

# Vacuum Flexible Hose, Tubing, and Couplings



- KF flexible hose, tubing, and couplings
- ISO flexible hose, tubing, and couplings
- CF flexible hose, tubing, and couplings
- Convoluted stainless steel tubing

### Flexible Hose, Tubing, and Couplings

Flexible hose, tubing, and couplings typically are used to correct misalignment between static connections or provide vibration isolation.

- CF-flanged hose, tubing, and couplings have one rotatable and one nonrotatable end for ease of alignment.
- The minimum static bend radius is measured from the hose or tubing center line while under vacuum.

### Dimensions

Dimensions are for reference only and are subject to change.

### Ordering Information

Select a hose, tubing, or coupling ordering number.

### Material

- Bellows: 321 stainless steel
- Braid: 304 stainless steel (single braid)
- Tube extensions: 304 stainless steel
- Flanges: 304 stainless steel

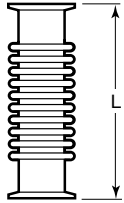
### Vacuum Range

- Hose and tubing:  $\geq 10^{-5}$  Torr
- Coupling
  - Copper seal:  $\geq 10^{-12}$  Torr
  - Elastomeric seal:  $\geq 10^{-10}$  Torr

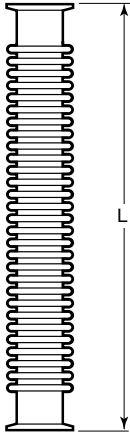
### Operational Temperature Range

- Copper seal: -325 to 932°F (-200 to 500°C)
- Elastomeric seal: -4 to 302°F (-20 to 150°C)

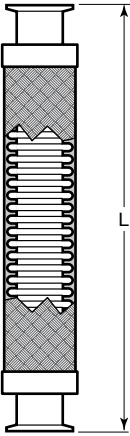
### KF Flexible Couplings



Flange Size	L Length in. (mm)		Ordering Number	Dimensions, in. (mm)	
	Manufactured	Compressed		Bellows ID	Wall Thickness
KF 10	3.20 (81.3)	3.00 (76.2)	JNW2FC10-3.20	0.63 (16.0)	0.006 (0.15)
	4.20 (107)	3.80 (96.5)	JNW2FC10-4.20		
	5.20 (132)	4.60 (117)	JNW2FC10-5.20		
KF 16	3.20 (81.3)	3.00 (76.2)	JNW2FC16-3.20	0.63 (16.0)	
	4.20 (107)	3.80 (96.5)	JNW2FC16-4.20		
	5.20 (132)	4.60 (117)	JNW2FC16-5.20		
KF 25	3.20 (81.3)	3.00 (76.2)	JNW2FC25-3.20	0.98 (24.9)	
	4.20 (107)	3.80 (96.5)	JNW2FC25-4.20		
	5.20 (132)	4.60 (117)	JNW2FC25-5.20		
KF 40	3.20 (81.3)	3.00 (76.2)	JNW2FC40-3.20	1.57 (39.9)	
	4.20 (107)	3.80 (96.5)	JNW2FC40-4.20		
	5.20 (132)	4.60 (117)	JNW2FC40-5.20		
KF 50	3.20 (81.3)	3.00 (76.2)	JNW2FC50-3.20	1.97 (50.0)	
	4.20 (107)	3.80 (96.5)	JNW2FC50-4.20		
	5.20 (132)	4.60 (117)	JNW2FC50-5.20		

