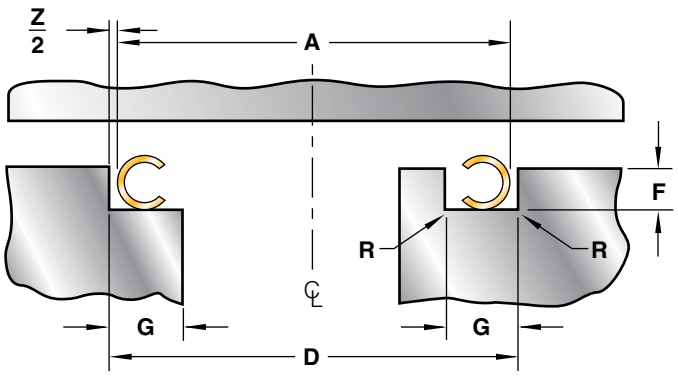
ECI Metal C-Ring Internal Pressure Face Seal

Applications:

- Excellent internally pressurized static face seal for valve assemblies, pressure vessels, jet engines, fuel injectors, separable fittings, etc.
- Moderate load permits the use of lighter flanges and fewer bolts.
- Good springback properties to accommodate thermal cycles and joint separation.
- Temperature range from cryogenics to 1600°F.
- Pressure range from vacuum to 76,000 psi and above.

Features:

- Wide range of 10 standard free heights from 1/32" to 1/2".
- Available in any diameter from 0.250" to 120", plus hundreds of preferred sizes (refer to page E-86).
- Relatively flexible for use with non-flat flanges.
- Multiple material choices for high temperature strength, good spring back, corrosion and fatigue resistance.
- Optimized one piece construction for low cost.
- Wide range of plating options (refer to page D-59) for superior sealing.
- Uses jacket strength and hydrostatic forces additively to increase sealing forces at higher pressures.
- Circular, race-track and other custom shapes available. Tri-lobed or elliptical C-rings available for snap-in/snap-out convenience.



COUNTERBORE MODE

GROOVE MODE

Cavity Dimensions

Nominal Cross Section	D O.D. Range Tolerance H10	F Depth Range	G Minimum Width	R Maximum Radius
1/32	0.250 – 1.000	0.025 – 0.027	0.040	0.010
3/64	0.325 – 2.000	0.037 – 0.040	0.055	0.012
1/16	0.375 – 8.000	0.050 – 0.054	0.075	0.015
3/32	0.500 – 16.000	0.075 – 0.079	0.105	0.020
1/8	1.000 – 24.000	0.100 – 0.105	0.135	0.030
5/32	1.250 – 30.000	0.125 – 0.130	0.170	0.050
3/16	3.000 – 36.000	0.151 – 0.157	0.200	0.050
1/4	4.000 – 48.000	0.200 – 0.208	0.260	0.060
3/8	12.000 – 80.000	0.300 – 0.316	0.380	0.060
1/2	24.000 – 120.000	0.400 – 0.420	0.500	0.060

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

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Advanced Products Business Unit • 33 Defco Park Road, North Haven, CT 06473
Phone: 203 239 3341 • Fax: 203 239 4409
www.parker.com

Part Numbering:

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

ECI - 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.

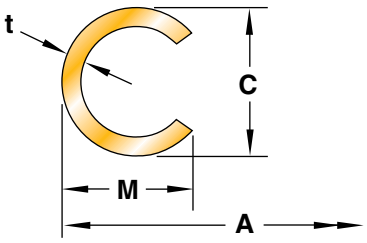
$$A = D - Z - 2P_{max}$$

(tolerance h11, see page E-92)

Where: D = Minimum cavity O.D.

Z = Diametral clearance between cavity and seal

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



Seal Dimensions						Performance		
Nominal Cross Section	Z Diametral Clearance	M Maximum Radial Width	C Free Height	t Material Thickness	Cross Section Code	Seating Load (pounds per inch circumference)	Springback (inches)	Working* Pressure Rating (psi)
1/32	0.003	0.028	0.031 ±0.002	0.006	01	160	0.0015	76000
				0.007	02	230	0.001	99000
3/64	0.005	0.038	0.047 ±0.002	0.006	03	110	0.002	41000
				0.008	04	230	0.002	62000
1/16	0.006	0.050	0.062 ±0.002	0.006	05	80	0.003	29000
				0.010	06	280	0.002	57000
3/32	0.008	0.075	0.094 ±0.002	0.010	07	160	0.006	32500
				0.015	08	400	0.005	56500
1/8	0.012	0.100	0.125 ±0.003	0.015	09	300	0.007	38000
				0.020	10	600	0.006	56500
5/32	0.016	0.125	0.156 ±0.003	0.016	11	260	0.009	31000
				0.024	12	600	0.007	53500
3/16	0.018	0.150	0.188 ±0.004	0.020	13	350	0.010	32500
				0.030	14	750	0.008	56500
1/4	0.020	0.200	0.250 ±0.004	0.025	15	400	0.013	30000
				0.038	16	1000	0.009	52500
3/8	0.030	0.300	0.375 ±0.004	0.038	17	600	0.020	30500
				0.050	18	1500	0.015	43500
1/2	0.040	0.400	0.500 ±0.005	0.050	19	800	0.025	30000
				0.065	20	1700	0.020	42000

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.

