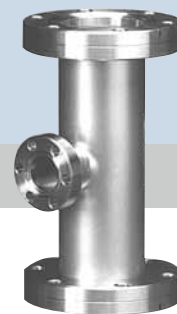


Flanges & Fittings

Section Two



2.1	EVAC Flanges	
2.2	NW Flanges & Fittings	2
2.3	ISO Flanges & Fittings	
2.4	ASA Flanges & Fittings	
2.5	CF Flanges & Fittings	
2.6	Wire Seal Flanges	
2.7	Adapter Fittings	
2.8	Flexible Hoses & Couplings	
2.9	Weld Fittings	

Nor-Cal Products, Inc.
P. O. Box 518
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Flanges & Fittings

NW Flange General Information



SECTION 2.2



SPECIFICATIONS

Tube OD sizes: 3/8 to 2 inches

Materials

Flange: 304 or 316L stainless steel
O-rings: Viton, Buna & silicone

Fittings

Tube finishes: Beadblast standard
(Tumbled & electropolish available)

Fasteners: Wingnut, SureSeal,
bulkhead & EVAC clamps

Vacuum range

Elastomer seal: $\geq 1 \times 10^{-8}$ Torr - High vacuum
EVAC metal seal: $\geq 1 \times 10^{-11}$ Torr - UHV

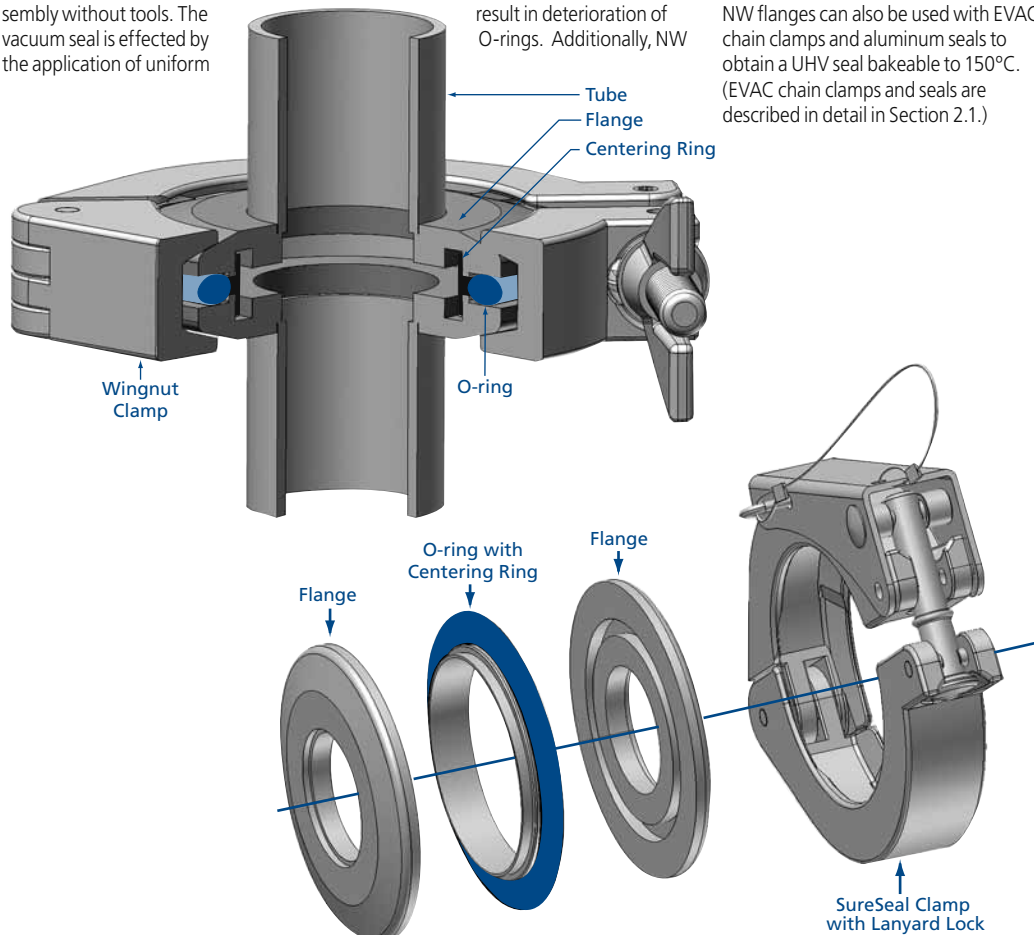
Temperature range

Viton: -20°C to 200°C
Silicone: -50° to 230°C
Buna: -30°C to 110°C
EVAC metal seal: -270°C to 150°C

