4.75	1.973	2.035	\	\
1.625	2.375	2.780	3.030	4.69~4.75	1.973	2.035	\	\
1.750	2.500	2.875	3.150	4.94~5.00	1.973	2.035	1.152	1.214
1.875	2.625	2.875	3.150	4.94~5.00	1.973	2.035	1.153	1.214
1.937	2.690	2.920	\	\	1.973	2.035	\	\
2.000	2.750	3.030	3.280	5.00~5.12	1.973	2.035	\	\
2.125	2.875	3.125	3.430	5.94~6.00	1.973	2.035	1.092	1.154
2.250	3.000	3.280	\	\	1.973	2.035	\	\
2.375	3.125	3.687	3.975	6.32~6.38	1.973	2.035	1.287	1.349
2.437	3.375	3.450	\	6.32~6.38	1.942	2.004	\	\
2.500	3.375	3.687	3.975	6.32~6.38	1.973	2.035	1.287	1.349
2.625	3.625	4.312	4.615	7.19~7.25	2.726	2.788	1.129	1.191
2.750	3.750	4.312	4.615	7.19~7.25	2.726	2.788	1.129	1.191



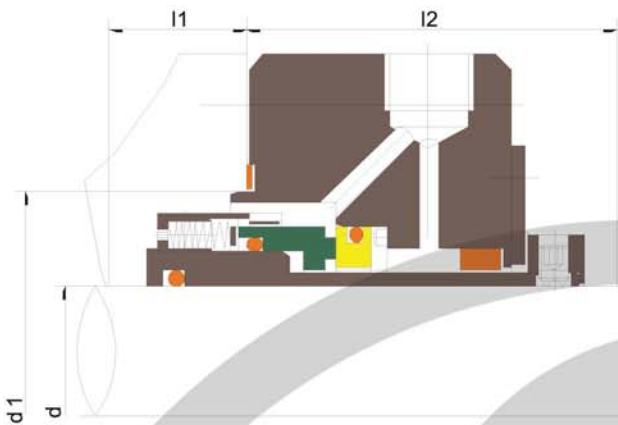
TSSC-FS03

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 23\text{m/s}$
 Temperature: $-40^{\circ}\text{C} \sim +220^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₁		d ₂	d ₂₆	l ₄	l ₂	l ₃	l ₁
	min	max						
1.000	1.625	1.875	2.115	3.69~3.75	1.913	1.975	0.212	0.274
1.125	1.750	2.000	2.240	3.69~3.75	1.913	1.975	0.212	0.274
1.250	1.890	2.245	2.495	4.19~4.25	1.913	1.975	0.212	0.274
1.375	2.000	2.375	2.615	3.94~4.00	1.913	1.975	0.212	0.264
1.437	2.250	2.688	2.775	4.72~4.78	1.973	2.035	0.222	0.284
1.500	2.250	2.525	2.775	4.69~4.75	1.973	2.035	0.202	0.264
1.625	2.375	2.780	3.030	4.69~4.75	1.973	2.035	0.202	0.264
1.750	2.500	2.875	3.150	4.94~5.00	1.973	2.035	0.202	0.264
1.875	2.625	2.875	3.150	4.94~5.00	1.973	2.035	0.202	0.264
1.937	2.690	2.920	\	\	1.973	2.035	0.207	0.269
2.000	2.750	3.030	3.280	5.00~5.12	1.973	2.035	0.202	0.264
2.125	2.875	3.125	3.430	5.94~6.00	1.973	2.035	0.202	0.264
2.250	3.000	3.280	\	\	1.973	2.035	0.206	0.268
2.375	3.125	3.687	3.975	6.32~6.38	1.973	2.035	0.202	0.264
2.437	3.375	3.450	\	6.32~6.38	1.942	2.004	0.233	0.295
2.500	3.375	3.687	3.975	6.32~6.38	1.973	2.035	0.202	0.264
2.625	3.625	4.312	4.615	7.19~7.25	2.726	2.788	0.204	0.266
2.750	3.750	4.312	4.615	7.19~7.25	2.726	2.788	0.204	0.266



TSSC-FS05

Operating Limits

Pressure: $\leq 5.17\text{MPa}$

Speed: $\leq 23\text{m/s}$

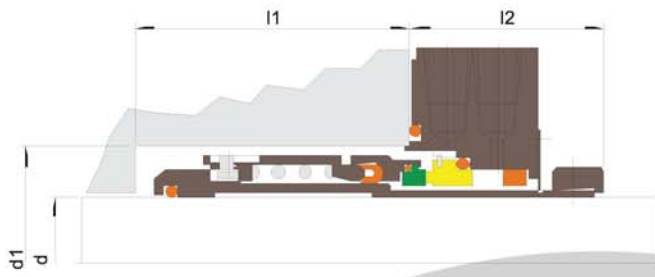
Temperature: $-40^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁	d	l ₁	l ₂
min	max	min	min
1.718	0.500	1.406	2.031
1.750	0.563	1.406	2.031
1.843	0.625	1.406	2.031
1.968	0.750	1.468	2.031
2.093	0.813	1.437	2.063
2.218	0.875	1.437	2.063
2.343	1.000	1.437	2.219
2.593	1.125	1.781	2.219
2.718	1.250	1.781	2.219
2.843	1.375	1.781	2.375
2.968	1.500	1.937	2.500
3.156	1.625	2.000	2.500
3.281	1.750	2.000	2.500
3.406	1.875	1.968	2.594

d ₁	d	l ₁	l ₂
min	max	min	min
3.531	2.000	1.968	2.594
3.843	2.125	2.250	2.625
3.968	2.250	2.250	2.625
4.093	2.375	2.250	2.625
4.218	2.500	2.250	2.781
4.343	2.625	2.250	2.781
4.468	2.750	2.250	2.781
4.593	2.875	2.250	2.906
4.687	3.000	2.156	3.000
4.843	3.125	2.156	3.000
4.968	3.250	2.125	3.031
5.062	3.375	2.215	3.031
5.187	3.500	2.125	3.031
5.562	3.625	2.218	3.188

d ₁	d	l ₁	l ₂
min	max	min	min
5.687	3.750	2.218	3.188
5.812	3.875	2.218	3.219
5.937	4.000	2.218	3.219
6.062	4.125	2.125	3.313
6.187	4.250	2.125	3.313
6.312	4.375	2.125	3.313
6.437	4.500	2.125	3.313
6.562	4.625	2.125	3.313
6.937	4.750	2.312	3.313
7.062	4.875	2.312	3.313
7.312	5.125	2.312	3.313
7.437	5.250	2.312	3.313
7.562	5.375	2.437	3.563
7.687	5.500	2.437	3.563



TSSC-FS06

Operating Limits

Pressure: $\leq 6.9\text{MPa}$

Speed: $\leq 23\text{m/s}$

Temperature: $-40^{\circ}\text{C} \sim +204^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (inches)	d	l ₁	l ₂
1.938	0.878	2.688	1.938
2.000	0.941	2.688	2.125
2.125	1.003	2.750	2.125
2.125	1.034	2.688	2.063
2.250	1.128	2.750	2.125
2.500	1.191	3.500	2.500
2.625	1.316	3.063	2.375
2.688	1.441	3.063	2.469
3.000	1.503	4.000	2.719
2.938	1.566	3.313	2.656
3.125	1.628	3.875	2.719

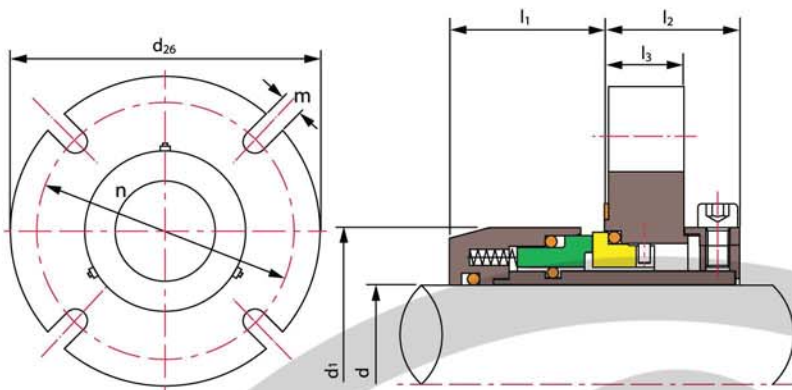
d ₁ (inches)	d	l ₁	l ₂
3.125	1.816	3.188	2.656
3.438	1.878	4.000	2.719
3.500	2.003	4.125	2.719
3.563	2.066	3.563	2.719
3.750	2.191	4.188	2.719
3.875	2.378	4.125	2.844
4.250	2.503	4.188	3.000
4.313	2.628	4.188	3.125
4.313	2.753	4.125	3.125
4.625	2.878	4.250	3.250
4.688	3.003	4.063	3.188

d ₁ (inches)	d	l ₁	l ₂
4.688	3.128	4.125	3.188
4.938	3.253	4.375	3.188
5.188	3.316	4.500	3.188
5.125	3.503	4.250	3.188
5.469	3.753	4.438	3.188
5.563	3.753	4.313	3.188
5.750	4.003	4.375	3.250
6.125	4.316	4.563	3.188
6.500	4.566	5.063	3.313
6.938	4.941	5.063	3.563
7.750	5.441	5.313	4.188

d ₁ (mm)	d	l ₁	l ₂
49.2	22.3	68.3	49.2
50.8	23.9	68.3	54.0
54.0	25.5	69.9	54.0
54.0	26.3	68.3	52.4
57.2	28.7	69.9	54.0
63.5	30.3	88.9	63.5
66.7	33.4	77.8	60.3
68.3	36.6	77.8	62.7
76.2	38.2	101.6	69.1
74.6	39.8	84.2	75.4
79.4	41.4	98.4	69.1

d ₁ (mm)	d	l ₁	l ₂
79.4	46.1	81.0	67.5
87.3	47.7	101.6	69.1
88.9	50.9	104.8	69.1
90.5	52.5	90.5	69.1
95.3	55.7	106.4	69.1
98.4	60.4	104.8	72.2
108.0	63.6	106.4	76.2
109.6	66.8	106.4	79.4
109.6	69.9	104.8	79.4
117.5	73.1	108.0	82.6
119.1	76.3	103.2	81.0

d ₁ (mm)	d	l ₁	l ₂
119.1	79.5	104.8	81.0
125.4	82.6	111.1	81.0
135.0	84.2	114.3	81.0
130.2	89.0	108.0	81.0
138.9	95.3	112.7	81.0
141.3	95.3	109.6	81.0
146.1	101.7	111.1	82.6
155.6	109.6	115.9	81.0
165.1	116.0	128.6	84.2
176.2	125.5	128.6	90.5
196.9	138.2	135.0	106.4



TSSC-C04

Operating Limits

Pressure: $\leq 2\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $\leq +260^\circ\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₂₆	d ₁	l ₁	l ₂	n			m	l ₃
	max				10mm	12mm	16mm		
35	118	60	39	34	95	\	\	12	20
38	137	95	39	34	114	\	\	12	20
40	128	70	39	34	105	\	\	12	20
45	128	70	39	34	105	\	\	12	20
48	147	105	39	34	124	\	\	12	20
50	150	85	39	34	\	125	\	18	20
50	150	85	39	34	\	\	145	18	20
55	150	85	39	34	\	125	\	14	20
60	160	95	39	34	\	135	145	18	20
60	160	95	39	34	\	\	\	18	20
65	160	102	50	46	\	135	\	14	26
65	173	131	50	46	150	\	\	12	26
70	200	117	50	46	\	\	175	18	26
75	183	140	50	46	160	\	\	12	26
80	199	122	50	46	\	\	170	18	26
85	199	122	50	46	\	\	170	18	26
85	199	132	50	46	\	\	190	18	26
90	209	132	50	46	\	\	180	18	26
95	209	132	50	46	\	\	180	18	26
100	213	171	50	46	190	\	\	12	26

TSSC-A01

Operating Limits

Pressure: $\leq 2.5\text{MPa}$

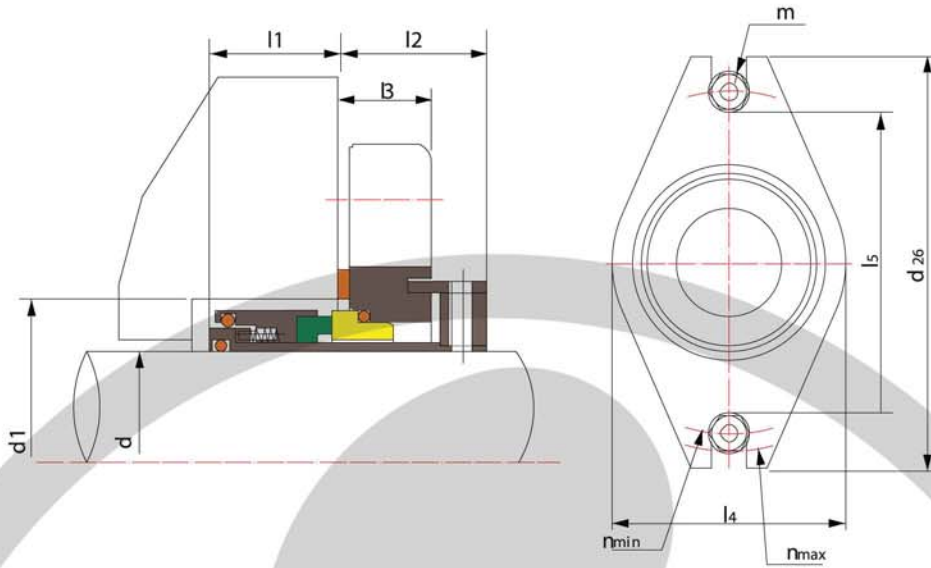
Speed: $\leq 16\text{m/s}$

Temperature: $\leq +200^\circ\text{C}$



d (inches)	d ₂₆	l ₅	l ₃	l ₄	d ₁		n		m	l ₁	l ₂
					min	max	min	max			
1.000	4.000	2.187	0.812	2.208	1.625	1.875	2.750	3.500	1/2	1.125	1.250
1.125	4.125	2.312	0.812	2.333	1.750	2.000	2.875	3.625	1/2	1.125	1.250
1.250	4.250	2.437	0.812	2.458	1.875	2.125	3.000	3.750	1/2	1.125	1.250
1.375	4.250	2.625	0.812	2.645	2.000	2.250	3.187	3.750	1/2	1.125	1.250
1.500	4.500	2.812	0.875	2.833	2.250	2.500	3.375	4.000	1/2	1.125	1.312
1.625	4.750	2.937	0.875	2.958	2.375	2.625	3.500	4.250	1/2	1.125	1.312
1.750	5.000	3.062	0.937	3.083	2.500	2.750	3.625	4.500	1/2	1.187	1.375
1.875	5.250	3.187	0.937	3.207	2.625	2.875	3.750	4.750	1/2	1.187	1.375
2.000	5.500	3.312	1.000	3.333	2.750	3.000	4.000	4.875	5/8	1.187	1.437
2.125	5.750	3.437	1.000	3.458	2.875	3.125	4.125	5.125	5/8	1.187	1.437
2.250	6.500	3.750	1.000	3.895	3.000	3.375	4.562	5.750	3/4	1.187	1.437
2.375	6.500	3.750	1.000	3.895	3.125	3.375	4.562	5.750	3/4	1.187	1.437
2.500	7.000	4.375	1.000	4.770	3.375	4.000	5.187	6.250	3/4	1.125	1.625
2.625	7.000	4.375	1.000	4.770	3.500	4.000	5.187	6.250	3/4	1.125	1.625
2.750	7.000	4.375	1.000	4.770	3.625	4.000	5.187	6.250	3/4	1.125	1.625
2.875	7.500	4.937	1.250	5.145	3.750	4.500	5.750	6.750	3/4	1.187	2.000
3.000	7.500	4.937	1.250	5.145	3.875	4.500	5.750	6.750	3/4	1.187	2.000
3.125	7.500	4.937	1.250	5.145	4.000	4.500	5.750	6.750	3/4	1.187	2.000
3.250	8.000	5.312	1.250	5.520	4.125	4.875	6.125	7.250	3/4	1.187	2.000
3.375	8.000	5.312	1.250	5.520	4.250	4.875	6.125	7.250	3/4	1.187	2.000
3.500	8.000	5.312	1.250	5.520	4.375	4.875	6.125	7.250	3/4	1.187	2.000
3.625	8.500	5.687	1.250	5.895	4.500	5.250	6.500	7.750	3/4	1.187	2.000
3.750	8.500	5.687	1.250	5.895	4.625	5.250	6.500	7.750	3/4	1.187	2.000
3.875	8.500	5.687	1.250	5.895	4.750	5.250	6.500	7.750	3/4	1.187	2.000
4.000	9.000	6.062	1.250	6.145	4.875	5.500	6.875	8.250	3/4	1.187	2.000

