



Hygienic
Piping Material



TOSTE sanitary fittings. One step ahead of competitors

ISO clamp fitting



Tee



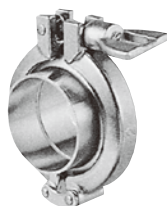
Cross



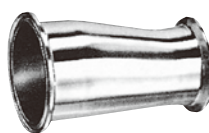
45° elbow



90° elbow

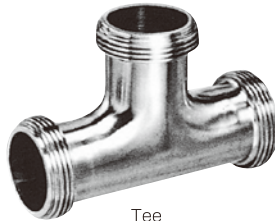


Clamp union



Reducer

ISO union fitting



Tee



Cross



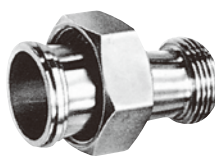
45° elbow



90° elbow

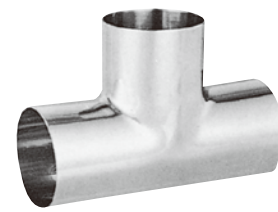


Union

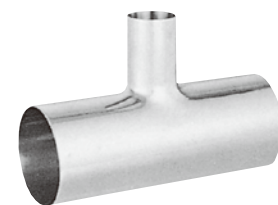


Eccentric reducer

Fitting for welding of sanitary piping (O.D.) Fitting for welding of general piping (I.P.S.)



Tee



Different-diameter Tee



45° elbow



90° elbow



U-bend



Reducer

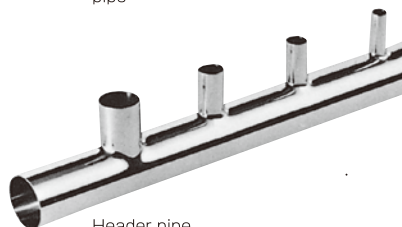
Flange, pipe, header pipe, pipe hanger, tool



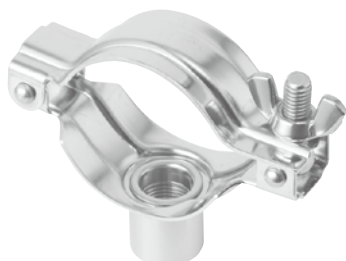
Flange



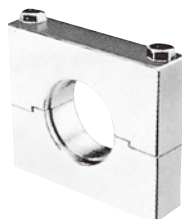
pipe



Header pipe



Pipe hanger



Expanding tool



Our products have been developed based on experience and knowhow accumulated over a long time in stainless steel manufacturing field and by close team work among technical members who have thoroughly mastered the characteristics of stainless steel and using high efficient production facilities. Furthermore, products have been produced according to strict US and European manufacturing standards such as ISO standards, 3A standards, etc.

Manufacturable range

SUS-304 (or equivalent)

SUS-316L (or equivalent)

Products made of other grade of steel can be produced as special products.

Production standard

Internal finish	#400 or equivalent polished finish Pickling finish Electropolitic and polished combined finish #400 or equivalent polished + electropolished finish
External finish	#320 to #400 or equivalent polished finish #180 Hairline finish Pickling finish Beads shot blast
Dimensional tolerance	Face to face dimension : $\pm 1.5\text{mm}$ Angular tolerance : $\pm 0.5^\circ$

► Producible range

In addition to standard products conforming to ISO standards, we can provide prefabricated piping units according to specifications and designs requested by customers or based on drawings with special specifications.

► Ordering

○ Inform us of material, product name, size, finish, and quantity.
If it is necessary to specify the finish roughness in particular, indicate related standards or show the finish roughness of internal and external by submitting test pieces.

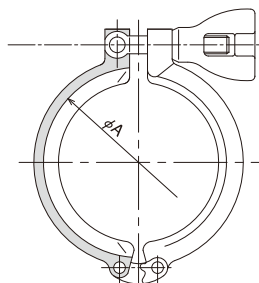
○ For further details, refer to type symbol description on Page 18.

Piping fitting (clamp)

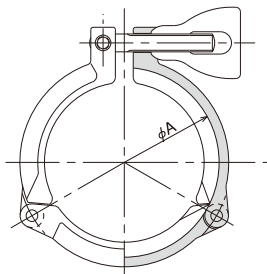
► CLAMP BANDS

13MHM-LW

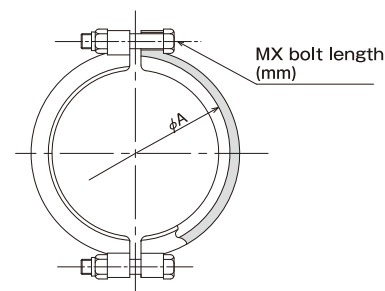
- Clamp band (manual tightening)

**13MHM-3LW**

- 3P clamp band (manual tightening)

**13MVHM-LW**

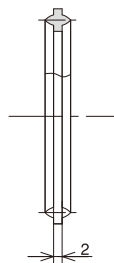
- Separated-type clamp band



► GASKET

40MP

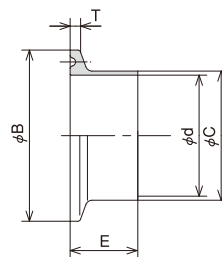
- Gasket



► FERRULE

L14AMD

- Ferrule for welding



Material					Dimensions (mm)							
EPDM Ethylene propylene rubber	VMQ(Si) Silicon rubber	FKM Fluororubber	PTFE ※1 Fluororesin	SIZE	φ A	φ B	φ C		φ d	E ※2	T	M
							L14AMD L14LMD	14MDW				
EP-85	Si	FKM	PTFE	8A	37	34	13.8	—	10.5	17.3	2.85	M6×35
				10A	37	34	17.3	—	14.0	17.3	2.85	M6×35
				15A	37	34	21.7	—	18.4	17.3	2.85	M6×35
1				56	50.5	25.4	29.5	23.0	20.5	2.85	M8×35	
1½				56	50.5	38.1	42.6	35.7	20.5	2.85	M8×35	
2				69.5	64	50.8	55.7	47.8	20.5	2.85	M8×35	
2½				83	77.5	63.5	68.8	59.5	20.5	2.85	M8×45	
3				96.5	91	76.3	81.9	72.3	20.5	2.85	M8×45	
3½				111.5	106	89.1	—	85.1	20.5	2.85	M8×45	
4				124.5	119	101.6	108.1	97.6	20.5	2.85	M8×45	
4½				134	130	114.3	—	108.3	27	2.85	M8×45	
—		SE-72		—	5	159	155	139.8	—	133.8	27	5.6
6	187				183	165.2	—	159.2	27	5.6	M10×55	

※1: When using PTFE packing, use the separated-type clamp band (13MVHM-LW).

