



# 3 Vacuum Fittings - Adapters - Bolt Sets

## LF (Large Flange)

### ISO NW LF Specifications

<b>Max. Positive Pressure</b>	<b>30 psig</b>
over pressure centering ring	
<b>Torque Rating</b>	<b>7-10 lbs/ft.</b> clamps and bolts
<b>Max. Vacuum Pressure</b>	<b>10<sup>-8</sup> Torr</b>
<b>Leak Check</b>	<b>&lt;10<sup>-9</sup> std-cc/s</b>
<b>Materials</b>	<b>304 Stainless Steel, Aluminum, Viton, Silicone, Buna-N</b>

### ISO NW LF Elastomer O-Ring Comparisons

<b>BUNA</b>	<b>BAKE OUT 80°C(176°F)</b>
<b>Advantage</b>	Good balance of desirable properties, excellent oil & fuel resistance, good water resistance. Lowest cost.
<b>Disadvantage</b>	Poor weather resistance, moderate heat resistance.
<b>VITON</b>	<b>BAKE OUT 150°C(302°F)</b>
<b>Advantage</b>	Excellent chemical & heat resistance. Good mechanical & compression set resistance.
<b>Disadvantage</b>	Not recommended for steam, polar solvents, hot hydrofluoric or chlorosulfonic acids.
<b>SILICONE</b>	<b>BAKE OUT 185°C(365°F)</b>
<b>Advantage</b>	Excellent temperature extremes & compression set resistance.
<b>Disadvantage</b>	Poor physical strength and abrasion resistance.

**LF** (Large Flange or MF) are International Standards Organization (ISO) vacuum fittings and have a flange size of 63 mm to 1000 mm. There are two flange face types, the ISO-K (no bolt holes) which use claw clamps for mating connections and the ISO-F (smooth bolt holes) which use nuts and bolts for the mating connection. They are sexless with a centering ring mating two identical flange faces together. This Large Flange is used in a variety of industries from process manufacturing to semiconductor where large throughput is necessary. Some examples are, roughing and foreline plumbing for large vacuum systems, high vacuum, high conductance, modular systems which can be modified frequently and experimental systems in research laboratories. Elastomer seal O-rings for ISO NW LF are made of Buna, Viton and Silicone. Typical limits of the vacuum are normally down to 10<sup>-6</sup> Torr. Baked systems using Viton or Silicone elastomer seals can be pumped down to 10<sup>-8</sup> Torr. ISO NW LF flanges are made of type 304 stainless steel. Four installation connection procedures are listed on the next pages.

For applications to 10<sup>-8</sup> Torr

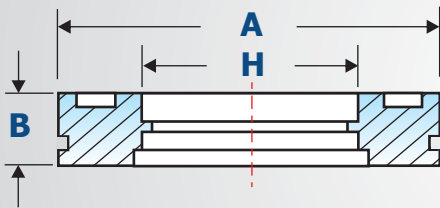


**Most LF IN STOCK**  
**Same Day Shipping**

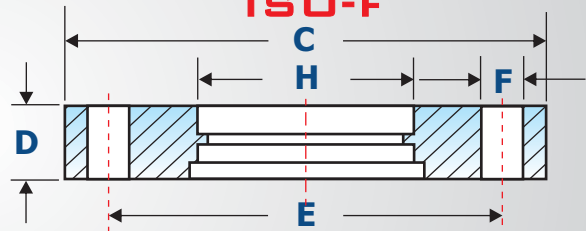
### ISO LF LARGE FLANGE DIMENSIONS (LF)



ISO LF MULTI  
FASTENER FLANGE  
**ISO-K**



ISO LF BOLTED  
FLANGE  
**ISO-F**



Flange Size	Pipe O.D. and Wall Thickness in inches <b>H</b>	NW LF ISO-K No Bolt Holes			Pipe O.D. and Wall Thickness in inches <b>H</b>	NW LF ISO-F With Bolt Holes <small>smooth or threaded</small>				
		inches (mm) <b>A</b> (O.D.)	<b>B</b> (Thickness)	# Clamps Needed		inches (mm) <b>C</b> (O.D.)	<b>D</b> (Thickness)	<b>E</b> Bolt Distances	<b>F</b> Bolt Holes	# Holes
<b>LF63</b>	2.5 x .065	3.74 (95)	.47 (12)	(3-4)	2.5 x .065	5.12 (130)	.47 (12)	4.33 (110)	.35 (9)	4
<b>LF80</b>	3.0 x .065	4.33 (110)	.47 (12)	(4-8)	3.0 x .065	5.17 (145)	.47 (12)	4.92 (125)	.35 (9)	8
<b>LF100</b>	4.0 x .065	5.12 (130)	.47 (12)	(4-8)	4.0 x .065	6.50 (165)	.47 (12)	5.71 (145)	.35 (9)	8
<b>LF160</b>	6.0 x .083	7.09 (180)	.47 (12)	(4-8)	6.0 x .083	8.86 (225)	.63 (16)	7.87 (200)	.43 (11)	8
<b>LF200</b>	8.0 x .120	9.45 (240)	.47 (12)	(6-12)	8.0 x .120	11.22 (285)	.63 (16)	10.24 (260)	.43 (11)	12
<b>LF250</b>	10.0 x .125	11.42 (290)	.47 (12)	(6-12)	10.0 x .125	13.19 (335)	.63 (16)	12.20 (310)	.43 (11)	12
<b>LF320</b>	12.75 x .165	14.57 (370)	.67 (17)	(8-12)	12.75 x .165	16.73 (425)	.79 (20)	15.55 (395)	.55 (14)	12
<b>LF400</b>	16.0 x .188	17.72 (450)	.67 (17)	(8-16)	16.0 x .188	20.08 (510)	.79 (20)	18.90 (480)	.55 (14)	16
<b>LF500</b>	20.0 x .188	21.65 (550)	.67 (17)	(12-16)	20.0 x .188	24.02 (610)	.79 (20)	22.83 (580)	.55 (14)	16
<b>LF630</b>	25.0 x .250	NA	NA	NA	25.0 x .250	29.53 (750)	.94 (24)	28.35 (720)	.55 (14)	20



