



## ***Larger Radius Elbow Weld Fittings***

Nor-Cal offers 45° and 90° Radius Elbows in sizes up to ten inches OD. Radius elbows offer the highest conductance geometry in a tube bend. These elbows are also listed in their appropriate catalog as weld fittings or with CF or ISO flanges.



## ***Conical Reducer Nipples***

These reducers provide a compact means of reducing to a smaller flange and tube size in a short distance with minimal loss in conductance. They are also listed in the appropriate catalog as weld fittings or with CF and ISO flanges.



## ***Conical Adapter Nipples***

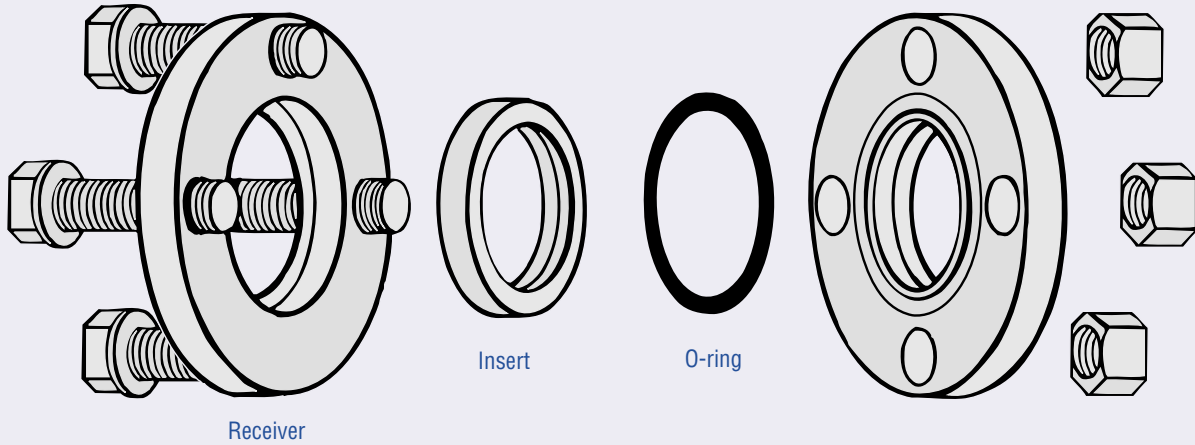
The same fittings used as a reducer can be ordered as a standard product to adapt an ASA flange to a CF, ISO or NW flange with minimal loss in conductance. These adapters are also available with other flange combinations in their appropriate catalog.





Rotatable ASA Flange

Non-rotatable ASA Flange with O-ring groove



## General Information

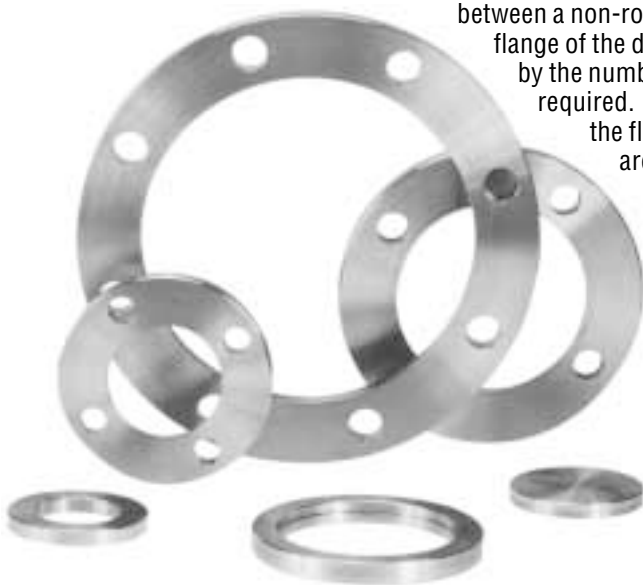
Nor-Cal's ASA flanges are manufactured from specially treated 304 stainless steel. These flanges mate with standard 150 lb. ASA flanges or 150 ANSI flanges. They are available from stock for standard tube sizes from two to 12 inches. Larger sizes are available upon request. Nuts and bolts are used to apply pressure between the mating flanges and a seal is effected when a Viton-A® O-ring is compressed. ASA flanges can be baked to 204°C and have a vacuum range of up to 10<sup>-8</sup> Torr. Besides being sold separately, they are available as standards on nipples, adapters, tees, crosses, traps, elbows and valves.

## Rotatable Flange Option

Only Nor-Cal offers ASA flanges in rotatable as well as non-rotatable versions. When components of several systems are used interchangeably, use of rotatable flanges is recommended. Assembly is facilitated by rotation of mating flanges, to align bolt holes. Non-rotatable ASA flanges, unlike rotatable, contain both sealing surface and bolt holes in one unit rather than two. This makes the non-rotatable flange less expensive, and therefore the preferred choice when mating component orientation is not a concern. All fittings are priced with non-rotatable flanges. For fittings with rotatable flanges, add the difference between a non-rotatable and rotatable flange of the desired size. Multiply by the number of rotatable flanges required. Be sure to specify the flange numbers which are rotatable.

## O-Ring Groove Option

One of each pair of mating ASA flanges requires an O-ring groove. When ordering flanges with grooves indicate this by adding "-G" to the flange model number. An example would be a rotatable ASA-11 flange bored out for six inch OD tubing with a groove. The model number would be ASA-11-600R-G. The same rule applies when ordering a fitting or adapter flange with only one ASA flange. An example would be adapter flange model number ASA-6-338-200Z-G. When a fitting has more than one ASA flange, such as a four-way cross, indicate which flanges are desired with grooves by using the flange numbers on the drawing. If, for example, you desired a cross with ASA-9 flanges and a six inch tube OD with grooved flanges on the left and bottom ports, the model number would be 4C-ASA-9-600-G1-G3. Add the appropriate amount for each O-ring groove to the price of the fitting. Some rotatable flange sizes are not available with O-ring grooves.



Prices subject to change without notice. - International product pricing will vary.

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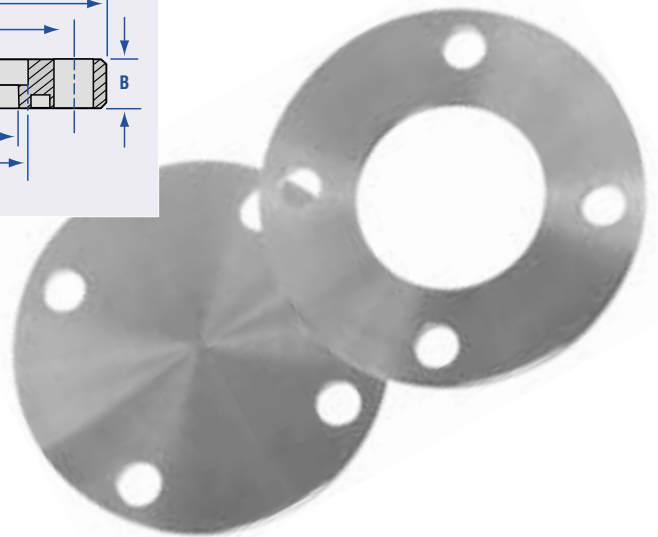
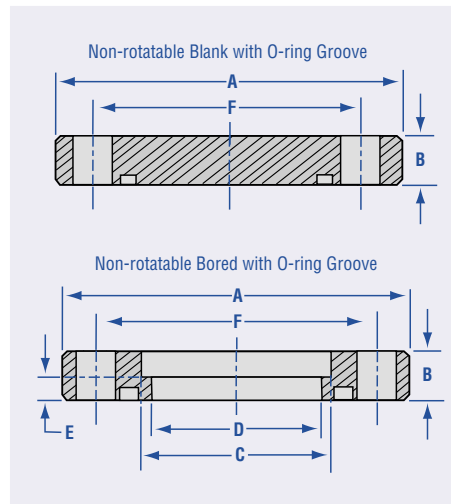
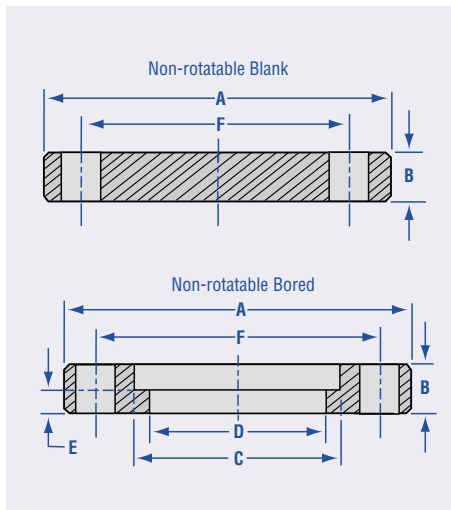
## ASA Non-Rotatable Flanges

Refer to drawings on facing page for dimensional references.