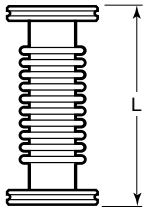
**KF Flexible Tubing**


Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Tube OD	Wall Thickness	Minimum Static Bend Radius
KF 16	12 (305)	JNW2FH16-12.00	0.75 (19.1)	1.18 (30.0)	0.010 (0.25)	1.00 (25.4)
	18 (457)	JNW2FH16-18.00				
	24 (610)	JNW2FH16-24.00				
	36 (914)	JNW2FH16-36.00				
KF 25	12 (305)	JNW2FH25-12.00	1.00 (25.4)	1.48 (37.6)	0.010 (0.25)	1.20 (30.5)
	18 (457)	JNW2FH25-18.00				
	24 (610)	JNW2FH25-24.00				
	36 (914)	JNW2FH25-36.00				
KF 40	12 (305)	JNW2FH40-12.00	1.50 (38.1)	2.09 (53.1)	0.012 (0.30)	1.80 (45.7)
	18 (457)	JNW2FH40-18.00				
	24 (610)	JNW2FH40-24.00				
	36 (914)	JNW2FH40-36.00				
KF 50	12 (305)	JNW2FH50-12.00	2.00 (50.8)	2.62 (66.5)	0.012 (0.30)	2.15 (54.6)
	18 (457)	JNW2FH50-18.00				
	24 (610)	JNW2FH50-24.00				
	36 (914)	JNW2FH50-36.00				

**KF Flexible Braided Hose**


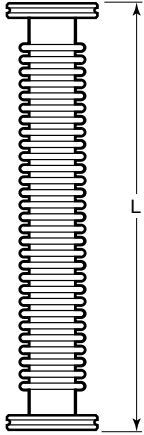
Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Hose OD	Wall Thickness	Minimum Static Bend Radius
KF 16	12 (305)	JNW2FHB16-12.00	0.75 (19.1)	1.25 (31.8)	0.010 (0.25)	1.38 (35.1)
	18 (457)	JNW2FHB16-18.00				
	24 (610)	JNW2FHB16-24.00				
	36 (914)	JNW2FHB16-36.00				
KF 25	12 (305)	JNW2FHB25-12.00	1.00 (25.4)	1.57 (39.9)	0.010 (0.25)	1.60 (40.6)
	18 (457)	JNW2FHB25-18.00				
	24 (610)	JNW2FHB25-24.00				
	36 (914)	JNW2FHB25-36.00				
KF 40	12 (305)	JNW2FHB40-12.00	1.50 (38.1)	2.18 (55.4)	0.012 (0.30)	2.28 (57.9)
	18 (457)	JNW2FHB40-18.00				
	24 (610)	JNW2FHB40-24.00				
	36 (914)	JNW2FHB40-36.00				
KF 50	12 (305)	JNW2FHB50-12.00	2.00 (50.8)	2.71 (68.8)	0.012 (0.30)	2.73 (69.3)
	18 (457)	JNW2FHB50-18.00				
	24 (610)	JNW2FHB50-24.00				
	36 (914)	JNW2FHB50-36.00				

### ISO Flexible Couplings



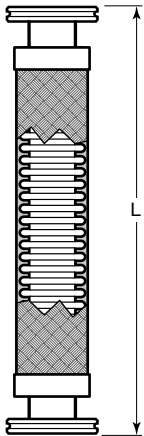
Flange Size	L Length in. (mm)		Ordering Number	Dimensions, in. (mm)	
	Manufactured	Compressed		Bellows ID	Wall Thickness
ISO 63	7.00 (178)	6.20 (158)	JISO2FC63-7.00	2.56 (65.0)	0.008 (0.20)
ISO 80			JISO2FC80-7.00	3.03 (77.0)	
ISO 100			JISO2FC100-7.00	3.94 (100)	
ISO 160			JISO2FC160-7.00	5.83 (148)	