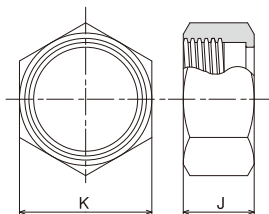
※2: For 4S size only, E dimension of 27.1 (CD-1) is also available.

Piping fitting (union)

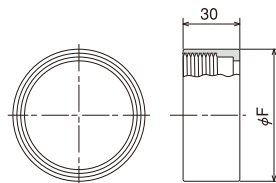
► NUT

H-NUT

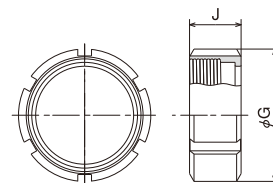
- Hexagonal nut

**R-NUT**

- Round nut

**R-NUT(S)**

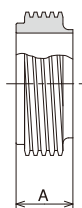
- Round nut with groove



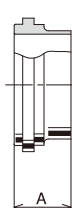
► FERRULES

W-MALE

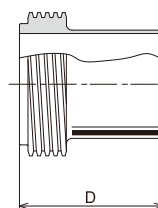
- Threaded sleeve for welding

**W-LINER**

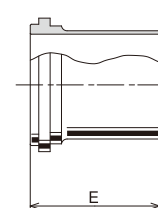
- Sleeve for welding

**LW-MALE**

- Threaded sleeve for welding (long)

**LW-LINER**

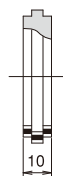
- Sleeve for welding (long)



► FERRULES

BL-PLAIN

- Blind seat

**E-MALE**

- Threaded sleeve for expanding

**E-LINER**

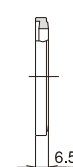
- Sleeve for expanding



► GASKET

L-GASKET

- L-shaped gasket



Material				Dimensions										(mm)
EPDM Ethylene propylene rubber	VMQ(Si) Silicon rubber	FKM Fluororubber	PTFE ※1 Fluororesin	SIZE	A	B	C	D	E	K	J	ϕF	ϕG	
PL-90	Si	AF-150	PTFE	1	20.5	17	17	51	46	46	30	44.4	48	
				1 1/2	20.5	19.5	20	51	46	56 (61)	30	57.1	64	
				2	20.5	19.5	20	51	46	76	30	69.8	77	
				2 1/2	20.5	25	25	51	46	91 (85)	30	85.7	91	
				3	20.5	30	30	51	46	106.5 (100)	30	101.6	106	
				4	27.1	—	—	56	49	130	38	—	138	

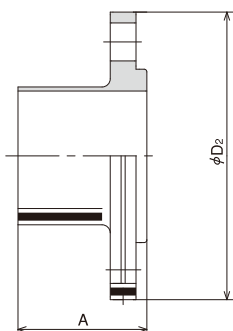
● For hexagonal nuts, parts having dimensions in parenthesis are also available.

Piping fitting (flange, clamp and metal touch)

► SANITARY FLANGE

SF-F (L)

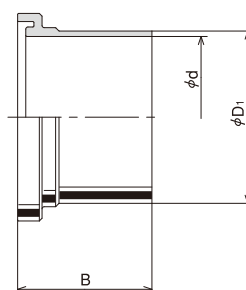
● Mounting flange

**SF-G**

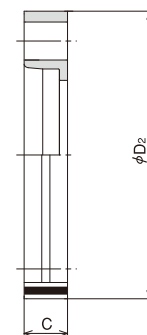
● Gasket

**SF-L (L)**

● Lap joint

**SF-LSF**

● Loose flange



Material				Dimensions (mm)							
EPDM Ethylene propylene rubber	VMQ(Si) Silicon rubber	FKM Fluororubber	PTFE+Elastomer Fluororesin lining	SIZE	A	B	C	φD ₁	φD ₂	φd	BOLT No./SIZE
E-81	SE-72	F8	TLX	1	48	48	16	25.4	80	23.0	4—M12×40L
				1 1/2	48	48	16	38.1	94	35.7	4—M12×40L
				2	48	48	16	50.8	106	47.8	4—M12×40L
				2 1/2	50	50	18	63.5	119	59.5	6—M12×45L
				3	50	50	18	76.3	132	72.3	6—M12×45L
			TLX	3 1/2	50	50	19	89.1	146	85.1	6—M12×45L
				4	50	50	19	101.6	159	97.6	6—M12×45L
				4 1/2	70	70	21	114.3	174	108.3	8—M12×50L
				5	70	70	21	139.8	200	133.8	8—M12×50L
				6	70	70	21	165.2	225	159.2	8—M12×50L

► CLAMP-METAL TOUCH

13MHM-3LW

● 3P clamp band (manual tightening)