# 3 Vacuum Fittings - Adapters - Bolt Sets

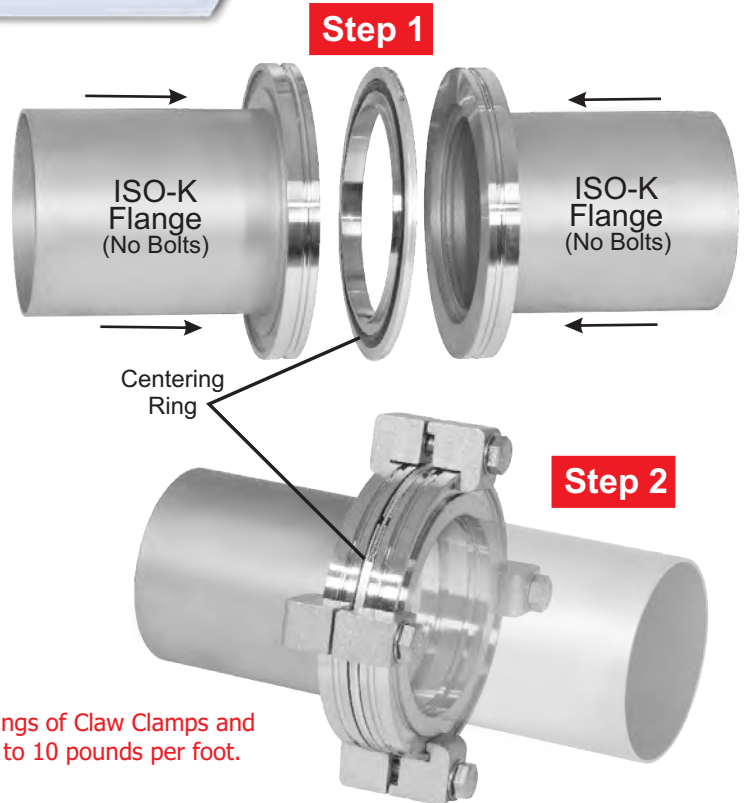
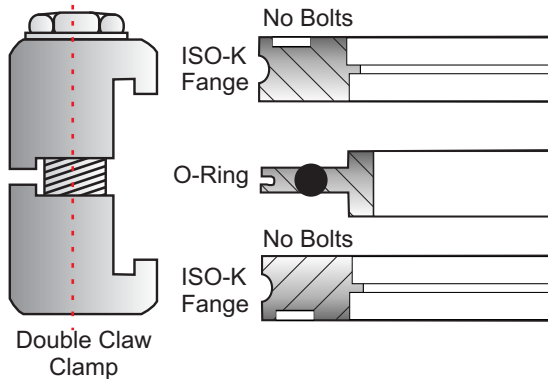
## LF (Large Flange)

### 4 Ways to Connect LF

#### ISO-K to ISO-K

#### 1 Connect 2 Like LF NW Flange Faces Together

To connect 2 like flanges: An ISO-K to ISO-K. Use double claw clamps. Step 1, bring together with centering ring. Step 2, add double claw clamps and tighten (The larger the flange size the more double claw clamps needed)

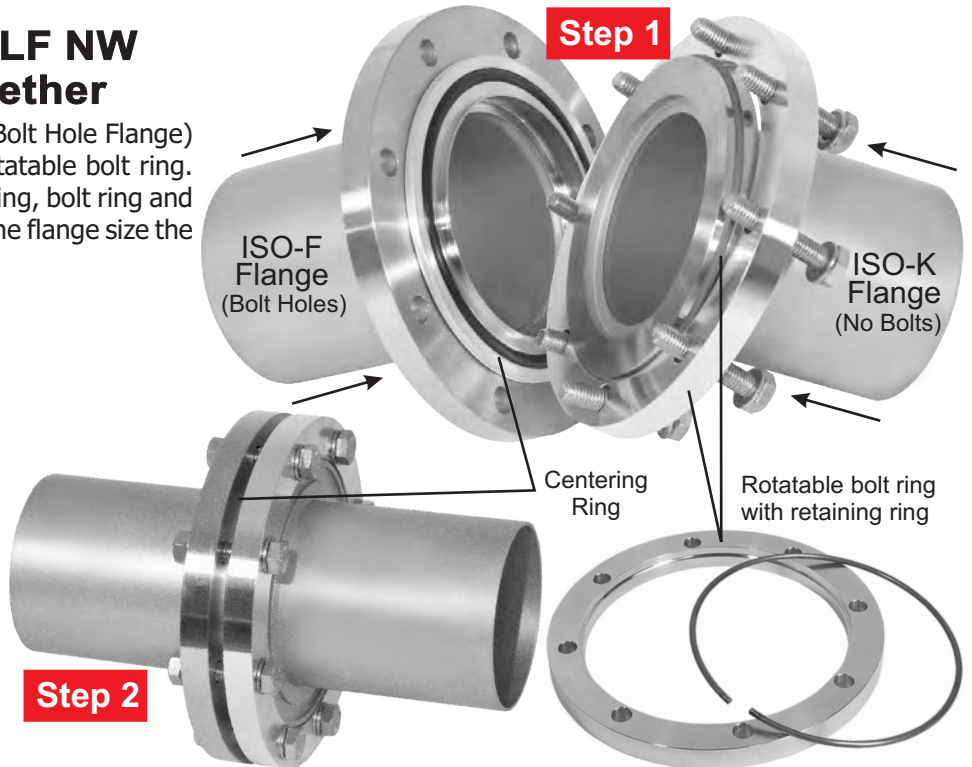
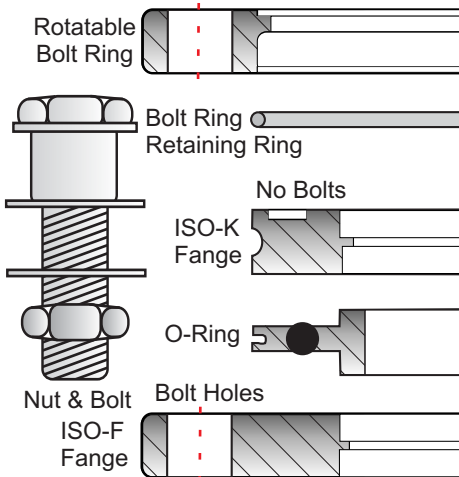


Torque ratings of Claw Clamps and Bolts is 7 to 10 pounds per foot.

#### ISO-F to ISO-K

#### 2 Connect 2 Unlike LF NW Flange Faces Together

To connect 2 unlike flanges: An ISO-F (Bolt Hole Flange) with a ISO-K (No Bolt Flange) use a rotatable bolt ring. Figure 1, bring together with centering ring, bolt ring and bolts. Step 2, tighten bolts. (The larger the flange size the more bolts and nuts needed)



