

EOI, EON & EOP Metal O-Rings Internal Pressure Face Seal

Applications:

- Heavy joints with minimum movement.
- Static, low leakage face sealing.
- Contiguous sealing surface permits use within triple-surface, chamfered joints and non-rectangular section grooves.

Features:

- Many tubing material choices and plating options available for widest media compatibility.
- Standard metal O-rings available for all 'MS' sizes and configurations (see pages C-45 to C-50).
- All welds are 100% fluorescent penetrant inspected.
- Eight standard free heights and any diameter from 0.250" to 25'.
- High sealing load creates excellent plating compression and superior sealing.
- Robust, high integrity seal for ease of handling, even in largest sizes.



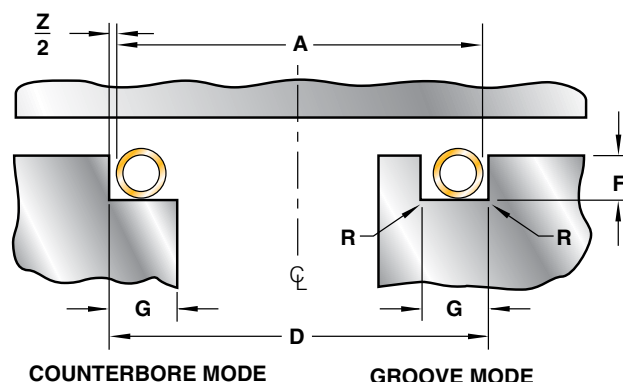
Selection of Types:

EOI (preferred): Internally vented and pressure-energized: recommended for high pressures. (Refer to performance table on facing page).

EON* (preferred): Non-vented, non-filled: avoids ingress of working fluid(s) into the seal, lowest cost, but pressure capability is reduced. (Refer to performance table on facing page).

EOP* (optional): Non-vented, gas pressure-filled. Good for bi-directional (reversing) pressures. Avoids ingress of working fluid(s) into the seal. Enhances load at high temperatures.

*Not for use in applications with a very high ambient pressure (drill string equipment and undersea applications).



Cavity Dimensions				
Nominal Cross Section	D	F	G	R
	O.D. Range Tolerance H10	Depth Range	Minimum Width	Maximum Radius
1/32	0.250 – 1.000	0.025 – 0.027	0.055	0.010
3/64	0.400 – 2.000	0.037 – 0.040	0.070	0.012
1/16	0.500 – 8.000	0.045 – 0.050	0.090	0.015
3/32	1.000 – 16.000	0.074 – 0.079	0.125	0.020
1/8	1.500 – 24.000	0.100 – 0.105	0.160	0.030
5/32	3.000 – 30.000	0.125 – 0.130	0.200	0.050
3/16	4.000 – 36.000	0.151 – 0.157	0.250	0.050
1/4	8.000 – 48.000	0.200 – 0.208	0.350	0.060

All dimensions are in inches.
The tolerance reference table can be found on page E-92.

Part Numbering:

Refer to Section A, page A-9 for part numbering convention.
The seal size is specified in the part number as follows:

EO [I, N, P] - 000000 - 00 - 00 - 0 - XXX

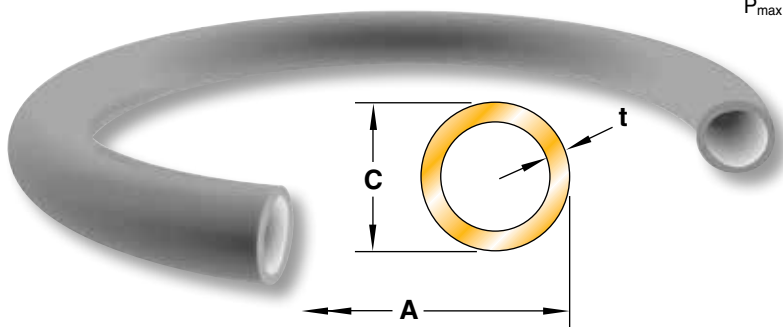
Seal O.D. prior to plating
(dimension A) to three decimal
places. (Example: A 3.000 inch
seal is specified as 003000)

Metal Seal Cross Section Code

Material (Section D)

Temper (Section D)

Plating, Coating or Finish (Section D)

**Seal and Cavity Sizing:**

Seal free height is based on cavity diameter and depth alone.
Seal diameter (dimension A) is derived below.

Seal Tolerance	
Free Height	Seal Diameter Tolerance (-0.000)
0.035 - 0.188	+0.005
0.250	+0.008
0.375 - 0.625	+0.010

$$A = D - Z - 2P_{\max}$$

Where: D = Minimum cavity O.D.

