

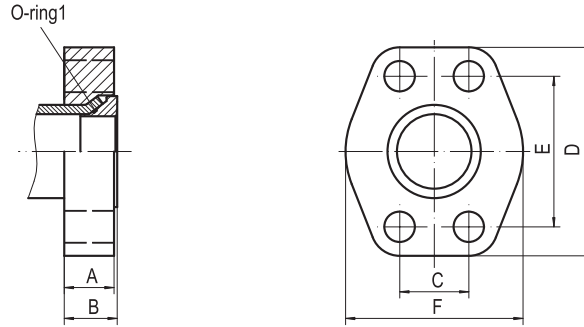
37° Flare flange according to SAE J518/ISO 6162
 37° 扩口法兰, 符合SAE J518/ISO 6162



BO 3000...FL

3000 PSI / CODE 61

Flare flange Flat
 扩口法兰平面端



Order Example 订货示例			
Material 材质	Example 示例	Order Code 订货号	
Steel, zinc plated 碳钢, 镀锌	BO 3000-3/4-20x2.0FL	2.05.01.0061	
1.4404 不锈钢 316L	BO 3000-3/4-20x2.0FL- <i>SU</i>	2.05.03.0061	

Size Inch 规格	Tube O.D.xW.T. 钢管	Complete Flange Type 整套型号	Order code 订货号	A	B	C	D	E	F	O-Ring1	Weight kg 重量
1/2	16x2.0	BO 3000-1/2-16x2.0FL	2.05.01.0056	20.0	23.0	17.5	54.0	38.1	46.0	OR12x1.0	0.23
	18x2.0	BO 3000-1/2-18x2.0FL	2.05.01.0057	20.0	23.0	17.5	54.0	38.1	46.0	OR14x1.0	0.24
	20x2.0	BO 3000-1/2-20x2.0FL	2.05.01.0058	20.0	23.0	17.5	54.0	38.1	46.0	OR14x1.0	0.24
	25x2.5	BO 3000-1/2-25x2.5FL	2.05.01.0059	20.0	23.0	17.5	54.0	38.1	46.0	OR20x1.0	0.24
	25x3.0	BO 3000-1/2-25x3.0FL	2.05.01.0060	20.0	23.0	17.5	54.0	38.1	46.0	OR23x1.0	0.24
3/4	20x2.0	BO 3000-3/4-20x2.0FL	2.05.01.0061	20.0	25.0	22.2	65.0	47.6	52.0	OR14x1.0	0.32
	20x2.5	BO 3000-3/4-20x2.5FL	2.05.01.0062	20.0	25.0	22.2	65.0	47.6	52.0	OR16x1.0	0.33
	25x2.5	BO 3000-3/4-25x2.5FL	2.05.01.0063	20.0	25.0	22.2	65.0	47.6	52.0	OR20x1.0	0.33
	25x3.0	BO 3000-3/4-25x3.0FL	2.05.01.0064	20.0	25.0	22.2	65.0	47.6	52.0	OR17x1.0	0.33
	30x3.0	BO 3000-3/4-30x3.0FL	2.05.01.0065	20.0	25.0	22.2	65.0	47.6	52.0	OR30x1.0	0.33
1	38x2.5	BO 3000-1-38x2.5FL	2.05.01.0066	24.0	27.0	26.2	70.5	52.4	59.0	OR34x1.0	0.42
	38x3.0	BO 3000-1-38x3.0FL	2.05.01.0067	24.0	27.0	26.2	70.5	52.4	59.0	OR34x1.0	0.41
	38x4.0	BO 3000-1-38x4.0FL	2.05.01.0068	24.0	27.0	26.2	70.5	52.4	59.0	OR30x1.0	0.41
	38x5.0	BO 3000-1-38x5.0FL	2.05.01.0069	24.0	27.0	26.2	70.5	52.4	59.0	OR28x1.0	0.40
1 1/4	38x3.0	BO 3000-1 1/4-38x3.0FL	2.05.01.0070	22.0	25.0	30.2	80.5	58.7	73.0	OR34x1.0	0.57
	38x4.0	BO 3000-1 1/4-38x4.0FL	2.05.01.0071	22.0	25.0	30.2	80.5	58.7	73.0	OR30x1.0	0.58
	38x5.0	BO 3000-1 1/4-38x5.0FL	2.05.01.0072	22.0	25.0	30.2	80.5	58.7	73.0	OR28x1.0	0.57
	42x3.0	BO 3000-1 1/4-42x3.0FL	2.05.01.0073	22.0	25.0	30.2	80.5	58.7	73.0	OR37.82x1.78	0.58
	42x4.0	BO 3000-1 1/4-42x4.0FL	2.05.01.0074	22.0	25.0	30.2	80.5	58.7	73.0	OR34x1.0	0.57
1 1/2	42x3.0	BO 3000-1 1/2-42x3.0FL	2.05.01.0075	25.0	28.0	35.7	94.5	69.9	83.0	OR37.82x1.78	0.89
	42x4.0	BO 3000-1 1/2-42x4.0FL	2.05.01.0076	25.0	28.0	35.7	94.5	69.9	83.0	OR34x1.0	0.89
	50x3.0	BO 3000-1 1/2-50x3.0FL	2.05.01.0077	25.0	28.0	35.7	94.5	69.9	83.0	OR44.17x1.78	0.90
	50x5.0	BO 3000-1 1/2-50x5.0FL	2.05.01.0078	25.0	28.0	35.7	94.5	69.9	83.0	OR41x1.78	0.89
	50x6.0	BO 3000-1 1/2-50x6.0FL	2.05.01.0079	25.0	28.0	35.7	94.5	69.9	83.0	OR41x1.78	0.90