\* Catalog Pricing Subject to Change

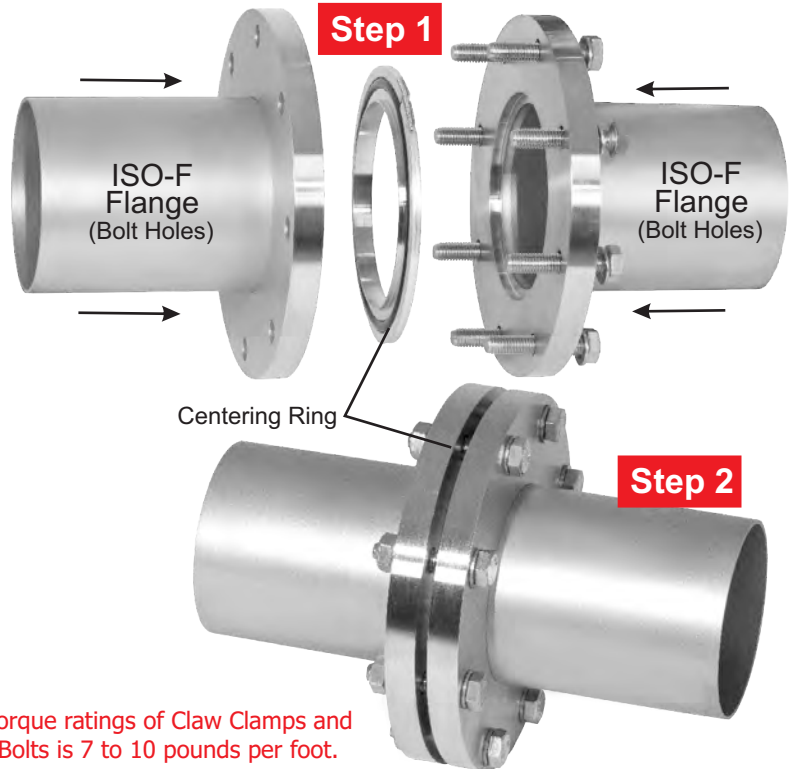
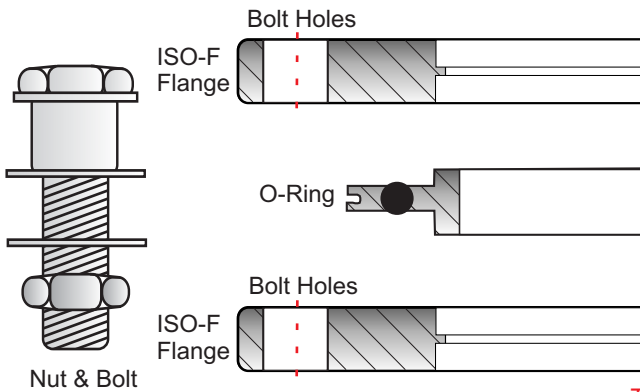
# Vacuum Fittings - Adapters - Bolt Sets **3**

## LF (Large Flange)

### ISO-F to ISO-F

#### **3** Connect 2 Like LF NW Flange Faces Together

To connect 2 like flanges: An ISO-F to ISO-F. Use nuts and bolts. Step 1, bring together with centering ring, nuts and bolts. Step 2, tighten nuts and bolts. Using nuts and bolts is the strongest of all the LF connections. (The larger the flange size the more nuts and bolts needed)

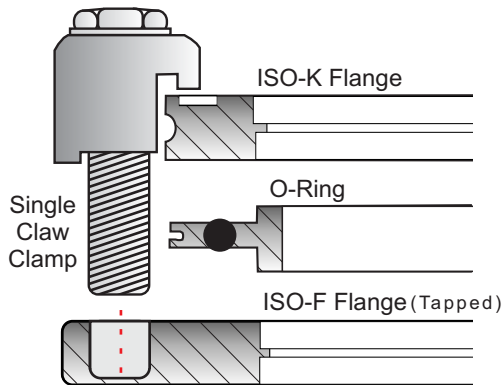


Torque ratings of Claw Clamps and Bolts is 7 to 10 pounds per foot.

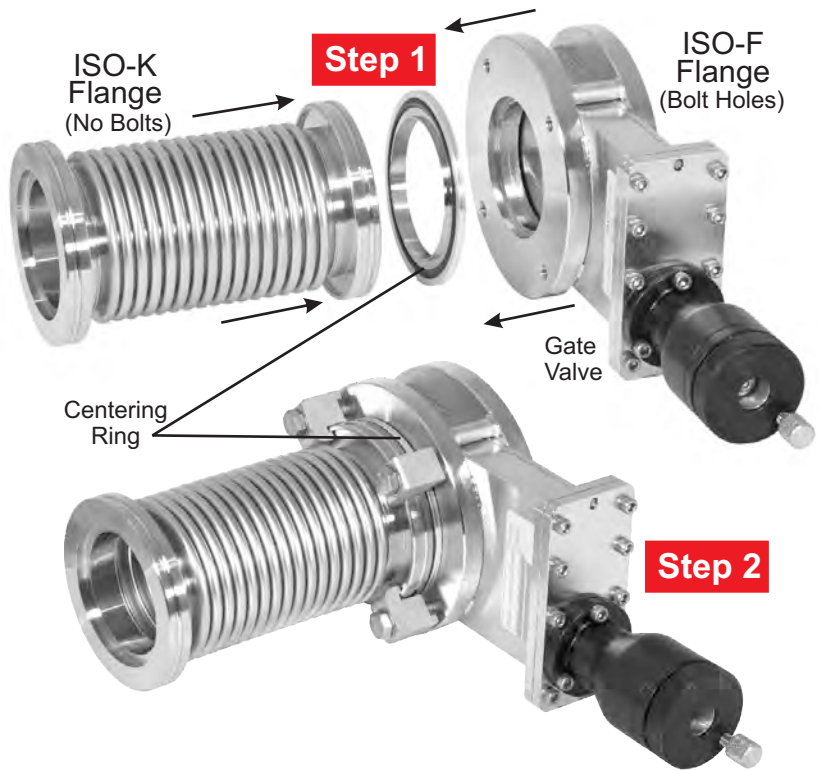
### ISO-K to ISO-F

#### **4** Connect 2 Unlike LF NW Flange Faces Together

To connect 2 unlike flanges: An ISO-K to ISO-F (tapped) use single claw clamps. Step 1, bring together with centering ring. Step 2, add single claw clamps and tighten. A ring bolt with bolts could also be used instead of single claw clamps. This configuration is for gate valves and vacuum pump inlets/outlets with a ISO-F face being mated to a ISO-K face. (The larger the flange size the more single claw clamps needed)

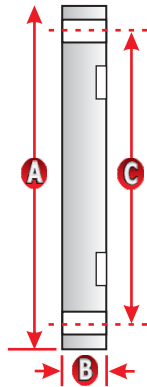


\* Catalog Pricing Subject to Change



### 3 Vacuum Fittings - Adapters - Bolt Sets

## LF (Large Flange) - Fittings -



**Stainless Steel**

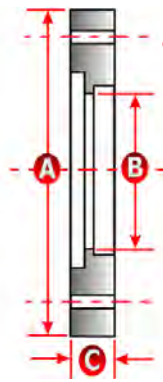
(sold as one each)

### LF ISO-F NW Blank Flange Bolted

LF ISO-F NW	Bolt Holes	A	B	C	IDEAL VACUUM P/N	Price*
ISO-F LF NW-63	4	5.12"	0.50"	4.37"	P104038	\$119.95
ISO-F LF NW-80	8	5.68"	0.50"	4.88"	P104039	\$129.00
ISO-F LF NW-100	8	6.50"	0.50"	5.75"	P103996	\$139.00
ISO-F LF NW-160	8	8.87"	0.68"	7.87"	P104040	\$269.00
ISO-F LF NW-200	12	11.25"	0.68"	10.25"	P104041	\$309.00
ISO-F LF NW-250	12	13.18"	0.68"	12.1"	P104042	\$379.00