Nor-Cal NW flanges are designed to ISO 2681 specifications for standard USA tube sizes from 3/8 to 2 inches OD. They are compatible with other manufacturers' ISO-KF style flanges. NW flanges utilize an aluminum clamp with a single wing-nut fastener or a lock-over-center clamp allowing frequent disassembly without tools. The vacuum seal is effected by the application of uniform

pressure from the clamp on the 15° surface of the 304 stainless steel flanges. The mating flange surfaces compress a Viton O-ring held in place by a centering ring. The resultant seal can be used in vacuum applications of up to 10^{-8} Torr and baked to 204°C, however sustained baking above 150°C may result in deterioration of O-rings. Additionally, NW

flanges allow components to be rotated before assembly for ease of component alignment. NW flanges are available on virtually all Nor-Cal components and fittings. Nor-Cal manufactures a full line of NW adapters so you can add to or build an entire system with NW components. (See adapters - Section 5.) NW flanges can also be used with EVAC chain clamps and aluminum seals to obtain a UHV seal bakeable to 150°C. (EVAC chain clamps and seals are described in detail in Section 2.1.)



New Products

Trapped Centering Rings



Nor-Cal trapped centering rings for NW flanges feature easy assembly with exact centering and are appropriate for vacuum or pressure by externally supporting the sealing ring. Trapped O-rings are intended for use where pressures range from rough vacuum to above atmosphere. Applications include vacuum pump exhaust lines and abatement tools.

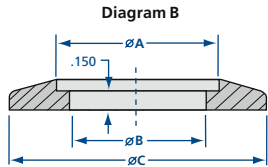
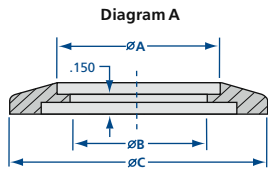
All dimensions are in inches
unless otherwise noted



Flanges & Fittings

NW Bored Blank Flanges & Blank Off Caps

NW Bored Blank Flanges (NWB)



MODEL NUMBER	DIAGRAM	TUBE OD	A	B	C
NW-10B-038	A	3/8	0.380	0.326	1.180
NW-10B-050	A	1/2	0.510	0.451	1.180
NW-16B-038	A	3/8	0.380	0.326	1.180
NW-16B-050	A	1/2	0.510	0.451	1.180
NW-16B-075	B	3/4	0.760	0.680	1.180
NW-25B-038	A	3/8	0.380	0.326	1.575
NW-25B-050	A	1/2	0.510	0.451	1.575
NW-25B-075	A	3/4	0.760	0.715	1.575
NW-25B-100	A	1	1.010	0.938	1.575
NW-40B-038	A	3/8	0.380	0.326	2.160
NW-40B-050	A	1/2	0.510	0.451	2.160
NW-40B-075	A	3/4	0.760	0.715	2.160
NW-40B-100	A	1	1.010	0.938	2.160
NW-40B-150	A	1 1/2	1.510	1.438	2.160
NW-50B-038	A	3/8	0.380	0.326	2.950
NW-50B-050	A	1/2	0.510	0.451	2.950
NW-50B-075	A	3/4	0.760	0.715	2.950
NW-50B-100	A	1	1.010	0.938	2.950
NW-50B-150	A	1 1/2	1.510	1.438	2.950
NW-50B-200	A	2	2.010	1.938	2.950

NW 316L Stainless Steel Bored Blank Flanges (NWB)

MODEL NUMBER	DIAGRAM	TUBE OD	A	B	C
NW-25B-100-316L	A	1	1.010	0.938	1.575
NW-40B-150-316L	A	1 1/2	1.510	1.438	2.160
NW-50B-200-316L	A	2	2.010	1.938	2.950

SPECIFICATIONS

Tube OD sizes: 3/8 to 2 inches

Materials

Flange: 304 or 316L stainless steel
O-rings: Viton, Buna & silicone

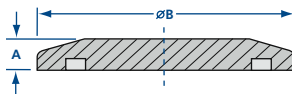
Fasteners: Wingnut, SureSeal, bulkhead & EVAC clamps

Vacuum range

Elastomer seal: $\geq 1 \times 10^{-8}$ Torr - High vacuum
EVAC metal seal: $\geq 1 \times 10^{-11}$ Torr - UHV

Temperature range

Viton: -20°C to 200°C
Silicone: -50°C to 230°C
Buna: -30°C to 110°C
EVAC metal seal: -270°C to 150°C



Blank Off Caps

MODEL NUMBER	A	B
NW-10B	0.200	1.180
NW-16B	0.200	1.180
NW-25B	0.200	1.575
NW-40B	0.200	2.160
NW-50B	0.200	2.950

316L Blank Off Caps

MODEL NUMBER	A	B
NW-16B-316L	0.200	1.180
NW-25B-316L	0.200	1.575
NW-40B-316L	0.200	2.160
NW-50B-316L	0.200	2.950

See EVAC - Section 2.1 for metal seals

Flanges & Fittings

NW Socket Weld & Weld Neck Flanges

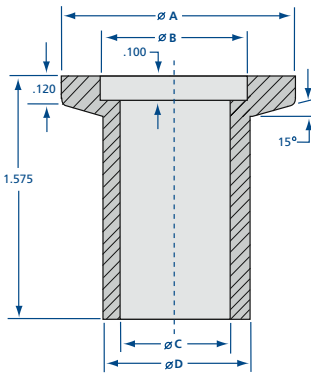
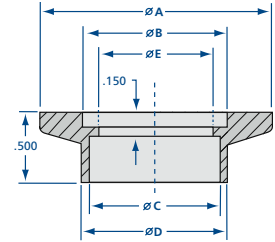