Type	Description	Part Number	A	B	C	D	E	F	Bolt Holes No.	Size	Price	Add for Each O-Ring Groove
ASA-5 (1.5 ANSI)	Non-rotatable	ASA-5-000N	5.00	.500	Blank	-	-	3.880	4	.625		
		ASA-5-200N	5.00	.500	2.010	1.938	.250	3.880	4	.625		
		ASA-5-250N	5.00	.500	2.510	2.438	.250	3.880	4	.625		
ASA-6 (2.0 ANSI)	Non-rotatable	ASA-6-000N	6.00	.500	Blank	-	-	4.750	4	.750		
		ASA-6-300N	6.00	.500	3.010	2.938	.250	4.750	4	.750		
		ASA-6-350N	6.00	.500	3.510	3.438	.250	4.750	4	.750		
ASA-7.5 (3.0 ANSI)	Non-rotatable	ASA-7.5-000N	7.50	.500	Blank	-	-	6.000	4	.750		
		ASA-7.5-400N	7.50	.500	4.010	3.910	.250	6.000	4	.750		
ASA-9 (4.0 ANSI)	Non-rotatable	ASA-9-000N	9.00	.500	Blank	-	-	7.500	8	.750		
		ASA-9-400N	9.00	.500	4.010	3.910	.250	7.500	8	.750		
		ASA-9-600N	9.00	.500	6.020	5.875	.250	7.500	8	.750		
ASA-11 (6.0 ANSI)	Non-rotatable	ASA-11-000N	11.00	.750	Blank	-	-	9.500	8	.812		
		ASA-11-600N	11.00	.750	6.020	5.875	.375	9.500	8	.812		
		ASA-11-800N	11.00	.750	8.020	7.875	.375	9.500	8	.812		
ASA-13.5 (8.0 ANSI)	Non-rotatable	ASA-13.5-000N	13.50	.750	Blank	-	-	11.750	8	.812		
		ASA-13.5-800N	13.50	.750	8.020	7.875	.375	11.750	8	.812		
		ASA-13.5-1000N	13.50	.750	10.030	9.875	.375	11.750	8	.812		
ASA-16 (10.0 ANSI)	Non-rotatable	ASA-16-000N	16.00	.750	Blank	-	-	14.250	12	.812		
		ASA-16-1000N	16.00	.750	10.030	9.875	.375	14.250	12	.812		
		ASA-16-1200N	16.00	.750	12.030	11.875	.375	14.250	12	.812		

Add suffix "-G" to model number if O-ring groove is required.

Dimensions in inches





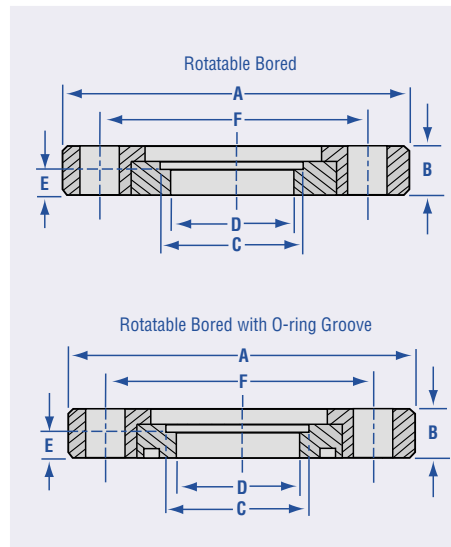
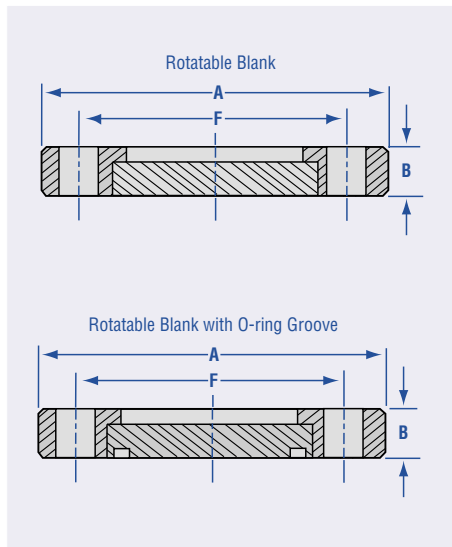
## ASA Rotatable Flanges

Refer to drawings on facing page for dimensional references.

Type	Description	Part Number	A	B	C	D	E	F	Bolt Holes No.	Size	Price	Add for Each O-Ring Groove
ASA-5 (1.5 ANSI)	Rotatable	ASA-5-000R	5.00	.500	Blank	-	-	3.880	4	.625		
		ASA-5-200R	5.00	.500	2.010	1.938	.250	3.880	4	.625		
		ASA-5-250R	5.00	.500	2.510	2.438	.250	3.880	4	.625		
ASA-6 (2.0 ANSI)	Rotatable	ASA-6-000R	6.00	.612	Blank	-	-	4.750	4	.750		
		ASA-6-300R	6.00	.612	3.010	2.938	.250	4.750	4	.750		
		ASA-6-350R	6.00	.612	3.510	3.438	.250	4.750	4	.750		
ASA-7.5 (3.0 ANSI)	Rotatable	ASA-7.5-000R	7.50	.612	Blank	-	-	6.000	4	.750		
		ASA-7.5-400R	7.50	.612	4.010	3.910	.250	6.000	4	.750		
ASA-9 (4.0 ANSI)	Rotatable	ASA-9-000R	9.00	.612	Blank	-	-	7.500	8	.750		
		ASA-9-400R	9.00	.612	4.010	3.910	.250	7.500	8	.750		
		ASA-9-600R	9.00	.612	6.020	5.875	.250	7.500	8	.750		
ASA-11 (6.0 ANSI)	Rotatable	ASA-11-000R	11.00	.750	Blank	-	-	9.500	8	.812		
		ASA-11-600R	11.00	.750	6.020	5.875	.375	9.500	8	.812		
		ASA-11-800R	11.00	.750	8.020	7.875	.375	9.500	8	.812		
ASA-13.5 (8.0 ANSI)	Rotatable	ASA-13.5-000R	13.50	.750	Blank	-	-	11.750	8	.812		
		ASA-13.5-800R	13.50	.750	8.020	7.875	.375	11.750	8	.812		
		ASA-13.5-1000R	13.50	.750	10.030	9.875	.375	11.750	8	.812		
ASA-16	Rotatable	ASA-16-000R	16.00	.750	Blank	-	-	14.250	12	.812		
		ASA-16-1000R	16.00	.750	10.030	9.875	.375	14.250	12	.812		
		ASA-16-1200R	16.00	.750	12.030	11.875	.375	14.250	12	.812		

Add suffix "-G" to model number if O-ring groove is required.