### LF ISO-F NW Weld Flange Bored

LF ISO-F NW Blank	Bolt Holes	A	B	C	IDEAL VACUUM P/N	Price*
ISO-F LF NW-63	4	5.12"	2.43"	0.50"	P101750	\$64.75
ISO-F LF NW-80	8	5.56"	2.93"	0.50"	P101751	\$91.30
ISO-F LF NW-100	8	6.50"	3.87"	0.50"	P101754	\$99.00
ISO-F LF NW-160	8	8.87"	5.87"	0.62"	P101752	\$154.25
ISO-F LF NW-200	12	11.12"	7.87"	0.62"	P101753	\$189.50
ISO-F LF NW-250	12	13.18"	9.87"	0.62"	P104114	\$215.00



**Stainless Steel**

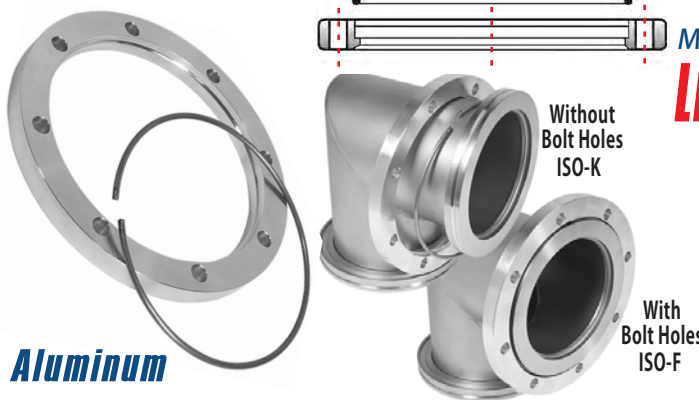
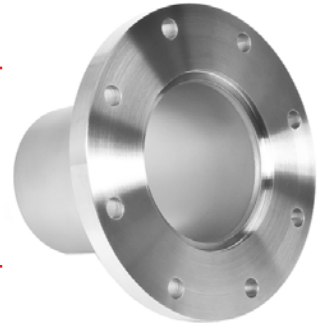
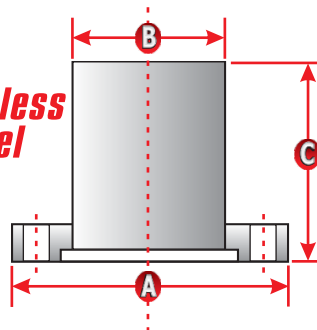
(sold as one each)



### LF ISO-F NW Half Nipple Bored

LF ISO-F NW	Bolt Holes	A	B	C	IDEAL VACUUM P/N	Price*
ISO-F LF NW-63	4	5.11"	2.48"	3.93"	P101725	\$99.75
ISO-F LF NW-80	8	5.70"	3.00"	3.93"	P101726	\$143.90
ISO-F LF NW-100	8	6.50"	4.00"	3.93"	P101727	\$165.00
ISO-F LF NW-160	8	8.85"	6.00"	3.93"	P101728	\$260.00
ISO-F LF NW-200	12	11.22"	8.00"	3.93"	P101729	\$299.00

**Stainless Steel**



**Aluminum**

Makes Non Bolted ISO-K Flanges into ISO-F Smooth Bolt Holes

### LF ISO-K NW Rotatable Bolt Ring Adapter

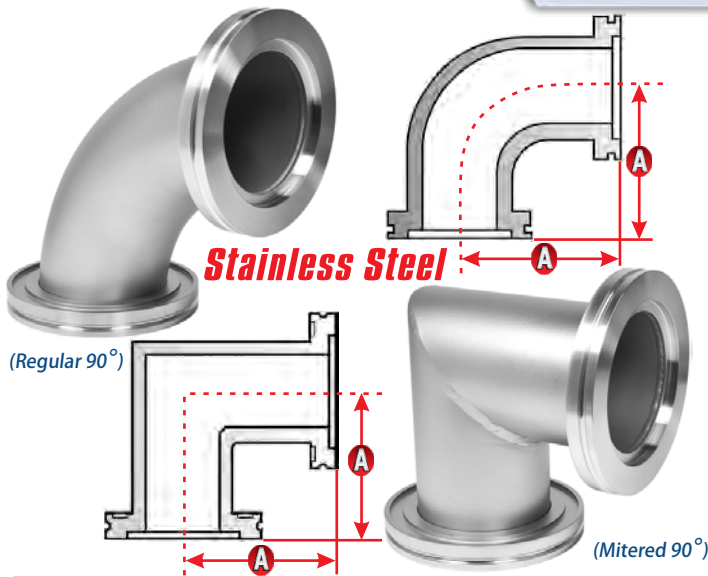
LF ISO-K to ISO-F NW Blank	Bolts	IDEAL VACUUM P/N	Price*
ISO-K to ISO-F NW-63	4	P101720	\$52.25
ISO-K to ISO-F NW-80	8	P101721	\$85.20
ISO-K to ISO-F NW-100	8	P101722	\$95.50
ISO-K to ISO-F NW-160	8	P101723	\$160.00
ISO-K to ISO-F NW-200	12	P101724	\$154.25

\* Catalog Pricing  
Subject to Change



# Vacuum Fittings - Adapters - Bolt Sets 3

## - Fittings - LF (Large Flange)

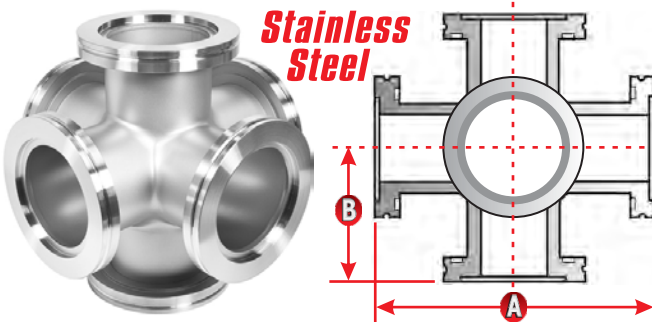
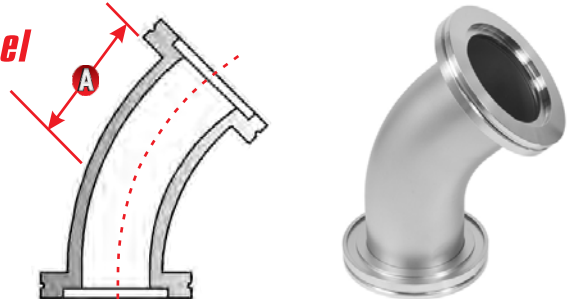


### LF ISO-K NW Elbow 90° *Regular or Mitered*

LF ISO-K NW	Type Elbow	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	Regular	4.00"	P101700	\$125.00
ISO-K LF NW-63	Mitered	3.25"	P104017	\$133.00
ISO-K LF NW-63H	Mitered	3.50"	P103980	\$145.99
ISO-K LF NW-80	Regular	4.74"	P101701	\$155.00
ISO-K LF NW-80	Mitered	3.25"	P104018	\$143.00
ISO-K LF NW-80	Mitered	4.25"	P104019	\$153.00
ISO-K LF NW-100	Regular	6.25"	P101702	\$185.00
ISO-K LF NW-100	Mitered	4.12"	P104020	\$203.00
ISO-K LF NW-100	Mitered	4.25"	P104021	\$225.00
ISO-K LF NW-160	Regular	9.24"	P102292	\$560.05
ISO-K LF NW-160	Mitered	5.43"	P103992	\$355.00