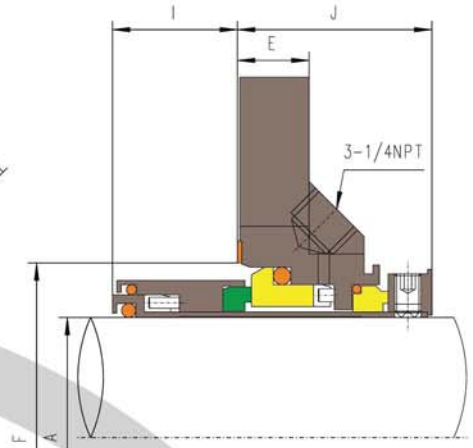
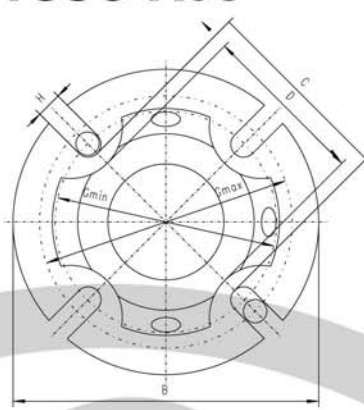
TSSC-A01



- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₂₆	l ₅	l ₃	l ₄	d ₁		n		m	l ₁	l ₂
					min	max	min	max			
24	101.6	55.6	20.7	56.1	40.0	48.0	69.9	88.9	12	28.6	31.8
25	101.6	55.6	20.7	56.1	41.0	48.0	69.9	88.9	12	28.6	31.8
28	104.8	58.8	20.7	59.3	44.0	50.0	73.1	92.1	12	28.6	31.8
30	108.0	61.9	20.7	62.4	46.0	54.0	76.2	95.3	12	28.6	31.8
32	108.0	61.9	20.7	62.4	48.0	54.0	76.2	95.3	12	28.6	31.8
33	108.0	61.9	20.7	62.4	49.0	55.0	76.2	95.3	12	28.6	31.8
35	108.0	66.7	20.7	67.2	51.0	59.0	81.0	95.3	12	28.6	31.8
38	114.3	71.5	22.3	72.0	57.2	62.0	85.8	101.6	12	28.6	33.4
40	114.3	71.5	22.3	72.0	58.0	64.0	85.8	101.6	12	28.6	33.4
43	120.7	74.6	22.3	75.1	61.0	67.0	88.9	108.0	12	28.6	33.4
45	127.0	77.8	23.8	78.3	63.5	69.0	92.1	114.3	12	30.2	35.0
48	133.4	81.0	23.8	81.5	66.7	72.0	95.3	120.7	12	30.2	35.0
50	133.4	81.0	23.8	81.5	68.0	74.0	95.3	120.7	12	30.2	35.0
53	139.7	84.2	25.4	84.7	71.0	77.0	101.6	123.9	16	30.2	36.5
55	146.1	87.3	25.4	87.8	74.0	79.0	104.8	130.2	16	30.2	36.5
58	165.1	95.3	25.4	98.9	79.4	85.7	115.9	146.0	20	30.2	36.5
60	165.1	95.3	25.4	98.9	79.4	85.7	115.9	146.0	20	30.2	36.5
63	177.8	111.2	25.4	121.2	85.8	101.6	131.8	158.7	20	28.6	41.2
65	177.8	111.2	25.4	121.2	88.9	101.6	131.8	158.7	20	28.6	41.2
68	177.8	111.2	25.4	121.2	92.1	101.6	131.8	158.7	20	28.6	41.2
70	177.8	111.2	25.4	121.2	92.1	101.6	131.8	158.7	20	28.6	41.2
75	190.5	125.4	31.7	130.7	98.5	114.3	146.1	171.4	20	30.2	50.8
80	190.5	125.4	31.7	130.7	101.6	114.3	146.1	171.4	20	30.2	50.8
85	203.2	135.0	31.7	140.2	108.0	123.8	155.6	184.1	20	30.2	50.8
90	215.9	144.5	31.7	149.7	114.3	133.3	165.1	196.8	20	30.2	50.8
95	215.9	144.5	31.7	149.7	117.5	133.3	165.1	196.8	20	30.2	50.8
100	228.6	154.0	31.7	156.1	123.9	139.7	174.7	209.5	20	30.2	50.8

TSSC-A03



Operating Limits

Pressure: $\leq 2.3\text{MPa}$

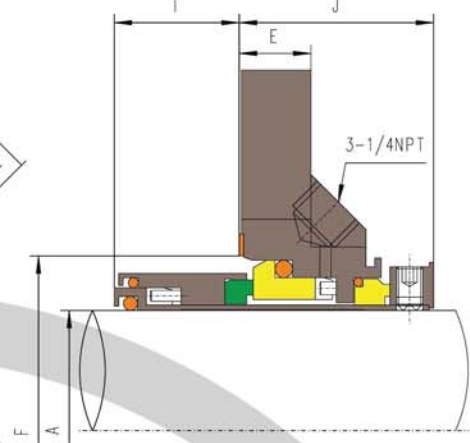
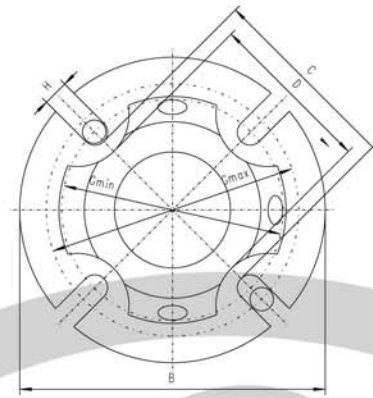
Speed: $\leq 16\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim 200^{\circ}\text{C}$

- Rotary ring(Carbon/SiC/TC)
- Stationary ring(SiC/TC)
- Secondary seal(viton/EPDM/Kalrez)
- Other parts(C-276/Duplex/316)

A (inches)	B	C	D	E	F		G		H max	I	J
					min	max	min	max			
1.000	4.125	2.125	1.937	0.519	1.625	1.937	2.687	3.562	1/2	1.125	1.590
1.125	4.250	2.250	2.063	0.519	1.750	2.062	2.812	3.687	1/2	1.125	1.590
1.250	4.375	2.375	2.187	0.519	1.875	2.187	2.937	3.812	1/2	1.125	1.590
1.375	4.375	2.500	2.312	0.519	2.000	2.250	3.062	3.812	1/2	1.125	1.590
1.500	5.000	2.812	2.562	0.644	2.250	2.375	3.375	4.437	1/2	1.125	1.752
1.625	5.000	2.812	2.562	0.644	2.375	2.500	3.375	4.437	1/2	1.125	1.752
1.750	5.500	3.187	2.812	0.644	2.500	2.750	3.750	4.937	1/2	1.125	1.752
1.875	5.500	3.187	2.812	0.644	2.625	2.875	3.750	4.937	1/2	1.125	1.752
2.000	6.000	3.562	3.063	0.644	2.750	3.000	4.125	5.437	1/2	1.125	1.752
2.000-AC	5.250	3.450	3.035	0.644	2.750	3.000	4.000	4.750	1/2	1.125	1.752
2.125	6.000	3.562	3.063	0.644	2.875	3.125	4.125	5.437	1/2	1.125	1.752
2.250	6.500	3.812	3.312	0.644	3.000	3.250	4.500	5.812	5/8	1.125	1.752
2.375	6.500	3.812	3.312	0.644	3.125	3.375	4.500	5.812	5/8	1.125	1.752
2.500	7.000	4.312	3.812	0.769	3.375	3.625	5.000	6.312	5/8	1.250	1.877
2.625	7.000	4.312	3.812	0.769	3.500	3.750	5.000	6.312	5/8	1.250	1.877
2.750	7.000	4.312	3.812	0.769	3.625	3.875	5.000	6.312	5/8	1.250	1.877
2.875	7.500	4.937	4.250	0.769	3.750	4.125	5.625	6.812	5/8	1.250	1.877
3.000	7.500	4.937	4.250	0.769	3.875	4.250	5.625	6.812	5/8	1.250	1.877
3.125	7.500	4.937	4.250	0.769	4.000	4.375	5.625	6.812	5/8	1.250	1.877
3.250	8.000	5.312	4.625	0.769	4.125	4.500	6.125	7.187	3/4	1.250	1.877
3.375	8.000	5.312	4.625	0.769	4.250	4.625	6.125	7.187	3/4	1.250	1.877
3.500	8.000	5.312	4.625	0.769	4.375	4.750	6.125	7.187	3/4	1.250	1.877
3.625	8.500	5.937	5.000	0.769	4.500	5.000	6.750	7.687	3/4	1.250	1.877
3.750	8.500	5.937	5.000	0.769	4.625	5.125	6.750	7.687	3/4	1.250	1.877
3.875	8.500	5.937	5.000	0.769	4.750	5.250	6.750	7.687	3/4	1.250	1.877
4.000	9.000	6.625	5.375	0.769	4.875	5.500	7.437	8.187	3/4	1.250	1.877
4.125	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.250	1.877
4.250	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.250	1.877
4.375	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.250	1.877
4.500	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.250	1.877
4.625	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.250	1.877
4.750	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.250	1.877
4.875	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.250	1.877
5.000	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.250	1.877

TSSC-A03



Operating Limits

Pressure: $\leq 2.3\text{MPa}$

Speed: $\leq 16\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim 200^{\circ}\text{C}$

- Rotary ring(Carbon/SiC/TC)
- Stationary ring(SiC/TC)
- Secondary seal(viton/EPDM/Kalrez)
- Other parts(C-276/Duplex/316)

A (mm)	B	C	D	E	F		G		H max	I	J
					min	max	min	max			
24	104.8	54	49.2	13.2	40	46	67	90.5	12	28.6	40.5
25	104.8	54	49.2	13.2	41	49	67	90.5	12	28.6	40.5
28	108	57.2	52.4	13.2	44	52.3	70.3	93.6	12	28.6	40.5
30	111	60.4	55.6	13.2	46	55.5	73.5	96.8	12	28.6	40.5
32	111	60.4	55.6	13.2	48	55.5	73.5	96.8	12	28.6	40.5
33	111	60.4	55.6	13.2	49	55.5	73.5	96.8	12	28.6	40.5
35	111	63.5	58.8	13.2	51	57.5	76.6	96.8	12	28.6	40.5
38	127	71.5	65	16.4	57.2	60.4	85.7	114.3	12	28.6	44.5
40	127	71.5	65	16.4	58	60.4	85.7	114.3	12	28.6	44.5
43	139.7	81	71.4	16.4	61	69.9	95.3	127	12	28.6	44.5
45	139.7	81	71.4	16.4	63.5	69.9	95.3	127	12	28.6	44.5
48	139.7	81	71.4	16.4	66.7	73	95.3	127	12	28.6	44.5
50	152.4	90.5	77.8	16.4	68	76.2	104.8	139.7	12	28.6	44.5
53	152.4	90.5	77.8	16.4	71	76.2	104.8	139.7	12	28.6	44.5
55	165.1	96.8	84.1	16.4	74	82.5	114.3	149.2	16	28.6	44.5
58	165.1	96.8	84.1	16.4	76.2	82.6	114.3	149.2	16	28.6	44.5
60	165.1	96.8	84.1	16.4	79.4	85.7	114.3	149.2	16	28.6	44.5
63	177.8	109.5	96.8	19.6	85.8	92.1	127	160.3	16	31.8	47.7
65	177.8	109.5	96.8	19.6	88.9	95.3	127	160.3	16	31.8	47.7
68	177.8	109.5	96.8	19.6	92.1	98.4	127	160.3	16	31.8	47.7
70	177.8	109.5	96.8	19.6	92.1	98.4	127	160.3	16	31.8	47.7
75	190.5	125.4	108	19.6	98.5	108	142.9	173	16	31.8	47.7
80	190.5	125.4	108	19.6	101.6	111.1	142.9	173	16	31.8	47.7
85	203.2	135	117.5	19.6	108	117.5	155.6	182.5	20	31.8	47.7
90	215.9	150.8	127	19.6	114.3	127	171.5	195.2	20	31.8	47.7
95	215.9	150.8	127	19.6	117.5	130.2	171.5	195.2	20	31.8	47.7
100	228.6	168.3	136.5	19.6	123.9	139.7	188.9	207.9	20	31.8	47.7
105	228.6	168.3	136.5	19.6	130.1	149.2	189	208	20	31.8	47.7
110	241.3	177.8	146.1	19.6	136.5	158.8	198.4	220.6	20	31.8	47.7
115	254	186.6	155.6	19.6	142.9	168.3	211.1	230.2	22	31.8	47.7
120	254	186.6	155.6	19.6	142.9	168.3	211.1	230.2	22	31.8	47.7
125	254	186.6	155.6	19.6	149.2	168.3	211.1	230.2	22	31.8	47.7

TSDC-J01

Operating Limits

Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

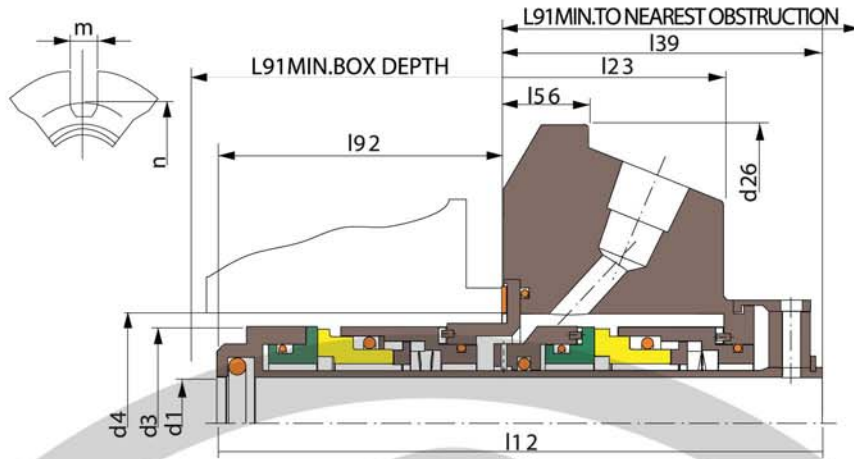
Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C



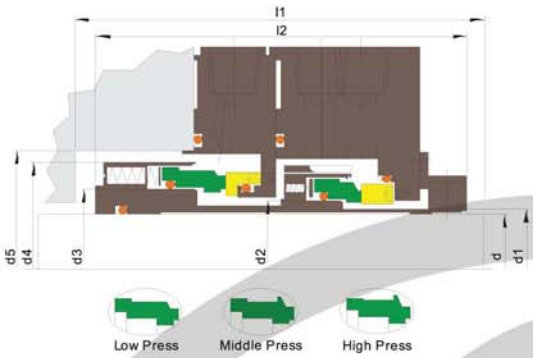
d ₁ (inches)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
1.000	1.564	1.625	1.889	4.000	3.705	1.353	1.954	0.531	2.000	1.876	1.751	0.525	2.805
1.125	1.689	1.750	2.015	4.125	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	2.933
1.250	1.812	1.875	2.294	4.250	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	3.213
1.375	1.939	2.000	2.421	4.375	3.851	1.446	2.062	0.531	2.125	1.914	1.789	0.525	3.338
1.500	2.187	2.250	2.680	4.875	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.525	3.599
1.625	2.312	2.375	2.812	5.000	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.766
1.750	2.406	2.480	2.918	5.250	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.875
1.875	2.549	2.625	2.918	5.250	3.995	1.487	2.125	0.593	2.187	1.995	1.870	0.562	3.875
2.000	2.673	2.750	3.015	5.500	4.355	1.601	2.312	1.063	2.375	2.167	2.042	0.562	4.000
2.125	2.798	2.875	3.360	5.859	4.355	1.601	2.312	0.593	2.375	2.167	2.042	0.687	4.469
2.250	2.923	3.000	3.485	6.500	4.355	1.601	2.312	0.593	2.375	2.167	2.042	0.687	4.566
2.375	3.048	3.125	3.610	6.500	4.545	1.717	2.466	0.625	2.528	2.204	2.079	0.687	4.719
2.500	3.301	3.375	3.891	6.750	4.545	1.717	2.563	0.625	2.625	2.107	1.982	0.687	5.000
2.625	3.551	3.625	4.062	6.750	4.594	1.625	2.500	0.625	2.562	2.219	2.094	0.687	5.170
2.750	3.551	3.625	4.062	6.750	4.594	1.625	2.500	0.625	2.562	2.219	2.094	0.687	5.170
2.875	3.614	3.750	4.186	7.000	4.594	1.725	2.500	0.625	2.562	2.219	2.094	0.687	5.312
3.000	3.864	4.000	4.469	7.750	4.594	1.787	2.562	0.685	2.625	2.157	2.032	0.812	5.720
3.125	4.022	4.125	4.600	7.875	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	5.845
3.250	4.022	4.134	4.600	7.437	4.687	1.593	2.510	\	2.635	2.302	2.177	0.812	5.845
3.375	4.246	4.375	4.850	8.125	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	6.095
3.500	4.371	4.500	4.975	8.250	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	6.220
3.625	4.500	4.625	5.100	8.375	4.687	1.593	2.562	\	2.687	2.250	2.125	0.687	6.250
.750	4.625	4.724	5.199	8.750	4.687	1.593	2.562	\	2.687	2.250	2.125	0.687	6.770
3.875	4.750	4.875	5.375	8.750	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	6.636
4.000	4.875	5.000	5.500	9.000	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	6.761
4.125	5.000	5.125	5.625	9.000	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	6.886
4.250	5.125	5.250	5.750	9.250	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	7.011
4.500	5.375	5.500	6.000	9.500	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	7.261
4.750	5.625	5.750	6.313	10.375	4.687	1.593	2.562	\	2.687	2.250	2.125	0.812	7.574
5.000	6.125	6.760	7.260	12.000	5.515	1.749	3.043	\	3.168	2.598	2.473	0.812	10.00
5.250	6.375	7.010	7.510	12.250	5.515	1.749	3.043	\	3.168	2.598	2.473	0.812	10.25
5.500	6.625	7.500	8.000	12.687	5.515	1.749	3.043	\	3.168	2.598	2.473	0.937	10.50

