

# 真空波纹管

# Bellows



赛米瑟真空波纹管是真空系统中用于柔性连接的组件，能够在维持真空密封的同时，补偿机械位移（如振动、热胀冷缩）、补偿安装尺寸误差，消除机械震动，确保系统稳定运行。其核心特点是柔性、耐压和高密封性。

真空波纹管是采用 0.15~0.25mm 厚度的不锈钢薄板通过液压成型，材料有 sus304 和 sus316L 可选，波纹管两端焊接标准真空法兰（如 CF、KF、ISO），也可以根据客户要求焊接两端接口。真空波纹管外面可以加金属编制网来增强抗机械损伤能力和耐压能力。

真空波纹管轴向压缩和拉伸长度为  $\pm 10\% \sim \pm 30\%$ ，使用寿命可以到达 10 万次以上，泄漏率  $\leq 1 \times 10^{-10} \text{ Pa} \cdot \text{m}^3/\text{s}$ （金属波纹管），满足超高真空需求。

真空波纹管主要应用场景，半导体设备，粒子加速器，真空镀膜机，航空航天，真空阀门阀芯，真空管道连接等。

Semi Serve vacuum bellows are components used for flexible connections in vacuum systems, which can compensate for mechanical displacement (such as vibration, thermal expansion and contraction), installation size errors, eliminate mechanical vibration, and ensure stable system operation while maintaining vacuum sealing. Its core features are flexibility, pressure resistance, and high sealing.

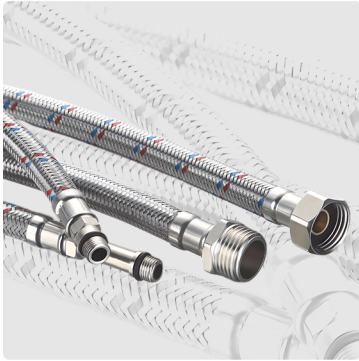
Vacuum bellows are made of stainless steel sheet with a thickness of 0.15-0.25mm and formed by hydraulic pressure. The materials are available in sus304 and sus316L. Standard vacuum flanges (such as CF, KF, ISO) are welded at both ends of the bellows, and the two end interfaces can also be welded according to customer requirements. Metal mesh can be added outside the vacuum corrugated tube to enhance its resistance to mechanical damage and pressure resistance.

The axial compression and tensile length of the vacuum corrugated tube is  $\pm 10\% \sim \pm 30\%$ , and its service life can reach more than 100000 times, Leakage rate  $\leq 1 \times 10^{-10} \text{ Pa} \cdot \text{m}^3/\text{s}$  (metal bellows), meeting the requirements of ultra-high vacuum.

The main application scenarios of vacuum bellows include semiconductor equipment, particle accelerators, vacuum coating machines, aerospace, vacuum valve cores, vacuum pipeline connections, etc.

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# Bellows 真空波纹管

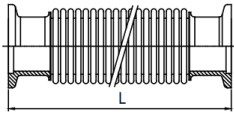


# Bellows

## KF 法兰波纹管 KF Bellows

可按需要定制任意长度  
Any length can be customized according to your needs

材料 Material : SS 304L SS 316L

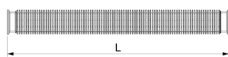


Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness	Pitch	L
MB-KF-16-100L	KF16	19.8	28.5	0.15	3.2	100.0
MB-KF-16-250L	KF16	19.8	28.5	0.15	3.2	250.0
MB-KF-16-500L	KF16	19.8	28.5	0.15	3.2	500.0
MB-KF-16-750L	KF16	19.8	28.5	0.15	3.2	750.0
MB-KF-16-1000L	KF16	19.8	28.5	0.15	3.2	1000.0
MB-KF-25-100L	KF25	25.1	36.0	0.15	4.3	100.0
MB-KF-25-250L	KF25	25.1	36.0	0.15	4.3	250.0
MB-KF-25-500L	KF25	25.1	36.0	0.15	4.3	500.0
MB-KF-25-750L	KF25	25.1	36.0	0.15	4.3	750.0
MB-KF-25-1000L	KF25	25.1	36.0	0.15	4.3	1000.0
MB-KF-40-100L	KF40	37.9	54.0	0.15	5.0	100.0
MB-KF-40-250L	KF40	37.9	54.0	0.15	5.0	250.0
MB-KF-40-500L	KF40	37.9	54.0	0.15	5.0	500.0
MB-KF-40-750L	KF40	37.9	54.0	0.15	5.0	750.0
MB-KF-40-1000L	KF40	37.9	54.0	0.15	5.0	1000.0
MB-KF-50-100L	KF50	50.1	68.0	0.15	6.0	100.0
MB-KF-50-250L	KF50	50.1	68.0	0.15	6.0	250.0
MB-KF-50-500L	KF50	50.1	68.0	0.15	6.0	500.0
MB-KF-50-750L	KF50	50.1	68.0	0.15	6.0	750.0
MB-KF-50-1000L	KF50	50.1	68.0	0.15	6.0	1000.0