### LF ISO-K NW Elbow 45° *Stainless Steel*

LF ISO-K NW	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	3.25"	P101696	\$194.50
ISO-K LF NW-80	3.93"	P101697	\$219.00
ISO-K LF NW-100	5.03"	P101698	\$255.00
ISO-K LF NW-160	5.49"	P101699	\$465.00

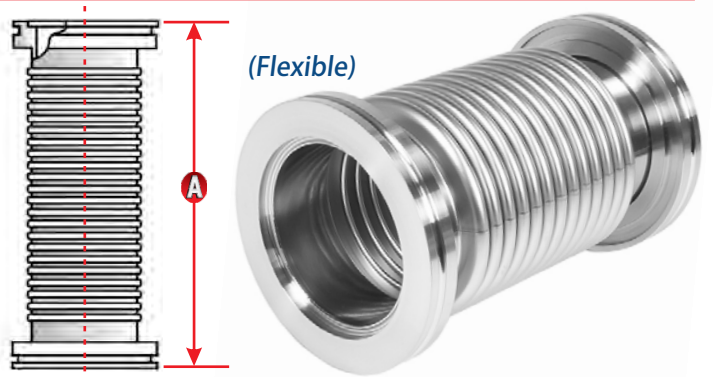


### LF ISO-K NW 6-Way Cross

LF ISO-K NW Six Way Cross	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	6.5"	3.25"	P103989	\$415.00
ISO-K LF NW-80	7.00"	3.50"	P103990	\$510.00
ISO-K LF NW-100	8.25"	4.12"	P103991	\$665.00
ISO-K LF NW-160	10.5"	5.25"	P104099	\$975.00

### LF ISO-K NW Bellows *Stainless Steel*

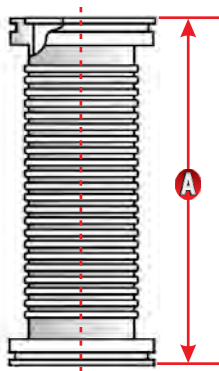
LF ISO-K NW Bellows	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	6.00"	P101704	\$255.00
ISO-K LF NW-80	6.00"	P101705	\$299.00
ISO-K LF NW-100	6.00"	P101706	\$346.75
ISO-K LF NW-160	8.00"	P101707	\$485.50
ISO-K LF NW-200	10.0"	P101708	\$845.00
ISO-K LF NW-250	12.0"	P101709	\$1,049.00



\* Catalog Pricing  
Subject to Change

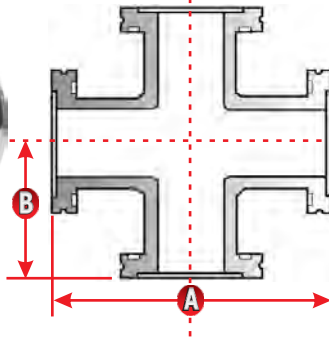
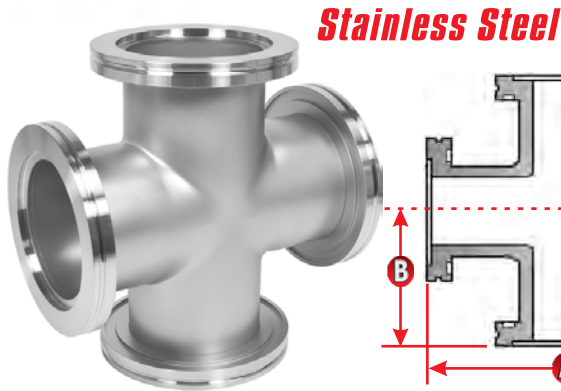
### 3 Vacuum Fittings - Adapters - Bolt Sets

## LF (Large Flange) - Fittings -



### LF ISO-K NW Bellows *Thin & Thick Wall*

LF ISO-K NW Bellows	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 (thin wall)	10.0"	P101755	\$269.00
ISO-K LF NW-80 (thin wall)	10.0"	P101756	\$321.00
ISO-K LF NW-100 (thin wall)	10.0"	P101757	\$367.50
ISO-K LF NW-63 (thick wall)	20.0"	P101758	\$292.50
ISO-K LF NW-80 (thick wall)	20.0"	P101759	\$312.30
ISO-K LF NW-100 (thick wall)	20.0"	P101760	\$348.75

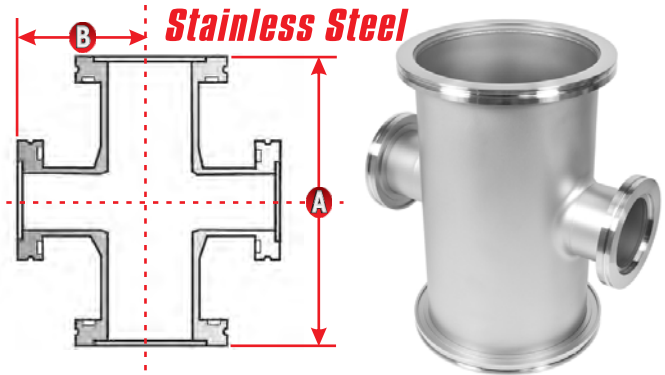


### LF ISO-K NW 4-Way Cross

LF ISO-K NW Four Way Cross	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	6.50"	3.26"	P101691	\$357.75
ISO-K LF NW-80	7.00"	3.50"	P104015	\$476.00
ISO-K LF NW-80H	7.68"	3.86"	P101692	\$556.00
ISO-K LF NW-100	8.25"	4.12"	P104016	\$576.00
ISO-K LF NW-100H	8.5"	4.25"	P101693	\$565.00
ISO-K LF NW-160	10.50"	5.25"	P101694	\$775.00
ISO-K LF NW-200	13.22"	6.61"	P101695	\$1,685.00

### LF ISO-K NW Reducing 4-Way Cross

LF ISO-K NW Reducer Cross	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 to NW-80	7.00"	3.50"	P104052	\$295.00
ISO-K LF NW-63 to NW-100	8.25"	4.00"	P103576	\$355.00
ISO-K LF NW-63 to NW-160	10.50"	5.00"	P104054	\$425.00
ISO-K LF NW-80 to NW-100	8.25"	4.00"	P104053	\$385.00
ISO-K LF NW-80 to NW-160	10.5"	5.00"	P104055	\$455.00
ISO-K LF NW-100 to NW-160	10.5"	5.12"	P104056	\$495.00



### LF ISO-K NW Short Weld Flange

LF ISO-K NW Blank	A	B	C	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	3.75"	2.36"	2.51"	P101745	\$44.00
ISO-K LF NW-80	4.33"	2.87"	3.03"	P101746	\$56.20
ISO-K LF NW-100	5.11"	3.85"	4.01"	P101747	\$64.75
ISO-K LF NW-160	7.08"	7.04"	6.02"	P101748	\$89.50
ISO-K LF NW-200	9.44"	7.75"	8.03"	P101749	\$139.00
ISO-K LF NW-250	11.40"	9.72"	10.0"	P104022	\$169.00



