

For Metal Sealing Rings - contact

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World leading innovations in
fluoropolymer processing



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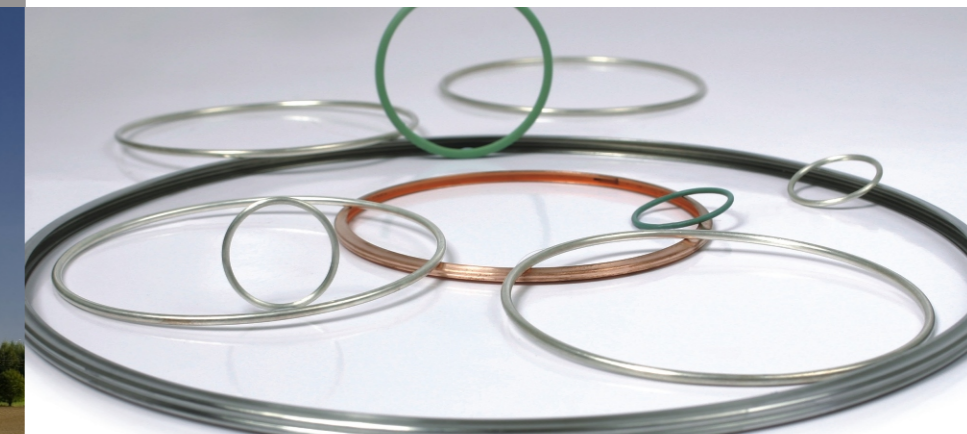
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Metal Sealing Rings



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Fluorocarbon metal 'O' rings and 'C' rings are designed for static sealing applications in extreme conditions and hostile environments where elastomer or polymer seals cannot be used. They can withstand pressures from high vacuum to 700MPa and temperatures from cryogenic to 1000°C.





Metal Sealing Rings


Metal sealing rings are manufactured from hollow tube or solid wire in a wide range of materials including various grades of Inconel® and stainless steel.


The rings are often plated or coated with soft materials such as gold, silver, nickel or PTFE, which bed into machining grooves to improve sealing performance.


Types


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Type FH
Hollow Metal 'O' Rings
Simple hollow metal 'O' ring suitable for medium pressure and vacuum applications.
Max Pressure: 4MPa
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Type FG
Gas Filled Metal 'O' Rings
Gas filled metal 'O' rings are hollow rings, gas filled to give increased resilience at high temperature above 430°C.
Max Pressure: 40MPa
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Type FS
Solid Metal 'O' Rings
Solid metal O rings can be used in numerous applications where an economical metal ring is required.
Max Pressure: 4MPa
- 

Type FA
System Activated Metal 'O' Rings
System activated 'O' rings are hollow metal rings with small holes that allow the tube to be energised by system pressure. Use for high pressure applications up to 700MPa.
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Type FC
System Activated Metal 'C' Rings
System activated 'C' rings are also pressure energised and used in medium to high pressure applications up to 400MPa. They require lower compression loadings and provide higher springback than metal 'O' rings.
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Type FE
Spring Activated Metal 'C' rings
Spring energised 'C' rings are spring and system pressure activated. They offer exceptional spring-back, capable of compensating for expansion due to pressure and temperature cycling.
Max Pressure: 700MPa

Part Numbering System

FH - E - 00254 - A - 01 - L - 01 - A

Product Type Code
 FH = Hollow Metal 'O' Ring
 FG = Gas Filled Metal 'O' Ring
 FA = System Activated Metal 'O' ring
 FC = System Activated Metal 'C' ring
 FS = Solid Metal 'O' Ring
 FE = Spring Energised Metal 'C' Ring

Pressure Direction
 E = External; I = Internal

Ring Diameter (X10)
 eg: 00254 - 25.4mm

NB: Specify ring ID for external pressure and OD for internal pressure.

Tube Cross Section

A = 0.9mm	E = 4.0mm
B = 1.6mm	F = 4.8mm
C = 2.4mm	G = 6.4mm
D = 3.2mm	

Wall Thickness

01 = 0.13mm	06 = 0.51mm
02 = 0.15mm	07 = 0.64mm
03 = 0.25mm	08 = 0.81mm
04 = 0.30mm	09 = 1.24mm
05 = 0.36mm	00 = solid wire

Material

L = Stainless Steel 304	Q = Inconel 718
M = Stainless Steel 316	R = Inconel 600
N = Stainless Steel 321	S = Inconel X-750
O = Stainless Steel 347	T = Copper

Plating Material Thickness

01 = Silver 0.03/0.05mm	07 = PTFE 0.03/0.05mm
02 = Silver 0.05/0.08mm	08 = PTFE 0.05/0.08mm
03 = Gold 0.01/0.03mm	09 = As specified
04 = Nickel 0.03/0.05mm	00 = None
05 = Copper 0.03/0.05mm	

Heat Treatment

A = 4 hour aging	D = None
B = 16 hour aging	E = As specified
c = Annealed	

Please consult our [Design Office](#) for further information and advice on the selection of metal sealing rings.