Z = Diametral clearance between cavity and seal

$P_{\max}$ = Maximum plating thickness (from page D-60)

Seal Dimensions				
Nominal Cross Section	Z	C	t	Cross Section Code
	Diametral Clearance	Free Height	Material Thickness	
1/32	0.007	0.035 ^{+0.003} / _{-0.001}	0.006	01
3/64	0.008	0.047 ^{+0.003} / _{-0.001}	0.007	29
1/16	0.008	0.062 ^{+0.003} / _{-0.001}	0.006	02
			0.010	03
			0.012	31
			0.014	08
3/32	0.009	0.094 ^{+0.003} / _{-0.001}	0.006	04
			0.010	05
			0.012	32
			0.018	09
1/8	0.011	0.125 ^{+0.003} / _{-0.001}	0.008	06
			0.010	07
			0.012	25
			0.020	10
5/32	0.013	0.156 ^{+0.004} / _{-0.000}	0.016	11
3/16	0.014	0.188 ^{+0.005} / _{-0.000}	0.020	12
			0.025	13
1/4	0.018	0.250 ^{+0.005} / _{-0.000}	0.025	14
			0.032	15

Performance							
Seating Load (pounds/inch circ.)		Springback (inches)		Working Pressure Rating (psi)			
				Vented		Non-Vented	
304SS/321SS	Alloy X-750/Alloy 718	304SS/321SS	Alloy X-750/Alloy 718	304SS/321SS	Alloy X-750/Alloy 718	304SS/321SS	Alloy X-750/Alloy 718
400	550	0.0005	0.0005	10000	15000	700	1000
400	550	0.001	0.001	7000	10000	700	1000
260	350	0.0015	0.002	4000	6500	600	900
550	750	0.001	0.0015	11000	16000	700	1000
800	1100	0.001	0.001	14000	20000	700	1100
1100	1500	0.001	0.001	17000	25000	800	1200
150	200	0.002	0.002	1400	2000	700	1000
300	400	0.002	0.002	4000	6500	800	1100
400	550	0.001	0.0015	6500	10000	800	1200
1200	1600	0.001	0.0015	16500	25000	900	1300
100	140	0.004	0.005	2500	4000	500	700
150	200	0.003	0.004	4500	6500	500	800
280	400	0.002	0.003	6500	10000	600	900
900	1200	0.002	0.002	16500	25000	700	1000
400	550	0.004	0.005	4000	6500	700	1000
750	1000	0.003	0.004	13500	20000	700	1100
450	600	0.004	0.005	4000	6500	700	1000
700	950	0.003	0.004	14500	22000	700	1100
450	600	0.005	0.006	4000	6000	700	1000
950	1300	0.004	0.005	13500	20500	700	1100

All dimensions are in inches and prior to plating.

Performance data is based on Alloy 718 material with -6 treatment. Seal performance is discussed in Section E.

If working pressures exceed these ratings consult Parker for recommendations.



EOE, EOM & EOR Metal O-Rings External Pressure Face Seal

Applications:

- Heavy joints with minimum movement.
- Static, low leakage face sealing.
- Contiguous sealing surface permits use within triple-surface, chamfered joints and non-rectangular section grooves.

Features:

- Many tubing material choices and plating options available for widest media compatibility.
- All welds are 100% fluorescent penetrant inspected.
- Eight standard free heights and any diameter from 0.180" to 25'.
- High sealing load creates excellent plating compression and superior sealing.
- Robust, high integrity seal for ease of handling, even in largest sizes.

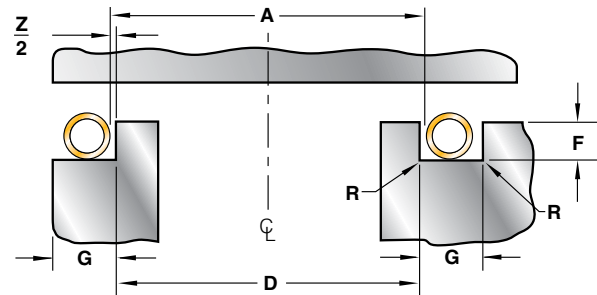
Selection of Types:

EOE (preferred): Externally vented and pressure-energized: recommended for high pressures. (Refer to performance table on facing page).

EOM* (preferred): Non-vented, non-filled: avoids ingress of working fluid(s) into the seal, lowest cost, but reduces pressure capability. (Refer to performance table on facing page).

EOR* (optional): Non-vented, gas pressure-filled. Good for bi-directional (reversing) pressures. Avoids ingress of working fluid(s) into the seal. Enhances load at high temperatures.

*Not for use in applications with a very high ambient pressure (drill string equipment and undersea applications).



OPEN GROOVE MODE

GROOVE MODE



Cavity Dimensions

Nominal Cross Section	D	F	G	R
	I.D. Range Tolerance h10	Depth Range	Minimum Width	Maximum Radius
1/32	0.180 – 1.000	0.025 – 0.027	0.055	0.010
3/64	0.300 – 2.000	0.037 – 0.040	0.070	0.012
1/16	0.375 – 8.000	0.045 – 0.050	0.090	0.015
3/32	0.800 – 16.000	0.074 – 0.079	0.125	0.020
1/8	1.250 – 24.000	0.100 – 0.105	0.160	0.030
5/32	2.750 – 30.000	0.125 – 0.130	0.200	0.050
3/16	3.750 – 36.000	0.151 – 0.157	0.250	0.050
1/4	7.500 – 48.000	0.200 – 0.208	0.350	0.060

All dimensions are in inches.

