

Vacuum Plumbing Parts

NW (KF) Flexible Tubes

■ **Related Products:** For O-Ring of large diameter, refer to **P.1429**.



Standard



Compact



Connected with Stainless Steel Pipe



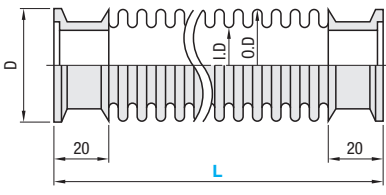
JIS Flanged

Type	Material	Standards	Operating Pressure	Allowable Leak Amount	Max. Operating Temp.
FRNW	EN 1.4301 Equiv.	ISO2861/1-1974	0.1MPa~0.1MPa	1×10 ⁻⁹ Torr-ℓ/sec or lower	200°C
FRNFR	EN 1.4301 Equiv.	Compliant with JISB365: 1988.			
FRNFC	EN 1.4301 Equiv.				
FRNFS	EN 1.4404 Equiv.				

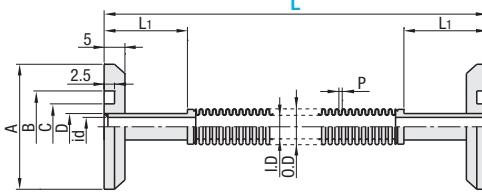
* Flexible Hose, Pipe: EN 1.4404 Equiv. NW Flange: EN 1.4301 Equiv.

■ **Features**
These vacuum pipes are for auxiliary exhaust system of High Vacuum System or rough vacuum fitting of an Ultrahigh Vacuum System.
The flexibility of the tube enables it to absorb the vibration from vacuum pumps and vacuum system to weaken the swing of vacuum fittings.
Distance adjustment is available due to its flexibility of length.

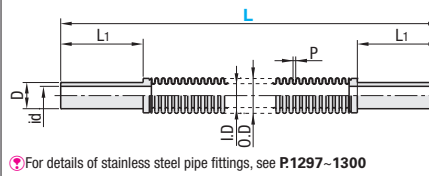
FRNW (Standard)



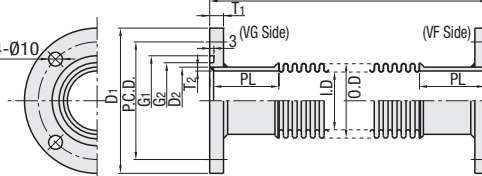
FRNFC (Compact)



FRNFS (Connected with Stainless Steel Pipe)



FRNFR (JIS Flanged)



■ **How to Connect**
• Flanged connection at one side VG and the other side VF.
Both ends fixed flange.

■ **Applicable O-Ring Specifications**

No.	O-Ring Size	Material
20	V34	NBR/Viton
25	V40	NBR/Viton
40	V55	NBR/Viton
50	V70	NBR/Viton

■ **For details of stainless steel pipe fittings, see P.1297~1300**

Part Number		L 50mm Increment	I.D	O.D	D	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).			
Type	No.						L100, 150	L200, 250	L300~2000	
									Unit Price	Additional Tube Price /50mm
FRNW	10	100~2000	12.5	16.5	30	40				
	16		21.5	28.5	30	50				
	25		26.5	36.5	40	70				
	40		41.5	54	55	100				
	50		50.5	65	75	120				

⚠ When L≥300: Total Price = Unit Price + [(Specified L Dimension - 300) / 50] x Tube Price/50mm

Part Number		L 50mm Increment	A	B	C	D	I.D	O.D	P	id	L1	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).			
Type	No.												L100, 150	L200, 250	L300~1000	
															Unit Price	Additional Tube Price /50mm
FRNFC	16	100~1000	30	17.2	11	6.35	5.5	8.5	1.6	4.5	20	25				
	25		40	26.2	20	9.52	10	13.5	2.5	7	25	25				
	40		55	41.2	35	12.7	12.5	16.5	2.8	10	30	40				

⚠ When L≥300: Total Price = Unit Price + [(Specified L Dimension - 300) / 50] x Tube Price/50mm

Part Number		L 50mm Increment	D	I.D	O.D	P	id	L1	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).			
Type	No.									L100, 150	L200, 250	L300~1000	
												Unit Price	Additional Tube Price /50mm
FRNFS	16	100~1000	6.35	5.5	8.5	1.6	4.5	20	25				
	25		9.52	10	13.5	2.5	7	25	25				
	40		12.7	12.5	16.5	2.8	10	30	40				

⚠ When L≥300: Total Price = Unit Price + [(Specified L Dimension - 300) / 50] x Tube Price/50mm

Part Number		L 50mm Increment	I.D	O.D	D ₁	D ₂	T ₁	T ₂	G ₁	G ₂	P.C.D.	PL	Unit Price 1 ~ 4 pc(s).			
Type	No.												L100, 150	L200, 250	L300~1000	
															Unit Price	Additional Tube Price /50mm
FRNFR	20	100~1000	26.5	36	80	27.2	8	2.1	44	34	60	30				
	25	150~1000	33	44	90	34	8	2.8	50	40	70	50				
	40	150~1000	50.5	65	105	48.6	10	2.8	65	55	85	50				
	50	150~1000	66	86	120	60.5	10	2.8	80	70	100	50				