13MVHM-LW

● Separated-type clamp band

L14ASPA

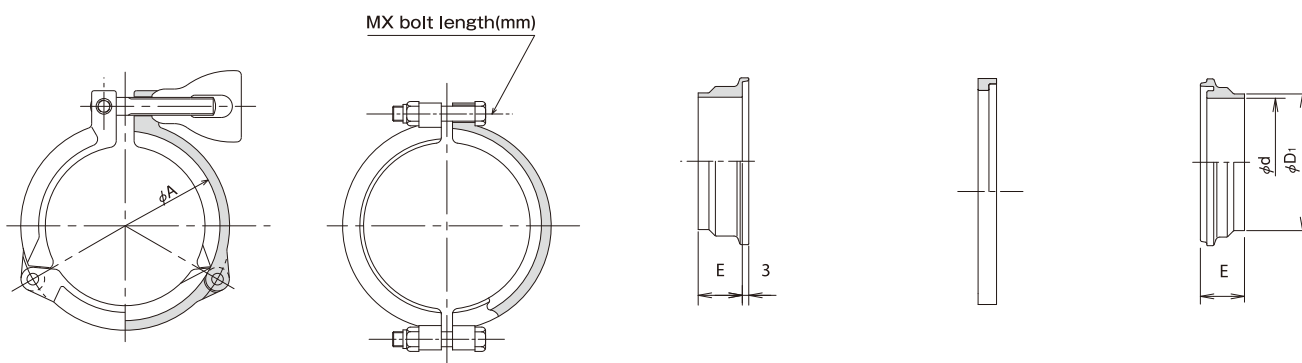
● Metal-touch coupling A

SF-G

● Gasket

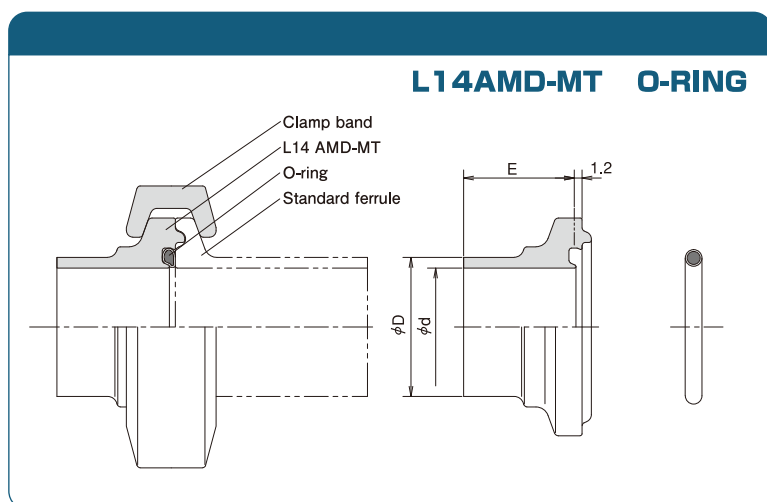
L14ASPB

● Metal-touch coupling B



Material				Dimensions (mm)						
EPDM Ethylene propylene rubber	VMQ(Si) Silicon rubber	FKM Fluororubber	PTFE+Elastomer Fluororesin lining	SIZE	PIPE O.D.	φA	φD ₁	φd	BOLT No./SIZE	E
E-81	SE-72	F8	TLX	1	25.4	56	25.4	23.0	2—M8×35L	20.5
				1 1/2	38.1	56	38.1	35.7	2—M8×35L	20.5
				2	50.8	69.5	50.8	47.8	2—M8×35L	20.5
				2 1/2	63.5	83	63.5	59.5	2—M8×45L	20.5
				3	76.3	96.5	76.3	72.3	2—M8×45L	20.5
			TLX	3 1/2	89.1	111.5	89.1	85.1	2—M8×45L	—
				4	101.6	124.5	101.6	97.6	2—M8×45L	27.1

Clamp metal-touch fitting (compatible with standard ferrules, O-ring type)

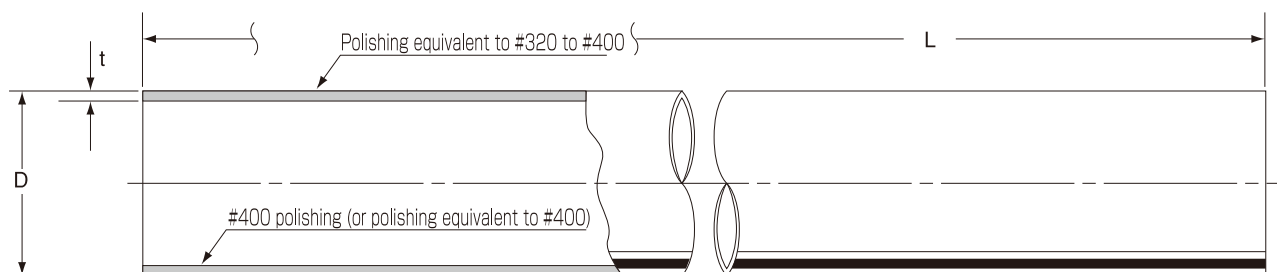


Material		Dimensions (mm)		
	SIZE	φD	φd	E
● NK ring				
PFA/V	8A	13.8	10.5	17.3
Teflon (PFA) -coated	10A	17.3	14.0	17.3
Core rubber, viton	15A	21.7	18.4	17.3
● EPDM	1	25.4	23.0	20.5
● FKM	1 1/2	38.1	35.7	20.5
● Si	2	50.8	47.8	20.5

Sanitary pipes

- Sanitary pipes are divided into the following 5 types based on finish roughness: Pickling, internal/external finish, only internal finish, only external finish, and internal electropolitic finish.
- Standard products whose pipe length is 4m are stocked; however, 6m-long products can be produced as requested.
- For polishing of pipe inside, the vertical polishing method along the conventional flow of fluids and the electropolitic method combining electrolytic and mechanical polishing are employed.
- In the pipe inside, the pipe end is finished to the same surface roughness as the central part.
- The pipe thickness will not be significantly deviated or thinned by polishing.
- Pipes with ferrules can be manufactured and sold in consideration of simplified site work, much more sanitary piping and economical characteristics.

► SANITARY PIPE



*Length of the standard product is 4000mm. (6000mm product can be manufactured as a special order product.)

► Sanitary pipe size

SIZE		8A	10A	15A	1S	1½S	2S	2½S	3S	3½S	4S	4½S	5S	6S
D		13.8	17.3	21.7	25.4	38.1	50.8	63.5	76.3	89.1	101.6	114.3	139.8	165.2
t		1.65	1.65	1.65	1.2	1.2	1.5	2.0	2.0	2.0	2.0	3.0	3.0	3.0
Weight	Kg/4M	2.0	2.57	3.3	2.89	4.4	7.36	12.2	14.8	17.4	19.8	33.3	40.8	48.4

Weight shows values for SUS304.

► Internal polishing application table

SIZE	8A	10A	15A	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Vertical polishing	○	○	○	○	○	○	○	○	○	○	○	○	○
Electrolytic cleanal polishing				○	○	○	○	○	○	○			
6M (vertical polishing)					○	○	○	○	○	○			

Fitting for welding

Fitting for sanitary piping (O.D.) size welding

This welding fitting is manufactured for sanitary butt-welding piping.

► ELBOWS

D-1

● 90° short elbow for welding

T-1

● Long elbow for welding

E-1

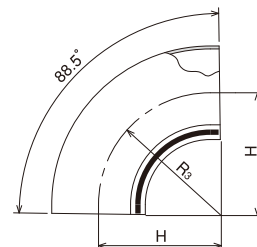
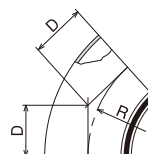
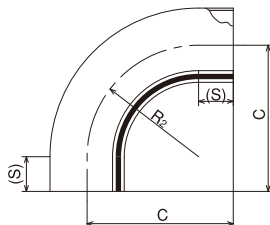
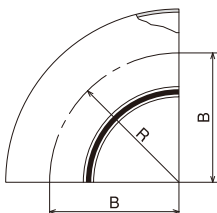
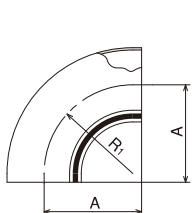
● Long elbow for welding with 90° straight pipe

T-5

● 45° long elbow for welding

D-1 (88.5°)

● Elbow for gradient piping



* Only elbows made of SUS304 material are manufactured.

