

Metal Comma-Ring External Pressure

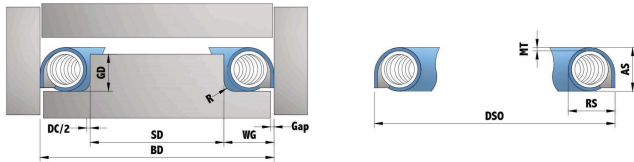
Common Metallic Material Options

- Alloy 718

Common Plating Options

- Silver

Groove and Seal Design



Groove Finish Recommendation

Groove finish is a critical factor for metal seal. Depend on different medium, Sonkit recommend the following groove surface roughness

Medium	For metal seal with plating	For meta seal without plating
Viscous media	Ra = 1.6 – 2.5	Ra = 0.8 – 1.6
Liquid media	Ra = 0.4 – 0.8	Unrecommended
Vacuum/ gases	Ra = 0.2 -0.6	Unrecommended



COE

Note: Load and spring back figures are based on Alloy 718 in the heat-treated condition. Actual performance should be accordingly considered due to various working conditions. Tolerances on groove depth, plating, diametrical clearance, and differences in material batches can create differences of up to 100% for the cross section less than 3mm, down to 50% for the bigger cross section.

Groove Dimension							Seal Dimension						
GD	WG	BD	SD		R	Gap	D	AS	Toleranc ± On AS (gross specification)	RS	MT	DC	
Groove Diameter Range (mm)	Groove Depth (mm)	Tolerance on Bore Diameter	Shaft Diameter	Tolerance on Shaft Diameter	Radius (mm)	Min/Max	Diameter Range (mm)	Axial Section		Radial Section	Material No	Thickness	Diametrical clearance
1.27-1.32	1.86	-0/+0.03	BD-3.73	+0/-0.08	0.30	0.20/0.30	20-150	1.57	±0.05	1.79	M	0.15	0.15
1.91-2.01	2.83	-0/+0.03	BD-5.66	+0/-0.10	0.50	0.40/0.50	35-200	2.39	±0.05	2.73	M	0.25	0.20
2.54-2.67	3.78	-0/+0.03	BD-7.56	+0/-0.12	0.75	0.60/0.75	45-200	3.18	±0.08	3.63	M	0.38	0.30
3.18-3.30	4.72	-0/+0.05	BD-9.45	+0/-0.15	1.20	0.70/0.80	60-200	3.96	±0.08	4.52	M	0.41	0.41
3.84-3.99	5.69	-0/+0.05	BD-11.38	+0/-0.15	1.20	0.80/1.00	100-200	4.78	±0.10	5.46	M	0.51	0.46

Tightness

The tightness with a Comma Ring (COE) is more than with any other metal seals in a function of the bore condition.

The finish surface of the bore should be smoothly polished, meanwhile, a certain degree of pressure is required for fastening. With these measures in place, the sliding motions of seal can be avoided, which would extend the seal's life cycle and therefore enhance the safety of applied machineries.

In addition, we advise to silver plate Comma ring for better tightness, reduced friction, and wear.

Typical Applications

- Piston seal
- Rod seal
- Semi-dynamic
- Rotational and reciprocating applications



In house lab



In house HT



Test Report