SECTION 2.2



NW Socket Weld Flanges

MODEL NUMBER	TUBE OD	A	B	C	D	E
NW-10-SW	1/2	1.180	0.480	0.510	0.640	-
NW-16-SW	3/4	1.180	0.680	0.760	0.798	-
NW-25-SW	1	1.575	1.031	1.010	1.140	0.938
NW-40-SW	1 1/2	2.160	1.620	1.510	1.640	1.438
NW-50-SW	2	2.950	2.060	2.010	2.140	1.938



NW Long Weld Neck Flanges

MODEL NUMBER	A	B	C	D
NW-10FL	1.180	0.480	0.380	1/2
NW-16FL	1.180	0.680	0.625	3/4
NW-25FL	1.575	1.031	0.870	1
NW-40FL	2.160	1.620	1.370	1 1/2
NW-50FL	2.950	2.060	1.870	2

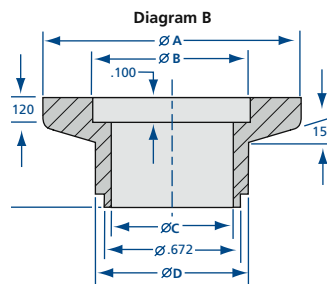
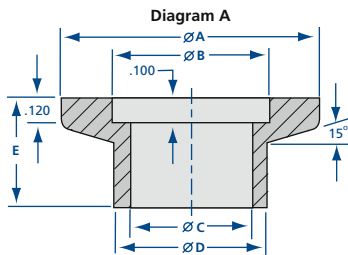
NW 316L Stainless Steel Long Weld Neck Flanges

MODEL NUMBER	A	B	C	D
NW-25FL-316L	1.575	1.031	0.870	1
NW-40FL-316L	2.160	1.620	1.370	1 1/2
NW-50FL-316L	2.950	2.060	1.870	2



NW Short Weld Neck Flanges

MODEL NUMBER	DIAGRAM	TUBE OD	A	B	C	D	E
NW-10F	A	1/2	1.180	0.480	0.380	1/2	0.500
NW-16F	B	3/4	1.180	0.680	0.625	3/4	0.560
NW-16FB	A	3/4	1.180	0.680	0.625	3/4	0.500
NW-25F	A	1	1.575	1.031	0.870	1	0.500
NW-40F	A	1 1/2	2.160	1.620	1.370	1 1/2	0.750
NW-50F	A	2	2.950	2.060	1.870	2	0.750



SPECIFICATIONS

Tube OD sizes: 3/8 to 2 inches

Materials

Flange: 304 or 316L stainless steel
O-rings: Viton, Buna & silicone

Fasteners: Wingnut, SureSeal, bulkhead & EVAC clamps

Vacuum range

Elastomer seal: $\geq 1 \times 10^{-8}$ Torr - High vacuum
EVAC metal seal: $\geq 1 \times 10^{-11}$ Torr - UHV

Temperature range

Viton: -20°C to 200°C
Silicone: -50°C to 230°C
Buna: -30°C to 110°C
EVAC metal seal: -270°C to 150°C

See EVAC - Section 2.1 for metal seals

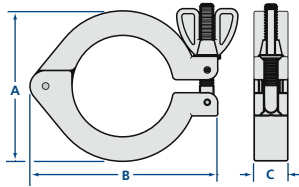
Flanges & Fittings

NW Assembly Hardware



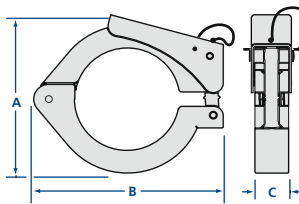
Nor-Cal Wing Nut and SureSeal NW Clamps feature special centering ribs and evenly distributed clamping force to assure uniform O-ring compression and reduce the probability of failure under loads. Additional hinge knuckles and tighter manufacturing tolerances result in precise alignment and reduced side play. Clamp opening is limited to facilitate one-handed installation in hard-to-reach spaces. In addition to the above features, the SureSeal clamp provides instant closure with a fixed geometry to attain optimal O-ring compression. All Nor-Cal NW clamps are designed and manufactured to meet Pneurop specifications for ISO-KF 10 through 50 flanges, so you can be confident of universal compatibility. We also provide chain clamps and metal seals for ISO-KF components to transform them from high vacuum to ultra-high vacuum connections.