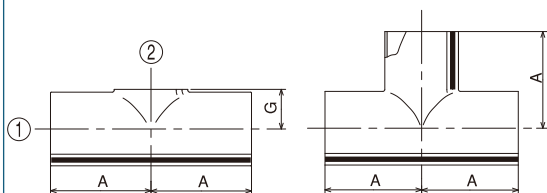
► TEE

T-8

● Tee for welding (low neck)

D-8

● Tee for welding



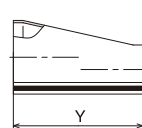
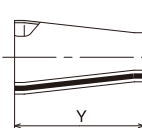
► REDUCERS

T-13

● Concentric reducer

T-14

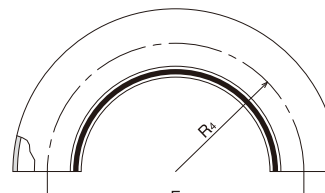
● Eccentric reducer



► U-BEND

180° BEND

● 180° bend for welding



① \ ②	G (mm)											
	8A	10A	15A	1	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5
8A	7.5											
10A	9.1	9.1										
15A	12	12	12									
1	14.2	14.2	14.2	14								
1 1/2	21.3	21.3	21.3	20.5	20.5							
2	28.1	28.1	28.9	28.5	29.6	28.5						
2 1/2	35.5	35.5	35.5	35	35	36	35					
3	42.5	42.5	43.1	42.2	42.9	42.9	42.9	42.2				
3 1/2				49.5	49.5	49.5	49.5	48.5				
4	55.3	55.3	56.2	55.2	55.2	55.2	55.2	55.2	54.7			
4 1/2				61.9	61.9	61.9	61.9	62.9	62.9	63.9		
5				75.6	75.6	75.6	75.6	75.6	75.6	77	75.6	
6				87.5	87.5	87.5	89	89	89	90.9	90	89

SIZE	A	G	B,R	C	D	H,R3	R1	R2	S	E	R4
8A	38.1	7.5	(38.1)	—	15.8	38.1	38.1	—	—	—	—
10A	38.1	9.1	(38.1)	—	15.8	38.1	38.1	—	—	—	—
15A	38.1	12.0	(38.1)	—	15.8	38.1	38.1	—	—	—	—
1	35	14.0	38.1	55	15.8	33.0	33.0	1.5D ※	15 ※	—	—
1 1/2	50	20.5	57.2	75	23.8	45.5	45.5	1.5D ※	15 ※	114.4	57.2
2	62	28.5	76.2	95	31.6	57.5	57.7	1.5D ※	15 ※	152.4	76.2
2 1/2	85	35.0	101.6	110	42.0	75.0	75.0	1.5D ※	15 ※	190.6	95.3
3	90	42.2	127	130	52.6	75.0	75.0	1.5D ※	15 ※	254	127
3 1/2	100 ※	48.5	—	150	72.0 ※	—	76.2	1.5D ※	15 ※	—	—
4	133.4	54.7	177.8	170	73.6	133.4	133.4	1.5D ※	15 ※	254	127
4 1/2	120 ※	63.9	—	190	90.0 ※	—	101.6	1.5D ※	15 ※	—	—
5	145 ※	75.6	—	225	102.0 ※	—	127.0	1.5D ※	15 ※	—	—
6	170 ※	85.0	—	—	120.0 ※	—	152.4	1.5D ※	15 ※	—	—

SIZE	Y (mm)
10A×8A	14
15A×8A	24
15A×10A	19
1×8A	38
1×10A	38
1×15A	38
1 1/2×8A	38
1 1/2×10A	38
1 1/2×15A	38
1 1/2×1	67
2×1	67
2×1 1/2	67
2 1/2×1	67
2 1/2×1 1/2	67
2 1/2×2	67
3×1	67
3×1 1/2	67
3×2	67
3×2 1/2	67
3 1/2×2	90
3 1/2×2 1/2	90
3 1/2×3	90
4×1 1/2	102
4×2	120
4×2 1/2	120
4×3	102
4×3 1/2	120
4 1/2×4	130
5×4	160

● Couplings marked with * are equipped with a straight pipe.

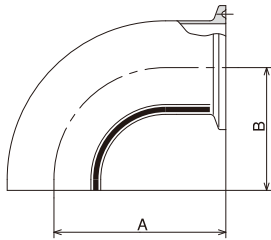
● An elbow for gradient piping with 91.5° can be also manufactured.

ISO clamp fitting single weld type

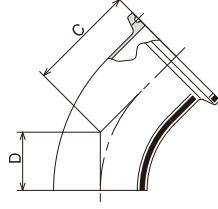
► ELBOWS

L2CMD

● 90° sweep elbow

**L2KMD**

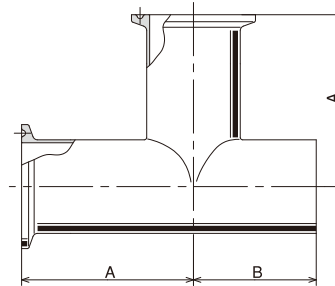
● 45° sweep elbow



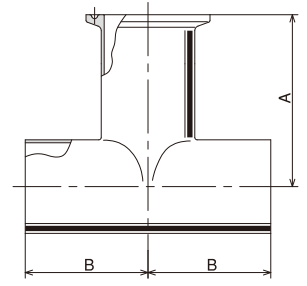
► TEE

L7MWMD

● Sweep tee

**L7WWMD**

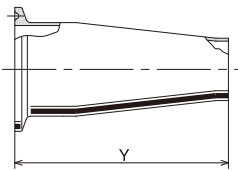
● Sweep tee



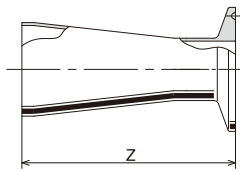
► REDUCERS

L31MD

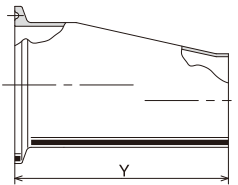
● Sweep concentric reducer

**L31WMD**

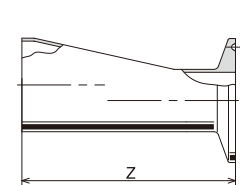
● Sweep concentric reducer

**L32MD**

● Sweep eccentric reducer

**L32WMD**

● Sweep eccentric reducer



(mm)

SIZE	A	B	C	D
8A	55	38.1	33	15.8
10A	55	38.1	33	15.8
15A	55	38.1	33	15.8
1	55	35	36	15.8
1½	70	50	44	23.8
2	82	62	51.5	31.6
2½	105	85	62	42
3	110	90	72.5	52.6
3½	120	100	92.5	72
4	160	133.4	100.6	73.6
4½	180	120	132	90
5	200	145	164	102
6	220	170	182	120

● Different-diameter/low-neck tees can also be manufactured.