### ISO Flexible Tubing



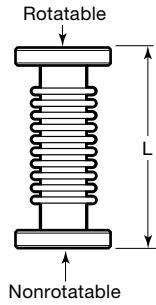
Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Tube OD	Wall Thickness	Minimum Static Bend Radius
ISO 63	12 (305)	JISO2FH63-12.00	2.50 (63.5)	3.39 (86.1)	0.014 (0.36)	2.80 (71.1)
	18 (457)	JISO2FH63-18.00				
	24 (610)	JISO2FH63-24.00				
	36 (914)	JISO2FH63-36.00				
ISO 80	12 (305)	JISO2FH80-12.00	3.00 (76.2)	3.91 (99.3)	0.014 (0.36)	4.00 (102)
	18 (457)	JISO2FH80-18.00				
	24 (610)	JISO2FH80-24.00				
	36 (914)	JISO2FH80-36.00				
ISO 100	12 (305)	JISO2FH100-12.00	4.00 (102)	4.99 (127)	0.016 (0.41)	7.50 (191)
	18 (457)	JISO2FH100-18.00				
	24 (610)	JISO2FH100-24.00				
	36 (914)	JISO2FH100-36.00				

### ISO Flexible Braided Hose



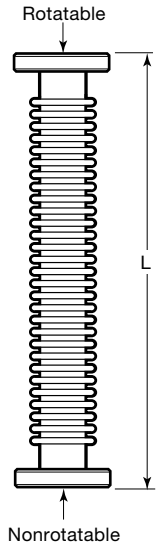
Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Hose OD	Wall Thickness	Minimum Static Bend Radius
ISO 63	12 (305)	JISO2FHB63-12.00	2.50 (63.5)	3.51 (89.2)	0.014 (0.36)	7.19 (183)
	18 (457)	JISO2FHB63-18.00				
	24 (610)	JISO2FHB63-24.00				
	36 (914)	JISO2FHB63-36.00				
ISO 80	12 (305)	JISO2FHB80-12.00	3.00 (76.2)	4.03 (102)	0.014 (0.36)	8.45 (215)
	18 (457)	JISO2FHB80-18.00				
	24 (610)	JISO2FHB80-24.00				
	36 (914)	JISO2FHB80-36.00				
ISO 100	12 (305)	JISO2FHB100-12.00	4.00 (102)	5.11 (130)	0.016 (0.41)	9.93 (252)
	18 (457)	JISO2FHB100-18.00				
	24 (610)	JISO2FHB100-24.00				
	36 (914)	JISO2FHB100-36.00				

### CF Flexible Couplings



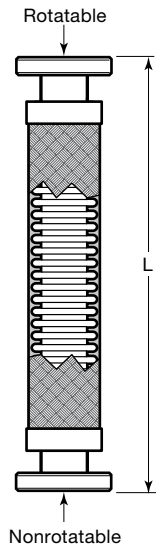
Flange Size	L Length in. (mm)		Ordering Number	Dimensions, in. (mm)	
	Manufactured	Compressed		Bellows ID	Wall Thickness
CF 133	3.20 (81.3)	3.00 (76.2)	JCF2FC133-3.20	0.63 (16.0)	0.006 (0.15)
CF 212			JCF2FC212-3.20	0.98 (24.9)	
CF 275			JCF2FC275-3.20	1.57 (39.9)	
CF 338			JCF2FC338-3.20	1.97 (50.0)	
CF 450	7.00 (178)	6.2 (158)	JCF2FC450-7.00	2.56 (65.0)	
CF 462			JCF2FC462-7.00	3.03 (77.0)	
CF 600			JCF2FC600-7.00	3.94 (100)	