TSDC-J01



- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/Carbon)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)

d ₁ (mm)	d ₃	d ₄		d ₂₆	l ₁₂	l ₂₃	l ₃₉	l ₅₆	l ₉₀	l ₉₁	l ₉₂	m	n
		min	max										
24	39.7	41.3	48.0	101.6	94.1	34.4	49.6	13.5	50.8	47.7	44.5	13.3	71.2
25	39.7	41.3	48.0	101.6	94.1	34.4	49.6	13.5	50.8	47.7	44.5	13.3	71.2
28	42.9	44.5	51.2	104.8	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	74.5
30	44.5	46.1	56.5	108.0	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	79.9
32	46.0	47.6	58.3	108.0	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	81.6
33	49.3	50.8	61.5	111.1	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	84.8
35	49.3	50.8	61.5	111.1	97.8	36.7	52.4	13.5	54.0	48.6	45.4	13.3	84.8
38	55.5	57.2	68.1	123.8	101.5	37.8	54.0	15.1	55.5	50.7	47.5	13.3	91.4
40	58.7	60.3	71.4	127.0	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	95.7
43	61.1	63.0	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
45	61.1	63.0	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
48	64.7	66.7	74.1	133.4	101.5	37.8	54.0	15.1	55.5	50.7	47.5	14.3	98.4
50	67.9	70.0	76.6	139.7	110.6	40.7	58.7	27.0	60.3	55.0	51.9	14.3	101.6
53	71.1	73.0	85.3	148.8	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	113.5
55	72.9	75.0	85.3	148.8	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	113.5
58	74.2	76.2	88.5	165.1	110.6	40.7	58.7	15.1	60.3	55.0	51.9	17.4	116.0
60	77.4	79.4	91.7	165.1	115.4	43.6	62.6	15.9	64.2	56.0	52.8	17.4	119.9
63	83.8	85.7	98.8	171.5	115.4	43.6	65.1	15.9	66.7	53.5	50.3	17.4	127.0
65	83.8	85.7	98.8	171.5	115.4	43.6	65.1	15.9	66.7	53.5	50.3	17.4	127.0
68	90.2	92.1	103.2	171.5	116.7	41.3	63.5	15.9	65.1	56.4	53.2	17.4	131.3
70	90.2	92.1	103.2	171.5	116.7	41.3	63.5	15.9	65.1	56.4	53.2	17.4	131.3
75	98.1	101.6	113.5	196.9	116.7	45.4	65.1	17.4	66.7	54.8	51.6	20.6	145.3
80	102.2	105.0	116.8	188.9	119.0	40.5	63.8	\	66.9	58.5	55.3	20.6	148.5
85	107.9	111.1	123.2	206.4	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	154.8
90	114.3	117.5	129.5	212.7	119.0	40.5	65.1	\	68.3	57.2	54.0	17.5	158.6
95	117.5	120.0	132.1	222.3	119.0	40.5	65.1	\	68.3	57.2	54.0	17.5	172.0
100	123.8	127.0	139.7	228.6	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	171.7
105	127.0	130.2	142.9	228.6	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	174.9
110	136.5	139.7	152.4	241.3	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	184.4
115	136.5	139.7	152.4	241.3	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	184.4
120	142.9	146.1	160.4	263.5	119.0	40.5	65.1	\	68.3	57.2	54.0	20.6	192.4
125	155.6	171.7	184.4	304.8	140.1	44.4	77.3	\	80.5	66.0	62.8	20.6	254.0
130	161.9	178.1	190.8	311.2	140.1	44.4	77.3	\	80.5	66.0	62.8	20.6	260.4
135	168.3	190.5	203.2	322.3	140.1	44.4	77.3	\	80.5	66.0	62.8	20.8	266.7
40	168.3	190.5	203.2	322.3	140.1	44.4	77.3	\	80.5	66.0	62.8	20.8	266.7



TSDC-J02

Operating Limits

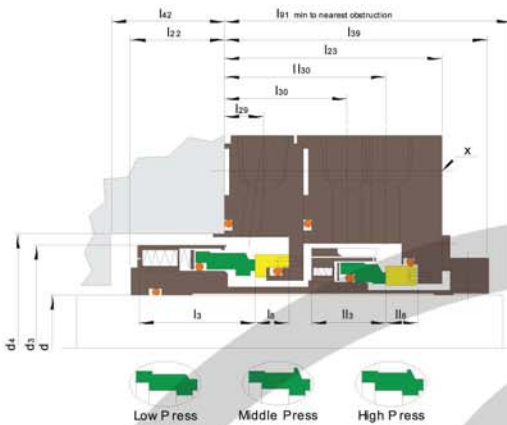
Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/Carbon/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₃	d ₂	d ₁	d ₄	d ₅	l ₂	l ₁
1.000	1.750	1.500	1.250	2.500	2.875	5.312	5.750
1.125	1.875	1.625	1.375	2.625	3.000	5.312	5.750
1.250	2.000	1.750	1.500	2.750	3.125	5.312	5.750
1.375	2.125	1.875	1.625	3.000	3.375	5.625	5.750
1.500	2.250	2.000	1.750	3.125	3.500	5.625	5.750
1.625	2.375	2.125	1.875	3.250	3.625	5.750	5.750
1.750	2.500	2.250	2.000	3.375	3.750	5.750	5.750
1.875	2.625	2.375	2.125	3.500	3.875	5.750	5.750
2.000	2.750	2.500	2.250	3.625	4.000	5.937	6.500
2.125	2.875	2.625	2.375	3.750	4.125	5.937	6.500
2.250	3.000	2.750	2.500	3.812	4.187	5.937	6.500
2.375	3.125	2.875	2.625	3.937	4.312	6.218	6.500
2.500	3.250	3.000	2.750	4.125	4.500	6.218	6.500
2.625	3.375	3.125	2.875	4.250	4.625	6.343	6.500
2.750	3.500	3.250	3.000	4.375	4.750	6.343	6.500
2.875	3.625	3.375	3.125	4.500	4.875	6.343	6.500
3.000	3.750	3.500	3.250	4.625	5.000	6.343	6.500
3.125	3.875	3.625	3.375	4.750	5.125	6.343	7.000
3.250	4.000	3.750	3.500	4.875	5.250	6.343	7.000
3.375	4.125	3.875	3.625	5.125	5.500	6.343	7.000
3.500	4.250	4.000	3.750	5.250	5.625	6.343	7.000
3.625	4.375	4.125	3.875	5.375	5.750	6.593	7.000
3.750	4.500	4.250	4.000	5.500	5.875	6.593	7.000
3.875	4.625	4.375	4.125	5.625	6.000	6.593	7.000
4.000	4.750	4.500	4.250	5.750	6.125	6.593	7.000
4.125	4.875	4.625	4.375	5.875	6.250	6.593	7.000
4.250	5.000	4.750	4.500	6.000	6.375	6.593	7.000



TSDC-J03

Operating Limits

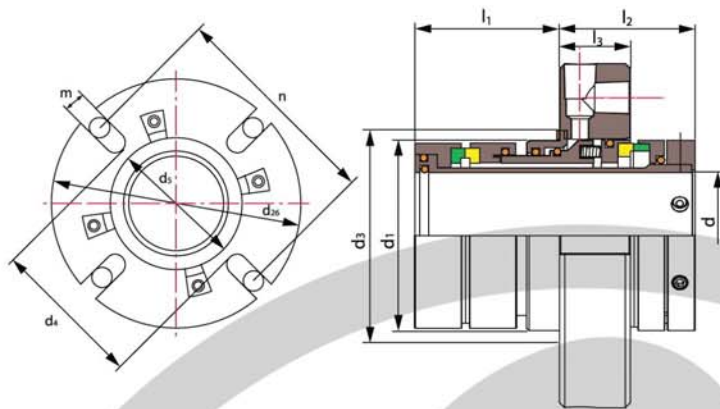
Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/Carbon/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d (mm)	d ₃	d ₄	l ₂₂	l ₂₃	l ₂₉	l ₃₀	l ₃₉	l ₄₂	l ₉₁	l ₃	l ₈	l _{l3}	l _{l8}	X	
22.6	63.6	70.0	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
25.8	66.7	77.4	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
28.9	69.9	80.0	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
32.1	72.2	80.0	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
35.3	76.2	87.0	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
38.5	79.4	90.0	47.0	79.9	16	50.0	61	98	50.0	100	52.4	14.3	30.1	11.1	M10
41.6	82.6	90.0	50.2	79.9	16	47.0	60	98	53.2	100	52.4	14.3	33.3	11.1	M10
44.8	85.7	96.5	50.2	79.9	16	47.0	60	98	53.2	100	52.4	14.3	33.3	11.1	M10
48.0	88.9	99.7	50.2	79.9	16	47.0	60	98	53.2	100	52.4	14.3	33.3	11.1	M10
51.2	96.8	102.8	47.6	88.9	16	52.5	68	107	50.6	110	52.4	15.9	33.3	14.3	M12
54.3	100.0	106.0	47.6	88.9	16	52.5	68	107	50.6	110	52.4	15.9	33.3	14.3	M12
57.5	104.8	110.8	47.6	88.9	16	52.5	68	107	50.6	110	52.4	15.9	33.3	14.3	M12
60.7	108.0	114.0	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
63.9	111.1	117.1	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
67.0	114.3	120.3	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
70.2	117.5	123.5	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
73.4	120.7	126.7	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
76.6	123.8	129.8	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
79.7	130.2	136.2	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
82.9	133.4	139.4	53.1	88.9	16	51.0	68	107	56.1	110	52.4	19.8	33.3	15.9	M12
86.1	136.5	142.5	53.1	88.9	16	51.0	68	110	56.1	113	52.4	19.8	33.3	15.9	M12
89.3	139.7	145.7	53.1	88.9	16	51.0	68	110	56.1	113	52.4	19.8	33.3	15.9	M12
92.4	142.9	148.9	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
95.6	146.1	152.1	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
98.8	149.2	155.2	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
102.0	152.4	158.4	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
105.1	155.6	161.6	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
108.3	161.9	167.9	49.3	95.9	16	57.0	75	117	52.3	120	52.4	19.8	36.5	15.9	M12
111.5	165.1	171.1	53.2	95.9	16	55.0	75	117	56.2	120	52.4	19.8	36.5	19.8	M12
121.0	174.8	180.8	53.2	95.9	16	55.0	75	117	56.2	120	52.4	19.8	36.5	19.8	M12



TSDC-J04

Operating Limits

Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

- Rotary Ring (SiC/Carbon/TC)
- Stationary Ring (SiC/Carbon/TC)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

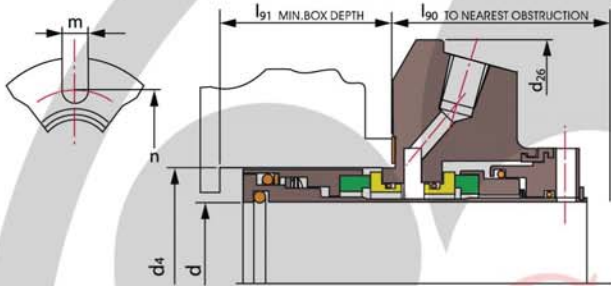
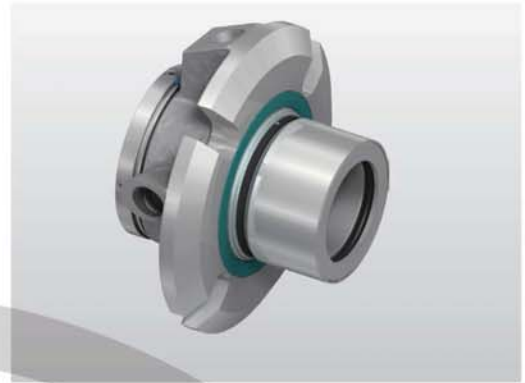
d (mm)	l ₁	l ₂	m	l ₃	d ₁	d ₃	d ₄	n	d ₅	d ₂₆
35	57	49	13	20	58	79	68	91	62	130
38	59	52	13	23	62	86	72	98	66	130
40	59	52	13	23	62	86	72	98	66	130
43	59	52	13	23	67	89	77	101	70	130~150
45	59	52	13	23	69	93	79	105	75	130~150
48	60	53	13	23	72	93	82	105	75	140~150
50	60	53	13/17	23	74	99	84	111/115	77	140~170
53	60	53	13	24	76	99	86	111	80	140~170
55	64	53	13/17	24	79	99	89	111/115	82	150~170
58	64	53	13	24	83	99	93	111	84	150
60	64	53	13/17	24	85	111	95	123/127	87	150~170
63	72	60	17	25	90	111	99	127	90	160
65	72	60	17	25	93	111	102	127	92	160~170
68	72	60	17	25	95	111	104	127	95	170
70	72	60	17	25	95	139	105	155	98	170~220
80	74	65	17	29	109	139	118	155	111	200~220
85	78	70	17	30	114	149	123	165	111	200~220
90	78	70	17	30	119	149	128	165	120	200~220
95	78	70	17	30	125	149	134	165	125	200
100	76	76	17	34	129	159	138	175	131	220
105	76	76	17	34	135	169	144	175	134	220
110	76	76	17	34	140	169	149	175	139	230
115	76	76	17	34	150	179	160	185	150	230
120	76	76	17	34	157	188	170	194	158	245
125	76	76	17	34	160	189	175	194	170	270
130	84	86	17	36	166	194	180	210	174	280
135	84	86	17	36	172	199	185	215	179	280
140	84	86	17	36	178	206	192	222	187	280

TSDC-J05

Operating Limits

Pressure: $\leq 2.1\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +205^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)



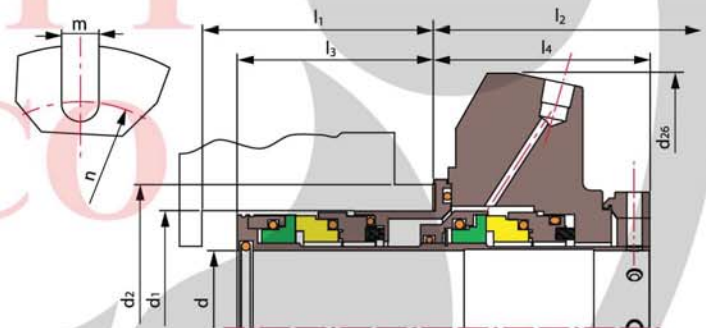
d (inches)	d ₄		d ₂₆	l ₉₀	l ₉₁	n	m
	min	max					
1.000	1.625	1.889	4.000	2.000	1.635	2.805	0.525
1.125	1.750	2.015	4.125	2.125	1.603	2.933	0.525
1.250	1.875	2.294	4.250	2.125	1.603	3.213	0.525
1.375	2.000	2.421	4.375	2.125	1.603	3.338	0.525
1.500	2.250	2.680	4.875	2.187	1.680	3.599	0.525
1.625	2.375	2.812	5.000	2.187	1.680	3.766	0.562
1.750	2.500	2.918	5.250	2.187	1.680	3.875	0.562
1.875	2.625	2.918	5.250	2.187	1.680	3.875	0.562
2.000	2.750	3.015	5.500	2.375	1.711	4.000	0.562
2.125	2.875	3.360	5.859	2.375	1.711	4.469	0.687
2.250	3.000	3.485	6.500	2.475	1.711	4.566	0.687
2.375	3.125	3.610	6.500	2.528	1.711	4.719	0.687
2.500	3.375	3.891	6.750	2.625	1.703	5.000	0.687
2.625	3.687	4.062	6.750	2.562	1.727	5.170	0.687
2.750	3.687	4.062	6.750	2.562	1.727	5.170	0.687

TSDC-FS02

Operating Limits

Pressure: $\leq 2.1\text{MPa}$
 Speed: $\leq 25\text{m/s}$
 Temperature: $-30^{\circ}\text{C} \sim +205^{\circ}\text{C}$

- Rotary Ring(SiC/Carbon/TC)
- Stationary Ring(SiC/Carbon/TC)
- Secondary Seal(VITON/Encapsulated Ring/PTFE)
- Other Parts(SUS304/SUS316/Titanium/Hastelloy-C)