NW Wing Nut Clamps



MODEL NUMBER	A	B	C
NW-10-CP	1.690	2.392	0.625
NW-16-CP	1.690	2.392	0.625
NW-25-CP	2.140	2.796	0.625
NW-40-CP	2.750	3.437	0.625
NW-50-CP	3.500	4.245	0.710

NW SureSeal Clamps



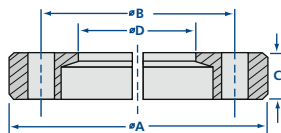
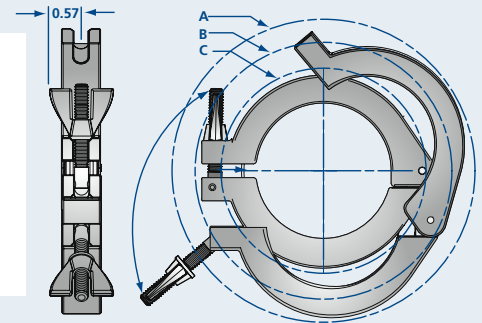
MODEL NUMBER	A	B	C
NW-10-SSC	1.750	2.392	0.741
NW-16-SSC	1.750	2.392	0.741
NW-40-SSC	2.947	3.437	0.741
NW-50-SSC	3.784	4.245	0.836

NW SureSeal Clamps with Lanyard

MODEL NUMBER	A	B	C
NW-10-SSC-L	1.750	2.392	0.741
NW-16-SSC-L	1.750	2.392	0.741
NW-40-SSC-L	2.947	3.437	0.741
NW-50-SSC-L	3.784	4.245	0.836

NW Clamp Clearance Details

CLAMP	FLANGE	MIN. DIA. TO INSTALL A	MAX. DIA. CLOSED B	MIN. DIA. CLOSED C
NW-10-CP	NW-10B	2.86	2.65	1.75
NW-16-CP	NW-16B	2.86	2.65	1.75
NW-25-CP	NW-25B	3.32	3.00	2.24
NW-40-CP	NW-40B	4.00	3.72	2.90
NW-50-CP	NW-50B	5.45	4.62	3.69

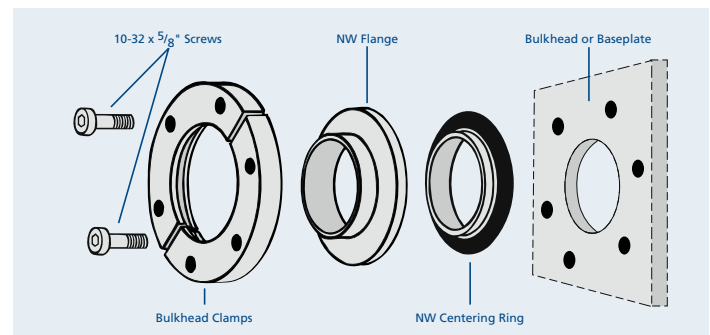


NW Bulkhead Clamps

MODEL NUMBER	A	B	C	NUMBER OF SCREWS	THROUGH HOLE D
NW-16-BCP	2.00	1.50	0.361	6	0.90
NW-25-BCP	2.37	1.89	0.387	6	1.26
NW-40-BCP	2.94	2.44	0.366	6	1.84
NW-50-BCP	3.75	3.25	0.404	8	2.35



Bulkhead clamps provide a simple means of fastening an NW flange to a baseplate. Each aluminum clamp is sold with stainless steel socket head cap screws and washers for attachment. Leave 0.075 inch minimum between the bottom of the tapped hole and the inside of the chamber wall.

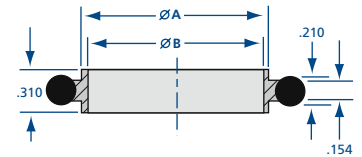




Nor-Cal offers aluminum and stainless steel centering rings for NW and ISO flanges. Buna, silicone and Viton O-rings are available for NW, while Buna and Viton are stocked for ISO centering rings. Aluminum ISO centering rings are provided with an aluminum spacer ring. Stainless steel ISO centering rings are also provided with aluminum spacer rings as an option.

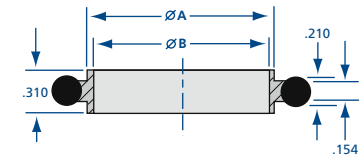
NW Aluminum Centering Rings with O-ring

MODEL NUMBER	O-RING MATERIAL	A	B
NW-10-CR-AV	Viton	0.478	0.456
NW-10-CR-AB	Buna	0.478	0.456
NW-16-CR-AV	Viton	0.669	0.625
NW-16-CR-AB	Buna	0.669	0.625
NW-25-CR-AV	Viton	1.024	0.984
NW-25-CR-AB	Buna	1.024	0.984
NW-40-CR-AV	Viton	1.614	1.570
NW-40-CR-AB	Buna	1.614	1.570
NW-50-CR-AV	Viton	2.047	1.967
NW-50-CR-AB	Buna	2.047	1.967