(mm)

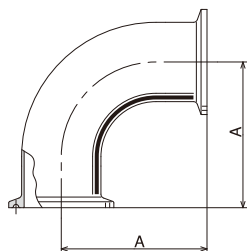
SIZE	Y	Z
10A×8A	30.8	30.8
15A×8A	40.8	40.8
15A×10A	35.8	35.8
1×8A	58	55
1×10A	58	55
1×15A	58	55
1½×8A	58	55
1½×10A	58	55
1½×15A	58	55
1½×1	87	87
2×1	87	87
2×1½	87	87
2½×1	87	87
2½×1½	87	87
2½×2	87	87
3×1	87	87
3×1½	87	87
3×2	87	87
3×2½	87	87
3½×2	110	110
3½×2½	110	110
3½×3	110	110
4×1½	129	122
4×2	147	140
4×2½	147	140
4×3	129	122
4×3½	147	140
4½×4	156.5	156.5
5×4	186.5	186.5

ISO clamp fitting single weld type

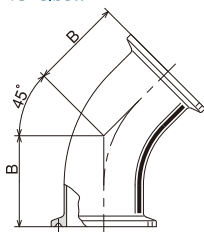
► ELBOWS

2CMD

● 90° elbow

**2KMD**

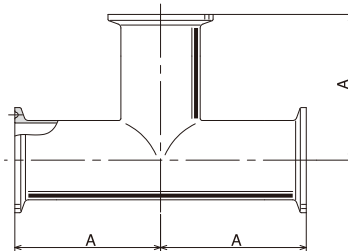
● 45° elbow



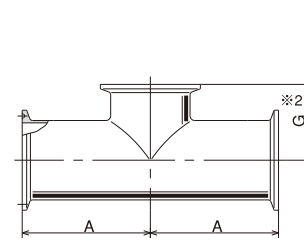
► TEE

7MD

● Tee

**7MD(S)※2**

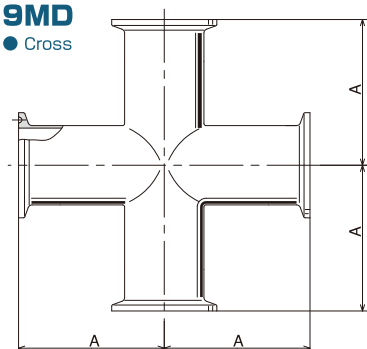
● Low-neck tee



► CROSS

9MD

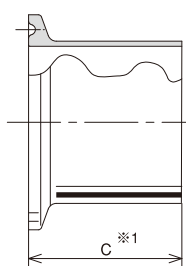
● Cross



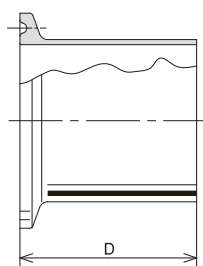
► FERRULES

L14AMD(CD-1)※1

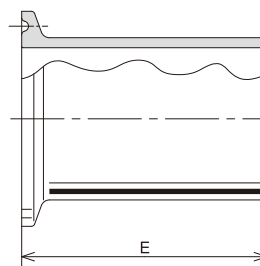
● Ferrule for welding

**L14LMD**

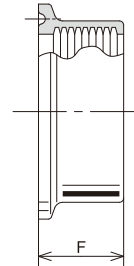
● Ferrule for welding (long)

**14MDW**

● Ferrule for welding to tank

**14RMD**

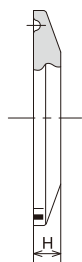
● Ferrule for expanding



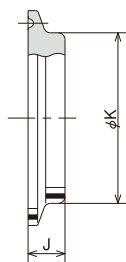
► CAP

16AMD

● Blind cap

**16AMD(11)**

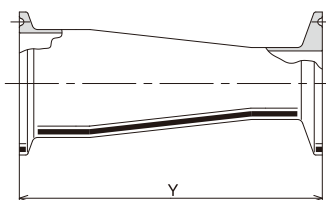
● Blind cap (thick plate type)



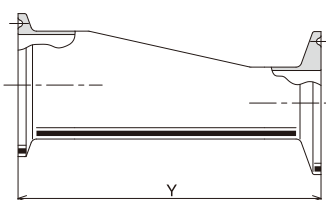
► REDUCERS

31-14MD

● Concentric reducer

**32-14MD**

● Eccentric reducer



SIZE	A	B	C ※1	D	E	F	G ※2	H	J	K
8A	55	33	17.3	42	—	—	24.3	5	11	21.7
10A	55	33	17.3	42	—	—	25.9	5	11	21.7
15A	55	33	17.3	42	—	—	28.8	5	11	21.7
1	55	36	20.5	42	41.3	20	34.0	6.4	11	38.1
1 1/2	70	44	20.5	42	41.3	20	40.5	6.4	11	38.1
2	82	51.5	20.5	42	44.5	20	48.5	6.4	11	50.8
2 1/2	105	62	20.5	42	44.5	25	55.5	6.4	11	63.5
3	110	72.5	20.5	42	46	30	62.2	6.4	11	76.3
3 1/2	120	92.5	20.5	42	—	—	68.5	6.4	11	89.1
4	160	100.6	20.5	42	54	34	81.3	7.9	11	101.6
4 1/2	180	132	27	62	—	—	90.4	7.9	11	114.3
5	200	164	27	62	—	—	102.1	10	—	—
6	220	182	27	62	—	—	—	10	—	—

*1: For 4S size only, C dimension of 27.1 (CD-1) is also available.

*2: In the case of different-diameter tees, dimension G varies depending on each size.

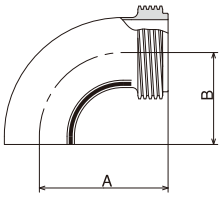
SIZE	Y
10A×8A	48
15A×8A	58
15A×10A	53
1×8A	75
1×10A	75
1×15A	75
1 1/2×8A	75
1 1/2×10A	75
1 1/2×15A	75
1 1/2×1	107
2×1	107
2×1 1/2	107
2 1/2×1	107
2 1/2×1 1/2	107
2 1/2×2	107
3×1	107
3×1 1/2	107
3×2	107
3×2 1/2	107
3 1/2×2	130
3 1/2×2 1/2	130
3 1/2×3	130
4×1 1/2	149
4×2	167
4×2 1/2	167
4×3	149
4×3 1/2	167
4 1/2×4	184
5×4	214