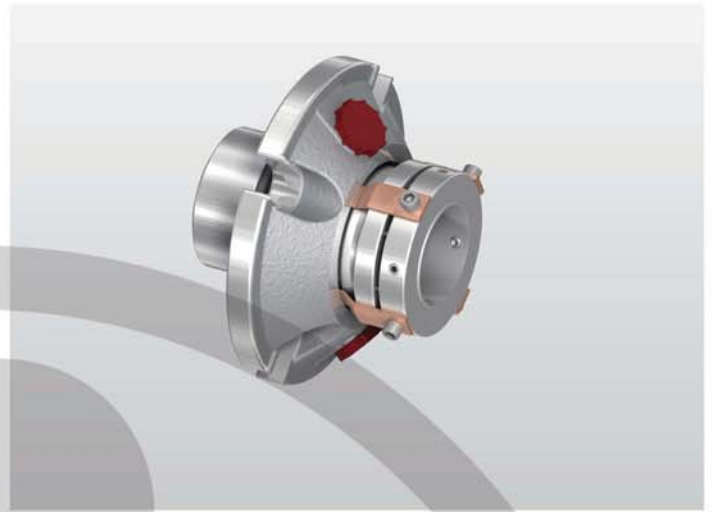
d (inches)	d ₁		d ₂	d ₂₆	l ₃	l ₁	l ₄	l ₂	n	m
	min	max								
1.000	1.625	1.875	2.115	3.69~3.75	1.838	1.900	2.062	2.124	2.750	0.440
1.125	1.750	2.000	2.240	3.69~3.75	1.838	1.900	2.062	2.124	2.875	0.440
1.250	1.890	2.245	2.495	4.19~4.25	1.838	1.900	2.062	2.124	3.125	0.562
1.375	2.000	2.375	2.615	3.94~4.00	1.838	1.900	2.062	2.124	3.250	0.440
1.437	2.250	2.688	2.775	4.72~4.78	1.903	1.965	2.122	2.184	3.750	0.560
1.500	2.250	2.525	2.775	4.69~4.75	1.903	1.965	2.122	2.184	3.750	0.560
1.625	2.375	2.780	3.030	4.69~4.75	1.903	1.965	2.122	2.184	3.750	0.560
1.750	2.500	2.875	3.150	4.94~5.00	1.903	1.965	2.122	2.184	3.875	0.560
1.875	2.625	2.875	3.150	4.94~5.00	1.903	1.965	2.122	2.184	3.875	0.560
1.937	2.690	2.920	\	\	1.903	1.965	2.122	2.184	\	\
2.000	2.750	3.030	3.280	5.00~5.12	1.903	1.965	2.122	2.184	4.120	0.688
2.125	2.875	3.125	3.430	5.94~6.00	1.903	1.965	2.122	2.184	4.250	0.750
2.250	3.000	3.280	\	\	1.903	1.965	2.122	2.184	\	\
2.375	3.125	3.687	3.975	6.32~6.38	1.903	1.965	2.122	2.184	4.875	0.750
2.437	3.375	3.450	TBD	6.32~6.38	1.934	1.996	2.091	2.153	4.875	0.750
2.500	3.375	3.687	3.975	6.32~6.38	1.903	1.965	2.122	2.184	4.875	0.750
2.625	3.625	4.312	4.615	7.19~7.25	2.429	2.491	2.906	2.968	5.625	0.880
2.750	3.750	4.312	4.615	7.19~7.25	2.429	2.491	2.906	2.968	5.625	0.880



TSDC-A02

Operating Limits

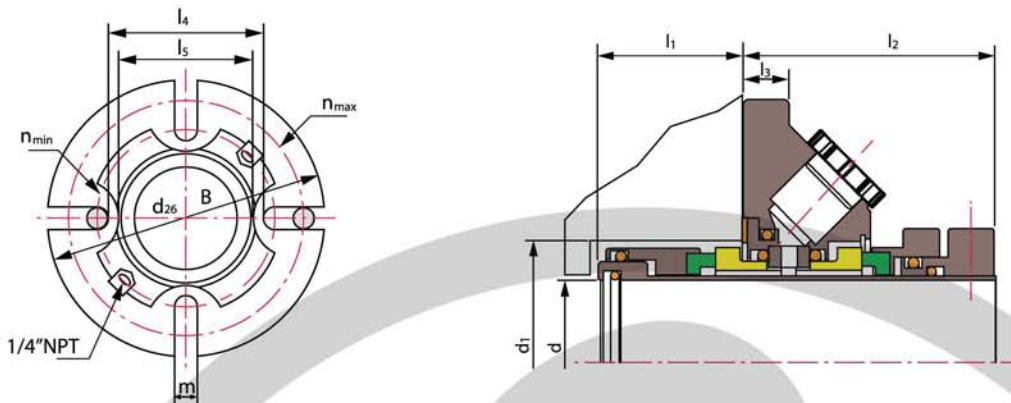
Pressure: <2.1MPa (shaft diameter ≤ 75mm)
 <1.3MPa (shaft diameter > 75mm)
 Speed: ≤ 25m/s
 Temperature: -30°C ~ +205°C



- Rotary Ring (SiC/Carbon/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/Encapsulated Ring/PTFE)
- Other Parts (SUS304/SUS316/Titanium/Hastelloy-C)

d (inches)	d ₂₆	l ₄	l ₅	l ₃	d ₁		n		m	l ₁	l ₂
					min	max	min	max			
1.000	4.125	2.125	1.937	0.519	1.625	1.937	2.687	3.562	1/2	1.281	2.062
1.125	4.250	2.250	2.063	0.519	1.750	2.062	2.812	3.617	1/2	1.281	2.062
1.250	4.375	2.375	2.187	0.519	1.875	2.187	2.937	3.812	1/2	1.281	2.062
1.375	4.375	2.500	2.312	0.519	2.000	2.250	3.062	3.812	1/2	1.281	2.062
1.500	5.000	2.812	2.562	0.644	2.250	2.375	3.375	4.437	1/2	1.312	2.125
1.625	5.000	2.812	2.562	0.644	2.375	2.500	3.375	4.437	1/2	1.312	2.125
1.750	5.500	3.187	2.812	0.644	2.500	2.750	3.750	4.937	1/2	1.312	2.125
1.875	5.500	3.187	2.812	0.644	2.625	2.875	3.750	4.937	1/2	1.312	2.125
2.000	6.000	3.562	3.063	0.644	2.750	3.000	4.125	5.437	1/2	1.380	2.125
2.000-AC	5.250	3.450	3.035	0.644	2.750	3.000	4.000	4.750	1/2	1.380	2.125
2.125	6.000	3.562	3.063	0.644	2.875	3.125	4.125	5.437	1/2	1.380	2.125
2.250	6.500	3.812	3.312	0.644	3.000	3.250	4.500	5.812	5/8	1.380	2.125
2.375	6.500	3.812	3.312	0.644	3.125	3.375	4.500	5.812	5/8	1.380	2.125
2.500	7.000	4.312	3.812	0.769	3.375	3.625	5.000	6.312	5/8	1.500	2.375
2.625	7.000	4.312	3.812	0.769	3.500	3.750	5.000	6.312	5/8	1.500	2.375
2.750	7.000	4.312	3.812	0.769	3.625	3.875	5.000	6.312	5/8	1.500	2.375
2.875	7.500	4.937	4.250	0.769	3.750	4.125	5.625	6.812	5/8	1.500	2.375
3.000	7.500	4.937	4.250	0.769	3.875	4.250	5.625	6.812	5/8	1.500	2.375
3.125	7.500	4.937	4.250	0.769	4.000	4.375	5.625	6.812	5/8	1.500	2.375
3.250	8.000	5.312	4.625	0.769	4.125	4.500	6.125	7.187	3/4	1.500	2.375
3.375	8.000	5.312	4.625	0.769	4.250	4.625	6.125	7.187	3/4	1.500	2.375
3.500	8.000	5.312	4.625	0.769	4.375	4.750	6.125	7.187	3/4	1.500	2.375
3.625	8.500	5.937	5.000	0.769	4.500	5.000	6.750	7.687	3/4	1.500	2.375
3.750	8.500	5.937	5.000	0.769	4.625	5.125	6.750	7.687	3/4	1.500	2.375
3.875	8.500	5.937	5.000	0.769	4.750	5.250	6.750	7.687	3/4	1.500	2.375
4.000	9.000	6.625	5.375	0.769	4.875	5.500	7.437	8.187	3/4	1.500	2.375
4.125	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.500	2.375
4.250	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.500	2.375
4.375	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.500	2.375
4.500	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.500	2.375
4.625	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.500	2.375
4.750	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.500	2.375
4.875	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.500	2.375
5.000	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.500	2.375

TSDC-A02



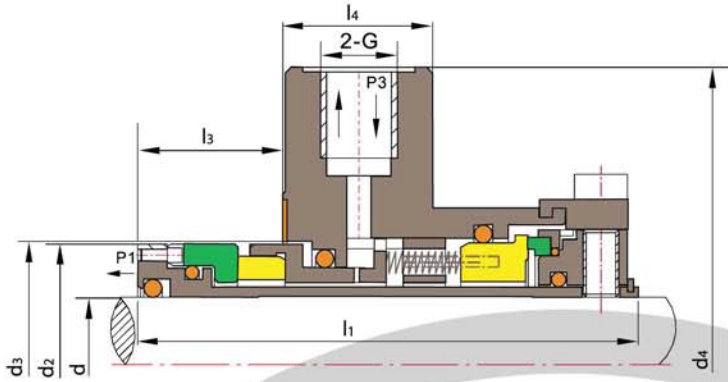
Operating Limits

Pressure: <2.1MPa (shaft diameter ≤ 75mm)
<1.3MPa (shaft diameter > 75mm)

Speed: ≤ 25m/s

Temperature: -30°C ~ +205°C

d (mm)	d ₂₆	l ₄	l ₅	l ₃	d ₁		n		m max	l ₁	l ₂
					min	max	min	max			
24	104.8	54.0	49.2	13.2	40.0	46.0	67.0	90.5	12	32.5	52.4
25	104.8	54.0	49.2	13.2	41.0	49.0	67.0	90.5	12	32.5	52.4
28	108.0	57.2	52.4	13.2	44.0	52.3	70.3	93.6	12	32.5	52.4
30	111.0	60.4	55.6	13.2	46.0	55.5	73.5	96.8	12	32.5	52.4
32	111.0	60.4	55.6	13.2	48.0	55.5	73.5	96.8	12	32.5	52.4
33	111.0	60.4	55.6	13.2	49.0	55.5	73.5	96.8	12	32.5	52.4
35	111.0	63.5	58.8	13.2	51.0	57.5	76.6	96.8	12	32.5	52.4
38	127.0	71.5	65.0	16.4	57.2	60.3	85.7	114.3	12	33.3	54.0
40	127.0	71.5	65.0	16.4	58.0	60.4	85.7	114.3	12	33.3	54.0
43	127.0	71.5	65.0	16.4	61.0	63.5	85.7	114.3	12	33.3	54.0
45	139.7	81.0	71.4	16.4	63.5	69.9	95.3	127.0	12	33.3	54.0
48	139.7	81.0	71.4	16.4	66.7	73.0	95.3	127.0	12	33.3	54.0
50	139.7	81.0	71.4	16.4	68.0	73.0	95.3	127.0	12	33.3	54.0
53	152.4	90.5	77.8	16.4	71.0	76.2	104.8	139.7	12	35.0	54.0
55	152.4	90.5	77.8	16.4	74.0	79.4	104.8	139.7	12	35.0	54.0
58	165.1	96.8	84.1	16.4	76.2	82.5	114.3	149.2	16	35.0	54.0
60	165.1	96.8	84.1	16.4	79.4	85.7	114.3	149.2	16	35.0	54.0
63	177.8	109.5	96.8	19.6	85.8	92.1	127.0	160.3	16	38.1	60.3
65	177.8	109.5	96.8	19.6	88.9	95.3	127.0	160.3	16	38.1	60.3
68	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	38.1	60.3
70	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	38.1	60.3
75	190.5	125.4	108.0	19.6	98.5	108.0	142.9	173.0	16	38.1	60.3
80	190.5	125.4	108.0	19.6	101.6	111.1	142.9	173.0	16	38.1	60.3
85	203.2	135.0	117.5	19.6	108.0	117.5	155.6	182.5	20	38.1	60.3
90	215.9	150.8	127.0	19.6	114.3	127.0	171.5	195.2	20	38.1	60.3
95	215.9	150.8	127.0	19.6	117.5	130.2	171.5	195.2	20	38.1	60.3
100	228.6	168.3	136.5	19.6	123.9	139.7	189.0	208.0	20	38.1	60.3
105	228.6	168.3	136.5	19.6	130.1	149.2	189.0	208.0	20	38.1	60.3
110	241.3	177.8	146.2	19.6	136.5	158.8	198.4	220.6	20	38.1	60.3
115	254.0	186.6	155.8	19.6	142.9	168.3	211.1	230.2	22	38.1	60.3
120	254.0	186.6	155.8	19.6	142.9	168.3	211.1	230.2	22	38.1	60.3
125	254.0	186.6	155.8	19.6	149.2	168.3	211.1	230.2	22	38.1	60.3



TSDC-B01(TS K2)

Operating Limits

Pressure: P1=1MPa P3=1.3MPa
 Pressure margin: $\Delta P=P3-P1=0.15\sim 0.2\text{MPa}$
 Speed: $\leq 16\text{m/s}$
 Temperature: $-30^{\circ}\text{C}\sim +200^{\circ}\text{C}$

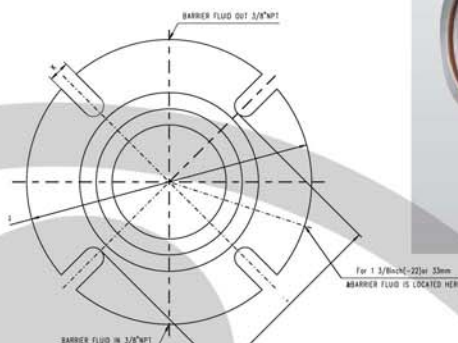
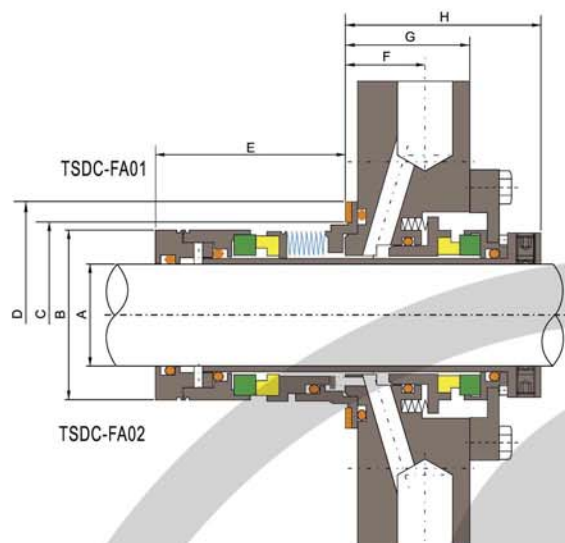
- Rotary Ring(SiC/TC)
- Stationary Ring(Carbon/SiC/TC)
- Secondary Seal(VITON/PTFE/Encapsulated Ring)
- Spring & Other Parts(SUS304/SUS316)

Features of structure:

1. Double cartridge mechanical seal, convenience installation
2. Independent of the direction of rotation
3. Actionless springs, ready to high speed.
And springs protected from product.
4. Multi - spring balance, comply with AP1610 standard.