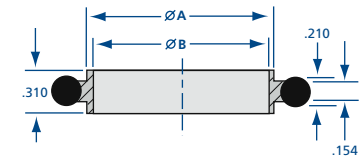
NW Stainless Steel Centering Rings with O-ring

MODEL NUMBER	O-RING MATERIAL	A	B
NW-10-CR-SV	Viton	0.478	0.456
NW-10-CR-SS	Silicone	0.478	0.456
NW-10-CR-SB	Buna	0.478	0.456
NW-16-CR-SV	Viton	0.669	0.625
NW-16-CR-SS	Silicone	0.669	0.625
NW-16-CR-SB	Buna	0.669	0.625
NW-25-CR-SV	Viton	1.024	0.984
NW-25-CR-SS	Silicone	1.024	0.984
NW-25-CR-SB	Buna	1.024	0.984
NW-40-CR-SV	Viton	1.614	1.570
NW-40-CR-SS	Silicone	1.614	1.570
NW-40-CR-SB	Buna	1.614	1.570
NW-50-CR-SV	Viton	2.047	1.967
NW-50-CR-SS	Silicone	2.047	1.967
NW-50-CR-SB	Buna	2.047	1.967

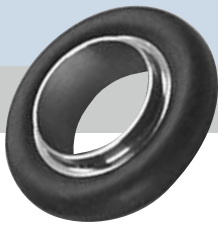


NW 316L Stainless Steel Centering Rings with O-ring

MODEL NUMBER	O-RING MATERIAL	A	B
NW-25-CR-SV-316L	Viton	1.024	0.984
NW-40-CR-SV-316L	Viton	1.614	1.570
NW-50-CR-SV-316L	Viton	2.047	1.967

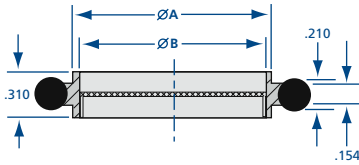


See page 26 for replacement O-rings



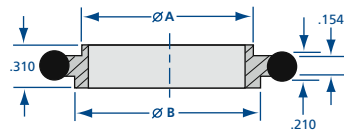
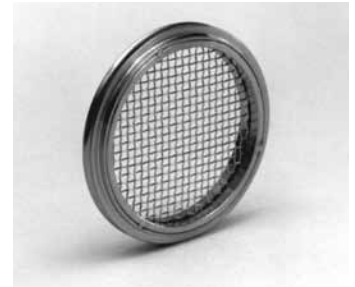
Flanges & Fittings

NW Centering Rings & Replacement O-rings



NW Screened Stainless Steel Centering Rings with Viton O-ring

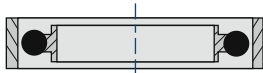
MODEL NUMBER	O-RING MATERIAL	A	B	MESH
NW-25-CR-SV-74	Viton	1.024	0.984	74
NW-40-CR-SV-74	Viton	1.614	1.570	74
NW-50-CR-SV-74	Viton	2.047	1.967	74



NW Reducer Stainless Steel Centering Rings with Viton O-ring

MODEL NUMBER	O-RING MATERIAL	A	B
NW-10/16-CR	Viton	0.48	0.67
NW-20/25-CR	Viton	0.87	1.02
NW-32/40-CR	Viton	1.34	1.61

Buna and Silicone O-rings available. Call for pricing.

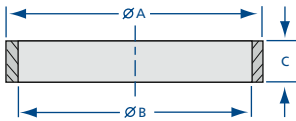


For dimensions refer to the centering ring/O-ring assembly drawing on the previous page and the overpressure ring diagram this page.

NW Stainless Steel Centering Rings with Viton O-ring and Over Pressure Ring

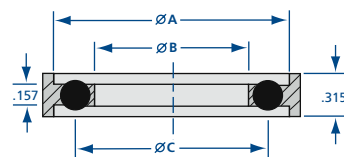
MODEL NUMBER	DESCRIPTION
NW-10-CR-SV-PR	Contains model numbers NW-10-PR and NW-10-CR-SV
NW-16-CR-SV-PR	Contains model numbers NW-16-PR and NW-16-CR-SV
NW-25-CR-SV-PR	Contains model numbers NW-25-PR and NW-25-CR-SV
NW-40-CR-SV-PR	Contains model numbers NW-40-PR and NW-40-CR-SV
NW-50-CR-SV-PR	Contains model numbers NW-50-PR and NW-50-CR-SV

Buna and Silicone O-rings available. Call for pricing.