ISO union fitting single welded type

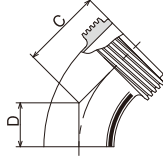
► ELBOWS

M-W90°EL

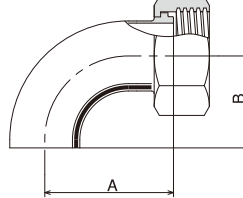
● 90° sweep elbow

**M-W45°EL**

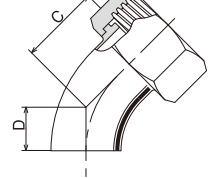
● 45° sweep elbow

**N-W90°EL**

● 90° sweep elbow

**N-W45°EL**

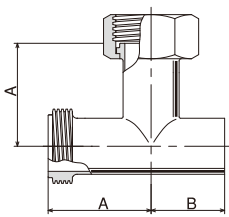
● 45° sweep elbow



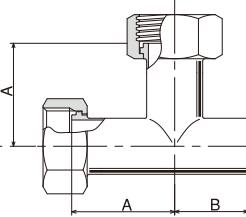
► TEE

MWN-TEE

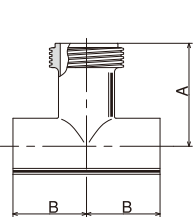
● Sweep tee

**NWN-TEE**

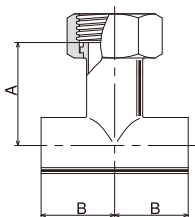
● Sweep tee

**WWM-TEE**

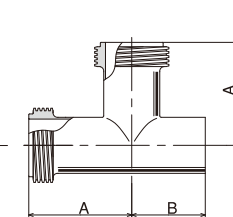
● Sweep tee

**WWN-TEE**

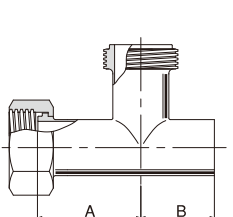
● Sweep tee

**MWM-TEE**

● Sweep tee

**NWM-TEE**

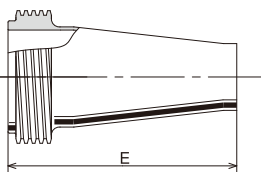
● Sweep tee



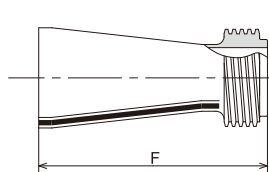
► REDUCERS

MW-C•RDCR

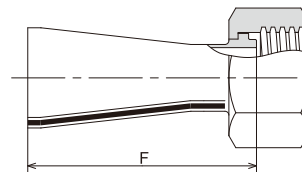
● Sweep concentric reducer

**WM-C•RDCR**

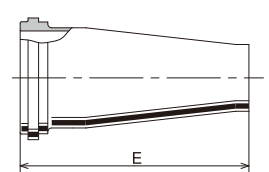
● Sweep concentric reducer

**WN-C•RDCR**

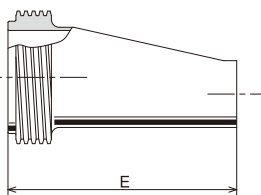
● Sweep concentric reducer

**LW-C•RDCR**

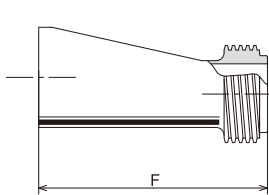
● Sweep concentric reducer

**MW-E•RDCR**

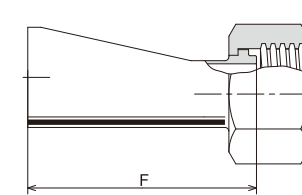
● Sweep eccentric reducer

**WM-E•RDCR**

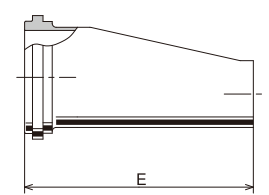
● Sweep eccentric reducer

**WN-E•RDCR**

● Sweep eccentric reducer

**LW-E•RDCR**

● Sweep eccentric reducer



(mm)

SIZE	A	B	C	D
1	55	35	36	15.8
1½	70	50	44	23.8
2	82	62	51.5	31.6
2½	105	85	62	42
3	110	90	72.5	52.6
4	160	133.4	100.6	73.6

● Different-diameter/low-neck tees can also be manufactured.

(mm)

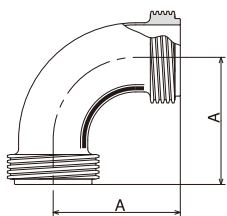
SIZE	E	F
1½×1	87	87
2×1	87	87
2×1½	87	87
2½×1	87	87
2½×1½	87	87
2½×2	87	87
3×1	87	87
3×1½	87	87
3×2	87	87
3×2½	87	87
4×1½	129	122
4×2	147	140
4×2½	147	140
4×3	129	122

ISO union fitting

► ELBOWS

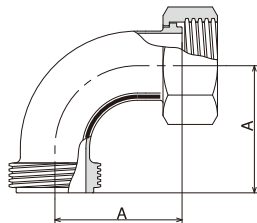
90° EL

- 90° elbow



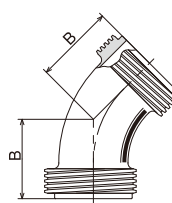
1N-90° EL

- 90° elbow with 1 nut



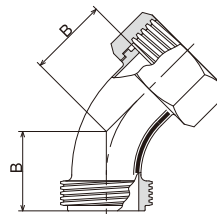
45° EL

- 45° elbow



1N-45° EL

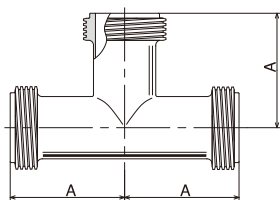
- 45° elbow with 1 nut



► TEE

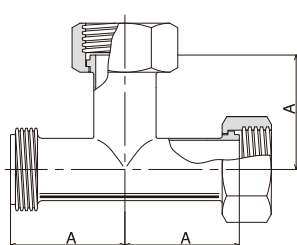
TEE

- Tee



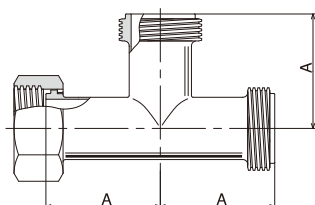
2N-TEE

- Tee with 2 nuts



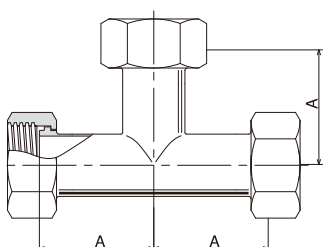
1N-TEE

- Tee with 1 nut



3N-TEE

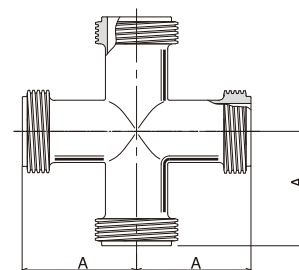
- Tee with 3 nuts



► CROSS

CROSS

- Cross



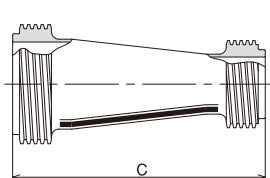
(mm)