The tolerance reference table can be found on page E-92.

Part Numbering:

Refer to Section A, page A-9 for part numbering convention.
The seal size is specified in the part number as follows:

EO [E, M, R] - 000000 - 00 - 00 - 0 - XXX

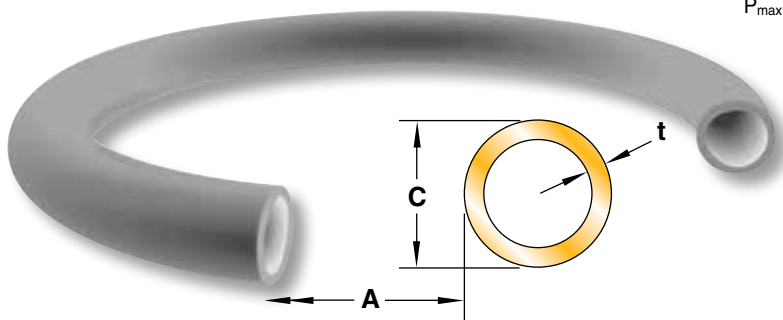
Seal I.D. prior to plating
(dimension A) to three decimal
places. (Example: A 3.000 inch
seal is specified as 003000)

Metal Seal Cross Section Code

Material (Section D)

Temper (Section D)

Plating, Coating or Finish (Section D)



Seal and Cavity Sizing:

Seal free height is based on cavity diameter and depth alone.
Seal diameter (dimension A) is derived below.

Seal Tolerance	
Free Height	Seal Diameter Tolerance (-0.000)
0.035 - 0.188	+0.005
0.250	+0.008
0.375 - 0.625	+0.010

$$A = D + Z + 2P_{\max}$$

Where: D = Maximum cavity I.D.

Z = Diametral clearance between cavity and seal

P_{max} = Maximum plating thickness (from page D-60)

Seal Dimensions				
Nominal Cross Section	Z Diametral Clearance	C Free Height	t Material Thickness	Cross Section Code
1/32	0.007	0.035 ^{+0.003} / _{-0.001}	0.006	01
3/64	0.008	0.047 ^{+0.003} / _{-0.001}	0.007	29
1/16	0.008	0.062 ^{+0.003} / _{-0.001}	0.006	02
			0.010	03
			0.012	31
			0.014	08
3/32	0.009	0.094 ^{+0.003} / _{-0.001}	0.006	04
			0.010	05
			0.012	32
			0.018	09
1/8	0.011	0.125 ^{+0.003} / _{-0.001}	0.008	06
			0.010	07
			0.012	25
			0.020	10
5/32	0.013	0.156 ^{+0.004} / _{-0.000}	0.016	11
			0.020	12
3/16	0.014	0.188 ^{+0.005} / _{-0.000}	0.020	13
			0.025	14
1/4	0.018	0.250 ^{+0.005} / _{-0.000}	0.025	15
			0.032	16

Performance							
Seating Load (pounds/inch circ.)		Springback (inches)		Working Pressure Rating (psi)			
				Vented		Non-Vented	
304SS/ 321SS	Alloy X-750/ Alloy 718	304SS/ 321SS	Alloy X-750/ Alloy 718	304SS/ 321SS	Alloy X-750/ Alloy 718	304SS/ 321SS	Alloy X-750/ Alloy 718
400	550	0.0005	0.0005	10000	15000	700	1000
400	550	0.001	0.001	7000	10000	700	1000
260	350	0.0015	0.002	4000	6500	600	900
550	750	0.001	0.0015	11000	16000	700	1000
800	1100	0.001	0.001	14000	20000	700	1100
1100	1500	0.001	0.001	17000	25000	800	1200
150	200	0.002	0.002	1400	2000	700	1000
300	400	0.002	0.002	4000	6500	800	1100
400	550	0.001	0.0015	6500	10000	800	1200
1200	1600	0.001	0.0015	16500	25000	900	1300
100	140	0.004	0.005	2500	4000	500	700
150	200	0.003	0.004	4500	6500	500	800
280	400	0.002	0.003	6500	10000	600	900
900	1200	0.002	0.002	16500	25000	700	1000
400	550	0.004	0.005	4000	6500	700	1000
750	1000	0.003	0.004	13500	20000	700	1100
450	600	0.004	0.005	4000	6500	700	1000
700	950	0.003	0.004	14500	22000	700	1100
450	600	0.005	0.006	4000	6000	700	1000
950	1300	0.004	0.005	13500	20500	700	1100

All dimensions are in inches and prior to plating.

Performance data is based on Alloy 718 material with -6 treatment. Seal performance is discussed in Section E.

If working pressures exceed these ratings consult Parker for recommendations.