## ISOK 法兰波纹管 ISO-K Bellows

可按需要定制任意长度  
Any length can be customized according to your needs

材料 Material : SS 304L SS 316L



Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness	Pitch	L
MB-ISO-K-63-100L	ISO63	65.2	85.0	0.20	6.5	100.0
MB-ISO-K-63-250L	ISO63	65.2	85.0	0.20	6.5	250.0
MB-ISO-K-63-500L	ISO63	65.2	85.0	0.20	6.5	500.0
MB-ISO-K-63-750L	ISO63	65.2	85.0	0.20	6.5	750.0
MB-ISO-K-63-1000L	ISO63	65.2	85.0	0.20	6.5	1000.0
MB-ISO-K-80-100L	ISO80	78.0	101.0	0.20	7.0	100.0
MB-ISO-K-80-250L	ISO80	78.0	101.0	0.20	7.0	250.0
MB-ISO-K-80-500L	ISO80	78.0	101.0	0.20	7.0	500.0
MB-ISO-K-80-750L	ISO80	78.0	101.0	0.20	7.0	750.0
MB-ISO-K-80-1000L	ISO80	78.0	101.0	0.20	7.0	1000.0
MB-ISO-K-100-100L	ISO100	100.0	127.0	0.25	7.5	100.0
MB-ISO-K-100-250L	ISO100	100.0	127.0	0.25	7.5	250.0
MB-ISO-K-100-500L	ISO100	100.0	127.0	0.25	7.5	500.0
MB-ISO-K-100-750L	ISO100	100.0	127.0	0.25	7.5	750.0
MB-ISO-K-100-1000L	ISO100	100.0	127.0	0.25	7.5	1000.0
MB-ISO-K-160-250L	ISO160	148.0	176.2	0.25	8.0	100.0
MB-ISO-K-160-500L	ISO160	148.0	176.2	0.25	8.0	250.0
MB-ISO-K-160-1000L	ISO160	148.0	176.2	0.25	8.0	500.0
MB-ISO-K-160-750L	ISO160	148.0	176.2	0.25	8.0	750.0
MB-ISO-K-160-1000L	ISO160	148.0	176.2	0.25	8.0	1000.0

# Bellows

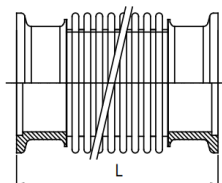
## KF 法兰波纹管

### KF Flexible Hoses

可按需要定制任意长度

Any length can be customized according to your needs

材料 Material : SS 304L SS 316L



Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness	Pitch	L
MH-KF-16-250L	KF16	20.1	26.7	0.15	3.2	250.0
MH-KF-16-500L	KF16	20.1	26.7	0.15	3.2	500.0
MH-KF-16-1000L	KF16	20.1	26.7	0.15	3.2	1000.0
MH-KF-25-250L	KF25	25.1	33.0	0.15	4.2	250.0
MH-KF-25-500L	KF25	25.1	33.0	0.15	4.2	500.0
MH-KF-25-1000L	KF25	25.1	33.0	0.15	4.2	1000.0
MH-KF-40-250L	KF40	37.9	49.4	0.20	5.2	250.0
MH-KF-40-500L	KF40	37.9	49.4	0.20	5.2	500.0
MH-KF-40-1000L	KF40	37.9	49.4	0.20	5.2	1000.0
MH-KF-50-250L	KF50	50.0	62.7	0.20	5.5	250.0
MH-KF-50-500L	KF50	50.0	62.7	0.20	5.5	500.0
MH-KF-50-1000L	KF50	50.0	62.7	0.20	5.5	1000.0