### CF Flexible Tubing



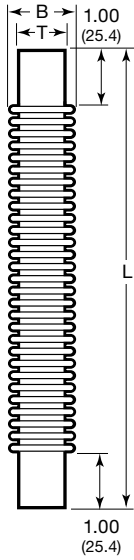
Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Tube OD	Wall Thickness	Minimum Static Bend Radius
CF 133	12 (305)	JCF2FH133-12.00	0.75 (19.1)	1.18 (30.0)	0.010 (0.25)	1.00 (25.4)
	18 (457)	JCF2FH133-18.00				
	24 (610)	JCF2FH133-24.00				
	36 (914)	JCF2FH133-36.00				
CF 212	12 (305)	JCF2FH212-12.00	1.00 (25.4)	1.48 (37.6)	0.010 (0.25)	1.20 (30.5)
	18 (457)	JCF2FH212-18.00				
	24 (610)	JCF2FH212-24.00				
	36 (914)	JCF2FH212-36.00				
CF 275	12 (305)	JCF2FH275-12.00	1.50 (38.1)	2.09 (53.1)	0.012 (0.30)	1.80 (45.7)
	18 (457)	JCF2FH275-18.00				
	24 (610)	JCF2FH275-24.00				
	36 (914)	JCF2FH275-36.00				
CF 338	12 (305)	JCF2FH338-12.00	2.00 (50.8)	2.62 (66.5)	0.012 (0.30)	2.15 (54.6)
	18 (457)	JCF2FH338-18.00				
	24 (610)	JCF2FH338-24.00				
	36 (914)	JCF2FH338-36.00				
CF 450	12 (305)	JCF2FH450-12.00	2.50 (63.5)	3.39 (86.1)	0.014 (0.36)	2.80 (71.1)
	18 (457)	JCF2FH450-18.00				
	24 (610)	JCF2FH450-24.00				
	36 (914)	JCF2FH450-36.00				
CF 462	12 (305)	JCF2FH462-12.00	3.00 (76.2)	3.91 (99.3)	0.014 (0.36)	4.00 (102)
	18 (457)	JCF2FH462-18.00				
	24 (610)	JCF2FH462-24.00				
	36 (914)	JCF2FH462-36.00				
CF 600	12 (305)	JCF2FH600-12.00	4.00 (102)	4.99 (127)	0.016 (0.41)	7.50 (191)
	18 (457)	JCF2FH600-18.00				
	24 (610)	JCF2FH600-24.00				
	36 (914)	JCF2FH600-36.00				

## CF Flexible Braided Hose



Flange Size	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)			
			Nominal ID	Hose OD	Wall Thickness	Minimum Static Bend Radius
CF 133	12 (305)	JCF2FHB133-12.00	0.75 (19.1)	1.25 (31.8)	0.010 (0.25)	1.38 (35.1)
	18 (457)	JCF2FHB133-18.00				
	24 (610)	JCF2FHB133-24.00				
	36 (914)	JCF2FHB133-36.00				
CF 212	12 (305)	JCF2FHB212-12.00	1.00 (25.4)	1.57 (39.9)	0.010 (0.25)	1.60 (40.6)
	18 (457)	JCF2FHB212-18.00				
	24 (610)	JCF2FHB212-24.00				
	36 (914)	JCF2FHB212-36.00				
CF 275	12 (305)	JCF2FHB275-12.00	1.50 (38.1)	2.18 (55.4)	0.012 (0.30)	2.28 (57.9)
	18 (457)	JCF2FHB275-18.00				
	24 (610)	JCF2FHB275-24.00				
	36 (914)	JCF2FHB275-36.00				
CF 338	12 (305)	JCF2FHB338-12.00	2.00 (50.8)	2.71 (68.8)	0.012 (0.30)	2.73 (69.3)
	18 (457)	JCF2FHB338-18.00				
	24 (610)	JCF2FHB338-24.00				
	36 (914)	JCF2FHB338-36.00				
CF 450	12 (305)	JCF2FHB450-12.00	2.50 (63.5)	3.51 (89.2)	0.014 (0.36)	7.19 (183)
	18 (457)	JCF2FHB450-18.00				
	24 (610)	JCF2FHB450-24.00				
	36 (914)	JCF2FHB450-36.00				
CF 462	12 (305)	JCF2FHB462-12.00	3.00 (76.2)	4.03 (102)	0.014 (0.36)	8.45 (215)
	18 (457)	JCF2FHB462-18.00				
	24 (610)	JCF2FHB462-24.00				
	36 (914)	JCF2FHB462-36.00				
CF 600	12 (305)	JCF2FHB600-12.00	4.00 (102)	5.11 (130)	0.016 (0.41)	9.93 (252)
	18 (457)	JCF2FHB600-18.00				
	24 (610)	JCF2FHB600-24.00				
	36 (914)	JCF2FHB600-36.00				