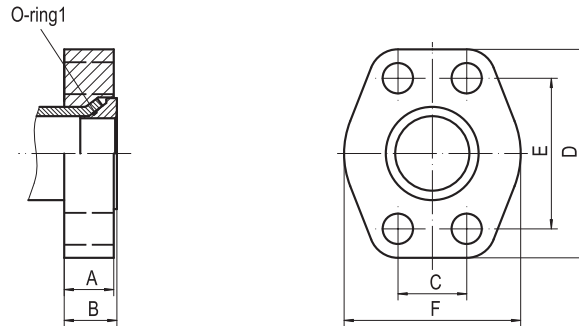
37° Flare flange according to SAE J518/ISO 6162
 37° 扩口法兰, 符合SAE J518/ISO 6162



BO 3000...FL

3000 PSI / CODE 61

Flare flange Flat
 扩口法兰平面端



B

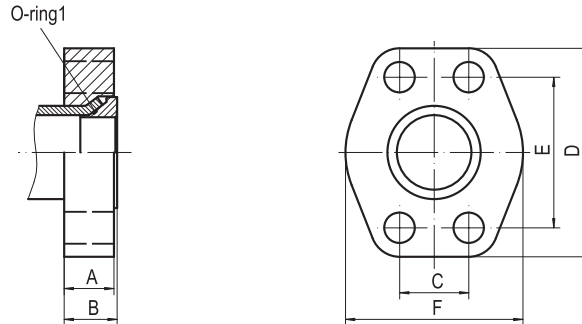
Order Example 订货示例			
Material 材质	Example 示例	Order Code 订货号	
Steel, zinc plated 碳钢, 镀锌	BO 3000-3-75x3.0FL	2.05.01.0092	
1.4404 不锈钢 316L	BO 3000-3-75x3.0FL- <i>SU</i>	2.05.03.0092	