Dimensions in inches



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## ASA Flange Hardware

Size	Model Number	Quantity	Description	Price
ASA-5	BA-5 2-231	4 each	Stainless steel bolts ( $\frac{3}{16}$ -12 x 1.5) nuts and washers Viton® O-ring	
		1 each		
ASA-6	BA-6 2-238	4 each	Stainless steel bolts ( $\frac{3}{8}$ -11 x 1.5) nuts and washers Viton® O-ring	
		1 each		
ASA-7.5	BA-7.5 2-243	4 each	Stainless steel bolts ( $\frac{3}{8}$ -11 x 1.5) nuts and washers Viton® O-ring	
		1 each		
ASA-9	BA-9 2-259	8 each	Stainless steel bolts ( $\frac{3}{8}$ -11 x 1.5) nuts and washers Viton® O-ring	
		1 each		
ASA-11	BA-11 2-266	8 each	Stainless steel bolts ( $\frac{3}{4}$ -10 x 2.25) nuts and washers Viton® O-ring	
		1 each		
ASA-13.5	BA-13.5 2-274	8 each	Stainless steel bolts ( $\frac{3}{4}$ -10 x 2.25) nuts and washers Viton® O-ring	
		1 each		
ASA-16	BA-16 2-278	12 each	Stainless steel bolts ( $\frac{3}{4}$ -10 x 2.25) nuts and washers Viton® O-ring	
		1 each		

*Dimensions in inches*

## ASA Flange Hardware for Gate Valves

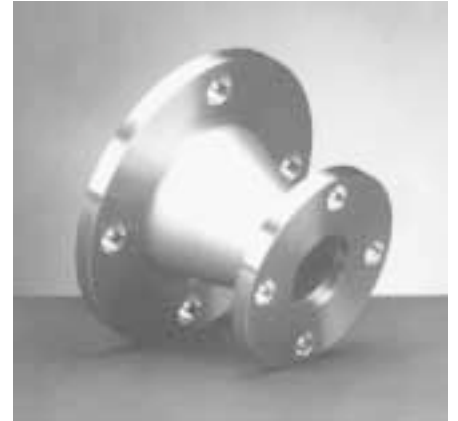
Size	Model Number	Quantity	Description	Price
ASA-6	BA-6GV 2-238	4 each	Stainless steel bolts ( $\frac{3}{8}$ -16 x 1.0) and reducer bushings ( $\frac{3}{8}$ x $\frac{3}{4}$ ) Viton® O-ring	
		1 each		
ASA-7.5	BA-7.5GV 2-243	4 each	Stainless steel bolts ( $\frac{3}{8}$ -16 x 1.0) and reducer bushings ( $\frac{3}{8}$ x $\frac{3}{4}$ ) Viton® O-ring	
		1 each		
ASA-9	BA-9GV 2-259	8 each	Stainless steel bolts ( $\frac{3}{8}$ -16 x 1.0) and reducer bushings ( $\frac{3}{8}$ x $\frac{3}{4}$ ) Viton® O-ring	
		1 each		
ASA-11	BA-11GV 2-266	8 each	Stainless steel bolts ( $\frac{3}{8}$ -16 x 1.0) Viton® O-ring	
		1 each		
ASA-16	BA-16GV 2-278	12 each	Stainless steel bolts ( $\frac{3}{8}$ -16 x 1.0) Viton-A® O-ring	
		1 each		

*Dimensions in inches*

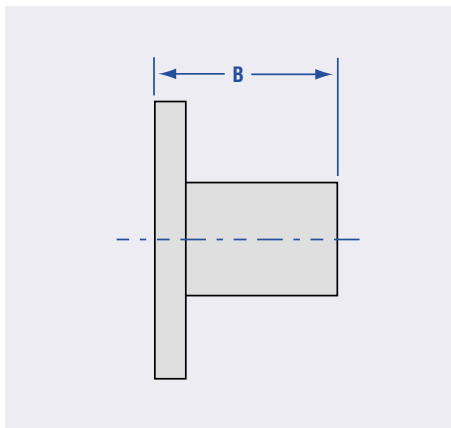


## ASA Fittings

Nor-Cal manufactures a complete line of flanged vacuum component fittings. The tube portions are fabricated from 304 stainless steel. On request, 316 stainless steel can be supplied. 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. Bake-out range is up to 200°C. Nor-Cal fittings are also available with CF (Conflat style), NW (ISO-KF compatible) and ISO flanges.



## ASA Half Nipples

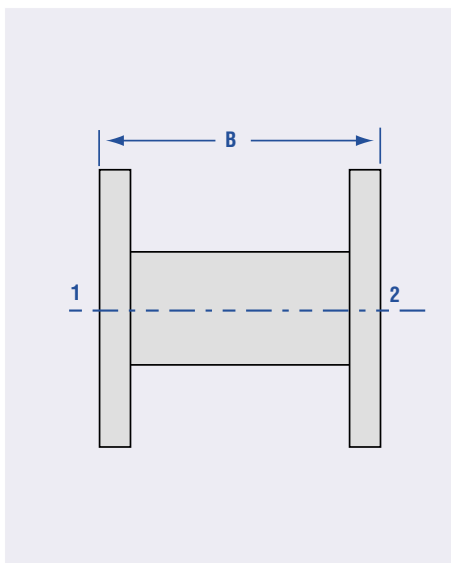


Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
1N-ASA-5-200	5.00	2.00	3.25		
1N-ASA-5-250	5.00	2.50	3.25		
1N-ASA-5-250V	5.00	2.50	4.00		
1N-ASA-6-300	6.00	3.00	3.50		
1N-ASA-7.5-400	7.50	4.00	4.13		
1N-ASA-7.5-400V	7.50	4.00	5.12		
1N-ASA-9-400	9.00	4.00	4.13		
1N-ASA-9-400V	9.00	4.00	5.12		
1N-ASA-9-600	9.00	6.00	5.25		
1N-ASA-9-600V	9.00	6.00	6.31		
1N-ASA-11-600	11.00	6.00	5.38		
1N-ASA-11-600V	11.00	6.00	6.44		
1N-ASA-11-800	11.00	8.00	7.38		
1N-ASA-13.5-800	13.50	8.00	7.75		
1N-ASA-13.5-1000	13.50	10.00	9.88		
1N-ASA-16-1000	16.00	10.00	9.88		
1N-ASA-16-1200	16.00	12.00	9.88		

Note: Add suffix "-G" to model number if O-ring groove is required.

Dimensions in inches

## ASA Full Nipples



Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
2N-ASA-5-200N	5.00	2.00	6.50		
2N-ASA-5-250N	5.00	2.50	6.50		
2N-ASA-5-250NV	5.00	2.50	8.00		
2N-ASA-6-300N	6.00	3.00	7.00		
2N-ASA-7.5-400N	7.50	4.00	8.26		
2N-ASA-7.5-400NV	7.50	4.00	10.24		
2N-ASA-9-400N	9.00	4.00	8.26		
2N-ASA-9-400NV	9.00	4.00	10.24		
2N-ASA-9-600N	9.00	6.00	10.50		
2N-ASA-9-600NV	9.00	6.00	12.62		
2N-ASA-11-600N	11.00	6.00	10.76		
2N-ASA-11-600NV	11.00	6.00	12.88		
2N-ASA-11-800N	11.00	8.00	14.76		
2N-ASA-13.5-800N	13.50	8.00	15.50		
2N-ASA-13.5-1000N	13.50	10.00	19.76		
2N-ASA-16-1000N	16.00	10.00	19.76		
2N-ASA-16-1200N	16.00	12.00	19.76		

Note: Add suffix "-G" if O-ring groove is required and designate flange location by appropriate flange number; "-G1, -G2".

Dimensions in inches

Prices subject to change without notice. - International product pricing will vary.