\* Catalog Pricing  
Subject to Change

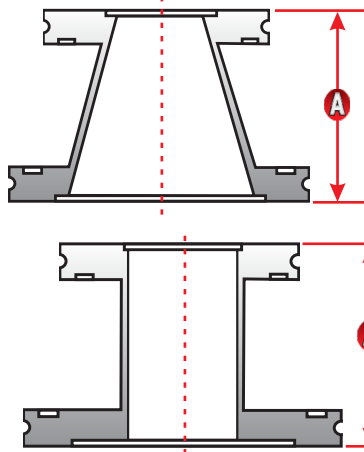


# Vacuum Fittings - Adapters - Bolt Sets 3

## - Fittings - LF (Large Flange)



**Stainless Steel**



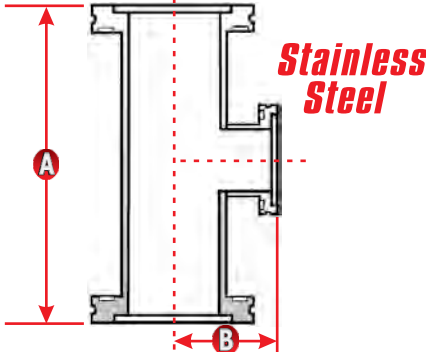
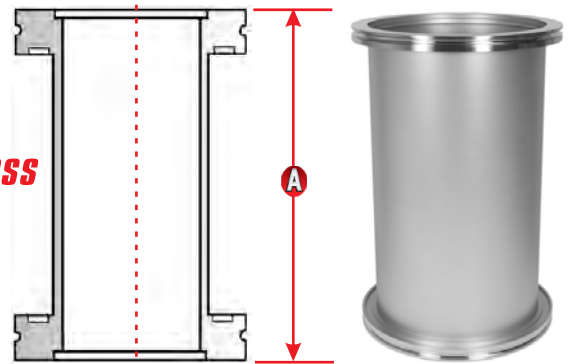
### LF ISO-K NW to LF Reducer

LF ISO-K NW to NW	Type Adapter	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 to NW-80	Conical	4.12"	P104043	\$154.00
ISO-K LF NW-63 to NW-100	Conical	4.12"	P104044	\$167.00
ISO-K LF NW-80 to NW-100	Conical	4.12"	P104045	\$199.00
ISO-K LF NW-63 to NW-80	Straight	3.00"	P101730	\$136.00
ISO-K LF NW-63 to NW-100	Straight	3.00"	P101731	\$164.95
ISO-K LF NW-63 to NW-160	Straight	3.00"	P101732	\$187.00
ISO-K LF NW-80 to NW-100	Straight	3.00"	P101733	\$169.00
ISO-K LF NW-80 to NW-160	Straight	3.00"	P101735	\$364.40
ISO-K LF NW-100 to NW-160	Straight	3.00"	P103337	\$345.00
ISO-K LF NW-160 to NW-200	Straight	3.00"	P101734	\$375.00

### LF ISO-K NW Straight Nipple

LF ISO-K NW	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	6.50"	P101710	\$165.00
ISO-K LF NW-80	7.00"	P101711	\$208.00
ISO-K LF NW-100	4-3/16"	P101712	\$199.50
ISO-K LF NW-100	8.25"	P104013	\$245.00
ISO-K LF NW-160	12.60"	P101713	\$484.15
ISO-K LF NW-200	4.25"	P101714	\$525.00

**Stainless Steel**



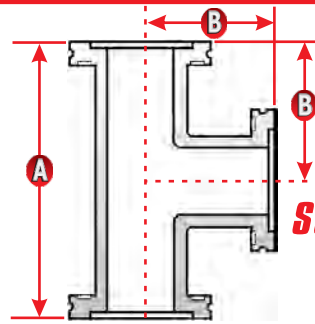
**Stainless Steel**

### LF ISO-K NW to LF Tee Reducer

LF ISO-K NW Reducer Tee	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 to NW-80	8.25"	4.00"	P104023	\$254.00
ISO-K LF NW-63 to NW-100	8.25"	4.00"	P103577	\$269.00
ISO-K LF NW-80 to NW-100	8.25"	4.00"	P104024	\$295.00
ISO-K LF NW-63 to NW-160	10.25"	5.00"	P104025	\$395.00
ISO-K LF NW-80 to NW-160	10.5"	5.00"	P104026	\$399.95
ISO-K LF NW-100 to NW-160	10.5"	5.12"	P104027	\$425.00

### LF ISO-K NW Tee

LF ISO-K NW Tee	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	6.93"	3.43"	P101686	\$189.50
ISO-K LF NW-80	7.68"	3.37"	P101687	\$266.40
ISO-K LF NW-100	8.25"	3.87"	P101688	\$275.75
ISO-K LF NW-160	10.50"	5.25"	P101689	\$345.00
ISO-K LF NW-200	13.22"	6.61"	P101690	\$935.00



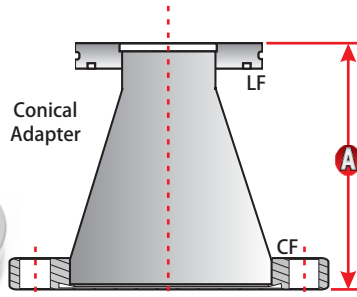
**Stainless Steel**



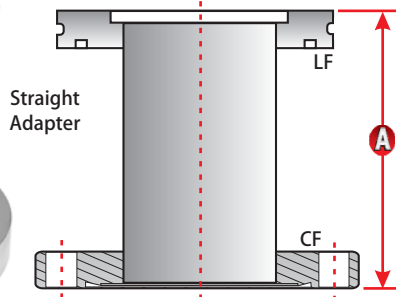
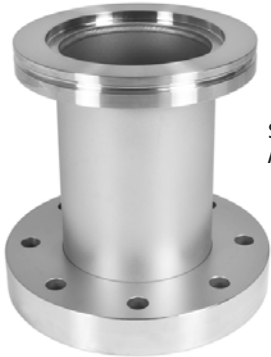
\* Catalog Pricing  
Subject to Change