Size Inch 规格	Tube O.D.xW.T. 钢管	Complete Flange Type 整套型号	Order code 订货号	A	B	C	D	E	F	O-Ring1	Weight kg 重量
2	50x3.0	BO 3000-2-50x3.0FL	2.05.01.0080	33.0	35.0	42.9	101.5	77.8	97.0	OR44.17x1.78	1.22
	50x5.0	BO 3000-2-50x5.0FL	2.05.01.0081	33.0	35.0	42.9	101.5	77.8	97.0	OR41x1.78	1.24
	50x6.0	BO 3000-2-50x6.0FL	2.05.01.0082	33.0	35.0	42.9	101.5	77.8	97.0	OR41x1.78	1.28
	60x3.0	BO 3000-2-60x3.0FL	2.05.01.0083	33.0	35.0	42.9	101.5	77.8	97.0	OR53.7x1.78	1.28
	60x5.0	BO 3000-2-60x5.0FL	2.05.01.0084	33.0	35.0	42.9	101.5	77.8	97.0	OR50.52x1.78	1.24
	60x6.0	BO 3000-2-60x6.0FL	2.05.01.0085	33.0	35.0	42.9	101.5	77.8	97.0	OR47.37x1.78	1.23
2 1/2	60x3.0	BO 3000-2 1/2-60x3.0FL	2.05.01.0086	44.0	47.0	50.8	115.5	88.9	109.0	OR53.7x1.78	2.23
	60x5.0	BO 3000-2 1/2-60x5.0FL	2.05.01.0087	44.0	47.0	50.8	115.5	88.9	109.0	OR50.52x1.78	2.03
	60x6.0	BO 3000-2 1/2-60x6.0FL	2.05.01.0088	44.0	47.0	50.8	115.5	88.9	109.0	OR47.37x1.78	2.01
	73x7.0	BO 3000-2 1/2-73x7.0FL	2.05.01.0089	44.0	47.0	50.8	115.5	88.9	109.0	OR63.22x1.78	2.00
	75x3.0	BO 3000-2 1/2-75x3.0FL	2.05.01.0090	44.0	47.0	50.8	115.5	88.9	109.0	OR69.57x1.78	1.97
	75x5.0	BO 3000-2 1/2-75x5.0FL	2.05.01.0091	44.0	47.0	50.8	115.5	88.9	109.0	OR63.22x1.78	1.99
3	75x3.0	BO 3000-3-75x3.0FL	2.05.01.0092	50.0	55.0	61.9	135.0	106.4	132.0	OR69.57x1.78	3.28
	75x5.0	BO 3000-3-75x5.0FL	2.05.01.0093	50.0	55.0	61.9	135.0	106.4	132.0	OR63.22x1.78	3.45
	90x3.5	BO 3000-3-90x3.5FL	2.05.01.0094	50.0	55.0	61.9	135.0	106.4	132.0	OR82.27x1.78	3.46
	90x5.0	BO 3000-3-90x5.0FL	2.05.01.0095	50.0	55.0	61.9	135.0	106.4	132.0	OR79x1.78	3.42
	90x9.0	BO 3000-3-90x9.0FL	2.05.01.0096	50.0	55.0	61.9	135.0	106.4	132.0	OR72.75x1.78	3.37
4	115x4.0	BO 3000-4-115x4.0FL	2.05.01.0097	35.0	38.0	77.8	162.0	130.2	152.0	OR114.02x1.78	5.19
	115x4.0	BO 3000-5-115x4.0FL	2.05.01.0098	45.0	48.0	92.1	184.0	152.4	181.0	OR114.02x1.78	4.97
5	125x4.0	BO 3000-5-125x4.0FL	2.05.01.0099	45.0	48.0	92.1	184.0	152.4	181.0	OR120.37x1.78	4.92
	139.7x4.0	BO 3000-5-139.7x4.0FL	2.05.01.0100	45.0	48.0	92.1	184.0	152.4	181.0	OR133.07x1.78	4.75