SIZE	A	B
1	55	36
1 1/2	70	44
2	82	51.5
2 1/2	105	62
3	110	72.5
4	160	100.6

► REDUCERS

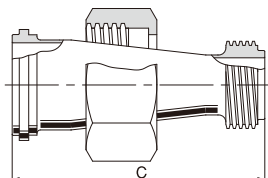
M-C•RDCR

- Concentric reducer



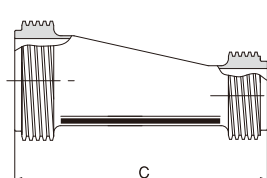
1N-C•RDCR

- Concentric reducer with 1 nut



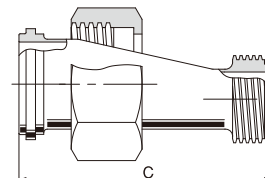
M-E•RDCR

- Eccentric reducer



1N-E•RDCR

- Eccentric reducer with 1 nut



(mm)

SIZE	C
1 1/2 x 1	107
2 x 1	107
2 x 1 1/2	107
2 1/2 x 1	107
2 1/2 x 1 1/2	107
2 1/2 x 2	107
3 x 1	107

(mm)

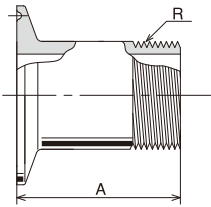
SIZE	C
3 x 1 1/2	107
3 x 2	107
3 x 2 1/2	107
4 x 1 1/2	149
4 x 2	167
4 x 2 1/2	167
4 x 3	149

Adaptor

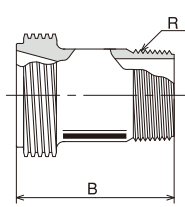
► ADAPTER

21MD

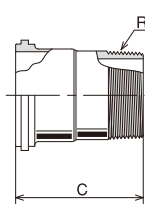
- Adaptor with screw for pipe

**21S**

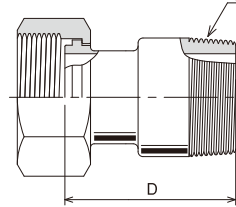
- Adaptor with screw for pipe

**L-21S**

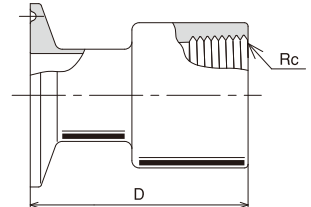
- Adaptor with screw for pipe

**1N-21S**

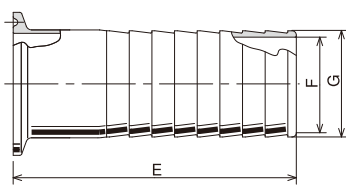
- Adaptor with screw for pipe

**22MD**

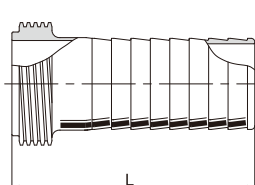
- Adaptor with internal screw for pipe

**14MDHR**

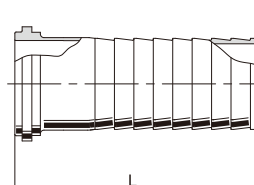
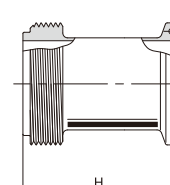
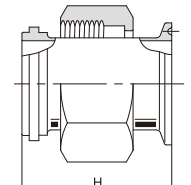
- Hose mouthpiece

**M-RHAD**

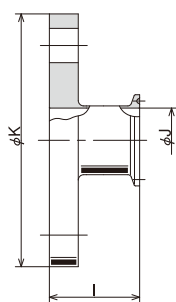
- Screw-type hose mouthpiece

**L-RHAD**

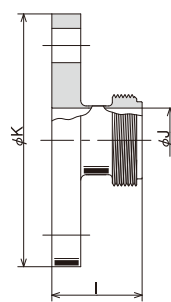
- Hose mouthpiece

**17MD-15****17MD-14****F-ADAPTER**

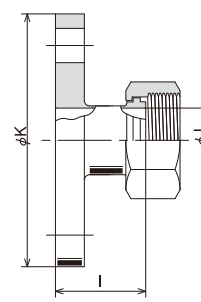
- Flange adaptor

**F-ADAPTER**

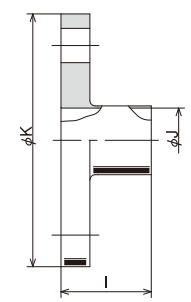
- Flange adaptor

**F-ADAPTER**

- Flange adaptor

**F-ADAPTER**

- Flange adaptor



(mm)

SIZE	A	B	C	D	I	J	K
8A×8A	35	—	—	—	—	—	—
10A×10A	35	—	—	—	—	—	—
15A×15A	35	—	—	—	—	—	—
1×10A	60	60	60	—	—	—	—
1×15A	60	60	60	—	—	—	—
1×20A	60	60	60	—	50	23.0	100
1×25A	60	60	—	60	50	23.0	125
1½×15A	65	65	65	—	—	—	—
1½×20A	65	65	65	—	—	—	—
1½×25A	65	65	65	—	—	—	—
1½×32A	65	65	65	—	50	35.7	135
1½×40A	65	65	—	65	50	35.7	140
2×20A	70	70	70	—	—	—	—
2×25A	70	70	70	—	—	—	—
2×32A	70	70	70	—	—	—	—
2×40A	70	70	70	—	50	47.8	140
2×50A	70	70	—	70	50	47.8	155
2½×50A	85	85	85	—	50	59.5	155
2½×65A	85	85	—	85	50	59.5	175
3×65A	—	—	—	—	50	72.3	175
3×80A	90	90	—	90	50	72.3	185
4×100A	—	—	—	—	60	97.6	210

(mm)

