

Flanges & Fittings

Wire Seal Flanges

SPECIFICATIONS

General: Nonrotatable flanges with clearance bolt holes

Nominal OD sizes: 12³/₈ to 27¹/₈ inches (314 to 689mm)

Tube OD sizes: 10 to 24 inches (254 to 609.6mm)

Materials

Flange: 304 stainless steel
(316L available on request)

Gaskets: Copper

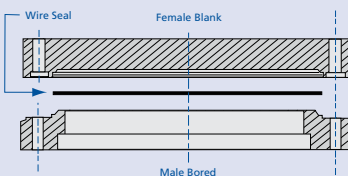
Bolts: 18-8 stainless steel

Vacuum range: $\geq 1 \times 10^{-13}$ mbar - UHV

Temperature range: -200° to 450°C

Wire Seal Flange Assembly Instructions

- Apply a small amount of high temperature anti-seize compound to the bolt threads.
- Check that both flange surfaces are clean and sealing edges are free from nicks and scratches.
- Using clean, lint free gloves, unpack gasket.
- Place seal over the sealing area on the male flange.
- Align the mating flange hole pattern and leak test grooves.
- Install the proper bolts and tighten hand tight. Check to see that the flange faces are parallel.
- Tighten the bolts 1/4 to 1/2 turns using a circular clockwise pattern until the flange faces are metal to metal.
- Torque the fasteners until leak tight using the same pattern. Never exceed maximum torque.

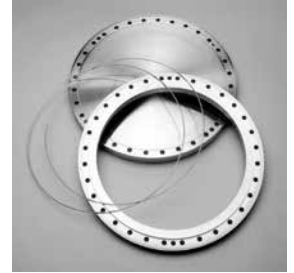


Torque Specifications

NOMINAL OD	BOLT SIZE	MAX. TORQUE Nm
12 (305)	3/8 - 24	29.4
14 (356)	3/8 - 24	29.4
17 (432)	1/2 - 20	61.1
19 (483)	1/2 - 20	61.1
22 (559)	5/8 - 18	140.6
27 (686)	5/8 - 18	140.6

All dimensions are in inches (mm) & weights are in pounds (kg), unless otherwise noted.

Nor-Cal's wire seal flanges are designed for use on bell jars, custom vacuum chambers and related systems. Standard sizes range from 12 to 27 inch (305 to 686mm) nominal OD for tube sizes from 10 to 24 inch (254 to 609.6mm) OD. A male and female flange compress a 0.080 inch (2.032mm) diameter OFHC copper wire to effect a seal. Gasket flow is confined by the geometry of the flange surfaces to the area of the seal. Minor nicks and scratches within this contact area are filled with crushed copper wire providing a seal that is leak tight at 10⁻¹³ mbar after repeated bake out to 450°C. Solid blanks are standard. Dished head blanks are offered as a lower cost alternative.

