

## Metal V-Ring Internal Pressure

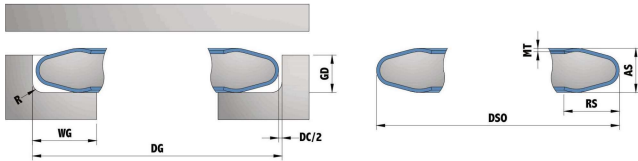
### Common Metallic Material Options

- 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 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                 |



## VI

**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                                |                |             |           |                       |                    | Performance      |      |
|----------------------------|-------------------------|--------------|--------------|---|----------------|-------------|-----------|-----------------------|--------------------|------------------|------|
| DG                         | GD                      | WG           | R            | AS  | RS             | MT          | DC        | Load                  | SB                 |                  |      |
| Groove Diameter Range (mm) | Groove Depth Range (mm) | Width Groove | Radius (max) | Axial Section Tolerance On AS (cross section) | Radial Section | Material No | Thickness | Diametrical clearance | N/mm Circumference | Spring Back (mm) |      |
| 30-400                     | 1.91-2.01               | 3.10         | 0.50         | 2.39  | ±0.05          | 2.63        | M         | 0.25                  | 0.14               | 22               | 0.28 |
| 45-600                     | 2.54-2.67               | 4.10         | 0.75         | 3.18  | ±0.08          | 3.50        | M         | 0.38                  | 0.19               | 30               | 0.27 |
| 65-750                     | 3.18-3.30               | 5.10         | 1.20         | 3.96  | ±0.08          | 4.36        | M         | 0.41                  | 0.24               | 22               | 0.37 |
| 70-900                     | 3.84-3.99               | 6.20         | 1.20         | 4.78  | ±0.10          | 5.26        | M         | 0.51                  | 0.29               | 22               | 0.56 |
| 80-1000                    | 4.48-4.70               | 7.30         | 1.20         | 5.60  | ±0.10          | 6.16        | M         | 0.51                  | 0.34               | 20               | 0.60 |
| 120-1800                   | 5.08-5.28               | 8.30         | 1.50         | 6.35  | ±0.10          | 6.99        | M         | 0.64                  | 0.38               | 30               | 0.60 |
| 300-3000                   | 7.62-8.03               | 12.40        | 1.50         | 9.53  | ±0.10          | 10.49       | M         | 0.97                  | 0.57               | 45               | 0.90 |
| 600-7600                   | 10.16-10.67             | 16.50        | 1.50         | 12.70   | ±0.13          | 13.98       | M         | 1.27                  | 0.76               | 57               | 1.20 |

### Typical Applications

- Gas & steam turbines
- Valves
- Swivels
- Turbochargers



In house Lab



In house HT



Test Report