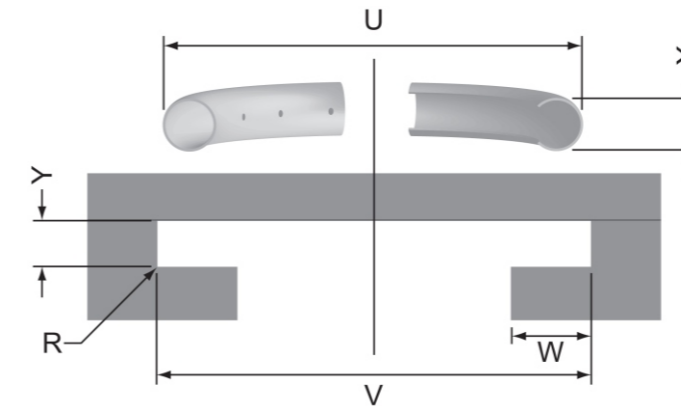
Installation details

Installation

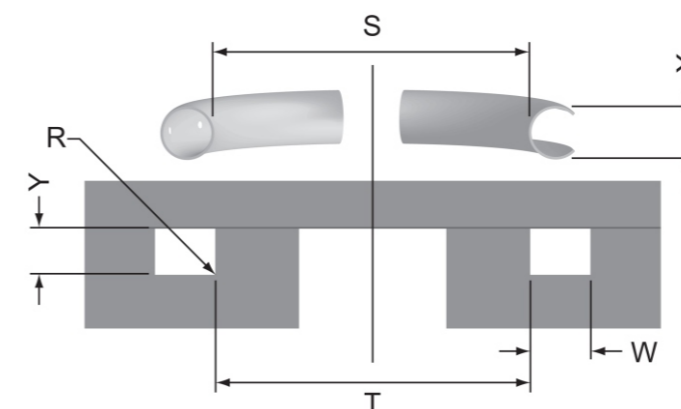
Metal sealing rings are usually installed between flanges, located in either a groove or counterbore. The groove depth is calculated to ensure correct compression loading of the ring.

Alternatively the ring can be installed between two flat flanges and located with a support plate. The thickness of the support plate is equal to the groove depth specified.

Internal System Pressure



External System Pressure



Recommended Surface Finish

0.2µm (8µin.) RMS for plated rings in high vacuum (10⁻⁴ ~ 10⁻¹⁰ torr.)
 0.4µm (16µin.) RMS for plated rings in gas, vacuum or low viscosity fluids.
 0.8µm (32µin.) RMS for plated rings in medium to high viscosity fluids.
 0.4µm (16µin.) RMS for unplated rings in medium to high viscosity fluids.

All machining marks on sealing surfaces must be concentric.

Tube section 'X'	Ring diameter 'U'	Groove diameter 'V'	'O' Ring groove depth 'Y'	'C' Ring groove depth 'Y'	W min	R max
0.9	6~100	U+0.10/0.15	0.60/0.65	N/A	1.4	0.3
1.6	12~250	U+0.10/0.15	1.05/1.15	1.24/1.30	2.4	0.5
2.4	25~500	U+0.15/0.25	1.65/1.75	1.80/1.96	3.6	0.7
3.2	45~1000	U+0.20/0.30	2.30/2.40	2.46/2.62	4.8	1.0
4.0	70~1500	U+0.20/0.35	2.90/3.05	3.12/3.28	6.0	1.3
4.8	90~2000	U+0.25/0.35	3.70/3.80	3.75/3.91	7.2	1.6
6.4	120~3000	U+0.30/0.50	4.95/5.05	4.98/5.18	9.6	2.1

Tube section 'X'	Ring diameter 'S'	Groove diameter 'T'	'O' Ring groove depth 'Y'	'C' Ring groove depth 'Y'	W min	R max
0.9	4~100	S-0.10/0.15	0.60/0.65	N/A	1.4	0.3
1.6	8~250	S-0.10/0.15	1.05/1.15	1.24/1.30	2.4	0.5
2.4	20~500	S-0.15/0.25	1.65/1.75	1.80/1.96	3.6	0.7
3.2	40~1000	S-0.20/0.30	2.30/2.40	2.46/2.62	4.8	1.0
4.0	60~1500	S-0.20/0.35	2.90/3.05	3.12/3.28	6.0	1.3
4.8	80~2000	S-0.25/0.35	3.70/3.80	3.75/3.91	7.2	1.6
6.4	100~3000	S-0.30/0.50	4.95/5.05	4.98/5.18	9.6	2.1