BO 6000...FL

6000 PSI / CODE 62

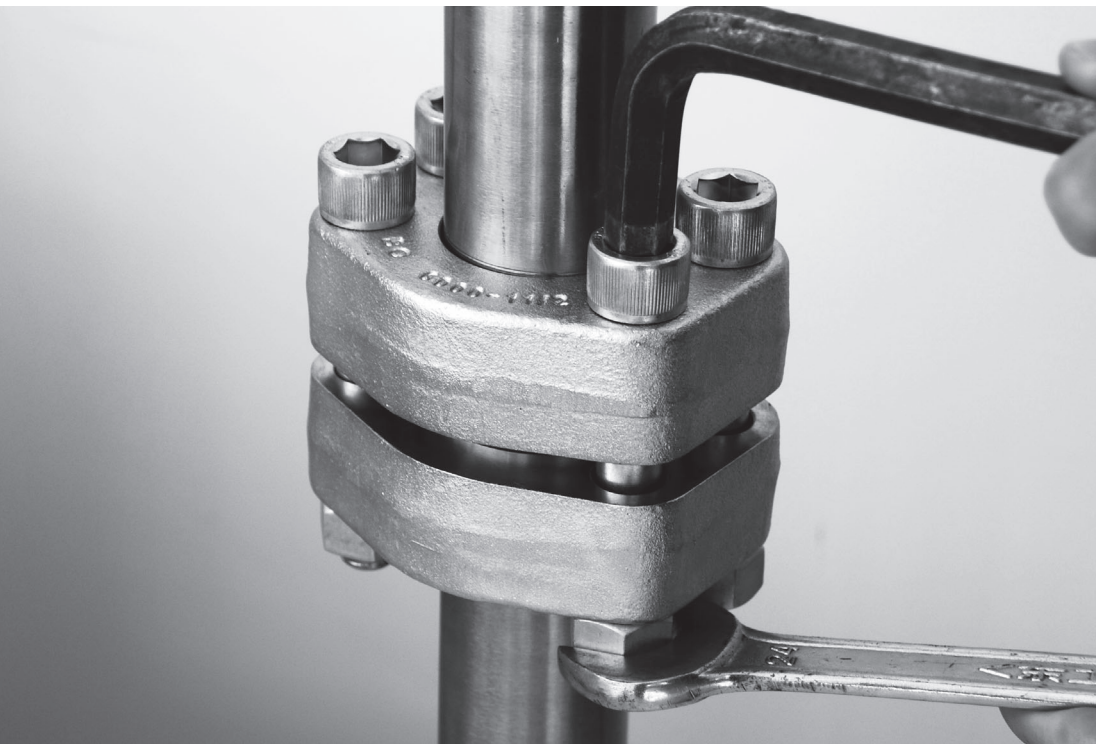
Flare flange Flat
 扩口法兰平面端



B

Order Example 订货示例			
Material 材质	Example 示例	Order Code 订货号	
Steel, zinc plated 碳钢, 镀锌	BO 6000-2-50x5.0FL	2.05.01.0299	
1.4404 不锈钢 316L	BO 6000-2-50x5.0FL-SU	2.05.03.0299	