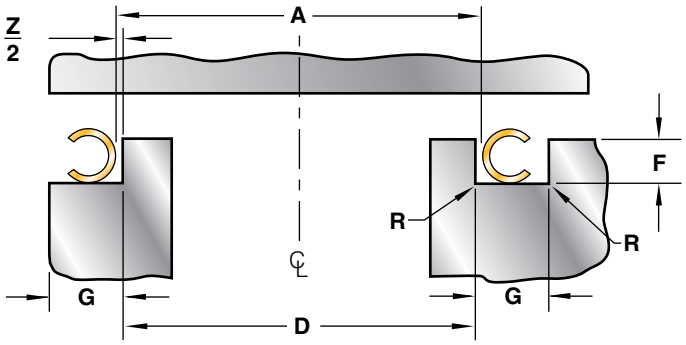
ECE Metal C-Ring
External Pressure Face Seal

Applications:

- Excellent externally pressurized static face seal.
- Moderate load permits the use of lighter flanges and fewer bolts.
- Good springback properties to accommodate thermal cycles and joint separation.
- Temperature range from cryogenics to 1600°F.
- Pressure range from vacuum to 76,000 psi and above.

Features:

- Wide range of 10 standard free heights from 1/32" to 1/2".
- Available in any diameter from 0.250" to 120", plus hundreds of preferred sizes (refer to page E-89).
- Relatively flexible for use with non-flat flanges.
- Multiple material choices for high temperature strength, good springback, corrosion and fatigue resistance.
- Optimized one piece construction for low cost.
- Wide range of plating options (refer to page D-59) for superior sealing.
- Uses jacket strength and hydrostatic forces additively to increase sealing forces at higher pressures.
- Circular, race-track and other custom shapes available. Tri-lobed or elliptical C-rings available for snap-in/snap-out convenience.



Cavity Dimensions				
Nominal Cross Section	D	F	G	R
	I.D. Range Tolerance h10	Depth Range	Minimum Width	Maximum Radius
1/32	0.200 – 1.000	0.025 – 0.027	0.040	0.010
3/64	0.300 – 2.000	0.037 – 0.040	0.055	0.012
1/16	0.350 – 8.000	0.050 – 0.054	0.075	0.015
3/32	0.400 – 16.000	0.075 – 0.079	0.105	0.020
1/8	0.800 – 24.000	0.100 – 0.105	0.135	0.030
5/32	1.250 – 30.000	0.125 – 0.130	0.170	0.050
3/16	3.000 – 36.000	0.151 – 0.157	0.200	0.050
1/4	4.000 – 48.000	0.200 – 0.208	0.260	0.060
3/8	12.000 – 80.000	0.300 – 0.316	0.380	0.060
1/2	24.000 – 120.000	0.400 – 0.420	0.500	0.060

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

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Part Numbering:

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

ECE - 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.

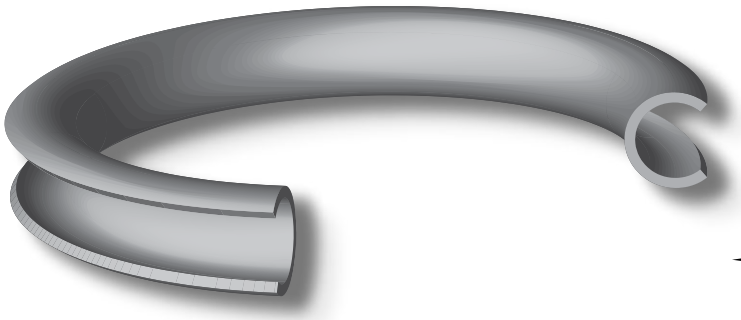
$$A = D + Z + 2P_{max}$$

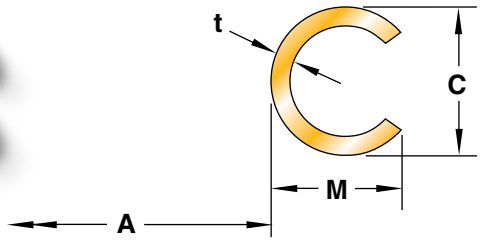
(tolerance H11, see page E-92)

Where: D = Maximum cavity I.D.

Z = Diametral clearance between cavity and seal

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





Seal Dimensions						Performance		
Nominal Cross Section	Z Diametral Clearance	M Maximum Radial Width	C Free Height	t Material Thickness	Cross Section Code	Seating Load (pounds per inch circumference)	Springback (inches)	Working* Pressure Rating (psi)
1/32	0.003	0.028	0.031 ±0.002	0.006	01	160	0.0015	76000
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1/8	0.012	0.100	0.125 ±0.003	0.015	09	300	0.007	38000
				0.020	10	600	0.006	56500
5/32	0.016	0.125	0.156 ±0.003	0.016	11	260	0.009	31000
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1/4	0.020	0.200	0.250 ±0.004	0.025	15	400	0.013	30000
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1/2	0.040	0.400	0.500 ±0.005	0.050	19	800	0.025	30000
				0.065	20	1700	0.020	42000

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.