Seal size d(mm)	d ₂	d ₃		d ₄	d ₅	l ₁	l ₃	l ₄	S	G (inches)
		min	max							
25	43.0	44.0	51.0	105	62	86.5	24	25.4	14	1/4"
28	46.0	47.0	52.0	105	62	86.5	24	25.4	14	1/4"
30	48.0	49.0	56.0	105	65	86.5	24	25.4	14	1/4"
33	50.0	51.0	57.0	110	67	86.5	24	25.4	14	1/4"
35	53.0	54.0	61.0	113	70	86.5	24	25.4	14	1/4"
38	56.0	57.0	66.0	123	75	86.5	24	25.4	14	3/8"
40	58.0	59.0	68.0	123	78	86.5	24	25.4	16	3/8"
43	60.0	61.5	70.5	133	80	86.5	24	25.4	16	3/8"
45	62.5	64.0	73.0	138	81	86.5	24	25.4	16	3/8"
48	65.5	67.0	75.0	138	84	86.5	24	25.4	16	3/8"
50	68.0	69.0	78.0	148	87	86.5	24	25.4	16	3/8"
55	73.0	74.0	83.0	148	90	86.5	24	25.4	18	3/8"
60	78.0	79.0	91.0	157	102	86.5	24	25.4	18	3/8"
65	83.0	84.5	98.5	163	109	86.5	24	25.4	18	3/8"
70	93.0	95.0	108.0	178	118	86.5	24	25.4	18	3/8"
75	100.0	101.6	118.0	190	129	108.0	30	28.0	18	3/8"
80	106.4	108.0	124.0	195	135	108.0	30	28.0	18	3/8"
85	109.5	111.1	128.0	198	139	108.0	30	28.0	22	3/8"
90	115.9	117.5	135.0	205	145	108.0	30	28.0	22	3/8"
95	119.1	120.7	138.0	208	148	108.0	30	28.0	22	3/8"
100	125.4	127.0	144.0	218	154	108.0	30	28.0	22	3/8"

TSDC-FA01/FA02



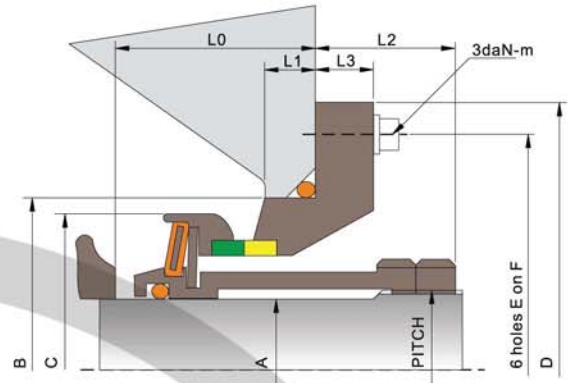
Operating Limits

Pressure: ≤ 2.1 MPa
 Speed: ≤ 25 m/s
 Temperature: $-30^{\circ}\text{C} \sim 200^{\circ}\text{C}$

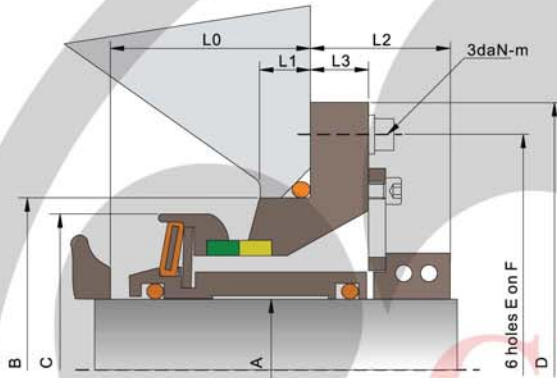
- Rotary ring(SiC/TC)
- Stationary ring(SiC/TC/Carbon)
- Secondary seal(viton/EPDM/Kalrez)
- Other parts(C-276/Duplex/SUS316)

A (mm)	B	C	D	E	F	G	H	J	K	L
24	43.2	44.5	56.6	49.7	19	32.5	50.8	101.6	11.1	60.3
25	43.2	44.5	56.6	49.7	19	32.5	50.8	101.6	11.1	60.3
28	43.2	44.5	56.6	49.7	19	32.5	50.8	108	11.1	62.7
30	49.5	50.8	59.8	49.7	19	32.5	50.8	108	11.1	65.6
32	49.5	50.8	59.8	49.7	19	32.5	50.8	108	11.1	65.6
33	49.5	50.8	63	49.7	19	32.5	50.8	108	11.1	68.9
35	49.5	50.8	63	49.7	19	32.5	50.8	108	11.1	68.9
38	55.9	57.2	66.2	49.7	19	32.5	50.8	114.3	14.3	74.9
40	59.1	60.3	72.5	49.7	19	32.5	50.8	127	14.3	78.1
43	62.2	63.5	75.9	49.7	20.6	32.5	50.8	139.7	14.3	81
45	62.2	63.5	75.9	49.7	20.6	32.5	50.8	139.7	14.3	81
48	65.4	66.7	78.9	49.7	19	32.5	50.8	139.7	14.3	84.2
50	68.6	69.9	82	49.7	19	32.5	50.8	139.7	14.3	90.7
53	71.8	73	88.6	49.7	19	32.5	50.8	152.4	17.5	93.7
55	74.9	76.2	91.6	49.7	19	32.5	50.8	158.8	17.5	96.9
58	81.2	82.6	94.7	52.8	19	33.4	58.5	158.8	17.5	100
60	81.2	82.6	94.7	52.8	19	33.4	58.5	158.8	17.5	100
63	84.3	85.7	97.9	51	19	33.4	51.7	165.1	17.5	100
65	90.4	92.1	103.4	52.1	19	33.4	51.7	165.1	17.5	106.4
68	92.7	95.2	109.7	52.1	19	33.4	51.7	190.5	17.5	112.7
70	92.7	95.2	109.7	52.1	19	33.4	51.7	190.5	17.5	112.7
72	96.1	98.4	113	56	19	40.1	58.5	190.5	17.5	117.5
75	99.1	101.6	119.4	55.9	19	40.1	58.4	203.2	17.5	128.6
80	106	108	125.7	58.8	19	38.8	57.2	209.6	17.5	131.7
85	109.2	111.1	128.9	57.2	19	40.1	58.5	215.9	20.6	134.9
90	115.7	117.5	135.3	57.2	19	40.1	58.5	215.9	20.6	141.3
95	118.9	120.6	138.4	56	19	40.1	58.5	222.2	20.6	164.3

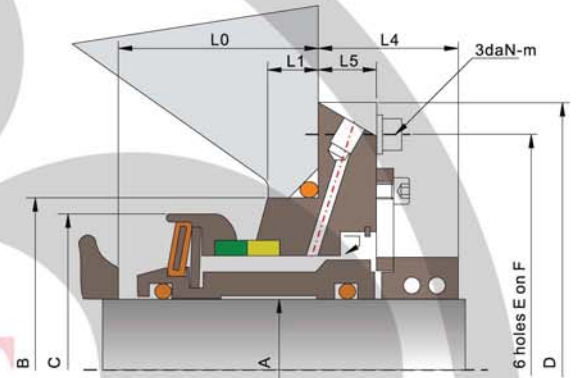
A (inches)	B	C	D	E	F	G	H	J	K	L
1.000	1.700	1.750	2.230	1.958	0.750	1.280	2.000	4.000	0.437	2.375
1.250	1.700	1.750	2.230	1.958	0.750	1.280	2.000	4.250	0.437	2.463
1.250	1.950	2.000	2.355	1.958	0.750	1.280	2.000	4.250	0.437	2.583
1.375	1.950	2.000	2.480	1.958	0.750	1.280	2.000	4.250	0.437	2.713
1.500	2.200	2.250	2.605	1.958	0.750	1.280	2.000	4.500	0.562	2.950
1.625	2.325	2.375	2.855	1.958	0.750	1.280	2.000	5.000	0.562	3.075
1.750	2.450	2.500	2.990	1.958	0.812	1.280	2.000	5.500	0.562	3.188
1.875	2.575	2.625	3.105	1.958	0.750	1.280	2.000	5.500	0.562	3.313
2.000	2.700	2.750	3.230	1.958	0.750	1.280	2.000	5.500	0.562	3.570
2.125	2.825	2.875	3.490	1.958	0.750	1.280	2.000	6.000	0.687	3.688
2.250	2.950	3.000	3.605	1.958	0.750	1.280	2.000	6.250	0.687	3.813
2.375	3.195	3.250	3.730	2.080	0.750	1.312	2.303	6.250	0.687	3.938
2.500	3.320	3.375	3.855	2.080	0.750	1.312	2.035	6.500	0.687	3.938
2.625	3.560	3.625	4.070	2.053	0.750	1.312	2.035	6.500	0.687	4.188
2.750	3.650	3.750	4.320	2.053	0.750	1.312	2.035	7.500	0.687	4.438
2.875	3.785	3.875	4.450	2.203	0.750	1.580	2.303	7.500	0.687	4.625
3.000	3.900	4.000	4.700	2.200	0.750	1.577	2.300	8.000	0.687	5.062
3.125	4.050	4.125	4.825	2.250	0.750	1.580	2.303	8.000	0.687	5.062
3.250	4.175	4.250	4.950	2.267	0.750	1.527	2.250	8.250	0.687	5.188
3.375	4.300	4.375	5.075	2.250	0.750	1.580	2.303	8.500	0.812	5.312
3.500	4.430	4.500	5.200	2.203	0.750	1.580	2.303	8.500	0.812	5.438
3.625	4.555	4.625	5.325	2.250	0.750	1.580	2.303	8.500	0.812	5.562
3.750	4.680	4.750	5.450	2.203	0.750	1.580	2.303	8.750	0.812	5.687
3.875	4.805	5.125	5.575	2.250	0.750	1.580	2.303	8.750	0.812	5.812
4.500	5.680	5.750	6.450	2.350	0.750	1.580	2.303	9.500	0.812	6.500



03



03C



03CP

TSG03、TSG03C、TSG03CP

Operating Limits

Pressure: $\leq 2\text{MPa}$

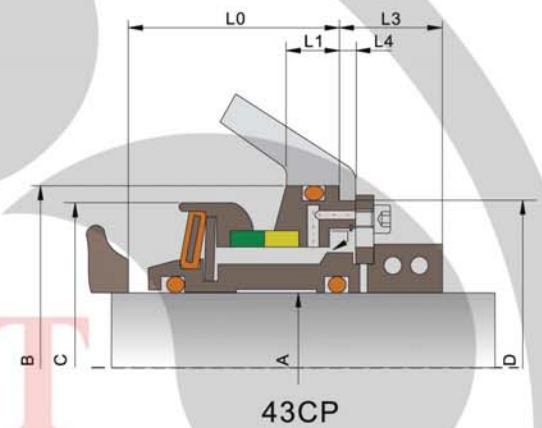
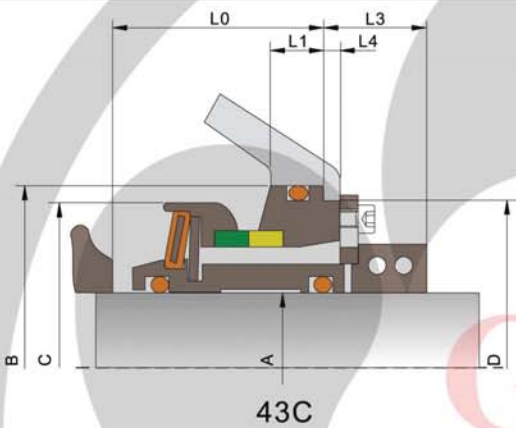
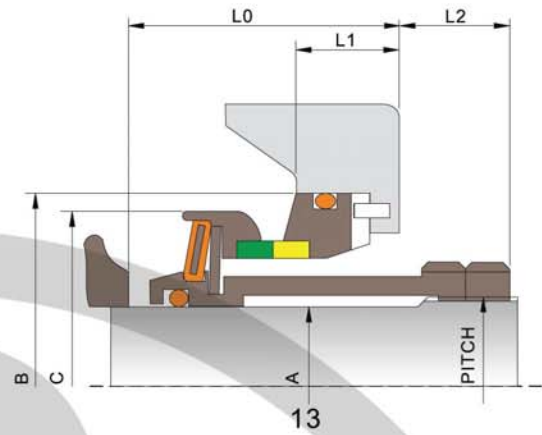
Speed: $\leq 23\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring (SiC/TC)
- Stationary Ring (SiC/TC)
- Secondary Seal (VITON/EPDM/Kalrez)
- Spring & Other Parts (C-276/Duplex/SUS316)

Model	A	B	C	D	E	F	L0	L1	L2	L3	L4	L5
47x55	20~32	76	72	124	11	106	48.5	13	32	12	61.5	30
72x82	33~51	108	99	168	13	148	61	15	38	18	70	35
103x113	52~78	140	135	199	13	180	61	15	39	19	81	40
132x144	79~108	185	170	240	13	220	62	16	40	20	85	40
160x178	09~137	210	208	290	13	260	72	22	40	20	90	40
211x229	138~180	280	264	370	17	330	93	25	42	20	93	42

Pitch: please consult us according to diameter



TSG13、TSG43C、TCG43CP

Operating Limits

Pressure: $\leq 2\text{MPa}$

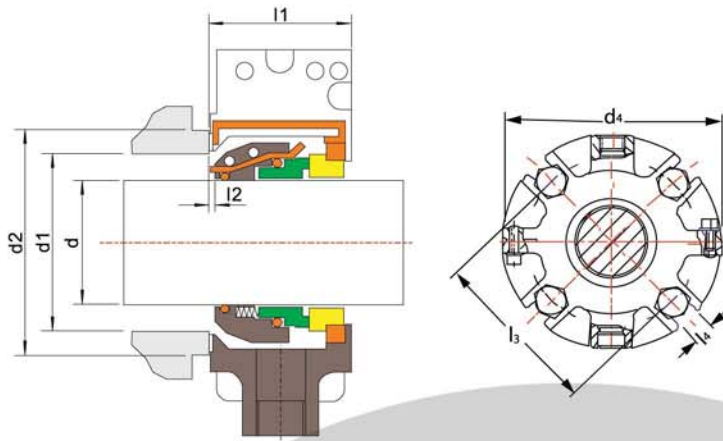
Speed: $\leq 23\text{m/s}$

Temperature: $-30^{\circ}\text{C} \sim +200^{\circ}\text{C}$

- Rotary Ring(SiC/TC)
- Stationary Ring(SiC/TC)
- Secondary Seal(VITON/EPDM/Kalrez)
- Spring & Other Parts(C-276/Duplex/SUS316)

Model	A	B	C	D	L0	L1	L2	L3	L4
47x55	20~32	76	72	68	50.5	15	40.5	25	4
72x82	33~51	108	99	102	61	15	48	28	6
103x113	52~78	140	135	131	63	17	57	30	6
132x144	79~108	185	170	177	67	18	58	33	6
160x178	109~137	210	208	202	86	34	60	50	6
211x229	138~180	280	264	265	105	40	62	60	8

Pitch: please consult us according to diameter



TSSP-CO1

Operating Limits

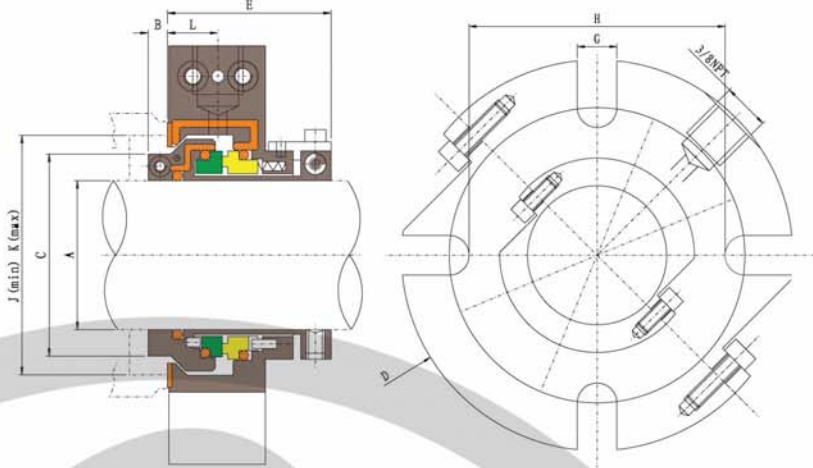
Pressure: $\leq 1\text{MPa}$
 Speed: $\leq 3600\text{RPM}$
 Temperature: $+200^\circ\text{C}$

- Rotary Ring(Carbon/SiC/TC)
- Stationary Ring(Ceramic/SiC/TC)
- Secondary Seal(VITON/NBR/EPDM)
- Spring & Other Parts(SUS304/SUS316)

d (inches)	l ₁	l ₃					d ₄	l ₂	d ₂	d ₁		l ₄
		3/8	2/1	5/8	3/4	7/8				Nom	max	
1.500	2.00	3.38	3.50	\	\	\	5.00	1/16	2.75	2.25	2.50	56
1.625	2.00	3.50	3.63	\	\	\	5.00	1/16	2.88	2.38	2.63	56
1.688	2.00	3.63	3.75	\	\	\	5.00	1/16	3.00	2.50	2.75	56
1.750	2.00	3.63	3.75	\	\	\	5.00	1/16	3.00	2.50	2.75	56
1.875	2.00	3.75	3.88	\	\	\	5.00	1/16	3.13	2.63	2.88	56
1.937	2.00	3.94	4.06	\	\	\	5.00	1/16	3.25	2.75	3.00	56
2.000	2.00	3.94	4.06	\	\	\	5.00	1/16	3.25	2.75	3.00	56
2.125	2.00	4.06	4.19	4.32	\	\	6.00	1/16	3.38	2.88	3.13	69
2.250	2.00	4.19	4.32	4.44	\	\	6.25	1/16	3.50	3.00	3.25	69
2.375	2.00	4.50	4.62	4.75	\	\	6.50	1/16	3.63	3.13	3.38	69
2.437	2.00	4.57	4.70	4.82	\	\	6.50	1/16	4.00	3.25	3.75	69
2.500	2.00	4.57	4.70	4.82	\	\	6.50	1/16	4.00	3.25	3.75	69
2.750	2.50	\	5.56	5.68	\	\	7.75	1/8	4.75	3.75	4.25	69
3.000	2.50	\	5.82	5.95	\	\	8.00	1/8	5.00	4.00	4.50	72
3.250	2.50	\	6.13	6.25	\	\	8.25	1/8	5.25	4.25	4.75	72
3.500	2.50	\	6.43	6.45	6.57	\	8.50	1/8	5.50	4.50	5.00	81
3.750	2.50	\	6.82	6.95	7.07	\	9.00	1/8	6.00	5.00	5.50	81
4.000	2.50	\	7.00	7.13	7.25	\	9.25	1/8	6.25	5.25	5.75	81
4.250	2.50	\	7.25	7.38	7.50	\	9.50	1/8	6.50	5.50	6.00	81
4.500	2.50	\	7.50	7.63	7.75	\	9.75	1/8	6.75	5.75	6.25	81
4.750	3.75	\	\	8.32	8.45	8.57	11.00	1/8	7.50	6.25	7.00	94
5.000	3.75	\	\	8.82	8.95	9.07	11.50	1/8	8.00	6.75	7.50	94
5.500	3.75	\	\	9.32	9.45	9.57	12.00	1/8	8.50	7.25	8.00	94
6.000	3.75	\	\	9.82	9.95	10.07	12.50	1/8	9.00	7.75	8.50	94
7.000	3.75	\	\	10.32	10.45	10.57	13.00	1/8	9.50	8.25	9.00	94
7.250	3.75	\	\	10.57	10.70	10.82	13.25	1/8	9.75	8.50	9.25	94
7.500	3.75	\	\	10.82	10.95	11.07	13.50	1/8	10.00	8.75	9.50	94
7.750	3.75	\	\	11.07	11.20	11.32	13.75	1/8	10.25	9.00	9.75	94

d (mm)	l ₁	l ₃							d ₄	l ₂	d ₂	d ₁		l ₄
		10	12	14	16	18	20	22				Nom	max	
38	51	67	89	\	\	\	\	\	127	1.5	70	57	63	14.2
40	51	90	92	\	\	\	\	\	127	1.5	73	60	67	14.2
45	51	93	95	\	\	\	\	\	140	1.5	76	63	70	14.2
50	51	101	103	\	\	\	\	\	140	1.5	83	70	76	14.2
55	51	107	109	111	113	\	\	\	159	1.5	89	76	83	17.5
60	51	115	117	119	121	\	\	\	165	1.5	92	80	86	17.5
65	51	117	119	121	123	\	\	\	165	1.5	102*	83	95*	17.5
70	64	\	141	143	145	\	\	\	197	3.0	121	95	108	17.5
75	64	\	147	149	151	\	\	\	203	3.0	127	102	114	18.3
80	64	\	155	157	159	\	\	\	210	3.0	134	108	121	18.3
85	64	\	160	162	164	166	168	\	216	3.0	140	114	127	20.6
90	64	\	160	162	164	166	168	\	216	3.0	140	114	127	20.6
100	64	\	173	175	177	179	181	\	229	3.0	153	127	140	20.6
110	64	\	184	186	188	190	192	\	242	3.0	165	140	152	20.6
180	96	\	\	\	\	271	273	275	337	3.0	248	216	235	23.8
185	96	\	\	\	\	277	279	281	343	3.0	254	223	242	23.8
190	96	\	\	\	\	277	279	281	343	3.0	254	223	242	23.8
195	96	\	\	\	\	284	286	288	350	3.0	261	229	248	23.8