NW Stainless Steel Overpressure Rings

MODEL NUMBER	A	B	C	MAXIMUM PSIG
NW-10-PR	1.25	1.186	0.346	100
NW-16-PR	1.25	1.186	0.346	100
NW-25-PR	1.66	1.583	0.346	100
NW-40-PR	2.25	2.169	0.346	75
NW-50-PR	2.75	2.620	0.145	50



NW trapped centering rings are composed of an aluminum outer ring, Viton O-ring, and stainless steel centering ring

NW Trapped Centering Rings with O-ring

MODEL NUMBER	O-RING MATERIAL	A	B	C
NW-10/16-CRT-SV	Viton	1.18	0.63	0.91
NW-25-CRT-SV	Viton	1.58	0.95	1.30
NW-40-CRT-SV	Viton	2.17	1.58	1.89
NW-50-CRT-SV	Viton	2.95	1.97	2.32

Buna and Silicone O-rings available. Call for pricing.



Viton O-Rings

MODEL NUMBER	FLANGE TYPE
NW-10-OR-V	NW-10
NW-16-OR-V	NW-16
NW-25-OR-V	NW-25
NW-40-OR-V	NW-40
NW-50-OR-V	NW-50

Silicone O-Rings

MODEL NUMBER	FLANGE TYPE
NW-10-OR-S	NW-10
NW-16-OR-S	NW-16
NW-25-OR-S	NW-25
NW-40-OR-S	NW-40
NW-50-OR-S	NW-50

Buna O-Rings

MODEL NUMBER	FLANGE TYPE
NW-10-OR-B	NW-10
NW-16-OR-B	NW-16
NW-25-OR-B	NW-25
NW-40-OR-B	NW-40
NW-50-OR-B	NW-50



SPECIFICATIONS

Tube OD sizes: 1/2 to 2 inches

Materials

Flange: 304 stainless steel
(316L available upon request)
O-rings: Viton, Buna & silicone

Fittings

Tube finishes: Beadblast standard
(Tumbled & electropolish available)

Fasteners: Wingnut, SureSeal,
bulkhead & EVAC clamps

Vacuum range

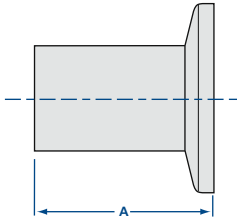
Elastomer seal: $\geq 1 \times 10^{-8}$ Torr - High vacuum
EVAC metal seal: $\geq 1 \times 10^{-11}$ Torr - UHV

Temperature range

Viton: -20°C to 200°C
Silicone: -50°C to 230°C
Buna: -30°C to 110°C
EVAC metal seal: -270°C to 150°C

See EVAC - Section 2.1 for metal seals

Nor-Cal manufactures a complete line of NW vacuum fittings. The tube portions are fabricated from 304 stainless steel. 316L stainless steel can be supplied on request. Nor-Cal makes its own elbows, and all tees and crosses are made with the pulled-port technique. This allows smooth, crevice-free butt welds to provide the maximum in cleanliness for UHV applications. Bakeout range is up to 200°C. Nor-Cal fittings are also available with CF, ISO and ASA flanges. Standard finish is bead blasted. Electropolished finish can also be provided as an option. Call for pricing.



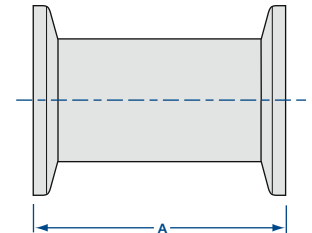
NW Half Nipples

MODEL NUMBER	TUBE OD	A
1N-NW-10	1/2	1.25
1N-NW-16B	3/4	1.15
1N-NW-25B	1	2.03
1N-NW-40B	1 1/2	2.40
1N-NW-50B	2	3.15



NW Full Nipples

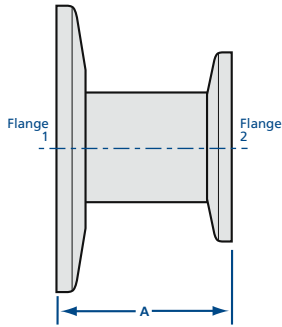
MODEL NUMBER	TUBE OD	A
2N-NW-10	1/2	2.50
2N-NW-16B	3/4	2.30
2N-NW-25B	1	4.06
2N-NW-40B	1 1/2	4.80
2N-NW-50B	2	6.30





Flanges & Fittings

NW Fittings



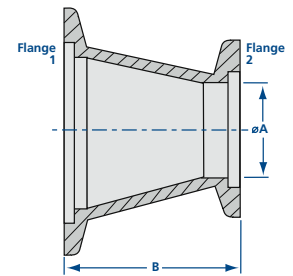
NW Reducer Nipples

MODEL NUMBER	FLANGE 1	FLANGE 2	TUBE OD	A
2NR-NW-16-10	NW-16	NW-10	$\frac{1}{2}$	1.40
2NR-NW-25-10	NW-25	NW-10	$\frac{1}{2}$	1.40
2NR-NW-25-16	NW-25	NW-16	$\frac{3}{4}$	1.30
2NR-NW-40-10	NW-40	NW-10	$\frac{1}{2}$	1.40
2NR-NW-40-16	NW-40	NW-16	$\frac{3}{4}$	1.30
2NR-NW-40-25	NW-40	NW-25	1	2.18
2NR-NW-50-10	NW-50	NW-10	$\frac{1}{2}$	1.40
2NR-NW-50-16	NW-50	NW-16	$\frac{3}{4}$	1.30
2NR-NW-50-25	NW-50	NW-25	1	2.18
2NR-NW-50-40	NW-50	NW-40	$1\frac{1}{2}$	2.55