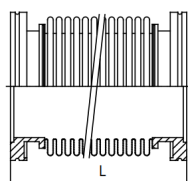
## ISOK 法兰波纹管

### ISO-K Flexible Hoses

可按需要定制任意长度

Any length can be customized according to your needs

材料 Material : SS 304L SS 316L



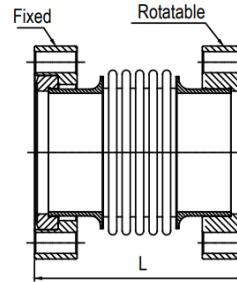
Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness	Pitch	L
MH-ISOK-63-250L	ISO63	65.2	80.0	0.20	7.1	250.0
MH-ISOK-63-500L	ISO63	65.2	80.0	0.20	7.1	500.0
MH-ISOK-63-1000L	ISO63	65.2	80.0	0.20	7.1	1000.0
MH-ISOK-80-250L	ISO80	78.0	96.0	0.20	10.0	250.0
MH-ISOK-80-500L	ISO80	78.0	96.0	0.20	10.0	500.0
MH-ISOK-80-1000L	ISO80	78.0	96.0	0.20	10.0	1000.0
MH-ISOK-100-250L	ISO100	100.2	126.6	0.20	7.5	250.0
MH-ISOK-100-500L	ISO100	100.2	126.6	0.20	7.5	500.0
MH-ISOK-100-1000L	ISO100	100.2	126.6	0.20	7.5	1000.0
MH-ISOK-160-250L	ISO160	149.6	175.6	0.20	6.5	250.0
MH-ISOK-160-500L	ISO160	149.6	175.6	0.25	6.5	500.0
MH-ISOK-160-1000L	ISO160	149.6	175.6	0.25	6.5	1000.0

# Bellows

## CF 法兰波纹管 CF Bellows

可按需要定制任意长度  
Any length can be customized according to your needs

材料 Material : SS 304L SS 316L



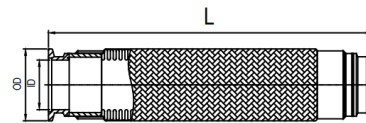
Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness (mm)	Pitch	L
MB-CF-133-082L	CF1. 33" (DN16)	19.8	28.5	0.15	4.3	82.0
MB-CF-212-032L	CF2. 12" (DN25)	25.1	36.0	0.15	4.3	82.0
MB-CF-275-032L	CF2. 75" (DN40)	37.9	54.0	0.15	5.0	82.0
MB-CF-338-082L	CF3. 38" (DN50)	50.1	68.0	0.15	6.0	82.0
MB-CF-450-178L	CF4. 50" (DN63)	65.2	85.0	0.20	6.5	178.0
MB-CF-462-178L	CF4. 62" (DN80)	78.0	101.0	0.20	7.0	178.0
MB-CF-600-178L	CF6. 00" (DN100)	100.0	127.0	0.25	7.5	178.0
MB-CF-800-178L	CF8. 00" (DN160)	148.0	176.2	0.25	8.0	178.0

# Bellows

## 外编织网波纹管 Mesh Bellows

可按需要定制任意长度  
Any length can be customized according to your needs

材料 Material : SS 304L SS 316L



Part Number	Flange Size	ID (mm)	OD (mm)	Wall Thickness (mm)	L
BB-KF-16-250L	KF16	20.0	27.0	0.25	250.0
BB-KF-16-500L	KF16	20.0	27.0	0.25	500.0
BB-KF-16-750L	KF16	20.0	27.0	0.25	750.0
BB-KF-16-1000L	KF16	20.0	27.0	0.25	1000.0
BB-KF-25-250L	KF25	27.4	37.2	0.25	250.0
BB-KF-25-500L	KF25	27.4	37.2	0.25	500.0
BB-KF-25-750L	KF25	27.4	37.2	0.25	750.0
BB-KF-25-1000L	KF25	27.4	37.2	0.25	1000.0
BB-KF-40-250L	KF40	41.2	54.0	0.25	250.0
BB-KF-40-500L	KF40	41.2	54.0	0.25	500.0
BB-KF-40-750L	KF40	41.2	54.0	0.25	750.0
BB-KF-40-1000L	KF40	41.2	54.0	0.25	1000.0
BB-KF-50-250L	KF50	53.6	68.0	0.25	250.0
BB-KF-50-500L	KF50	53.6	68.0	0.25	500.0
BB-KF-50-750L	KF50	53.6	68.0	0.25	750.0
BB-KF-50-1000L	KF50	53.6	68.0	0.25	1000.0