TSSP-FA01



Operating Limits

Pressure: ≤2.1MPa
 Speed: ≤1450rpm
 Temperature: -20°C ~260°C

- Rotary ring(SiC/TC)
- Stationary ring(SiC/Carbon)
- Secondary seal(viton/EPDM)
- Other parts(C-276/Duplex/316)



A (inches)	B	C	D	E	F	G	H	J	K	L
1.500	0.25	2.187	5.25	2.125	2.5	0.562	3.125	2.25	2.625	0.656
1.687	0.25	2.437	5.5	2.125	2.5	0.562	3.375	2.5	2.875	0.656
1.750	0.25	2.437	5.5	2.125	2.5	0.562	3.375	2.5	2.875	0.656
1.875	0.25	2.562	5.5	2.125	2.5	0.562	3.344	2.625	3	0.656
1.937	0.25	2.625	5.44	2.125	2.5	0.562	3.563	2.687	3.125	0.656
2.000	0.25	2.687	5.44	2.125	2.5	0.562	3.563	2.75	3.125	0.656
2.125	0.25	2.812	6	2.125	2.5	0.687	3.688	2.875	3.375	0.656
2.188	0.25	2.937	6.25	2.125	2.5	0.687	3.813	3	3.375	0.656
2.250	0.25	3.062	6.25	2.125	2.5	0.687	3.937	3.125	3.5	0.656
2.375	0.25	3.188	6.25	2.125	2.5	0.687	4.062	3.25	3.5	0.656
2.438	0.25	3.188	6.44	2.125	2.5	0.687	4.125	3.375	3.625	0.656
2.500	0.25	3.188	6.44	2.125	2.5	0.687	4.125	3.375	3.625	0.656
2.625	0.25	3.347	6.44	2.125	2.5	0.687	4.438	3.5	3.875	0.656
2.688	0.25	3.562	7.82	2.125	2.5	0.687	4.438	3.625	4.125	0.656
2.750	0.25	3.562	7.82	2.125	2.5	0.687	4.438	3.625	4.125	0.656
2.875	0.25	3.687	7.82	2.125	2.5	0.687	4.812	3.812	4.25	0.656
2.938	0.25	3.812	7.88	2.125	2.5	0.687	4.938	3.937	4.375	0.656
3.000	0.25	3.812	7.88	2.125	2.5	0.687	4.938	3.937	4.375	0.656
3.250	0.281	4.188	8.25	2.437	2.812	0.812	5.188	4.25	4.75	0.812
3.375	0.281	4.312	8.25	2.437	2.812	0.812	5.313	4.375	4.875	0.812
3.438	0.281	4.437	8.5	2.437	2.812	0.812	5.437	4.5	5	0.812
3.500	0.281	4.437	8.5	2.437	2.812	0.812	5.437	4.5	5	0.812
3.625	0.281	4.562	8.63	2.437	2.812	0.812	5.562	4.625	5.125	0.812
3.750	0.281	4.625	8.82	2.437	2.812	0.812	5.688	4.687	5.125	0.812
3.875	0.281	4.812	8.82	2.437	2.812	0.812	5.813	4.875	5.25	0.812
4.000	0.281	4.937	8.82	2.437	2.812	0.812	5.813	5	5.37	0.812
4.250	0.281	5.188	9.25	2.437	2.812	0.812	6.063	5.25	5.75	0.812
4.375	0.281	5.312	9.25	2.437	2.812	0.812	6.437	5.375	5.875	0.812
4.500	0.281	5.406	9.69	2.437	2.812	0.812	6.5	5.5	6	0.812
4.750	0.281	5.656	9.75	2.437	2.812	0.812	6.938	5.75	6.25	0.812
4.938	0.375	6.188	*10.75	3.062	3.812	0.937	7.312	6.312	6.75	0.923
5.000	0.375	6.188	*10.75	3.062	3.812	0.937	7.312	6.312	6.75	0.923
5.125	0.375	6.375	*11.00	3.062	3.812	0.937	7.812	6.5	7.25	0.923
5.250	0.375	6.375	*11.00	3.062	3.812	0.937	7.812	6.5	7.25	0.923
5.500	0.375	6.688	*11.50	3.062	3.812	0.937	7.813	6.812	7.375	0.923
5.750	0.375	6.938	*12.00	3.062	3.812	0.937	8.156	7.062	7.625	0.923
6.000	0.375	7.188	*12.25	3.062	3.812	0.937	8.437	7.312	7.875	0.923
6.250	0.375	7.438	*12.50	3.062	3.812	0.937	8.656	7.562	8.125	0.923
6.500	0.375	7.688	*12.25	3.062	3.812	0.937	8.813	7.812	8.375	0.923
6.750	0.375	7.938	*12.50	3.25	4	0.937	9.312	8.062	8.625	0.923
7.000	0.375	8.188	*12.75	3.25	4	0.937	9.562	8.312	8.75	0.923
8.500	0.375	9.688	14.25	3.25	4	1	11	9.812	10.25	0.923

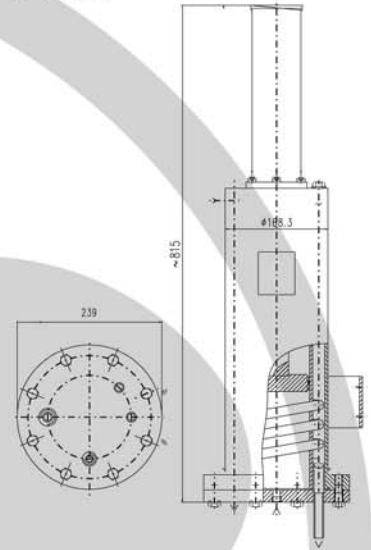
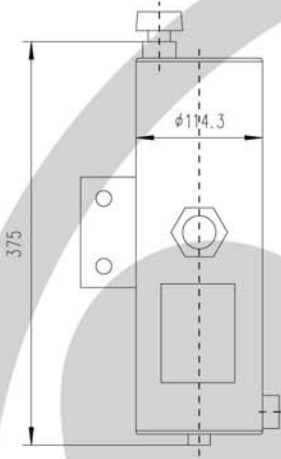
A	B	C	D	E	F	G	H	J	K	L
45mm (1.772)	6.35	65.1	140	54	64	14.3	84.9	66.68	76.2	16.7
48mm (1.890)	6.35	68.2	140	54	64	14.3	90.5	68.85	79.38	16.7
50mm (1.968)	6.35	68.2	140	54	64	14.3	90.5	68.85	79.38	16.7
55mm (2.162)	6.35	77.8	159	54	64	17.4	100	79.4	88.9	16.7
60mm (2.362)	6.35	81	165	54	64	17.4	104.8	85.73	95.25	16.7
65mm (2.560)	6.35	85	165	54	64	17.4	112.8	88.9	98.4	16.7
70mm (2.756)	6.35	90.5	197	54	64	17.4	112.8	92.08	104.77	16.7
75mm (2.953)	6.35	96.8	203	54	64	17.4	125.4	100	111.1	16.7
80mm (3.150)	7.14	106.4	210	62	72	20.6	131.8	108	120.65	20.6
87mm (3.425)	7.14	112.7	216	62	72	20.6	138.1	114.3	127	20.6
90mm (3.543)	7.14	115.9	219	62	72	20.6	141.3	117.5	130.2	20.6
95mm (3.740)	7.14	117.5	222	62	72	20.6	144.5	119.05	130.18	20.6
100mm (3.937)	7.14	125.4	224	62	72	20.6	147.6	127	136.52	20.6
120mm (4.724)	7.14	143.7	248	62	72	20.6	176.2	146.05	158.75	20.6
125mm (4.921)	9.5	157.2	*273	77.8	96.8	23.8	185.7	160.3	171.4	23.4

TSQS (QUENCH SYSTEM)

TSQS-032

Operating Limits
 Capacity: 3.2L
 Pressure: Pressureless
 Working Temperature: -30°C~200°C
 Material: Stainless steel

Operating plans: API 51 or pressureless API 52



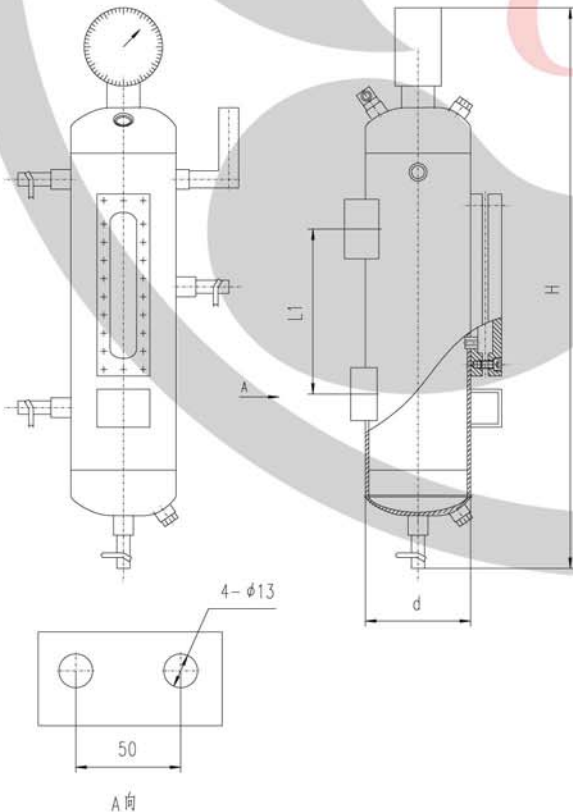
TSPB(PRESSURE BOOSTER)

Operating Limits

Capacity: 4L
 Pressure: Inlet 5.7MPa, Outlet 6.5MPa
 Working Temperature: -60°C—200°C
 Cooling coil capacity: 0.3m²
 Transmission ratio: 1:1.1
 Material: Stainless steel

Operating plans: API 53C.

TSTS (THERMOSIPHON SYSTEM)



TSTS L1.4-25B/TSTSL1.6-25B

Operating Limits
 Capacity: 4L/6L
 Pressure: 2.5MPa
 Working Temperature: -60°C—200°C
 Material: Stainless steel

Operating plans: API 52, API 53, API 53A

Model	Volume(L)	d	L1	H	Nozzle
TSL1.4-2.5B	4	133	175	470	G3/8
TSL1.4-2.5B	6	159	260	690	G1/2

TSCP(CIRCULATING PUMP)

Operating Limits

Pressure: 1—4MPa
 Working Temperature: -30°C—80°C
 Power: 75W/180W
 Material: Stainless steel

Operating plans: API 52, API 53, API 53A, API 54



TSMRP(MANUAL REFILL PUMP)

Operating Limits

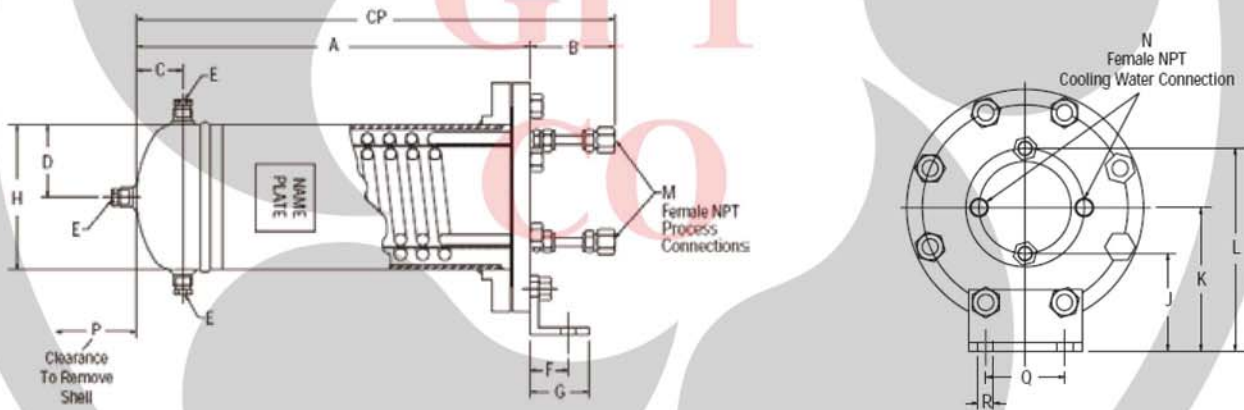
Capacity: 2L
 Pressure: 3MPa
 Working Temperature: -30°C—110°C
 Displaced Volume: 15ml/Stroke
 Material: Stainless steel



Operating plans:

API53, API53A,
 API53C, API54.

TSTS (THERMOSIPHON SYSTEM)

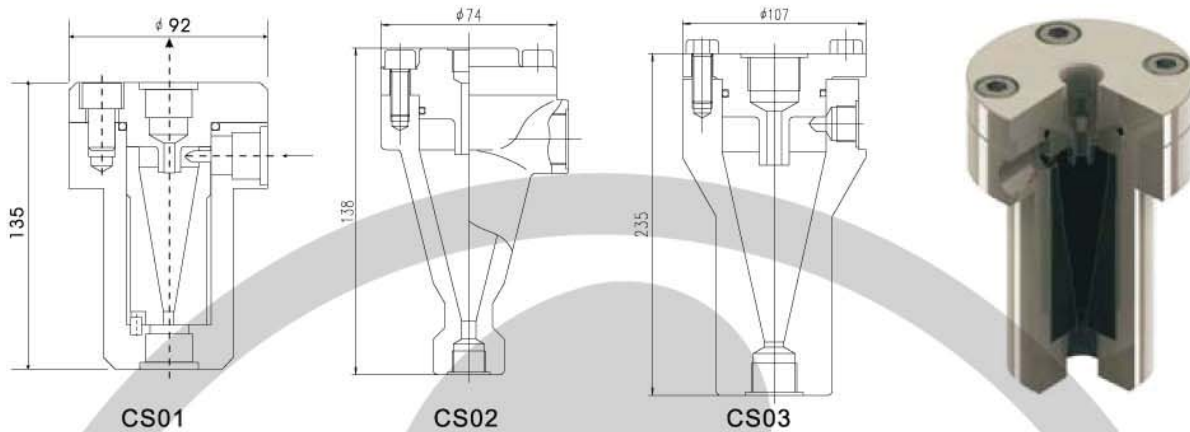


Operating plans: API 52, API 53, API 53A, API 54.