NW Conical Reducer Nipples

MODEL NUMBER	FLANGE 1	FLANGE 2	A	B
2NRC-NW-25-16	NW-25	NW-16	0.620	1.57
2NRC-NW-40-16	NW-40	NW-16	0.620	1.57
2NRC-NW-50-16	NW-50	NW-16	0.620	1.57
2NRC-NW-40-25	NW-40	NW-25	0.870	1.57
2NRC-NW-50-25	NW-50	NW-25	0.870	1.57
2NRC-NW-50-40	NW-50	NW-40	1.380	1.57

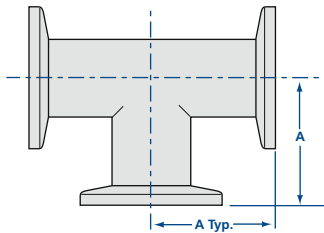


NW 316L Conical Reducer Nipples

MODEL NUMBER	FLANGE 1	FLANGE 2	A	B
2NRC-NW-40-25-316L	NW-40	NW-25	0.870	1.57
2NRC-NW-50-40-316L	NW-50	NW-40	1.380	1.57

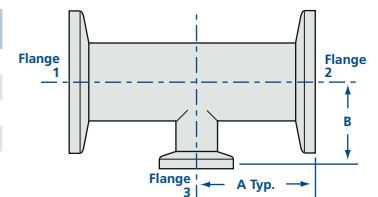
NW Tees

MODEL NUMBER	TUBE OD	A
3T-NW-10	$\frac{1}{2}$	1.25
3T-NW-16B	$\frac{3}{4}$	1.15
3T-NW-25B	1	2.03
3T-NW-40B	$1\frac{1}{2}$	2.40
3T-NW-40H	$1\frac{1}{2}$	2.56
3T-NW-50B	2	3.15
3T-NW-50H	2	2.76



NW Reducer Tees

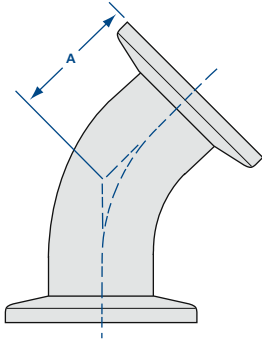
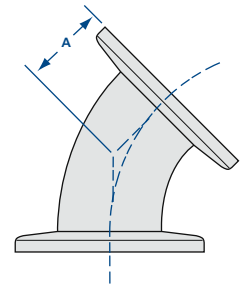
MODEL NUMBER	TUBE 1 & 2 ARM OD	TUBE 3 LEG OD	A	B
3TR-NW-25-16B	1	$\frac{3}{4}$	2.03	1.27
3TR-NW-40-16B	$1\frac{1}{2}$	$\frac{3}{4}$	2.40	1.53
3TR-NW-40-25B	$1\frac{1}{2}$	1	2.40	2.28
3TR-NW-50-16B	2	$\frac{3}{4}$	3.15	1.78
3TR-NW-50-40B	2	$1\frac{1}{2}$	3.15	2.65





NW 45° Radius Elbows

MODEL NUMBER	TUBE OD	A
2K-NW-25	1	0.77
2K-NW-40	1½	1.08
2K-NW-50	2	1.39



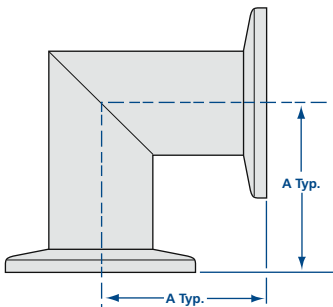
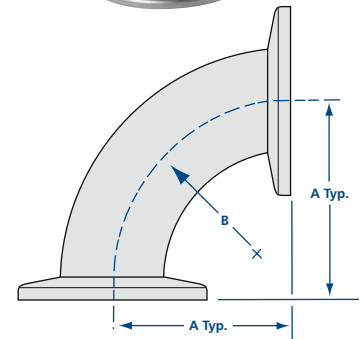
NW 45° Radius Elbows with Tangents