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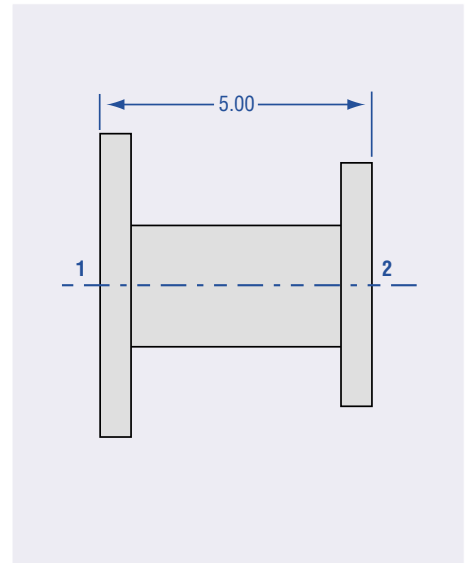


## ASA Reducer Nipples

Model Number	Flange 1	Flange 2	Tube OD	Price
2NR-ASA-9-5-N	ASA-9	ASA-5	2.00	
2NR-ASA-9-6-N	ASA-9	ASA-6	3.00	
2NR-ASA-9-7.5-N	ASA-9	ASA-7.5	4.00	
2NR-ASA-11-5-N	ASA-11	ASA-5	2.00	
2NR-ASA-11-6-N	ASA-11	ASA-6	3.00	
2NR-ASA-11-7.5-N	ASA-11	ASA-7.5	4.00	
2NR-ASA-11-9-N	ASA-11	ASA-9	6.00	
2NR-ASA-13.5-5-N	ASA-13.5	ASA-5	2.00	
2NR-ASA-13.5-6-N	ASA-13.5	ASA-6	3.00	
2NR-ASA-13.5-7.5-N	ASA-13.5	ASA-7.5	4.00	
2NR-ASA-13.5-9-N	ASA-13.5	ASA-9	6.00	
2NR-ASA-13.5-11-N	ASA-13.5	ASA-11	8.00	
2NR-ASA-16-5-N	ASA-16	ASA-5	2.00	
2NR-ASA-16-6-N	ASA-16	ASA-6	3.00	
2NR-ASA-16-7.5-N	ASA-16	ASA-7.5	4.00	
2NR-ASA-16-9-N	ASA-16	ASA-9	6.00	
2NR-ASA-16-11-N	ASA-16	ASA-11	8.00	
2NR-ASA-16-13.5-N	ASA-16	ASA-13.5	10.00	

Note: Add suffix "-G" if O-ring groove is required and designate flange location by appropriate flange number "-G1, -G2". See ASA flange table for O-ring groove prices.

Dimensions in inches

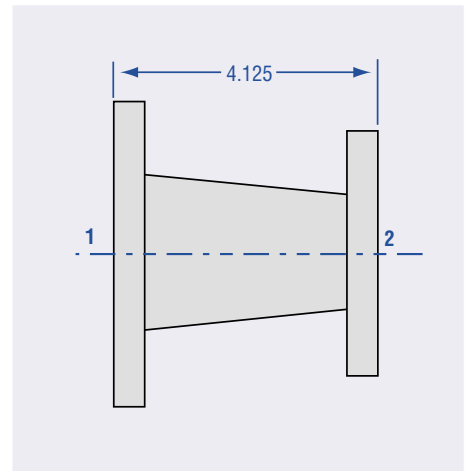


## ASA Conical Reducer Nipples

Model Number	Size	Flange 1 Tube OD	Size	Flange 2 Tube OD	Price
2NRC-ASA-6-5-N	ASA-6	3.00	ASA-5	2.00	
2NRC-ASA-7.5-5-N	ASA-7.5	4.00	ASA-5	2.00	
2NRC-ASA-7.5-6-N	ASA-7.5	4.00	ASA-6	3.00	

Note: Add suffix "-G1" to model number if O-ring is required on one flange. If groove is required on both flanges, designate by adding "-G1, -G2". See ASA flange table for O-ring groove prices.

Dimensions in inches

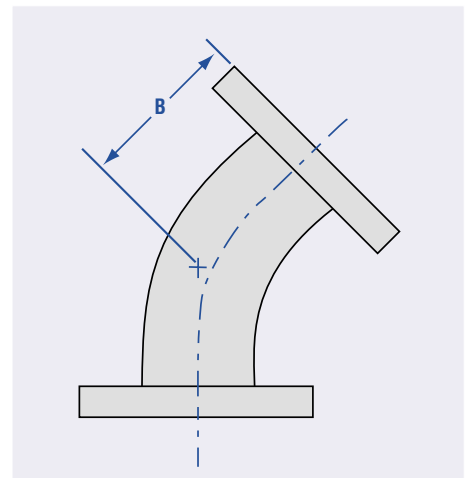


## ASA 45° Radius Elbows with Tangents

Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
2KL-ASA-5-N	5.00	2.00	2.092		
2KL-ASA-6-N	6.00	3.00	3.933		
2KL-ASA-7.5-N	7.50	4.00	5.027		
2KL-ASA-9-N	9.00	4.00	5.027		

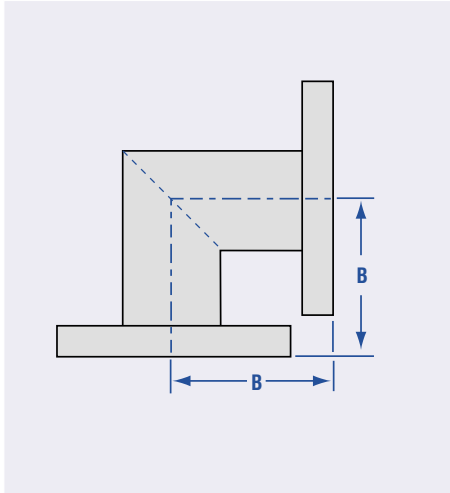
Note: Add suffix "-G1" to model number if O-ring is required on one flange. If groove is required on both flanges, designate by adding "-G1, -G2".

Dimensions in inches





## ASA 90° Mitered Elbows

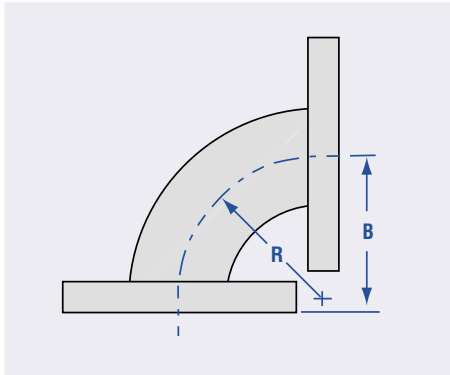


Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
2E-ASA-5-200NM	5.00	2.00	3.25		
2E-ASA-5-250NM	5.00	2.50	3.25		
2E-ASA-5-250NMV	5.00	2.50	4.00		
2E-ASA-7.5-400NMV	7.50	4.00	5.12		
2E-ASA-9-400NMV	9.00	4.00	5.12		
2E-ASA-9-600NM	9.00	6.00	5.25		
2E-ASA-9-600NMV	9.00	6.00	6.31		
2E-ASA-11-600NMV	11.00	6.00	6.44		
2E-ASA-11-800NM	11.00	8.00	7.38		
2E-ASA-13.5-800NM	13.50	8.00	7.75		
2E-ASA-13.5-1000NM	13.50	10.00	9.88		
2E-ASA-16-1000NM	16.00	10.00	9.88		

Note: Add suffix "-G1" to model number if O-ring groove is required on one flange. If groove is required on both flanges, designate by adding suffix "-G1, -G2".

Dimensions in inches

## ASA 90° Radius Elbows



Model Number	Flange OD	Tube OD	B	R	Price	Add for Each O-Ring Groove
2E-ASA-5-N	5.00	2.00	3.25	3.00		
2E-ASA-6-N	6.00	3.00	4.75	4.50		
2E-ASA-9-N	9.00	4.00	6.25	6.00		
2E-ASA-11-N	11.00	6.00	9.38	9.00		
2E-ASA-13.5-N	13.50	8.00	12.38	12.00		
2E-ASA-16-N	16.00	10.00	15.38	15.00		

Note: Add suffix "-G1" to model number if O-ring is required on one flange. If groove is required on both flanges, designate by adding "-G1, -G2".