Dimensions (Inch)	A	CP	B	C	D	E(NPT)	F	G	H	J	K	L	M (NPT)	N (NPT)	P
TSHE-0500-SCS	13 1/16	18 1/16	5	1 7/8	2 13/16	1/2	1 3/4	3	5 9/16	43/8	61/8	8 1/4	1/2	1/2	12
TSHE-0625-SCS	16 5/8	21 5/8	5	2 1/4	3 5/16	1/2	1 3/4	3	6 5/8	47/8	65/8	9 1/8	1/2	3/4	15 5/8
TSHE-0682-SCS	23 3/8	28 3/8	5	2 3/4	4 5/16	1/2	2 1/4	3 1/2	8 5/8	51/2	81/8	11 1/2	3/4	1	22 1/8
TSHE-0750-SCS	23 3/8	28 3/8	5	2 3/4	4 5/16	1/2	2 1/4	3 1/2	8 5/8	51/2	81/8	11 1/2	3/4	1	22 1/8

Dimensions (Inch)	A	CP	B	C	D	E(NPT)	F	G	H	J	K	L	M (NPT)	N (NPT)	P
TSHE-0500-SCS	332	459	127	48	71	1/2	44	76	141	111	156	210	1/2	1/2	305
TSHE-0625-SCS	422	549	127	57	84	1/2	44	76	168	124	168	232	3/4	3/4	397
TSHE-0682-SCS	594	721	127	70	110	1/2	57	89	219	140	206	292	3/4	1	562
TSHE-0750-SCS	594	721	127	70	110	1/2	57	89	219	140	206	292	3/4	1	562

TSCS(CYCLONE SEPARATOR)

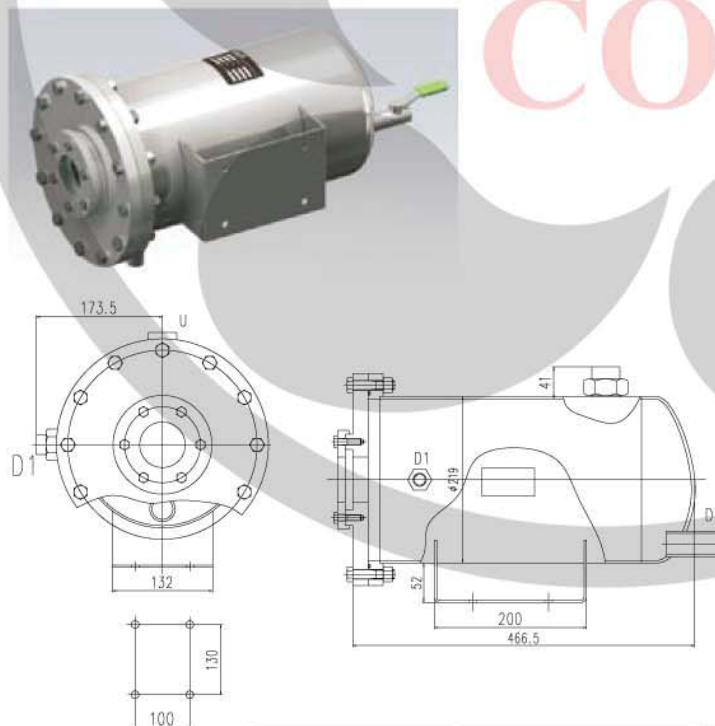


Operating Limits

Pressure: 6.4MPa
 Working Temperature: 125°C
 Nozzle: 1/2NPT
 Material: Stainless steel/Ceramic
 Operating plans: API31, API41.

Technical data	CS01	CS02	CS03
Operating pressure max..(bar)	64	64	200
Operating temperature max..(°C)	125(60*)	125	150
Connections	G/NPT1/2	G/NPT1/2	G/NPT3/4,1
Weight approx.(kg)	3,5	2,0	8,0
Materials:casing/cover	316/304	316/304	316/304
O-ring	Viton	Viton	Viton

TSCT(CONDENSATE TANK)



Operating Limits

Pressure: 1MPa
 Operating plans: API72, API75, API76.

Dimension	Description
DN8	Drain
DN20	
DN15	Condensate Inlet

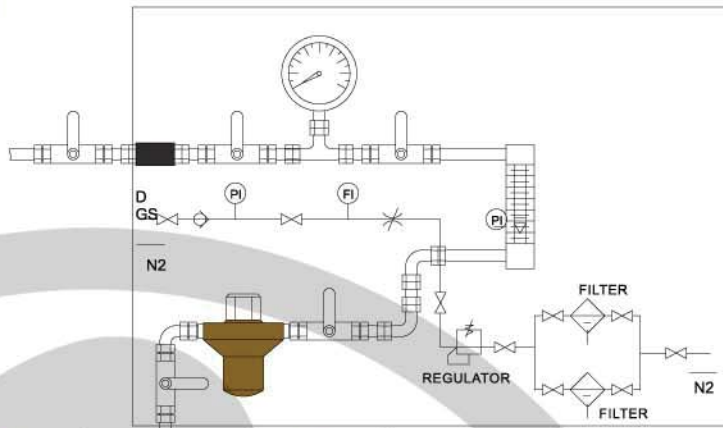
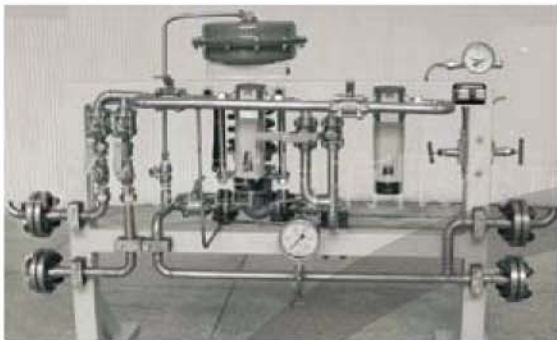
TSMS(MAGNETIC SEPARATOR)

Operating plans: API22, API31, API41.



	Volume (L)	Pressure (MPa)	Temperature (°C)	Nozzle			
				1	2	3	4
TSBFS-40	40	10	325	Buffer Inlet	Buffer Outlet	Cooling Inlet	Cooling Outlet

DGS SYSTEM



SPECIFICATION

MAX PRSSURE: 3MPA

WORKING PRSSURE: 0.7-3MPA

INDICATE ROTAMETER: 0.1-3L/MIN

COUPLING

MEMBRANE LAMINATED COUPLING



Advantages:

- Good flexibility/High strength/Corrosion resistance etc.
- To compensate axial,radial and angular misalignments between motor and pump shaft.

Structure

Membrane laminated

Material

Stainless steel

Operating Limits

Torque:0.04---160KN.m

Speed:10700rpm

INSTRUMENTS

Features:

As it has good flexibility, can move from various directions, absorb or isolate vibration, have strong alignment ability.

It drive steady, lower noise and safe.

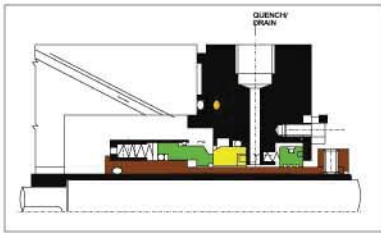
It has low weight and dynamic balance.

It can be used in high or low temperature condition and suitable for crisis environment.



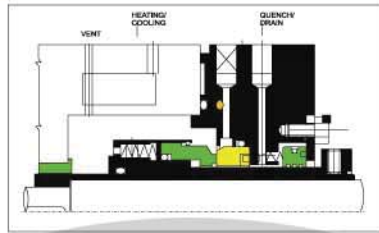


PLAN 01



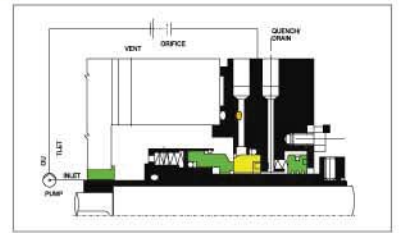
Clean media only
Inter circulating from the pump case to the seal

PLAN 02



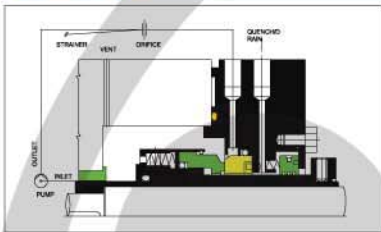
Clean media
Dead end seal chamber with no circulation, stuffing box cooling and neck bush are required, otherwise specified.

PLAN 11



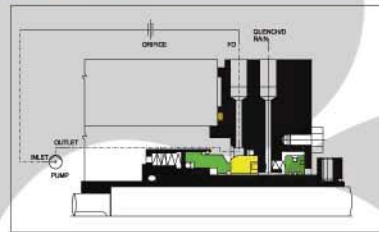
Clean media
Circulation from the pump outlet, through an orifice to the seal chamber

PLAN 12



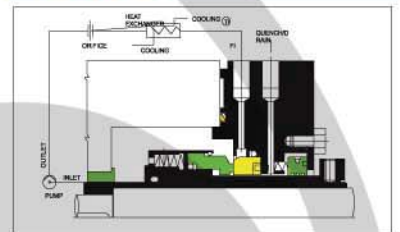
Clean media
Circulation from the pump outlet, through a strainer and an orifice to the seal chamber

PLAN 13



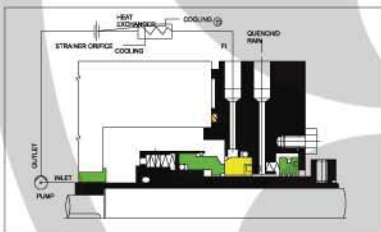
Clean media
Circulation from the seal chamber, through an orifice back to the pump inlet

PLAN 21



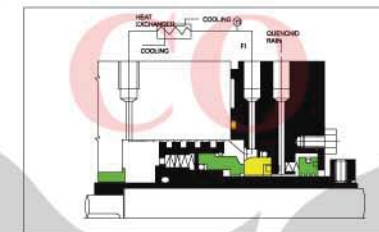
Clean media
Circulation from pump outlet, through an orifice and cooler to the seal chamber

PLAN 22



Clean media
Circulation from the pump outlet, through a strainer, an orifice and cooler to the seal chamber

PLAN 23



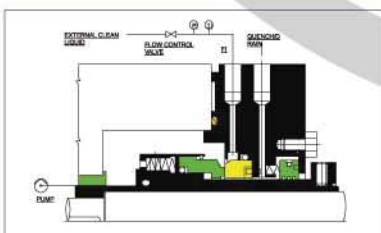
Clean media
Circulation from a pumping ring from the seal, through a cooler back to the seal chamber

PLAN 31



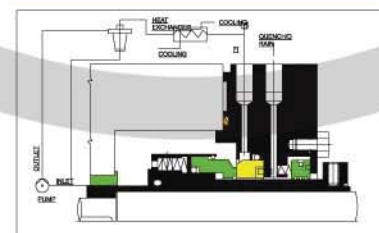
Contaminated and special media
Circulation from the pump outlet, through a cyclone separator to the seal chamber

PLAN 32



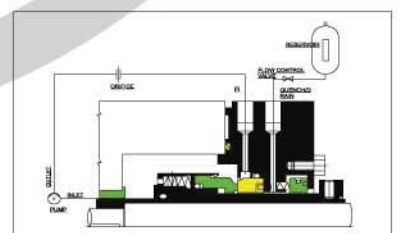
Contaminated and special media
External clean liquid be injected in to the seal chamber

PLAN 41



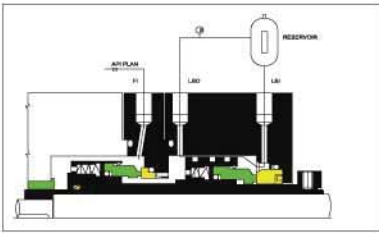
Contaminated and special media
Circulation from the pump outlet, through a cyclone separator and cooler to the seal chamber

PLAN 51



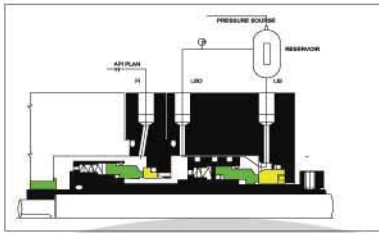
Contaminated and special media
External reservoir providing a dead-end quench and connection FI for flushing

PLAN 52



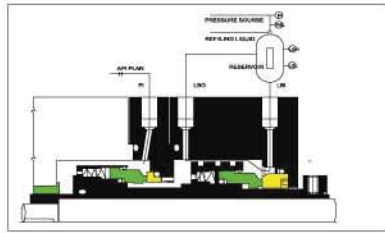
Contaminated and special media
 External reservoir providing buffer fluid for the out board seal
 Pressureless,thermosiphon or forced circulation as required

PLAN 53A



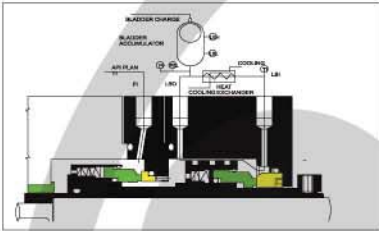
Contaminated and special media
 External pressurized reservoir providing buffer fluid for the seal chamber
 Pressurized,thermosiphon or forced circulation as required

PLAN 53



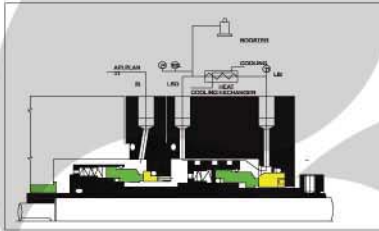
Contaminated and special media
 External pressurized reservoir providing buffer fluid for the out board seal
 Pressurized,thermosiphon or forced circulation as required

PLAN 53B



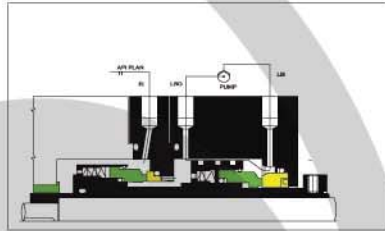
Contaminated and special media
 Circulation with bladder accumulator and cooler
 Pressurized,forced circulation as required

PLAN 53C



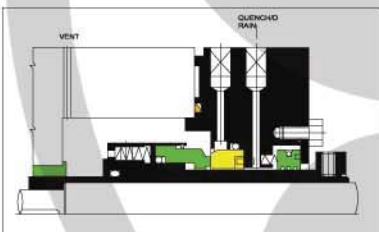
Contaminated and special media
 Circulation with pressure booster and cooler
 Pressurized,forced circulation as required

PLAN 54



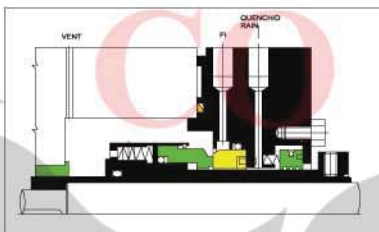
Contaminated and special media
 Circulation by an external pressure system
 Reservoir pressure is bigger than the process being sealed

PLAN 61



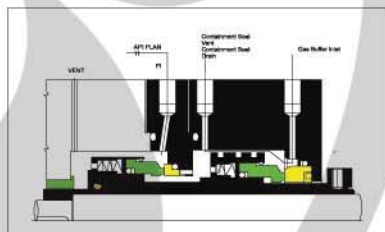
Plugged connections for the purchaser use

PLAN 62



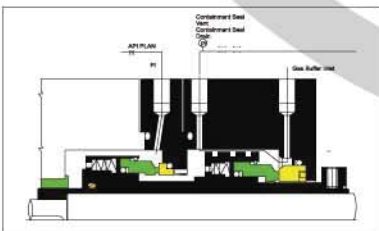
External fluid quench (stea,gas,water etc)

PLAN 71



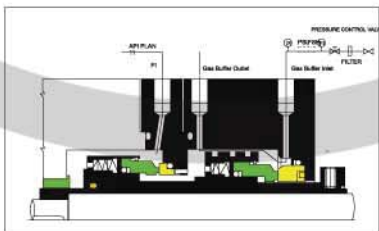
Tapped connection for purchase use
 Typically this plan is used,when the purchaser may use buffer gas in the future

PLAN 72



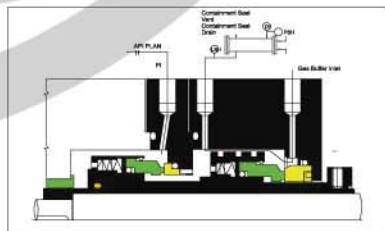
Externally supplied gas buffer for two seals
 Pressure of buffer gas is lower than process side pressure of inner seal

PLAN 74



Externally supplied barrier gas used to positively prevent process fluid from leaking to atmosphere
 Pressure of barrier gas is higher than process side pressure of inner seal

PLAN 75



Containment seal chamber drain for condensing leakage on two seal
 Pump fluid condenses at ambient temperatures