Size 规格	Tube 钢管	Complete Flange Type 整套型号	Oder code 订货号	A	B	C	D	E	F	O-Ring1	Weight kg 重量
1/2	16x2.0	BO 6000-1/2-16x2.0FL	2.05.01.0273	20.0	23.0	18.2	54.0	40.5	46.0	OR12x1.0	0.27
	18x2.0	BO 6000-1/2-18x2.0FL	2.05.01.0274	20.0	23.0	18.2	54.0	40.5	46.0	OR14x1.0	0.27
	20x2.0	BO 6000-1/2-20x2.0FL	2.05.01.0275	20.0	23.0	18.2	54.0	40.5	46.0	OR14x1.0	0.26
	25x2.5	BO 6000-1/2-25x2.5FL	2.05.01.0276	20.0	23.0	18.2	54.0	40.5	46.0	OR20x1.0	0.26
	25x3.0	BO 6000-1/2-25x3.0FL	2.05.01.0277	20.0	23.0	18.2	54.0	40.5	46.0	OR23x1.0	0.24
3/4	20x2.0	BO 6000-3/4-20x2.0FL	2.05.01.0278	20.0	25.0	23.8	65.0	50.8	52.0	OR14x1.0	0.54
	20x2.5	BO 6000-3/4-20x2.5FL	2.05.01.0279	20.0	25.0	23.8	65.0	50.8	52.0	OR16x1.0	0.55
	25x2.5	BO 6000-3/4-25x2.5FL	2.05.01.0280	20.0	25.0	23.8	65.0	50.8	52.0	OR20x1.0	0.51
	25x3.0	BO 6000-3/4-25x3.0FL	2.05.01.0281	20.0	25.0	23.8	65.0	50.8	52.0	OR17x1.0	0.52
	30x3.0	BO 6000-3/4-30x3.0FL	2.05.01.0282	20.0	25.0	23.8	65.0	50.8	52.0	OR30x1.0	0.48
1	30x4.0	BO 6000-3/4-30x4.0FL	2.05.01.0283	20.0	25.0	23.8	65.0	50.8	52.0	OR28x1.0	0.51
	38x2.5	BO 6000-1-38x2.5FL	2.05.01.0284	24.0	27.0	27.8	81.0	57.2	70.0	OR34x1.0	0.65
	38x3.0	BO 6000-1-38x3.0FL	2.05.01.0285	24.0	27.0	27.8	81.0	57.2	70.0	OR34x1.0	0.64
	38x4.0	BO 6000-1-38x4.0FL	2.05.01.0286	24.0	27.0	27.8	81.0	57.2	70.0	OR30x1.0	0.64
1 1/4	38x5.0	BO 6000-1-38x5.0FL	2.05.01.0287	24.0	27.0	27.8	81.0	57.2	70.0	OR28x1.0	0.63
	38x3.0	BO 6000-1 1/4-38x3.0FL	2.05.01.0288	30.0	33.0	31.8	95.0	66.6	78.0	OR34x1.0	1.03
	38x4.0	BO 6000-1 1/4-38x4.0FL	2.05.01.0289	30.0	33.0	31.8	95.0	66.6	78.0	OR30x1.0	1.04
	38x5.0	BO 6000-1 1/4-38x5.0FL	2.05.01.0290	30.0	33.0	31.8	95.0	66.6	78.0	OR28x1.0	1.03
	42x3.0	BO 6000-1 1/4-42x3.0FL	2.05.01.0291	30.0	33.0	31.8	95.0	66.6	78.0	OR37.82x1.78	1.04
1 1/2	42x4.0	BO 6000-1 1/4-42x4.0FL	2.05.01.0292	30.0	33.0	31.8	95.0	66.6	78.0	OR34x1.0	1.03
	42x3.0	BO 6000-1 1/2-42x3.0FL	2.05.01.0293	35.0	39.0	36.5	112.0	79.3	95.0	OR37.82x1.78	1.75
	42x4.0	BO 6000-1 1/2-42x4.0FL	2.05.01.0294	35.0	39.0	36.5	112.0	79.3	95.0	OR34x1.0	1.75
	50x3.0	BO 6000-1 1/2-50x3.0FL	2.05.01.0295	35.0	39.0	36.5	112.0	79.3	95.0	OR44.17x1.78	1.76
	50x5.0	BO 6000-1 1/2-50x5.0FL	2.05.01.0296	35.0	39.0	36.5	112.0	79.3	95.0	OR41x1.78	1.75
2	50x6.0	BO 6000-1 1/2-50x6.0FL	2.05.01.0297	35.0	39.0	36.5	112.0	79.3	95.0	OR41x1.78	1.76
	50x3.0	BO 6000-2-50x3.0FL	2.05.01.0298	40.0	43.0	44.5	133.5	96.8	114.0	OR44.17x1.78	2.69
	50x5.0	BO 6000-2-50x5.0FL	2.05.01.0299	40.0	43.0	44.5	133.5	96.8	114.0	OR41x1.78	2.71
	50x6.0	BO 6000-2-50x6.0FL	2.05.01.0300	40.0	43.0	44.5	133.5	96.8	114.0	OR41x1.78	2.74
	60x3.0	BO 6000-2-60x3.0FL	2.05.01.0301	40.0	43.0	44.5	133.5	96.8	114.0	OR53.7x1.78	2.74
	60x5.0	BO 6000-2-60x5.0FL	2.05.01.0302	40.0	43.0	44.5	133.5	96.8	114.0	OR50.52x1.78	2.71
60x6.0	BO 6000-2-60x6.0FL	2.05.01.0303	40.0	43.0	44.5	133.5	96.8	114.0	OR47.37x1.78	2.70	