⚠ When L≥300: Total Price = Unit Price + [(Specified L Dimension - 300) / 50] x Tube Price/50mm

Ordering Example
Part Number - L
FRNW10 - 200

Both Sides Weld-On Vacuum Pipes



Both Sides NW Flanged



NW Flanged x Elbow



NW Flanged x Tees



NW Flanged x Threaded

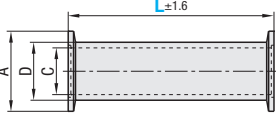


NW Flanged x VF Flanged



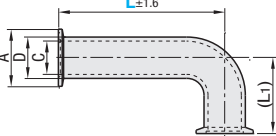
NW Flanged x VG Flanged

Type	Material
FRNRF	EN 1.4301 Equiv.



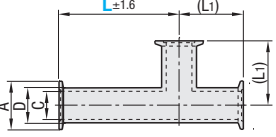
RoHS10

Type	Material
FRNRE	EN 1.4301 Equiv.



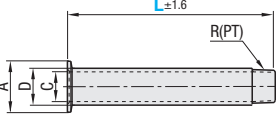
RoHS10

Type	Material
FRNRT	EN 1.4301 Equiv.



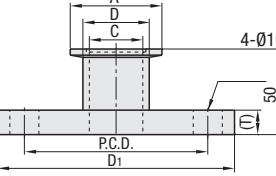
RoHS10

Type	Material
FRNRFA	EN 1.4301 Equiv.



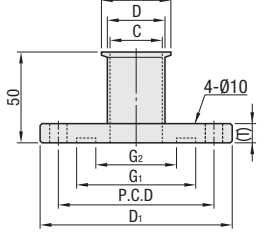
RoHS10

Type	Material
FRNFRF	EN 1.4301 Equiv.



RoHS10

Type	Material
FRNRVG	EN 1.4301 Equiv.



RoHS10

Part Number		L 10mm Increment	A	C	D	Unit Price 1 ~ 4 pc(s).	
Type	No.					Unit Price	L Pipe Price /100mm
FRNRF	10	110~1000	30	10	13.8		
	16		30	17.5	21.7		
	25		40	23	27.2		
	40		55	37.1	42.7		

⚠ For the type with L dimension of 100mm, select FRNWN in P.1375.

<Price Calculation Example>: Price = Unit Price + L Pipe Price

For L pipe price, a charge is added for every 100mm of L dimension. 110 ~ 200: Round up to 200.

Part Number		L 10mm Increment	A	C	D	(L1)	Unit Price 1 ~ 4 pc(s).	
Type	No.						Unit Price	L Pipe Price /100mm
FRNRE	16	100~1000	30	17.5	21.7	58.1		
	25		40	23	27.2	58.1		
	40		55	37.1	42.7	67.6		
	50							

<Price Calculation Example>: Price = Unit Price + L Pipe Price

For L pipe price, a charge is added for every 100mm of L dimension. 110 ~ 200: Round up to 200.

Part Number		L 10mm Increment	A	C	D	(L1)	Unit Price 1 ~ 4 pc(s).	
Type	No.						Unit Price	L Pipe Price /100mm
FRNRT	16	100~1000	30	17.5	21.7	45.4		
	25		40	23	27.2	48.6		
	40		55	37.1	42.7	67.6		
	50							

<Price Calculation Example>: Price = Unit Price + L Pipe Price

For L pipe price, a charge is added for every 100mm of L dimension. 110 ~ 200: Round up to 200.

Part Number		L 10mm Increment	A	C	D	R(PT)	Unit Price 1 ~ 4 pc(s).	
Type	No.						Unit Price	L Pipe Price /100mm
FRNRFA	16	100~1000	30	7.1	10.5	1/8		
	25		40	9.4	13.8	1/4		
	40		55	12.7	17.3	3/8		
	50							

<Price Calculation Example>: Price = Unit Price + L Pipe Price

For L pipe price, a charge is added for every 100mm of L dimension. 110 ~ 200: Round up to 200.

Part Number		No.	A	C	D	D1	(T)	P.C.D.	Unit Price	
Type	No.								1 ~ 4 pc(s).	
FRNFRF	10	30	10	13.8	70	8	50			
	16	30	17.5	21.7	70	8	50			
	25	40	23	27.2	80	8	60			
	40	55	37.1	42.7	105	10	85			

Part Number		No.	A	C	D	D1	G1	G2	(T)	P.C.D.	Applicable O-Ring Size	Unit Price	
Type	No.											1 ~ 4 pc(s).	
FRNRVG	10	30	10	13.8	70	34	24	8	50	V24			
	16	30	17.5	21.7	70	34	24	8	50	V24			
	25	40	23	27.2	80	44	34	8	60	V34			
	40	55	37.1	42.7	105	65	55	10	85	V55			
	50												

Ordering Example
Part Number - L
FRNRF25 - 300

Common Specifications
Max. Operation Temperature: 200°C
Surface Finish: Shot Blasted