Metal Classification & Features

Metal Material	Main Feature & Suitable Scope
AM350	<p>Character: High intensity steel, the main chemical composition is C-Mn-Si-Cr-Ni-Mo-Fe. Orsat PH stainless steel, high hardness and long life. Unique advantage: be liable to cooling processed formation. And be provided with the strongpoint of Martensite steel after reinforcement treatment, without deformation, oxidization. In the oxidizability environmet, have quality corrosion and heat resistance performance. Widely used steel and better mechanical property.</p> <p>Suitable for: Mechanical machining, punching and welding.</p> <p>Application temperature: -80°C~+315°C</p>
4J42	<p>Character: The content for nickel is 40%, this iron-nickel alloy is low expansion coefficient and a preferred material for making high temperature mosaic structure seal stationary seat, make glass or ceramic and metal excellent surface connection.</p> <p>Suitable for: Equip the sealing function with ceramic(eg: SiC, TC)</p> <p>Application temperature: -80°C~+450°C</p>
Inconel718	<p>Character: The content for nickel is 53%, and well comprehensive performance. The yield strength is premier among the high temperature deformation alloy under the temperature of below 315°C. Inconel718 also can antifatigue, radioresistance, inoxidizable and crrosion resistance, and favorable machining and welding nature, making all kinds of complicated spare parts.</p> <p>Suitable for: Space navigation, nuclear power, petroleum industry</p> <p>Application temperature: -253°C~+700°C</p>
Monel400	<p>Character: The content for nickel is above 63%, and crrosion resistance nickel-base alloy material in sea water, chemical dissolvant, hydrochloride, alkalinity medium, fuse salt and various acid medium: sulfuric acid, fluorhydric acid, hydrofluoric acid, phosphoric acid, organic acid. Monel400 have good mechanical and welding performnce, middle, high intensity and wide usage temperature from low to high temperature. In high temperature steam, the corrosion is below 0.026mm/a.</p> <p>Suitable for: Chemical and petroleum and ocean development. Monel400 can be used in heat-exchange equipment, boiler feed water heater, petroleum and chemical engineering pipeline, container, tower, tank, valve, pump, reactor, shaft axle etc.</p> <p>Application temperature: -100°C~+700°C</p>
Hastalloy C-276 /N333	<p>Character: The content is 57% and 2.5% for Chrome, is a new alloy contains Ni-Cr-Mo and extremely low silicon and carbon. In the conditions of oxydation and deacidize, possessing the excellent corrosion resistance for most of corrosion medium; perfect corrosive pitting resistance, seam corrosion and stress cracking corrosion nature.</p> <p>Suitable for: Various chemical industry contains oxydation and deacidize medium, all kinds pressure vessels for the chemical industry, desulfurated system in the electric power plant and other environments contains serious erosion medium.</p> <p>Application temperature: -100°C~+1000°C</p>

Carbon



Carbon Performance Index

Type	Brand	Impregnated Material	Volume Density	Antiflexural Strength	Compression Strength	Shore Hardness	Porosity	Thermal Expansion Coefficient	Temperature	Feature	
			g/cm ³	Mpa	Mpa	HS	%	10 ⁻⁶ /°C	°C		
Carbon	Pure carbon	M191T	1.80	100	250	92	1.2	5.5	600	Resistant acid & alkali, corrosion and high temperature	
		M106K	1.65	65	210	90	2.0	5.5	200		
	Impregnated resin carbon	Furane resin	M118K	1.75	-	210	85	2.0	5.0	200	Resistant acid & alkali, extensive use
			M180K	1.80	80	240	90	1.2	5.5	210	
			M200K	1.82	55	115	55	1.2	4.5	210	
		M106H	1.65	60	210	85	1.5	4.8	200	Resistant alkali	
	Impregnated metal carbon	Epoxide resin	M118F	1.75	-	210	85	2.0	5.0	200	Resistant acid
			M118D	2.40	60	250	85	2.0	5.5	350	Resistant high temperature, high intensity
		M181D	2.30	80	200	80	2.0	5.5	350		
	Plastic Carbon	China powder	-	-	1.71	54	147	65	2.9	16.0	100
SGL powder					2.20	22.2	17.3	20	-	-	200
PTFE	PTFE Filled Carbon	-	-	2.20	22.2	17.3	20	-	-	200	Resistant corrosion

Silicon Carbide Tungsten Carbide



Main Performance Index of Silicon Carbide(SiC)			
Item	Unit	SiC	SSiC
Purity	%	≥90	≥98
Density	g/cm ³	3.05	3.1
Shore Hardness	HS	110-125	120-130
Elastic Modulus	Mpa	4.12×10^5	4.10×10^5
Poisson Ratio		0.15	0.16
Tensile Strength	Mpa	2.75×10^2	2.8×10^2
Bending Strength	Mpa	4.41×10^2	4.9×10^2
Compression Strength	Mpa	2.94×10^3	3.0×10^3
Thermal Conductivity	W/m.k	141(W/m.k)	147(W/m.k)
Coefficient of Thermal Expansion	l/°C	4.3×10^{-6}	4.0×10^{-6}
Heat Resistance		1600°C	1650°C
Thermal Impact Coefficient	cal/cm.sec	46.5	200
Acid Resistance		5 times higher than the usual TC	耐所有化学介质 Resist all chemical media

The Corrosion Test for Four Materials in Reagent					
Test Environment		腐蚀性失重(mg/cm ² yr) Conosive Agravity			
(Wt%)	(°C)	TC (6%)	SiC ¹ (12%)	SSiC ²	Ceramic (99%)
Reagent Concentration	Temperature				
98% H ₂ SO ₄	100	>1000	55	1.8	65
50% NaOH	100	5	>1000	2.5	75
53% HF	25	8	7.9	<0.2	20
85% H ₃ PO ₄	100	55	8.8	<0.2	>1000
70% HNO ₃	100	>1000	0.5	<0.2	7
45% KOH	100	3	>1000	<0.2	60
25% HCL	70	85	0.9	<0.2	72
10% HF+ 57% HNO ₃	25	>1000	>1000	<0.2	16

Main Technology Data of Tungsten Carbide(TC)				
Item	WC-C ₀	WC-C ₀	WC-C ₀	WC-C ₁
Brand No.	YG6	YG8	YG15	YWN8
Density	14.6~15.0	14.5~14.9	13.9~14.2	14.4~14.8
HRA	89.5	89.0	87.0	88.0
Bending Strength	1421	1470	2058	1470
Linear Expansivity 10-6/K(20°C~500°C)	5.0	5.1	6.3	5.3
Medium	Resistant against: Oil, sewage water, weak acid/alkali ect.			Strong erosive medium

1) SiC means Reaction Silicon Carbide

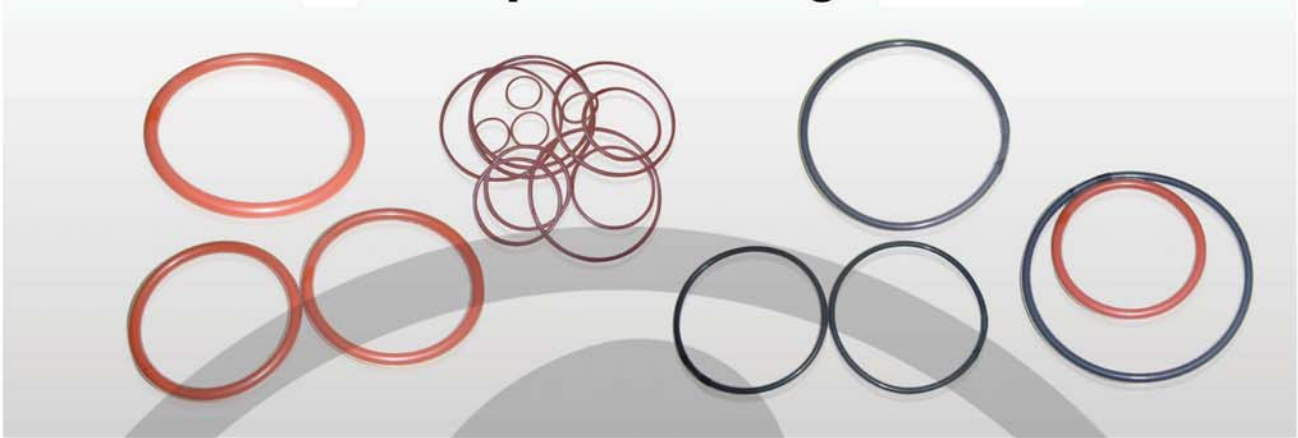
2) SSiC means Sintered Silicon Carbide

Rubber Products



Rubber Classification & Features	
Rubber Variety	Main Feature and Suitable Scope
NBR	<p>Resistant against:oil,pressure,abrasion. High elasticity and mechanical strength.Suitable for general hydraulic and pneumatic seal; Unsuitable for working under sunlight and ultraviolet.</p> <p>Application temperature:-20°C ~+120°C</p>
CR.	<p>Resistant against:oil,abrasion,efflorescence good bending. Especially suitable for pneuma machine and hydraulic fluid at high aniline po</p> <p>Application temperature:-40°C ~+120°C</p>
HR.	<p>Resistant against:chemical reagents,dispen Suitable for hydraulic oil of organic phosphate a vacuum material. Unsuitable for general oil.</p> <p>Application temperature:-50°C ~+150°C</p>
EPDM	<p>Resistant against:chemical reagents,Suitable for hydraulic oil of organic phosphate.</p> <p>Application temperature:-50°C ~+150°C</p>
SILICON RUBBER	<p>Resistant against:heat,freeze.low mechanical strength,bad bending and abrasion.Suitable for fixed seal resistant to heat and freeze. Unsuitable for working under high mechanical strength.</p> <p>Application temperature:-80°C ~+200°C</p>
VITON	<p>Resistant against:heat,oil,reagents. Suitable for high temperature and vacuum equipment.</p> <p>Application temperature:-30°C ~+210°C</p>
HNBR	<p>Resistant against:gasoline,Freon,oil,acid,ozone, alkali, heating and freeze. High mechanical strength, high abrasion.</p> <p>Application temperature:-20°C ~+180°C</p>

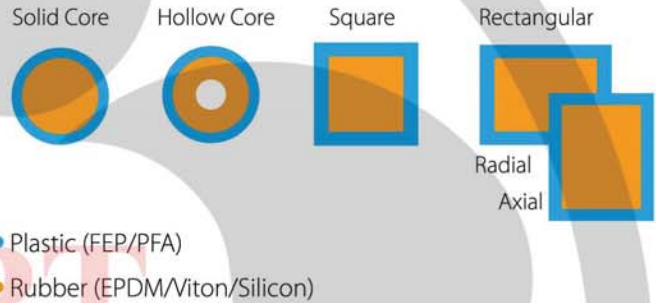
Encapsulated Rings



Product Type

- PTFE Encapsulated O-Rings
- FEP Encapsulated O-Rings
- PFA Encapsulated O-Rings
- Square Cross-Section Ring Seals
- Rectangular Cross-Section Ring Seals

Section



Encapsulation Material Character

FEP (Fluorinated Ethylene Propylene)
 Clear
 Max temperature : 204°C (400°F)
 Excellent chemical and corrosion resistance
 Drying
 Excellent resilience
 Smooth/self-lubricating surface
 FDA Compliant
 USP Class VI approved

PFA (Perfluoroalkoxy)
 Clear with light blue color
 Max temperature: 260°C (500°F)
 Excellent heat and chemical resistance
 Better crack and stress resistance than FEP
 Extremely smooth surface
 Low vapor permeation
 FDA Compliant
 USP Class VI approved

Rubber Temperature Range		
	FEP	PFA
Silicon	-60°C~+205°C -75°C~+400°F	-60°C~+260°C -75°C~+500°F
Viton	-26°C~+205°C -15°C~+400°F	-26°C~+205°C -15°C~+400°F
EPDM	-54°C~+149°C -65°C~+300°F	-54°C~+149°C -65°C~+300°F

Dimension

Encapsulation wall thickness ranges from 0.25mm(.010") to 1.14mm(.045") depending on the cross section of the elastomeric core.



FFKM

Perfluoroelastomer (FFKM) is synthetic elastomer, without C-H linkage. This kind of rubber, which can effectively work under the max temperature of 327°C and bear corrosion of any chemical mediator, has perfect tolerance to oil, chemical & heat. Fluorocarbon linkage is the main reason to high stability performance. The refractory compression permanent deformation performance of Perfluoroelastomer is superior to that of Viton

It's widely used in semiconductor manufacture, petrochemical, gas extraction, medical food and aerospace industries because of the champion nature.

Perfluoroelastomer(FFKM) is a revolutionary product and has the performance of elasticity, heat resistance and purity, more excellent than Teflon and normal rubber.

In the aspect of chemical resistance, general Viton can't adapt to the environment of etherate, amido compound, ketone, oxidant, strong acid & alkaline, fuel, acid and alkaline, but Perfluoroelastomer shows the excellent stability and perfect tolerance to all kinds of chemical mediator. In the other aspect of heat resistance, Perfluoroelastomer can keep the performance of elasticity, be provided with the advantages of extend sealing life, reduce maintenance cost and degrade pollution.

Dupont-Kalrez			
Property	Unit	Kalrez 6375	Kalrez 4079
Tensile Strength @ Break	MPa	15.1	16.9
kgf/cm2	154	172	\
Modulous @ 100%	MPa	7.2	7.3
kgf/cm2	73.4	74	\
Elongation Percentage @ Break	%	160	150
Hardness	HS	75	75
Heat Resistance Temperature	°C	275	316
70 hr in room temperature	\	\	22
70 hr at 204°C	\	30	25

Note: Besides Kalrez 6375 & 4079 type, Trisun also can supply Kalrez 1050L, 3018 & 7075.

FFKM		
Property	Unit	国产FFKM
Hardness	HS	72.0
Tensile Strength @ Break	MPa	20.0
Elongation Percentage @ Break	%	175.0
Modulous @ 100%	MPa	10.5
Heat Resistance Temperature	°C	270°C
70 hr in room temperature	\	19.0
70 hr at 204°C	\	49.0



Dupont-Kalrez®



Greene Tweed-Chemraz®



China-FFKM



Electronic - digital & pressure leak tester

Test time: 28 sec/batch.
 Quantity : 2 sets/bath.
 Test range: auto cooling pump seal.
 Eligibility criteria: qualified value <0.6ml/26S (for all series).



LCD pressure leak tester (4 units in one operating)

Test time: 28 sec / batch.
 Quantity: 4 sets/bath.
 test range: auto cooling pump seal.
 Eligibility criteria: pass value<0.6ml / 26S(seal coated silicone oil); pass value of<1.4ml / 26S(seal without silicon oil)



LCD pressure leak tester (8 units in one operating)

Test time: 28 sec / batch. Quantity: 8 sets/bath.
 Test range: auto cooling pump seal.
 Fixture Changable for different dimension
 Eligibility criteria: Pass value<0.6ml/26S(seal coated silicone oil); pass value of <1.4ml/26S (seal without silicon oil)



Domestic vacuum leak detector

Test time: 30 seconds.

Product range: split mechanical seal for pumps.

Eligibility criteria: Shaft dimension 12-40mm, Pumping 5 seconds, test 5 seconds < 850Pa; Shaft dimension 42-100mm, Pumping 10 seconds, test 5 seconds < 850Pa.



Imported vacuum leak tester

Test time: 30 seconds.

Product range: split mechanical seal for pumps.

Eligibility criteria: pumping 27.6 inches mercury, decrease < 0.5 inches within 15 seconds.



Diamond lapping paster

Dimension: 0.5 μ m/1.0 μ m/1.5 μ m/2.5 μ m/20 μ m/30 μ m

Package: 10g/bag



Plane tester

Product range: ceramics, graphite, stainless steel, alloy, silicon carbide
 Eligibility criteria: the flatness $\leq 0.0009\text{mm}$ (3 light bands), including wooden, sodium lamps, plane optical flat and light band compare chart.
 OD of plane optical flat: 60mm/80mm/100mm/150mm/260mm



Polishing machine

Polishing disc diameter: 480mm (only for graphite)/610mm/640mm.
 Product polishing range: ceramics, graphite, alloys, silicon carbide.
 Polishing time: 10 minutes for Graphite; 30 minutes for other materials.
 Eligibility criteria: $< 0.2\mu\text{m}$.
 Feature: adjustable speed, adding the slurry automatically.



New automatic polishing machine

Polishing disc diameter: 480mm (only for cast graphite)/610mm/640mm.
 Product polishing range: ceramics, graphite, alloys, silicon carbide.
 Polishing time: 10 minutes for graphite; 30 minutes for other materials.
 Eligibility criteria: $< 0.2\mu\text{m}$
 Feature: adjustable speed, automatically adding slurry, lifting polishing gland automatically.

Installation Instructions

Preparation:

1. Shaft Outside Diameter is within tolerance $\pm 0.002"$ (0.05mm)
2. Shaft run out $< 0.004"$ (0.1 mm)
3. Shaft end float $< 0.005"$ (0.13mm).
4. No sharp edges on the shaft over the o ring.

Note: During the installation, don't scratch or damage the O ring. If anything is damaged, please contact with our local agents to replace a new one.

Installation instructions:

1. The full set of cartridge seal is cleaned and exactly passed leakage examine before sale. In order to avoid damage, don't disassemble and clean the parts again before fixing.
2. The fitting allowance between the seal and shaft is $d1\ h6\ \nabla 0.8$, and there should be leading-in edge at the end of shaft. The outside diameter of shaft at the position of screw should be 0.1~0.2mm smaller, resisting the screw over-tighten. Lubricate the shaft with oil.
3. Place the cartridge seal into the pump chamber, then:
 - A. Tighten four screw bolts of flanges, ensuring the medium leading in hole "G" at the top position.
 - B. Tighten four set screws and position the shaft sleeve on the shaft.
 - C. Remove four gauge plates. Please keep them and they will be used in future installation and disassemble.
 - D. Connect the medium lead-in pipe with hole "G" in order to flush away the friction heat and flushing the seal chamber when pump running.

Note: After complete the installation, turning the shaft by hand to check for the rotation. If the shaft could not rotate smoothly, seal has been improperly installed.



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