Installation
装配说明

37° flared flanges
37° 扩口法兰

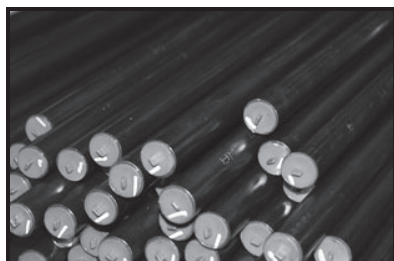
According to
符合

SAE J518 / ISO 6162
ISO 6164

- ◎ Tube selection
- ◎ Tube length determination
- ◎ Cut tube
- ◎ Proper deburring and cleaning
- ◎ Slide the flange onto the tube
- ◎ Flare the tube
- ◎ Check the flared tube
- ◎ O-ring is installed
- ◎ Fit insert cone
- ◎ Grease seal
- ◎ Tighten the bolts

- ◎ 选择管子
- ◎ 确定管子的长度
- ◎ 切割
- ◎ 去毛刺与清洁
- ◎ 预装法兰
- ◎ 给管子扩口
- ◎ 检查扩口管
- ◎ 安装密封圈
- ◎ 安装中间体
- ◎ 润滑密封件
- ◎ 拧紧螺栓

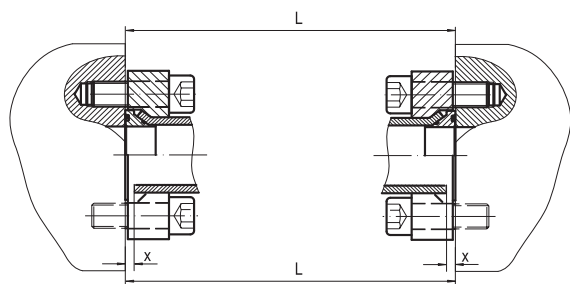
Tube selection
选择管子



A tube grade suitable for cold-bending and flaring is to be used. We recommend the use of seamless precision steel, material St 37.4/St 52.4/ANSI 316L. Tolerances of tube outside and inside deameter to DIN 2391C (EN 10305). Calculated pressure according to DIN 2413.

应使用适合冷弯和扩口的管子等级，建议使用无缝精密钢管，材料 St 37.4/St 52.4/ANSI 316L。管子外径和内径公差符合DIN 2391C (EN 10305)。计算压力符合DIN 2413。

Tube length determination
确定管子的长度



The tube length is determined by measuring the distance between the fittings (L). Dimension X must be subtracted for each tube connection.

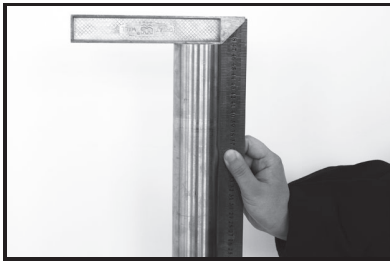
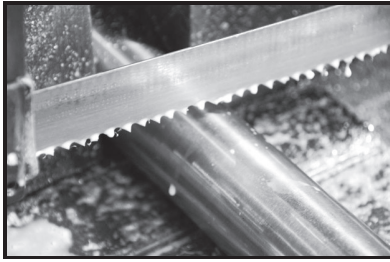
测量两个接头中间的距离 (L)，确定管子的长度。每处管子连接必须减去尺寸X。