MODEL NUMBER	TUBE OD	A
2KL-NW-16	¾	0.91
2KL-NW-25	1	1.12
2KL-NW-40	1½	1.68
2KL-NW-50	2	1.99



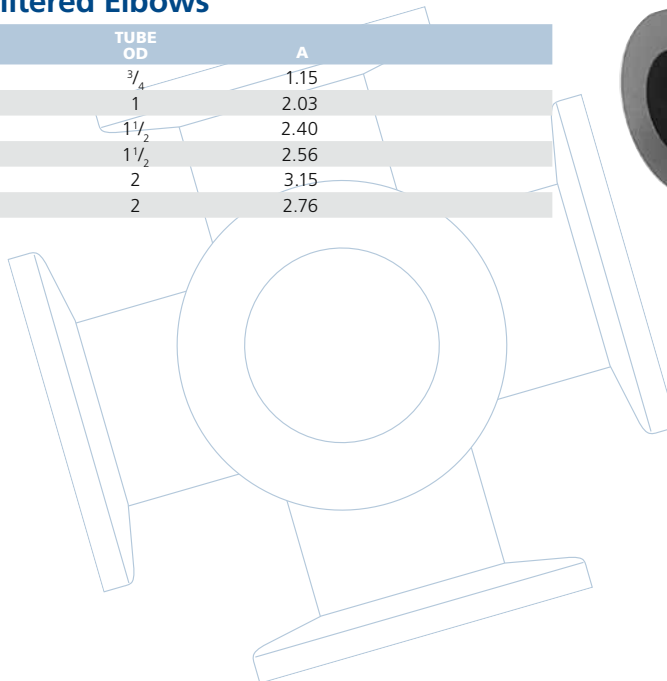
NW 90° Radius Elbows

MODEL NUMBER	TUBE OD	A	B
2E-NW-10	½	1.25	0.75
2E-NW-16B	¾	1.15	1.00
2E-NW-25B	1	1.65	1.50
2E-NW-40B	1½	2.40	2.25
2E-NW-40H	1½	2.56	2.25
2E-NW-40HL	1½	5.12	2.25
2E-NW-50B	2	3.15	3.00
2E-NW-50HL	2	5.51	3.00



NW 90° Mitered Elbows

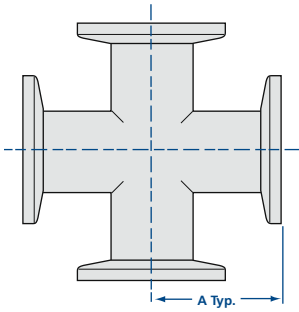
MODEL NUMBER	TUBE OD	A
2E-NW-16MB	¾	1.15
2E-NW-25MB	1	2.03
2E-NW-40MB	1½	2.40
2E-NW-40MH	1½	2.56
2E-NW-50MB	2	3.15
2E-NW-50MH	2	2.76





Flanges & Fittings

NW Fittings



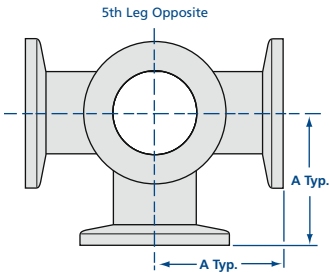
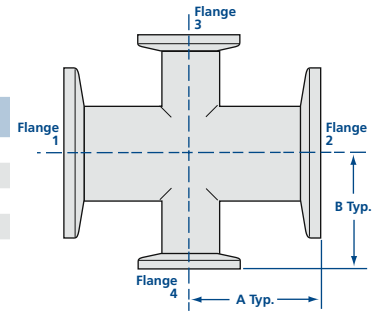
NW 4-Way Crosses

MODEL NUMBER	TUBE OD	A
4C-NW-10	$\frac{1}{2}$	1.25
4C-NW-16B	$\frac{3}{4}$	1.15
4C-NW-25B	1	2.03
4C-NW-40B	$1\frac{1}{2}$	2.40
4C-NW-40H	$1\frac{1}{2}$	2.56
4C-NW-50B	2	3.15
4C-NW-50H	2	2.76



NW Reducer Crosses

MODEL NUMBER	TUBE 1 & 2 OD	TUBE 3 & 4 OD	A	B
4CR-NW-25-16B	1	$\frac{3}{4}$	2.03	1.27
4CR-NW-40-16B	$1\frac{1}{2}$	$\frac{3}{4}$	2.40	1.53
4CR-NW-40-25B	$1\frac{1}{2}$	1	2.40	2.28
4CR-NW-50-16B	2	$\frac{3}{4}$	3.15	1.78
4CR-NW-50-40B	2	$1\frac{1}{2}$	3.15	2.65



NW 5-Way Crosses

MODEL NUMBER	TUBE OD	A
5C-NW-16	$\frac{3}{4}$	1.50
5C-NW-25B	1	2.03
5C-NW-40B	$1\frac{1}{2}$	2.40
5C-NW-50B	2	3.15



NW 6-Way Crosses

MODEL NUMBER	TUBE OD	A
6C-NW-16	$\frac{3}{4}$	1.50
6C-NW-25B	1	2.03
6C-NW-40B	$1\frac{1}{2}$	2.40
6C-NW-50B	2	3.15

