


# 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**



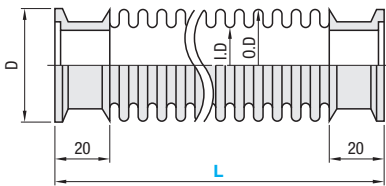
■ **JIS Flanged**



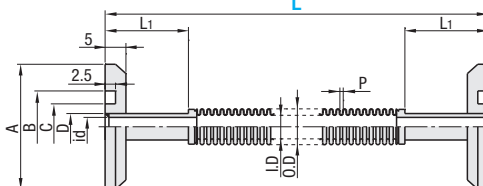
Type	Material	Standards	Operating Pressure	Allowable Leak Amount	Max. Operating Temp.	Features
FRNW	SUS304	ISO2861/1-1974	0.1MPa~0.1MPa	1×10 <sup>-9</sup> Torr-ℓ/sec or lower	200°C	These vacuum pipes are for auxiliary exhaust system of High Vacuum System or rough vacuum fitting of an Ultrahigh Vacuum 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.
FRNFR	-	Compliant with JISB8365: 1988.				
FRNFC	-					
FRNFS	SUS316L					

\* Flexible Hose, Pipe: SUS316L. NW Flange: SUS304

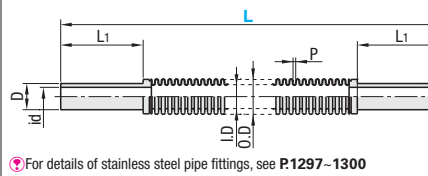
**FRNW (Standard)**



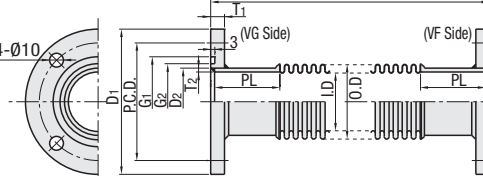
**FRNFC (Compact)**



**FRNFS (Connected with Stainless Steel Pipe)**



**FRNFR (JIS Flanged)**



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

■ **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

Part Number	Type	No.	L 50mm Increment	I.D.	O.D.	D	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).				
								L100, 150	L200, 250	Unit Price	Additional Tube Price /50mm	
FRNW			100~200	10	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	Type	No.	L 50mm Increment	A	B	C	D	I.D.	O.D.	P	id	L1	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).				
														L100, 150	L200, 250	Unit Price	Additional Tube Price /50mm	
FRNFC			100~1000	16	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	Type	No.	L 50mm Increment	D	I.D.	O.D.	P	id	L1	Min. Bending Radius (mm)	Unit Price 1 ~ 4 pc(s).				
											L100, 150	L200, 250	Unit Price	Additional Tube Price /50mm	
FRNFS			100~1000	16	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	Type	No.	L 50mm Increment	I.D.	O.D.	D1	D2	T1	T2	G1	G2	P.C.D.	PL	Unit Price 1 ~ 4 pc(s).				
														L100, 150	L200, 250	Unit Price	Additional Tube Price /50mm	
FRNFR			100~1000	20	26.5	36	80	27.2	8	2.1	44	34	60	30				
				25	33	44	90	34	8	2.8	50	40	70	50				
				40	50.5	65	105	48.6	10	2.8	65	55	85	50				
				50	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

Note that, for some of the types shown here, order might be unable to be received by the MISUMI Indonesia offices.


# Both Sides Weld-On Vacuum Pipes

■ **Both Sides NW Flanged**




RoHS10

■ **NW Flanged x Elbow**




RoHS10

■ **NW Flanged x Tees**




RoHS10

■ **NW Flanged x Threaded**




RoHS10

■ **NW Flanged x VF Flanged**



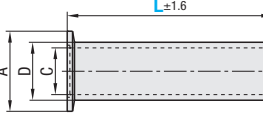
RoHS10

■ **NW Flanged x VG Flanged**

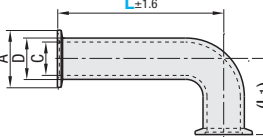


RoHS10

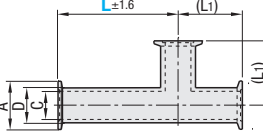
Type	Material
FRNRF	SUS304



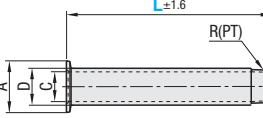
Type	Material
FRNRE	SUS304



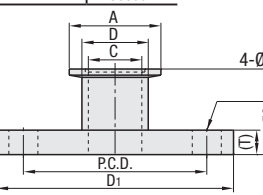
Type	Material
FRNRT	SUS304



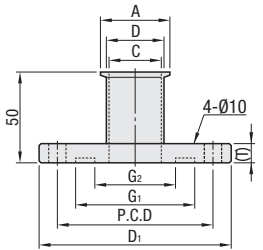
Type	Material
FRNRF	SUS304



Type	Material
FRNRF	SUS304



Type	Material
FRNRF	SUS304



Part Number	Type	No.	L 10mm Increment	A	C	D	Unit Price 1 ~ 4 pc(s).		
							Unit Price	L Pipe Price /100mm	
FRNRF			110~1000	10	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	Type	No.	L 10mm Increment	A	C	D	(L1)	Unit Price 1 ~ 4 pc(s).	
								Unit Price	L Pipe Price /100mm
FRNRE			100~1000	16	30	17.5	21.7	58.1	
				25	40	23	27.2	58.1	
				40	55	37.1	42.7	67.6	

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

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

<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	Type	No.	A	C	D	D1	(T)	P.C.D.	Unit Price	
									1 ~ 4 pc(s).	
FRNRF			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	Type	No.	A	C	D	D1	G1	G2	(T)	P.C.D.	Applicable O-Ring Size	Unit Price	
												1 ~ 4 pc(s).	
FRNRF			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	

Ordering Example  
Part Number - L  
FRNRF25 - 300

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