Size	Tube	X
Inch	O.D.xW.T.	mm
规格	钢管	
1/2	16x2.0	10.0
	18x2.0	11.0
	20x2.0	9.0
	25x2.5	9.0
	25x3.0	9.0
3/4	20x2.0	12.0
	20x2.5	12.0
	25x2.5	9.0
	25x3.0	10.0
	30x3.0	9.0
1	30x4.0	9.0
	38x2.5	10.0
	38x3.0	10.0
	38x4.0	10.0
1	38x5.0	10.0

Size	Tube	X
Inch	O.D.xW.T.	mm
规格	钢管	
1 1/4	38x3.0	9.0
	38x4.0	9.0
	38x5.0	9.0
	42x3.0	11.0
	42x4.0	11.0
1 1/2	42x3.0	13.0
	42x4.0	13.0
	50x3.0	11.0
	50x5.0	11.0
	50x6.0	11.0
2	50x3.0	11.0
	50x5.0	11.0
	50x6.0	11.0
	60x3.0	11.0
	60x5.0	11.0
	60x6.0	11.0

Size	Tube	X
Inch	O.D.xW.T.	mm
规格	钢管	
2 1/2	60x3.0	12.0
	60x5.0	12.0
	60x6.0	12.0
	73x7.0	12.0
	75x3.0	13.0
3	75x5.0	13.0
	75x3.0	13.0
	75x5.0	16.0
4	90x3.5	14.0
	90x5.0	14.0
	90x9.0	14.0
5	115x4.0	15.0
	115x4.0	15.0
	125x4.0	15.0
5	140x4.5	16.0

Cut tube 切割管子



cut made by the tube manufacturer (delivery-related source of faults). Saw the tube off at right-angles, an angular deviation of $1/2^\circ$ relative to the tube axis is permissible. Do not use pipe cutters or cutting-off wheels as they cause severe burring and inclined cuts. Use a sawing machine/sawing device.

Important:

Form errors at the tube end, such as angular saw-cuts or inadequately deburred tubes, reduce the service life and the sealing capacity of the connection.

在管子制造商所做的分切处至少10mm处锯下（避免供货缺陷）。按直角锯下管子，相对于管子轴线允许有 $1/2^\circ$ 的角度偏差。请勿使用切管器或切割轮，因为会导致严重的毛刺和偏差。请使用锯机/锯具。

重要事项:

锯偏或去毛刺不当等管端形状错误会缩短连接的使用寿命和密封性能。

Proper deburring and cleaning 去毛刺与清洁



Deburr inside and out (max. $0,2 \times 45^\circ$) and clean (Depress the trigger to fire the projectile, shoot through at least 2 projectiles).

去除内外毛刺（最大 $0.2 \times 45^\circ$ ）并清洁。（使用射弹清洁枪，至少射击2枚清洁弹）。

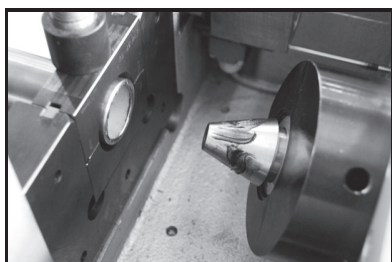
Slide the flange onto the tube 预装法兰



Slide the flange onto the tube. Also install sleeve if have.

将法兰安装到钢管上，如果有衬套也要安装到钢管上。

Flare the tube
给管子扩口



Lubricate flanging pin, then flare the tube end with the flaring machine. The flare must be at right angles to the tube axis and concentric with the tube. Irregular and eccentric flares point to defective tools or operating errors. Perfect flaring is the prerequisite to a long service life of the connection.

润滑扩口锥，然后使用扩口机进行扩口。扩口机必须与管子轴线成直角，与管子同心。扩口不规则和偏心是工具缺陷或操作失误造成的。扩口无缺陷是延长连接使用寿命的前提条件。

Check the flared tube
检查扩口管



Verify the dimensional accuracy of diameter D_a of the flared tube, and check for any impurities. Please refer to the tables for the respective dimensions.