Dimensions in inches



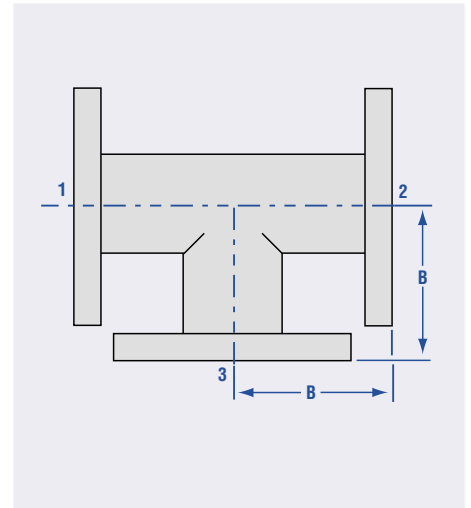


## ASA Tees

Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
3T-ASA-5-200N	5.00	2.00	3.25		
3T-ASA-5-250N	5.00	2.50	3.25		
3T-ASA-5-250NV	5.00	2.50	4.00		
3T-ASA-7.5-400NV	7.50	4.00	5.12		
3T-ASA-9-400NV	9.00	4.00	5.12		
3T-ASA-9-600N	9.00	6.00	5.25		
3T-ASA-9-600NV	9.00	6.00	6.31		
3T-ASA-11-600NV	11.00	6.00	6.44		
3T-ASA-11-800N	11.00	8.00	7.38		
3T-ASA-13.5-800N	13.50	8.00	7.75		
3T-ASA-13.5-1000N	13.50	10.00	9.88		
3T-ASA-16-1000N	16.00	10.00	9.88		

Note: Add suffix "-G" to model number if O-ring groove is required and designate flange location by appropriate flange number. Example: "-G1, -G2 and/or -G3".

Dimensions in inches

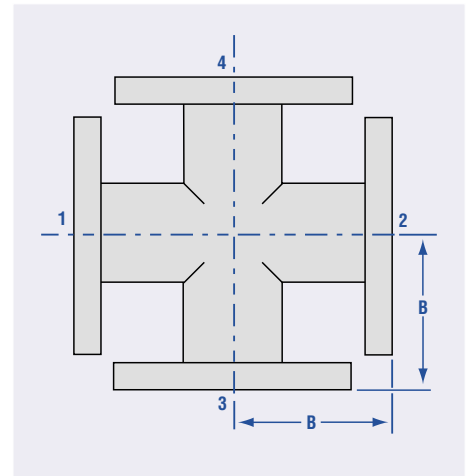


## ASA 4-Way Crosses

Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
4C-ASA-5-200N	5.00	2.00	3.25		
4C-ASA-5-250N	5.00	2.50	3.25		
4C-ASA-5-250NV	5.00	2.50	4.00		
4C-ASA-7.5-400NV	7.50	4.00	5.12		
4C-ASA-9-400NV	9.00	4.00	5.12		
4C-ASA-9-600N	9.00	6.00	5.25		
4C-ASA-9-600NV	9.00	6.00	6.31		
4C-ASA-11-600NV	11.00	6.00	6.44		
4C-ASA-11-800N	11.00	8.00	7.38		
4C-ASA-13.5-800N	13.50	8.00	7.75		
4C-ASA-13.5-1000N	13.50	10.00	9.88		
4C-ASA-16-1000N	16.00	10.00	9.88		

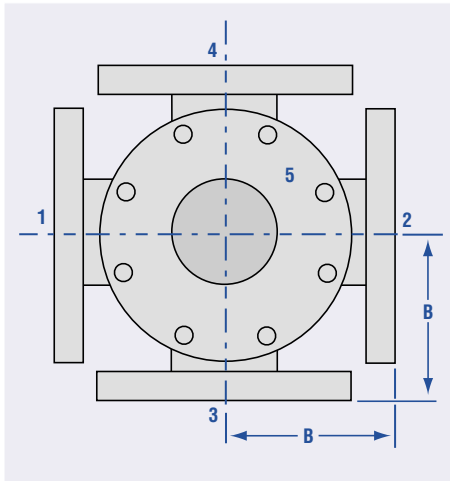
Note: Add suffix "-G" to model number if O-ring groove is required and designate flange location by appropriate flange number. Example: "-G1, -G2, -G3 and/or -G4".

Dimensions in inches





## ASA 5-Way Crosses

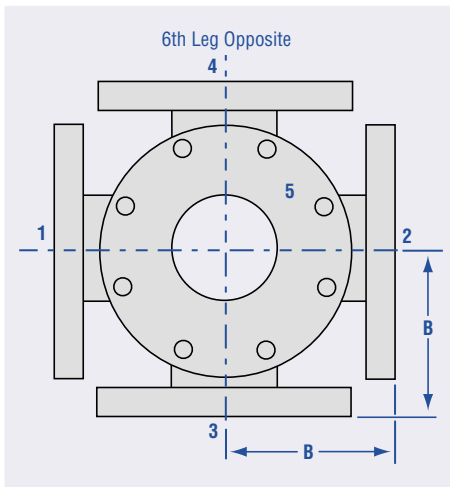


Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
5C-ASA-5-200N	5.00	2.00	3.25		
5C-ASA-5-250N	5.00	2.50	3.25		
5C-ASA-5-250NV	5.00	2.50	4.00		
5C-ASA-7.5-400NV	7.50	4.00	5.12		
5C-ASA-9-400NV	9.00	4.00	5.12		
5C-ASA-9-600N	9.00	6.00	5.25		
5C-ASA-9-600NV	9.00	6.00	6.31		
5C-ASA-11-600NV	11.00	6.00	6.44		
5C-ASA-11-800N	11.00	8.00	7.38		
5C-ASA-13.5-800N	13.50	8.00	7.75		
5C-ASA-13.5-1000N	13.50	10.00	9.88		
5C-ASA-16-1000N	16.00	10.00	9.88		

Note: Add suffix "-G" to model number if O-ring groove is required.  
Designate flange location by appropriate flange number.  
Example: "-G1, -G2, -G3, -G4 and/or -G5".

Dimensions in inches

## ASA 6-Way Crosses

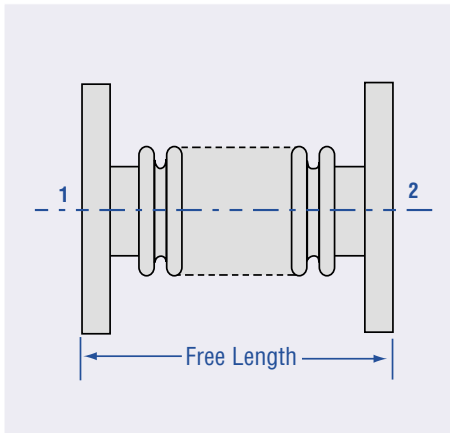


Model Number	Flange OD	Tube OD	B	Price	Add for Each O-Ring Groove
6C-ASA-5-200N	5.00	2.00	3.25		
6C-ASA-5-250N	5.00	2.50	3.25		
6C-ASA-5-250NV	5.00	2.50	4.00		
6C-ASA-7.5-400NV	7.50	4.00	5.12		
6C-ASA-9-400NV	9.00	4.00	5.12		
6C-ASA-9-600N	9.00	6.00	5.25		
6C-ASA-9-600NV	9.00	6.00	6.31		
6C-ASA-11-600NV	11.00	6.00	6.44		
6C-ASA-11-800N	11.00	8.00	7.38		
6C-ASA-13.5-800N	13.50	8.00	7.75		
6C-ASA-13.5-1000N	13.50	10.00	9.88		
6C-ASA-16-1000N	16.00	10.00	9.88		

Note: Add suffix "-G" to model number if O-ring groove is required.  
Designate flange location by appropriate flange number.  
Example: "-G1, -G2, -G3, -G4, -G5 and/or -G6".