# 3 Vacuum Fittings - Adapters - Bolt Sets

## LF (Large Flange) - Fittings -



**Stainless Steel Adapter**



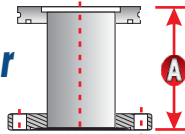
**Straight Adapter**

### LF ISO-K NW to CF Adapter

LF ISO-K NW to CF	Type Adapter	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 to CF 2.75"	Conical	2.83"	P103828	\$131.73
ISO-K LF NW-63 to CF 3.38"	Conical	2.87"	P104051	\$155.88
ISO-K LF NW-63 to CF 4.62"	Conical	4.17"	P104050	\$208.47
ISO-K LF NW-63 to CF 6.00"	Conical	4.33"	P103560	\$355.95
ISO-K LF NW-80 to CF 2.75"	Conical	4.05"	P103829	\$162.45
ISO-K LF NW-80 to CF 3.38"	Conical	4.09"	P104049	\$184.17
ISO-K LF NW-80 to CF 4.50"	Conical	4.25"	P104108	\$217.83
ISO-K LF NW-80 to CF 6.00"	Conical	4.33"	P103830	\$246.56
ISO-K LF NW-100 to CF 3.38"	Conical	4.09"	P103831	\$229.11
ISO-K LF NW-100 to CF 4.50"	Conical	4.25"	P103832	\$256.56
ISO-K LF NW-100 to CF 4.62"	Conical	4.17"	P103833	\$299.52
ISO-K LF NW-63 to CF 4.50"	Straight	4.33"	P101736	\$185.25
ISO-K LF NW-80 to CF 4.62"	Straight	4.33"	P104048	\$219.58
ISO-K LF NW-80 to CF 6.00"	Straight	4.33"	P101737	\$246.56
ISO-K LF NW-100 to CF 6.00"	Straight	4.33"	P101738	\$247.50
ISO-K LF NW-160 to CF 8.00"	Straight	4.44"	P101739	\$396.00
ISO-K LF NW-200 to CF 10.00"	Straight	4.44"	P101740	\$609.00



**Stainless Steel Adapter Without O-Ring Groove**

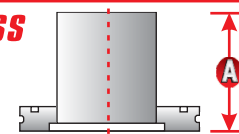


### LF ISO-K NW to ASA

LF ISO-K NW to ASA	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63 to ASA 2"	4.18"	P101741	\$260.00
ISO-K LF NW-100 to ASA 2"	4.18"	P101742	\$247.50
ISO-K LF NW-100 to ASA 4"	4.18"	P103792	\$435.00
ISO-K LF NW-160 to ASA 4"	4.18"	P101743	\$442.75
ISO-K LF NW-100 to ASA 6"	5.00"	P103791	\$655.00
ISO-K LF NW-200 to ASA 6"	4.42"	P101744	\$647.50



**Stainless Steel**



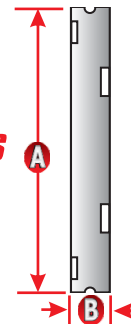
### LF ISO-K NW Half Nipple

LF ISO-K NW	A	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	3.93"	P101715	\$78.00
ISO-K LF NW-80	3.93"	P101718	\$89.80
ISO-K LF NW-100	3.93"	P101716	\$99.00
ISO-K LF NW-160	3.93"	P101717	\$138.00
ISO-K LF NW-200	3.93"	P101719	\$249.00
ISO-K LF NW-250	3.93"	P104014	\$495.00

### LF ISO-K NW Blank Flange

LF ISO-K NW Blank	A	B	IDEAL VACUUM P/N	Price*
ISO-K LF NW-63	3.74"	0.47"	P101681	\$47.50
ISO-K LF NW-80	4.33"	0.47"	P101682	\$67.95
ISO-K LF NW-100	5.11"	0.47"	P101683	\$70.00
ISO-K LF NW-160	7.08"	0.47"	P101684	\$99.50
ISO-K LF NW-200	9.44"	0.47"	P101685	\$159.75

**Stainless Steel**



(sold as one each)



\* Catalog Pricing Subject to Change

# Vacuum Fittings - Adapters - Bolt Sets 3

## - Fittings - LF (Large Flange)

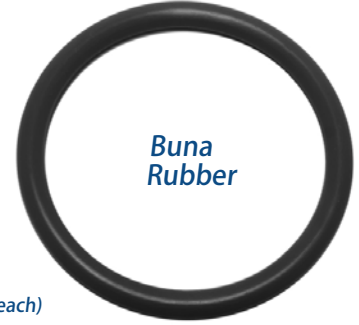
### LF Centering Ring O-Ring Replacement (Viton Rubber)



(sold as one each)

LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.85"	P101787	\$10.30
ISO-K LF NW -80	3.35"	P101788	\$12.80
ISO-K LF NW -100	4.10"	P101789	\$22.00
ISO-K LF NW -160	6.22"	P101790	\$27.50
ISO-K LF NW -200	8.2"	P101791	\$29.00
ISO-K LF NW -250	9.96"	P104310	\$32.50
ISO-K LF NW -320	12.95"	P104327	\$50.00
ISO-K LF NW -400	15.94"	P104315	\$48.50
ISO-K LF NW -500	19.92"	P104309	\$52.50
ISO-K LF NW -630	25.90"	P104320	\$55.50

### LF Centering Ring O-Ring Replacement (Buna Rubber)



(sold as one each)

LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.85"	P103659	\$4.95
ISO-K LF NW -80	3.35"	P103660	\$6.95
ISO-K LF NW -100	4.10"	P103661	\$6.99
ISO-K LF NW -160	6.22"	P104313	\$10.75
ISO-K LF NW -200	8.2"	P104321	\$13.50
ISO-K LF NW -250	9.96"	P104311	\$14.00
ISO-K LF NW -320	12.95"	P104317	\$14.50
ISO-K LF NW -400	15.94"	P104314	\$24.50
ISO-K LF NW -500	19.92"	P104323	\$17.50
ISO-K LF NW -630	25.90"	P104312	\$27.50

### LF Centering Ring O-Ring Replacement (Red Silicone Rubber)



(sold as one each)

LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.85"	P103656	\$5.98
ISO-K LF NW -80	3.35"	P103657	\$6.95
ISO-K LF NW -100	4.10"	P103658	\$9.21
ISO-K LF NW -160	6.22"	P104324	\$13.75
ISO-K LF NW -200	8.2"	P104316	\$15.50
ISO-K LF NW -250	9.96"	P104318	\$16.50
ISO-K LF NW -320	12.95"	P104319	\$17.50
ISO-K LF NW -400	15.94"	P104326	\$34.50
ISO-K LF NW -500	19.92"	P104325	\$37.50
ISO-K LF NW -630	25.90"	P104322	\$39.50

### LF EVAC Metal Knife Edge Seal

Converts Elastomer Rubber Seals to (UHV) Ultra High Vacuum

(sold as one each)



LF ISO-K NW	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	P103404	\$89.95
ISO-K LF NW -80	P103405	\$99.95
ISO-K LF NW -100	P103406	\$119.95

### LF Centering Ring (With Viton Rubber and Screen)

LF ISO-K NW	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	P105304	\$259.00
ISO-K LF NW -80	P105305	\$295.00
ISO-K LF NW -100	P105306	\$330.00



**Stainless Steel**

\* Catalog Pricing  
Subject to Change



# 3 Vacuum Fittings - Adapters - Bolt Sets

## LF (Large Flange) - Fittings -

### LF Edwards Co-Seals

Designed to Seal ISO-F or ISO-K Vacuum Flanges Down to 10<sup>-8</sup> Torr (sold as one each)



Used on Large ISO Flange Size	Color	Material	IDEAL VACUUM P/N	Price*
ISO-F NW 40	Black	Nylon Nitrile	P103907	\$50.52
ISO-K NW 63	Black	Nylon Nitrile	P104098	\$58.92
ISO-K NW 100	Black	Nylon Nitrile	P103902	\$69.56
ISO-K NW 160	Black	Nylon Nitrile	P103901	\$90.16
ISO-F NW 40	Red	Viton Rubber	P103905	\$54.72
ISO-K NW 63	Red	Viton Rubber	P103904	\$73.76
ISO-K NW 100	Red	Viton Rubber	P103906	\$82.20
ISO-K NW 160	Red	Viton Rubber	P103903	\$96.84