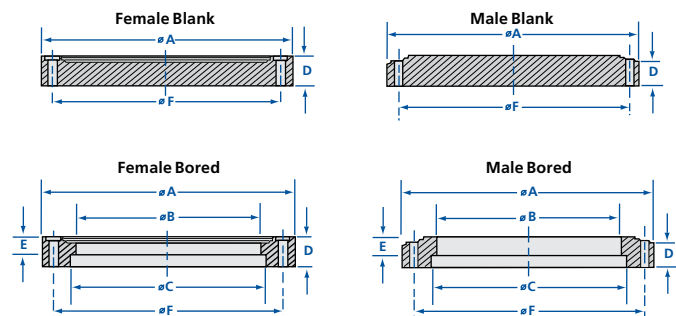


Wire Seal Flanges

MODEL NUMBER	OD A	B	C	D	E	F	BOLT HOLES
WS-12-000M	12.375 (314.33)	-	-	1.13 (28.70)	-	11.343 (288.11)	24
WS-12-1000M	12.375 (314.33)	9.750 (247.65)	10.020 (254.51)	1.13 (28.70)	0.630 (16.00)	11.343 (288.11)	24
WS-12-000F	12.375 (314.33)	-	-	1.13 (28.70)	-	11.343 (288.11)	24
WS-12-1000F	12.375 (314.33)	9.750 (247.65)	10.020 (254.51)	1.13 (28.70)	0.630 (16.00)	11.343 (288.11)	24
WS-14-000M	14.625 (371.48)	-	-	1.13 (28.70)	-	13.593 (345.26)	32
WS-14-1200M	14.625 (371.48)	11.750 (298.45)	12.020 (305.31)	1.13 (28.70)	0.630 (16.00)	13.593 (345.26)	32
WS-14-000F	14.625 (371.48)	-	-	1.13 (28.70)	-	13.593 (345.26)	32
WS-14-1200F	14.625 (371.48)	11.750 (298.45)	12.020 (305.31)	1.13 (28.70)	0.630 (16.00)	13.593 (345.26)	32
WS-17-000M	17.250 (438.15)	-	-	1.13 (28.70)	-	15.718 (399.24)	36
WS-17-1400M	17.250 (438.15)	13.750 (349.25)	14.020 (356.11)	1.13 (28.70)	0.630 (16.00)	15.718 (399.24)	36
WS-17-000F	17.250 (438.15)	-	-	1.13 (28.70)	-	15.718 (399.24)	36
WS-17-1400F	17.250 (438.15)	13.750 (349.25)	14.020 (356.11)	1.13 (28.70)	0.630 (16.00)	15.718 (399.24)	36
WS-19-000M	19.562 (496.87)	-	-	1.31 (33.27)	-	17.875 (454.03)	36
WS-19-1600M	19.562 (496.87)	15.750 (400.05)	16.020 (406.91)	1.31 (33.27)	0.630 (16.00)	17.875 (454.03)	36
WS-19-000F	19.562 (496.87)	-	-	1.31 (33.27)	-	17.875 (454.03)	36
WS-19-1600F	19.562 (496.87)	15.750 (400.05)	16.020 (406.91)	1.31 (33.27)	0.630 (16.00)	17.875 (454.03)	36
WS-22-000M	22.125 (561.98)	-	-	1.50 (38.10)	-	20.187 (512.75)	36
WS-22-1800M	22.125 (561.98)	17.750 (450.85)	18.020 (457.71)	1.50 (38.10)	1.000 (25.40)	20.187 (512.75)	36
WS-22-000F	22.125 (561.98)	-	-	1.50 (38.10)	-	20.187 (512.75)	36
WS-22-1800F	22.125 (561.98)	17.750 (450.85)	18.020 (457.71)	1.50 (38.10)	1.000 (25.40)	20.187 (512.75)	36
WS-27-000M	27.125 (688.98)	-	-	1.75 (44.45)	-	25.843 (656.41)	40
WS-27-2400M	27.125 (688.98)	23.625 (600.08)	24.020 (610.11)	1.75 (44.45)	1.125 (28.58)	25.843 (656.41)	40
WS-27-000F	27.125 (688.98)	-	-	1.75 (44.45)	-	25.843 (656.41)	40
WS-27-2400F	27.125 (688.98)	23.625 (600.08)	24.020 (610.11)	1.75 (44.45)	1.125 (28.58)	25.843 (656.41)	40

Model Number Definitions

M = Male flange F = Female flange



Wire Seal Flange Gaskets and Bolt Sets

MODEL NUMBER	FLANGE OD	DESCRIPTION	QUANTITY
WG-12	12.375 (314.33)	Copper gasket	1
WB-12	12.375 (314.33)	SS 3/8-24 x 2 1/2 bolts and nuts	24
WG-14	14.625 (371.48)	Copper gasket	1
WB-14	14.625 (371.48)	SS 3/8-24 x 2 1/2 bolts and nuts	32
WG-17	17.250 (438.15)	Copper gasket	1
WB-17	17.250 (438.15)	SS 1/2-20 x 2 3/4 bolts and nuts	36
WG-19	19.562 (496.87)	Copper gasket	1
WB-19	19.562 (496.87)	SS 1/2-20 x 3 bolts and nuts	36
WG-22	22.125 (561.98)	Copper gasket	1
WB-22	22.125 (561.98)	SS 5/8-18 x 3 1/2 bolts and nuts	36
WG-27	27.125 (688.98)	Copper gasket	1
WB-27	27.125 (688.98)	SS 5/8-18 x 4 bolts and nuts	40