Dimensions in inches

## ASA Flex Couplings



Model Number	Flange OD	Bellows ID	Free Length	Compressed Length	Price	Add for Each O-Ring Groove
2FC-ASA-5-200N-3	5.00	2.00	6.00	5.25		
2FC-ASA-5-250N-4	5.00	2.50	7.00	6.00		
2FC-ASA-6-300N-4	6.00	3.00	7.00	6.00		
2FC-ASA-7.5-400N-4	7.50	4.00	7.00	6.00		
2FC-ASA-9-400N-4	9.00	4.00	7.00	6.00		
2FC-ASA-9-600N-4	9.00	6.00	7.00	6.00		
2FC-ASA-11-600N-4	11.00	6.00	7.00	6.00		
2FC-ASA-11-800N-4	11.00	8.00	7.00	6.00		
2FC-ASA-13.5-800N-4	13.50	8.00	7.00	6.00		
2FC-ASA-13.5-1000N-10	13.50	10.00	14.00	11.00		
2FC-ASA-16-1000N-10	16.00	10.00	14.00	11.00		
2FC-ASA-16-1200N-11.8	16.00	12.00	15.87	12.87		

Note: Add suffix "-G" to model number if O-ring groove is required.  
Designate flange location by appropriate flange number.  
Example: "-G1 and/or -G2".

Dimensions in inches

Prices subject to change without notice. - International product pricing will vary.

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## ASA to CF Adapter Flanges

Model Number	Small Flange Detail	Large Flange Detail	B	D	Price
ASA-5-133-075Z	133-000NT	ASA-5-000N	.62	.50	
ASA-5-212-100Z	212-000NT	ASA-5-000N	1.00	.50	
ASA-5-275-150Z	275-000NT	ASA-5-000N	1.50	.50	
ASA-6-133-075Z	133-000NT	ASA-6-000N	.62	.50	
ASA-6-212-100Z	212-000NT	ASA-6-000N	1.00	.50	
ASA-6-275-150Z	275-000NT	ASA-6-000N	1.50	.50	
ASA-6-338-200Z	338-000NT	ASA-6-000N	2.00	.75	
ASA-7.5-133-075Z	133-000NT	ASA-7.5-000N	.62	.50	
ASA-7.5-212-100Z	212-000NT	ASA-7.5-000N	1.00	.50	
ASA-7.5-275-150Z	275-000NT	ASA-7.5-000N	1.50	.50	
ASA-7.5-338-200Z	338-000NT	ASA-7.5-000N	2.00	.75	
ASA-7.5-450-250Z	450-000NT	ASA-7.5-000N	2.50	.75	
ASA-9-133-075Z	133-000NT	ASA-9-000N	.62	.50	
ASA-9-212-100Z	212-000NT	ASA-9-000N	1.00	.50	
ASA-9-275-150Z	275-000NT	ASA-9-000N	1.50	.50	
ASA-9-338-200Z	338-000NT	ASA-9-000N	2.00	.75	
ASA-9-450-250Z	450-000NT	ASA-9-000N	2.50	.75	
ASA-9-462-300Z	462-000NT	ASA-9-000N	3.00	.75	
ASA-9-600-400Z	600-000NT	ASA-9-000N	4.00	.75	
ASA-11-133-075Z	133-000NT	ASA-11-000N	.62	.75	
ASA-11-212-100Z	212-000NT	ASA-11-000N	1.00	.75	
ASA-11-275-150Z	275-000NT	ASA-11-000N	1.50	.75	
ASA-11-338-200Z	338-000NT	ASA-11-000N	2.00	.75	
ASA-11-450-250Z	450-000NT	ASA-11-000N	2.50	.75	
ASA-11-462-300Z	462-000NT	ASA-11-000N	3.00	.75	
ASA-11-600-400Z	600-000NT	ASA-11-000N	4.00	.75	
ASA-11-800-600Z	800-000NT	ASA-11-000N	6.00	.75	

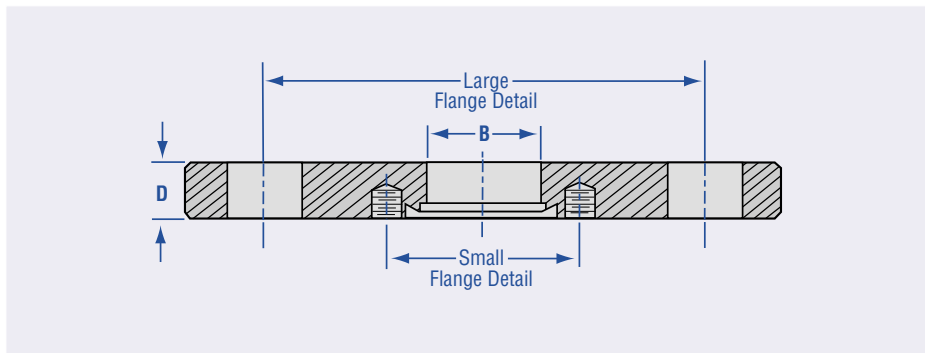
## ASA Adapters

Nor-Cal offers a full line of adapter flanges, adapter nipples and conical adapter nipples. Other flange sizes and combinations are available upon request. They are made from select grade 304 stainless steel to provide the maximum in cleanliness for UHV applications. Also see CF/Wire Seal and NW/ISO catalogs for other adapter combinations.



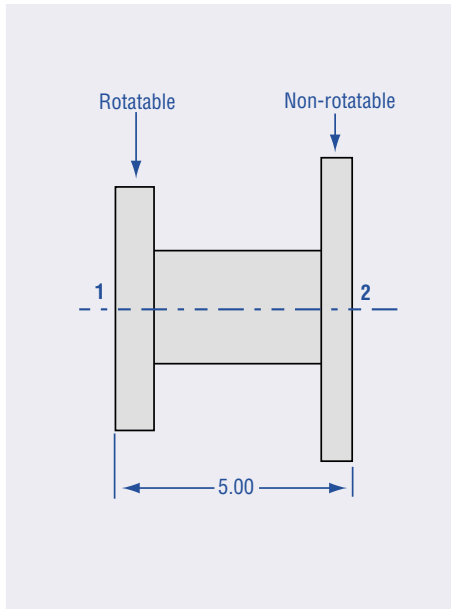
Note: Add suffix "-G" to model number if O-ring is required on ASA mating side. See ASA flange table for groove prices.

Dimensions in inches





## ASA to CF Adapter Nipples



Model Number	Flange Types		Tube OD	Price
	Flange 1	Flange 2		
AN-133-ASA-5	1.33 CF	ASA-5	.75	
AN-133-ASA-6	1.33 CF	ASA-6	.75	
AN-212-ASA-6	2.12 CF	ASA-6	1.00	
AN-462-ASA-6	4.62 CF	ASA-6	3.00	
AN-133-ASA-7.5	1.33 CF	ASA-7.5	.75	
AN-212-ASA-7.5	2.12 CF	ASA-7.5	1.00	
AN-275-ASA-7.5	2.75 CF	ASA-7.5	1.50	
AN-133-ASA-9	1.33 CF	ASA-9	.75	
AN-212-ASA-9	2.12 CF	ASA-9	1.00	
AN-275-ASA-9	2.75 CF	ASA-9	1.50	
AN-338-ASA-9	3.38 CF	ASA-9	2.00	
AN-450-ASA-9	4.50 CF	ASA-9	2.50	
AN-462-ASA-9	4.62 CF	ASA-9	3.00	
AN-600-ASA-9	6.00 CF	ASA-9	4.00	
AN-133-ASA-11	1.33 CF	ASA-11	.75	
AN-212-ASA-11	2.12 CF	ASA-11	1.00	
AN-275-ASA-11	2.75 CF	ASA-11	1.50	
AN-338-ASA-11	3.38 CF	ASA-11	2.00	
AN-450-ASA-11	4.50 CF	ASA-11	2.50	
AN-462-ASA-11	4.62 CF	ASA-11	3.00	
AN-600-ASA-11	6.00 CF	ASA-11	4.00	
AN-800-ASA-11	8.00 CF	ASA-11	6.00	
AN-133-ASA-13.5	1.33 CF	ASA-13.5	.75	
AN-212-ASA-13.5	2.12 CF	ASA-13.5	1.00	
AN-275-ASA-13.5	2.75 CF	ASA-13.5	1.50	
AN-338-ASA-13.5	3.38 CF	ASA-13.5	2.00	
AN-450-ASA-13.5	4.50 CF	ASA-13.5	2.50	
AN-462-ASA-13.5	4.62 CF	ASA-13.5	3.00	
AN-600-ASA-13.5	6.00 CF	ASA-13.5	4.00	
AN-800-ASA-13.5	8.00 CF	ASA-13.5	6.00	
AN-1000-ASA-13.5	10.00 CF	ASA-13.5	8.00	
AN-133-ASA-16	1.33 CF	ASA-16	.75	
AN-212-ASA-16	2.12 CF	ASA-16	1.00	
AN-275-ASA-16	2.75 CF	ASA-16	1.50	
AN-338-ASA-16	3.38 CF	ASA-16	2.00	
AN-450-ASA-16	4.50 CF	ASA-16	2.50	
AN-462-ASA-16	4.62 CF	ASA-16	3.00	
AN-600-ASA-16	6.00 CF	ASA-16	4.00	
AN-800-ASA-16	8.00 CF	ASA-16	6.00	
AN-1000-ASA-16	10.00 CF	ASA-16	8.00	
AN-1325-ASA-16	13.25 CF	ASA-16	10.00	

Note: Add suffix "-G" to model number if O-ring groove is required on ASA Flange. See ASA flanges table for groove prices.

