

# Metal W-Ring Internal Pressure

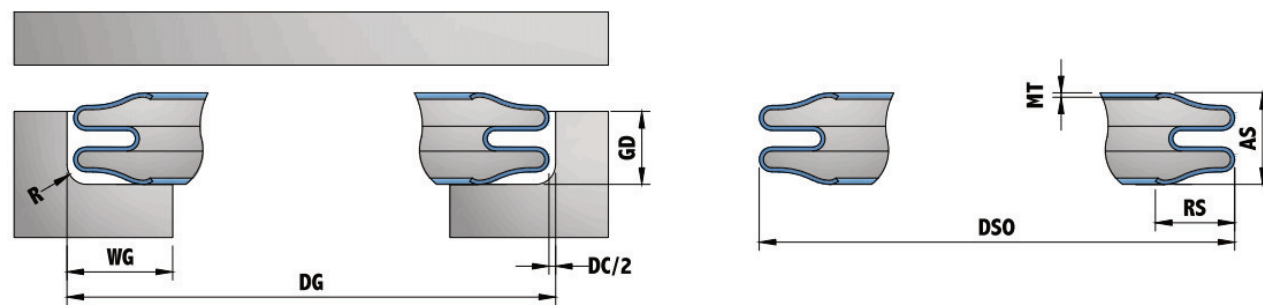
### Common Metallic Material Options

- Alloy 718

### Common Plating Options

- Silver

## Groove and Seal Design

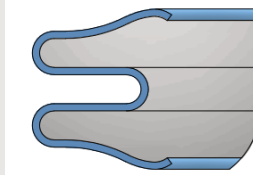


Seal:  $DSO = DG - DC - (\text{Plating thickness}) \times 2$   
 Groove:  $DG = DSO + DC + (\text{Plating thickness}) \times 2$

## Groove Finish Recommendation

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

Medium	For metal seal with plating	For metal 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



# WI

**Note:** All dimensions are in mm. Performance data is based on Alloy718 in the heat treated condition. Actual performance should be accordingly considered due to various working conditions. Multi-convolution W-rings available for very high spring back requirement .

Groove Dimension				Seal Dimension				Performance		
DG	GD	WG	R	RS	AS	M	DC	Load	SB	
Groove Diameter Range (mm)	Groove Depth Range (mm)	Width Groove	Radius (max)	Maximum Radial Section	Axial Section (Free Height)	Tolerance on AS	Material Thickness	Diametrical clearance	N/mm Circumference	Spring Back (mm)
45-203	1.55-1.6	2.29	0.38	1.68	1.88	±0.05	0.13	0.08	6	0.30
51- 305	2.16-2.21	2.92	0.51	2.31	2.59	±0.08	0.25	0.08	6	0.38
57-305	2.16-2.26	4.32	0.51	3.68	2.74	±0.08	0.23	0.08	7	0.53
51-305	2.16-2.26	2.92	0.51	2.31	2.74	±0.10	0.25	0.08	16	0.46
51-610	2.95-3.05	4.20	0.76	3.10	3.56	±0.10	0.30	0.13	11	0.56
51-610	2.95-3.05	4.20	0.76	3.10	3.35	±0.10	0.38	0.13	13	0.36
86-915	4.55-4.65	5.84	1.02	4.83	5.53	±0.10	0.38	0.15	9	0.94
152-1220	6.20-6.35	8.00	1.52	6.78	7.49	±0.13	0.51	0.20	14	1.22

## Typical Applications

- Gas & steam turbines
- V-Band Coupling
- Very low load flanges or joints with considerable movements



In house lab



In house HT



Test Report

# Metal W-Ring External Pressure

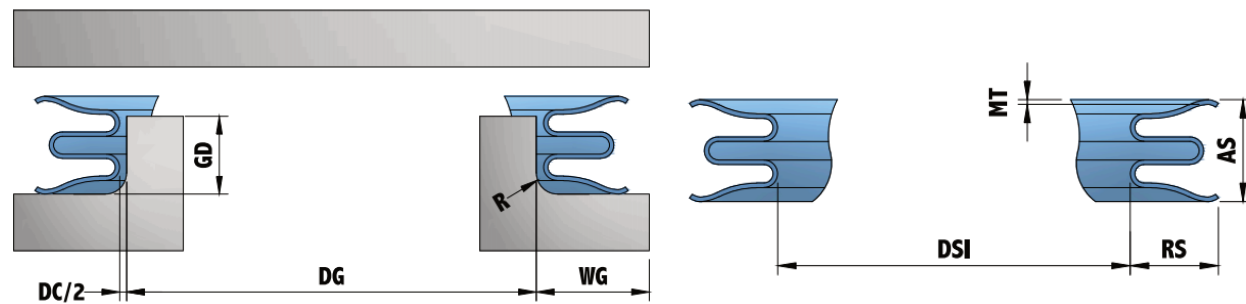
**Common Metallic Material Options**

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**Common Plating Options**

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## Groove and Seal Design

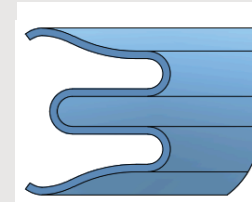


Seal:  $DSI = DG + DC + (\text{Plating thickness} \times 2)$   
 Groove:  $DG = DSI - DC - (\text{Plating thickness} \times 2)$

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# WE

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Groove Dimension				Seal Dimension				Performance		
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51-610	2.95-3.05	4.20	0.76	3.10	3.56	±0.10	0.30	0.13	11	0.56
51-610	2.95-3.05	4.20	0.76	3.10	3.35	±0.10	0.38	0.13	13	0.36
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