### Flexible Tubing Without Flanges



T Tube End OD in.	L Overall Length in. (mm)	Ordering Number	Dimensions, in. (mm)				
			Flexible Tube				Tube End Wall Thickness
			Nominal ID	B Tube OD	Wall Thickness	Minimum Static Bend Radius	
0.75	12 (305)	JFH75-12.00	0.75 (19.1)	1.18 (30.0)	0.010 (0.25)	1.00 (25.4)	0.065 (1.65)
	18 (457)	JFH75-18.00					
	24 (610)	JFH75-24.00					
	36 (914)	JFH75-36.00					
1.00	12 (305)	JFH10-12.00	1.00 (25.4)	1.48 (37.6)	0.010 (0.25)	1.20 (30.5)	0.065 (1.65)
	18 (457)	JFH10-18.00					
	24 (610)	JFH10-24.00					
	36 (914)	JFH10-36.00					
1.50	12 (305)	JFH15-12.00	1.50 (38.1)	2.09 (53.1)	0.012 (0.30)	1.80 (45.7)	0.065 (1.65)
	18 (457)	JFH15-18.00					
	24 (610)	JFH15-24.00					
	36 (914)	JFH15-36.00					
2.00	12 (305)	JFH20-12.00	2.00 (50.8)	2.62 (66.5)	0.012 (0.30)	2.15 (54.6)	0.065 (1.65)
	18 (457)	JFH20-18.00					
	24 (610)	JFH20-24.00					
	36 (914)	JFH20-36.00					
2.50	12 (305)	JFH25-12.00	2.50 (63.5)	3.39 (86.1)	0.014 (0.36)	2.80 (71.1)	0.065 (1.65)
	18 (457)	JFH25-18.00					
	24 (610)	JFH25-24.00					
	36 (914)	JFH25-36.00					
3.00	12 (305)	JFH30-12.00	3.00 (76.2)	3.91 (99.3)	0.014 (0.36)	4.00 (102)	0.065 (1.65)
	18 (457)	JFH30-18.00					
	24 (610)	JFH30-24.00					
	36 (914)	JFH30-36.00					
4.00	12 (305)	JFH40-12.00	4.00 (102)	4.99 (127)	0.016 (0.41)	7.50 (191)	0.083 (2.11)
	18 (457)	JFH40-18.00					
	24 (610)	JFH40-24.00					
	36 (914)	JFH40-36.00					

## Adapter Fittings

For more information, contact your authorized Swagelok® representative or see the Swagelok *Vacuum Fittings, Adapter Fittings* catalog, MS-03-18.



## CF Flanges and Fittings

For more information, contact your authorized Swagelok representative or see the Swagelok *Vacuum Fittings, CF Flanges and Fittings* catalog, MS-03-17.



## KF Flanges and Fittings

For more information, contact your authorized Swagelok representative or see the Swagelok *Vacuum Fittings, KF Flanges and Fittings* catalog, MS-03-15.



## Swagelok Orbital Welding System

See the Swagelok *Welding System M200 Power Supply* catalog, MS-02-342, for more information.



## ISO Flanges and Fittings

For more information, contact your authorized Swagelok representative or see the Swagelok *Vacuum Fittings, ISO Flanges and Fittings* catalog, MS-03-16.



## Tubing Products

Swagelok offers a wide variety of tubing products.

Contact your authorized Swagelok representative or see these Swagelok catalogs for more information:

- *Stainless Steel Seamless Tubing, Fractional Sizes*, MS-01-153-SCS
- *Stainless Steel Tubing, Imperial Sizes*, MS-01-159-SCS



## Weld Fittings for Vacuum Service

For more information, contact your authorized Swagelok representative or see the Swagelok *Weld Fittings for Vacuum Service* catalog, MS-03-14.



### Safe Product Selection

**When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.**

## Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.