### LF Centering Ring

Stainless Steel (No Outer Spacer)



(sold as one each)

LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.63"	P104070	\$35.00
ISO-K LF NW -80	3.14"	P104071	\$52.00
ISO-K LF NW -100	3.89"	P104072	\$53.00
ISO-K LF NW -160	5.90"	P104073	\$56.99
ISO-K LF NW -200	8.26"	P104074	\$80.99
ISO-K LF NW -250	10.20"	P104075	\$90.00

### LF Centering Ring

Aluminum (sold as one each)



LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.63"	P102315	\$29.00
ISO-K LF NW -80	3.14"	P102316	\$34.70
ISO-K LF NW -100	3.89"	P102317	\$40.50
ISO-K LF NW -160	5.90"	P102318	\$46.20
ISO-K LF NW -200	8.26"	P102319	\$63.80

### LF Centering Ring Over Pressure

Stainless Steel (sold as one each)



LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -80	3.14"	P103993	\$84.70
ISO-K LF NW -100	3.89"	P103994	\$94.70
ISO-K LF NW -160	5.90"	P103995	\$104.70

### LF Centering Ring

Aluminum (sold as one each)



LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.63"	P101766	\$29.00
ISO-K LF NW -80	3.14"	P101767	\$34.70
ISO-K LF NW -100	3.89"	P101768	\$34.70
ISO-K LF NW -160	5.90"	P101769	\$46.20
ISO-K LF NW -200	8.26"	P101770	\$63.80

### LF Centering Ring

Stainless Steel (sold as one each)



LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.63"	P101761	\$49.80
ISO-K LF NW -80	3.14"	P101762	\$63.80
ISO-K LF NW -100	3.89"	P101763	\$63.80
ISO-K LF NW -160	5.90"	P101764	\$78.00
ISO-K LF NW -200	8.26"	P101765	\$110.00

\* Catalog Pricing Subject to Change

# Vacuum Fittings - Adapters - Bolt Sets 3

## - Bolt Sets - LF (Large Flange)

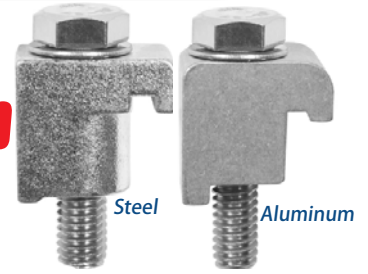
### LF Double Claw Clamp

(sold as one each)



### LF Single Claw Clamp

(sold as one each)



ISO LF NW Clamp Fits Size Flange	Material	Bolt	Total Height	IDEAL VACUUM P/N	Price*
ISO-LF NW 63, 80, 100	Aluminum	Metric 8X45L	1.93"	P101771	\$5.70
ISO-LF NW 63, 80, 100	Aluminum	5/16"-18	1.93"	P104066	\$5.70
ISO-LF NW 63, 80, 100, 160, 200, 250	Stainless Steel	Metric 10 Bolt	2.37"	P104068	\$12.95
ISO-LF NW 63, 80, 100, 160, 200, 250	Zinc Plated Steel	Metric 10 Bolt	2.37"	P104069	\$14.95
ISO-LF NW 160, 200, 250	Aluminum	Metric 10X45L	2.50"	P101772	\$6.00
ISO-LF NW 160, 200, 250	Aluminum	5/16"-18	2.50"	P104067	\$6.00
ISO-LF NW 320	Aluminum	Metric 12x60L	2.56"	P101773	\$12.75
ISO-LF NW 400, 500	Aluminum	Metric 12x60L	2.56"	P101774	\$13.60

ISO LF NW Clamp Fits Size Flange	Material	Bolt	Height Minus Bolt	IDEAL VACUUM P/N	Price*
ISO-LF NW 63, 80, 100	Aluminum	Metric 8X35L	0.93"	P101786	\$5.20
ISO-LF NW 63, 80, 100	Zinc Plated Steel	Metric 8X35L	0.93"	P104064	\$7.50
ISO-LF NW 63, 80, 100	Aluminum	5/16"-18	0.93"	P104063	\$6.75
ISO-LF NW 160, 200, 250	Aluminum	Metric 10X50L	0.93"	P101783	\$6.40
ISO-LF NW 160, 200, 250	Aluminum	5/16"-18	0.93"	P104065	\$7.95
ISO-LF NW 320	Aluminum	Metric 12x60L	0.93"	P101785	\$8.70
ISO-LF NW 400, 450	Aluminum	Metric 12x60L	0.93"	P101784	\$9.00

### LF Bolt and Nut Set

Stainless Steel

(For Smooth ISO-F Bolt Hole Flanges)



LF ISO-K NW	Bolt	Set of	IDEAL VACUUM P/N	Price*
ISO-F LF NW -63	Metric 8X40L	4	P101775	\$7.40
ISO-F LF NW -80, 100	Metric 8X40L	8	P101776	\$11.90
ISO-F LF NW -160	Metric 10X50L	8	P101777	\$20.70
ISO-F LF NW -200, 250	Metric 10X50L	12	P101778	\$31.10

### LF Bolt Set

Stainless Steel

(For Tapped Threaded ISO-F Bolt Hole Flanges)



LF ISO-K NW	Bolt	Set of	IDEAL VACUUM P/N	Price*
ISO-F LF NW -63	Metric 8X30L	4	P101779	\$5.30
ISO-F LF NW -80, 100	Metric 8X30L	8	P101780	\$11.00
ISO-F LF NW -160	Metric 10X35L	8	P101781	\$12.40
ISO-F LF NW -200, 250	Metric 10X35L	12	P101782	\$17.90

### LF Centering Ring

(Rubber O-Ring Not Included)

Stainless Steel (sold as one each)

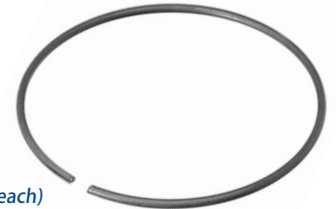


LF ISO-K NW	I.D.	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	2.63"	P104057	\$28.00
ISO-K LF NW -80	3.14"	P104058	\$32.00
ISO-K LF NW -100	3.89"	P104059	\$34.50
ISO-K LF NW -160	5.90"	P104060	\$56.00
ISO-K LF NW -200	8.26"	P104061	\$72.00
ISO-K LF NW -250	10.20"	P104062	\$85.00

### LF Retaining Ring

(For Bolt Ring)

Stainless Steel (sold as one each)



LF ISO-K NW	IDEAL VACUUM P/N	Price*
ISO-K LF NW -63	P101792	\$26.30
ISO-K LF NW -80	P101793	\$31.50
ISO-K LF NW -100	P101794	\$31.50
ISO-K LF NW -160	P101795	\$33.10
ISO-K LF NW -200	P101796	\$35.00

\* Catalog Pricing  
Subject to Change