Dimensions in inches

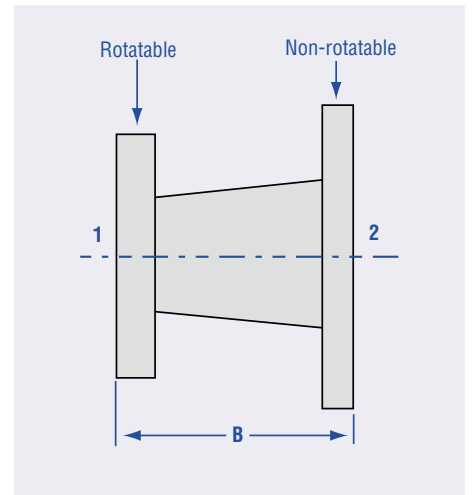


## ASA to CF Conical Adapter Nipples

Model Number	Flange 1		Flange 2		B	Price
	Type	Tube OD	Type	Tube OD		
ANC-212-ASA-5	2.12 CF	1.00	ASA-5	2.00	2.792	
ANC-275-ASA-5	2.75 CF	1.50	ASA-5	2.00	2.834	
ANC-275-ASA-6	2.75 CF	1.50	ASA-6	3.00	4.084	
ANC-338-ASA-5	3.38 CF	2.00	ASA-5	2.50	2.850	
ANC-338-ASA-6	3.38 CF	2.00	ASA-6	3.00	4.100	
ANC-338-ASA-7.5	3.38 CF	2.00	ASA-7.5	4.00	4.100	
ANC-450-ASA-5	4.50 CF	2.50	ASA-5	2.00	3.000	
ANC-450-ASA-6	4.50 CF	2.50	ASA-6	3.00	4.250	
ANC-450-ASA-7.5	4.50 CF	2.50	ASA-7.5	4.00	4.250	
ANC-462-ASA-5	4.62 CF	3.00	ASA-5	2.00	4.156	
ANC-462-ASA-7.5	4.62 CF	3.00	ASA-7.5	4.00	4.156	
ANC-600-ASA-5	6.00 CF	4.00	ASA-5	2.00	4.313	
ANC-600-ASA-6	6.00 CF	4.00	ASA-6	3.00	4.313	

Note: Add suffix "-G" to model number if O-ring groove is required on ASA flange. See ASA flange table for groove prices.

Dimensions in inches

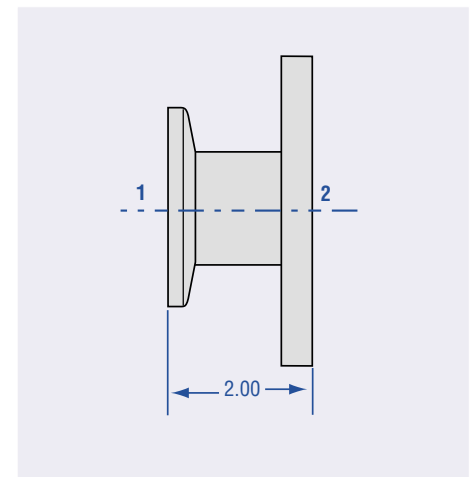


## ASA to NW Adapter Nipples

Model Number	Flange Types		Tube OD	Price
	Flange 1	Flange 2		
AN-NW-16-ASA-5	NW-16	ASA-5	.75	
AN-NW-16-ASA-6	NW-16	ASA-6	.75	
AN-NW-16-ASA-7.5	NW-16	ASA-7.5	.75	
AN-NW-16-ASA-9	NW-16	ASA-9	.75	
AN-NW-16-ASA-11	NW-16	ASA-11	.75	
AN-NW-25-ASA-6	NW-25	ASA-6	1.00	
AN-NW-25-ASA-7.5	NW-25	ASA-7.5	1.00	
AN-NW-25-ASA-9	NW-25	ASA-9	1.00	
AN-NW-25-ASA-11	NW-25	ASA-11	1.00	
AN-NW-40-ASA-7.5	NW-40	ASA-7.5	1.50	
AN-NW-40-ASA-9	NW-40	ASA-9	1.50	
AN-NW-40-ASA-11	NW-40	ASA-11	1.50	
AN-NW-50-ASA-9	NW-50	ASA-9	2.00	
AN-NW-50-ASA-11	NW-50	ASA-11	2.00	

Note: Add suffix "-G" to model number if O-ring groove is required on ASA flange. See ASA flange table for groove prices.

Dimensions in inches

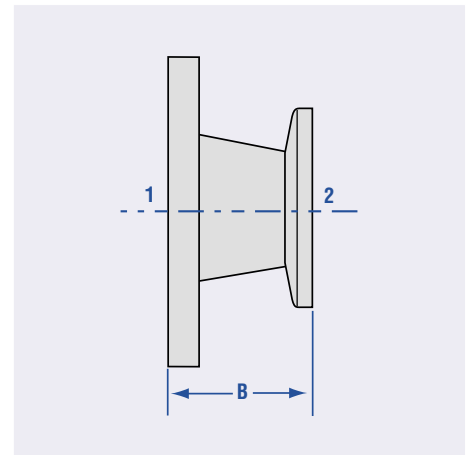


## ASA to NW Conical Adapter Nipples

Model Number	Flange 1		Flange 2		B	Price
	Type	Tube OD	Type	Tube OD		
ANC-NW-25-ASA-5	ASA-5	2.00	NW-25	1.00	2.775	
ANC-NW-40-ASA-5	ASA-5	2.50	NW-40	1.50	2.775	
ANC-NW-50-ASA-5	ASA-5	2.50	NW-50	2.00	2.775	
ANC-NW-40-ASA-6	ASA-6	3.00	NW-40	1.50	4.025	
ANC-NW-50-ASA-6	ASA-6	3.00	NW-50	2.00	4.025	
ANC-NW-50-ASA-7.5	ASA-7.5	4.00	NW-50	2.00	4.025	

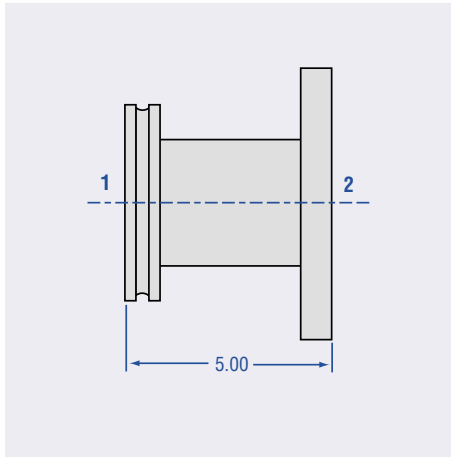
Note: Add suffix "-G" to model number if O-ring groove is required on ASA flange. See ASA flange table for groove prices.