检查扩口管直径 D_a 的尺寸精度，并检查有无杂质。有关尺寸，请参见表格。

Size	Tube	D_a
Inch	O.D.xW.T.	±1mm
规格	钢管	
1/2	16x2.0	21.0
	18x2.0	23.5
	20x2.0	26.0
	25x2.5	30.5
	25x3.0	30.5
3/4	20x2.0	26.0
	20x2.5	26.0
	25x2.5	30.5
	25x3.0	30.5
	30x3.0	36.5
1	30x4.0	36.5
	38x2.5	43.0
	38x3.0	43.0
	38x4.0	43.0
1	38x5.0	43.0

Size	Tube	D_a
Inch	O.D.xW.T.	±1mm
规格	钢管	
1 1/4	38x3.0	43.0
	38x4.0	43.0
	38x5.0	43.0
	42x3.0	48.0
	42x4.0	48.0
1 1/2	42x3.0	48.0
	42x4.0	48.0
	50x3.0	58.0
	50x5.0	58.0
	50x6.0	58.0
2	50x3.0	58.0
	50x5.0	58.0
	50x6.0	58.0
	60x3.0	68.0
2	60x5.0	68.0
	60x6.0	68.0

Size	Tube	D_a
Inch	O.D.xW.T.	±1mm
规格	钢管	
2 1/2	60x3.0	68.0
	60x5.0	68.0
	60x6.0	68.0
	73x7.0	82.0
	75x3.0	83.0
3	75x5.0	83.0
	75x3.0	83.0
	75x5.0	83.0
3	90x3.5	100.0
	90x5.0	100.0
	90x9.0	103.0
4	115x4.0	125.0
	115x4.0	125.0
5	125x4.0	130.0
	140x4.5	148.0

O-ring is installed
安装密封圈



The lubricated O-ring is installed carefully into its groove. The metallic seal faces of the cone are inspected and also the O-ring is checked so that no damage has occurred during installation.

将润滑后的O型圈安装到中间体的锥面上。仔细检查O型圈的位置，避免在安装中间体过程中发生损坏。

Fit insert cone
安装中间体



The insert cone is hammered in with plastic hammer (if needed).

用橡胶锤安装中间体（如果需要）。

B

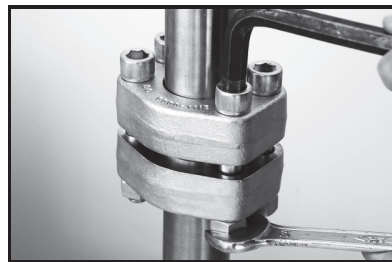
Grease seal
润滑密封件



The dowty seal is greased before installation.

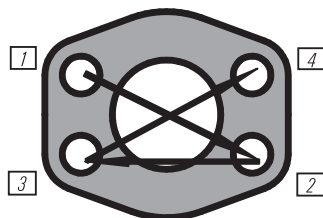
安装前润滑密封件。

Tighten the bolts
拧紧螺栓



The bolts (nuts) must be tightened according to torque (see below). Path-based tightening is not permissible! Tighten the screws in cross-over fashion (1-2-3-4) and in several torque steps until the maximum torque is reached!

必须用规定的扭矩（见下表）拧紧螺栓（螺母）。不允许顺次拧紧！应以交叉方式（1-2-3-4）分几步拧紧螺栓，直到达到最大扭矩。



Flang Size 法兰规格	bolt 螺栓	Torque 扭矩	Flang Size 法兰规格	bolt 螺栓	Torque 扭矩	Flang Size 法兰规格	bolt 螺栓	Torque 扭矩
3000 PSI		Nm	6000 PSI		Nm	ISO 6164		Nm
1/2"	M8	20	1/2"	M8	20	2"	M16	200
3/4"	M10	28	3/4"	M10	34	2.1/2"	M20	280
1"	M10	45	1"	M12	75	3"	M24	460
1.1/4"	M10	50	1.1/4"	M14	120			
1.1/2"	M12	75	1.1/2"	M16	180			
2"	M12	75	2"	M20	230			
2.1/2"	M12	110						
3"	M16	190						
4"	M16	90						
5"	M16	130						