Dimensions in inches





## ASA to ISO Adapter Nipples

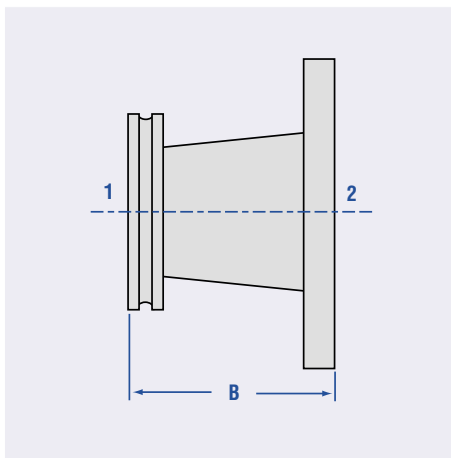


Model Number	Flange Types		Tube OD	Price
	Flange 1	Flange 2		
AN-ISO-63-OF-ASA-11	ISO-63-OF	ASA-11	2.50	
AN-ISO-80-OF-ASA-6	ISO-80-OF	ASA-6	3.00	
AN-ISO-80-OF-ASA-11	ISO-80-OF	ASA-11	3.00	
AN-ISO-100-OF-ASA-7.5	ISO-100-OF	ASA-7.5	4.00	
AN-ISO-100-OF-ASA-9	ISO-100-OF	ASA-9	4.00	
AN-ISO-100-OF-ASA-11	ISO-100-OF	ASA-11	4.00	
AN-ISO-160-OF-ASA-9	ISO-160-OF	ASA-9	6.00	
AN-ISO-160-OF-ASA-11	ISO-160-OF	ASA-11	6.00	
AN-ISO-200-OF-ASA-11	ISO-200-OF	ASA-11	8.00	
AN-ISO-200-OF-ASA-13.5	ISO-200-OF	ASA-13.5	8.00	

Note: Add suffix "-G" to model number if O-ring groove is required on ASA Flange. See ASA flange table for groove prices.

Dimensions in inches

## ASA to ISO Conical Adapter Nipples



Model Number	Flange 1		Flange 2		B	Price
	Type	Tube OD	Type	Tube OD		
ANC-ISO-63-OF-ASA-5	ISO-63-OF	2.50	ASA-5	2.00	2.875	
ANC-ISO-63-OF-ASA-6	ISO-63-OF	2.50	ASA-6	3.00	4.125	
ANC-ISO-63-OF-ASA-7.5	ISO-63-OF	2.50	ASA-7.5	4.00	4.125	
ANC-ISO-80-OF-ASA-5	ISO-80-OF	3.00	ASA-5	2.00	4.125	
ANC-ISO-80-OF-ASA-7.5	ISO-80-OF	3.00	ASA-7.5	4.00	4.125	
ANC-ISO-100-OF-ASA-5	ISO-100-OF	4.00	ASA-5	2.00	4.125	
ANC-ISO-100-OF-ASA-6	ISO-100-OF	4.00	ASA-6	3.00	4.125	

Note: Add suffix "-G" to model number if O-ring groove is required on ASA flange. See ASA flange table for groove prices.

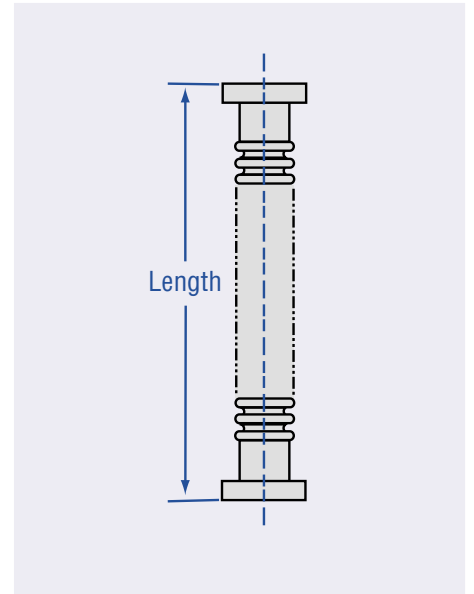
Dimensions in inches





## ASA Flexible Stainless Steel Hose

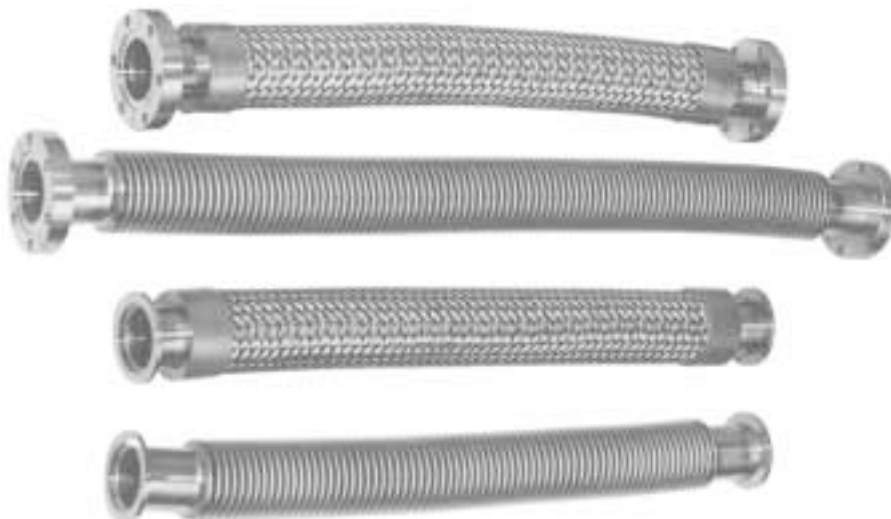
Nom OD	Model Number	Length	Description	Price	Add for Each O-Ring Groove
2.5	FH-250-12-ASA	12.0	ASA-5 on one port		
	FH-250-12-2ASA	12.0	ASA-5 on both ports		
	FH-250-18-ASA	18.0	ASA-5 on one port		
	FH-250-18-2ASA	18.0	ASA-5 on both ports		
	FH-250-24-ASA	24.0	ASA-5 on one port		
	FH-250-24-2ASA	24.0	ASA-5 on both ports		
	FH-250-36-ASA	36.0	ASA-5 on one port		
	FH-250-36-2ASA	36.0	ASA-5 on both ports		
3.0	FH-300-12-ASA	12.0	ASA-6 on one port		
	FH-300-12-2ASA	12.0	ASA-6 on both ports		
	FH-300-18-ASA	18.0	ASA-6 on one port		
	FH-300-18-2ASA	18.0	ASA-6 on both ports		
	FH-300-24-ASA	24.0	ASA-6 on one port		
	FH-300-24-2ASA	24.0	ASA-6 on both ports		
	FH-300-36-ASA	36.0	ASA-6 on one port		
	FH-300-36-2ASA	36.0	ASA-6 on both ports		
4.0	FH-400-12-ASA	12.0	ASA-7.5 on one port		
	FH-400-12-2ASA	12.0	ASA-7.5 on both ports		
	FH-400-18-ASA	18.0	ASA-7.5 on one port		
	FH-400-18-2ASA	18.0	ASA-7.5 on both ports		
	FH-400-24-ASA	24.0	ASA-7.5 on one port		
	FH-400-24-2ASA	24.0	ASA-7.5 on both ports		
	FH-400-36-ASA	36.0	ASA-7.5 on one port		
	FH-400-36-2ASA	36.0	ASA-7.5 on both ports		



Stainless steel vacuum hose is available in 2.5 to 4.0 inch diameters with ASA flanges. Standard lengths are 12, 18, 24 and 36 inches with one non-rotatable or one rotatable and non-rotatable flange. Be sure to specify if O-ring grooves are required. Non-standard lengths can be supplied upon request. Flex hoses can be found with other flange types or with butt weld fittings in their appropriate catalog. The flexibility and reliability of these hoses, provided by 321 stainless steel, make them ideally suited for vibration isolation and roughing and alignment manifolds.

Note: Add suffix "-G1" if O-ring groove is required and designate flange location by appropriate flange number. Example: "-G1 and/or -G2".

Dimensions in inches



Prices subject to change without notice. - International product pricing will vary.

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