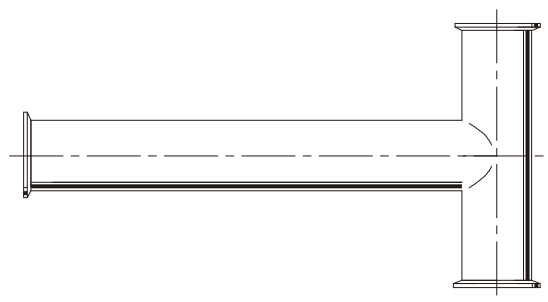
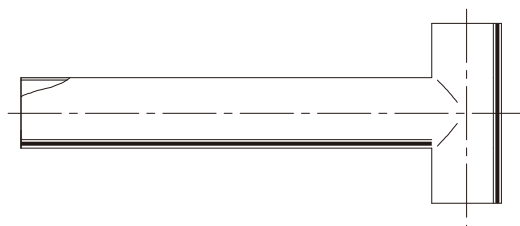
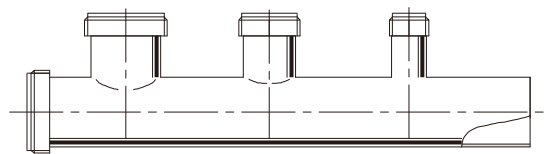
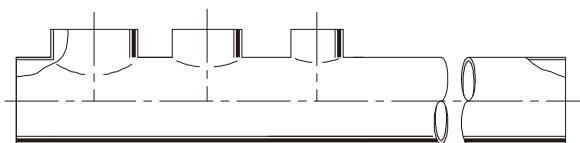
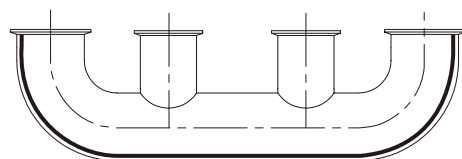
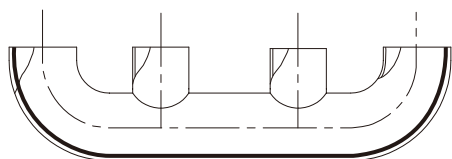
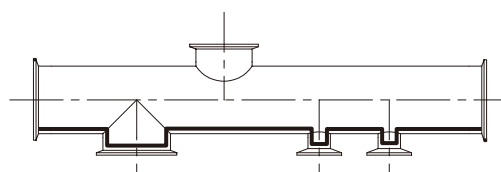
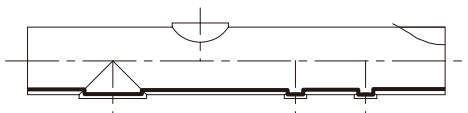
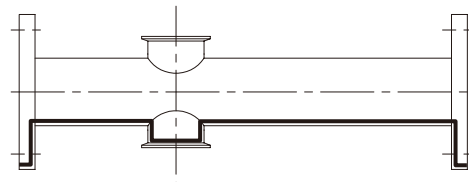
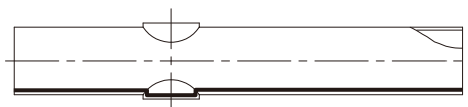
SIZE	E	F	G	H	L
8A	60	10.5	13.8	—	—
10A	60	14	17.3	—	—
15A	60	18.4	21.7	—	—
1	100	21.8	25	62	100
1½	100	33	37.5	62	100
2	100	46	50	62	100
2½	100	58.7	62.5	62	100
3	150	71.8	75.1	62	150
4	150	97	100.5	69	150

● For flange adaptors, JIS 10K is provided as standard; however, JIS5K type can also be manufactured. Overall lengths that meet your desired length can be manufactured.

Prefabricated pipe

► Pipe (example)

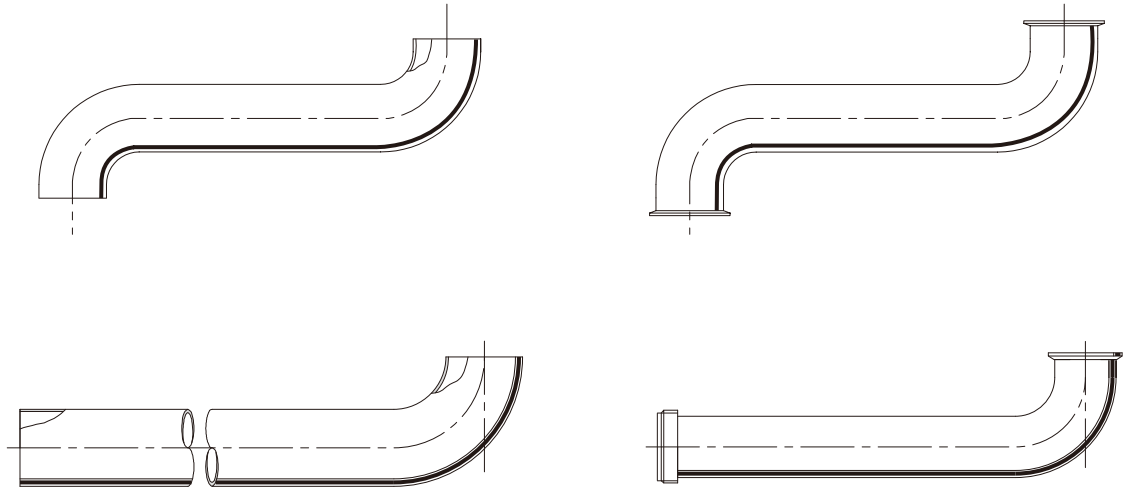
We can offer prefabricated pipes according to your ordered specifications. Inform us of the dimensions, coupling, material and surface finish.



Prefabricated pipe

► Pipe (example)

We can offer prefabricated pipes according to your ordered specifications. Inform us of the dimensions, coupling, material and surface finish.



Tools

► Hexagonal spanner

SPANNER

● This spanner is a high-strength cast-aluminum product.



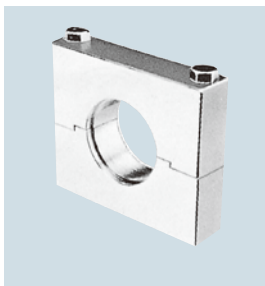
SIZE	Spanner application width	Overall length	Standard
1	46	245	○
1 1/2	56	295	○
	61	310	
2	76	305	○
2 1/2	91	385	○
	85	380	
3	107	435	○
	100	430	
4	130	510	

(mm)

► Expander blocks

BLOCK

● This block is made of S45C carbon steel for mechanical structure.



► Expander

EXPANDER

● For expander installation

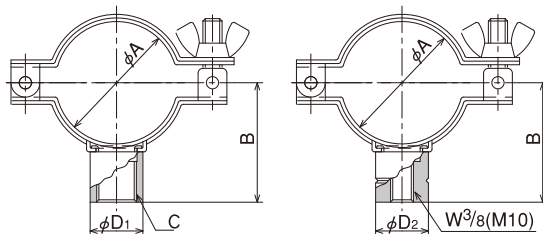
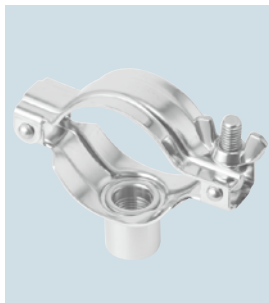


Piping accessories

► Pipe hanger

P-HANGER(S)

- This pipe hanger is press-manufactured using SUS-304-based stainless steel plate. This is a manual tightening type.



Attach thread R to the stand pipe.
It is also possible to weld it to
the stand pipe directly.

W 3/8
(M10 type can be also
manufactured.)

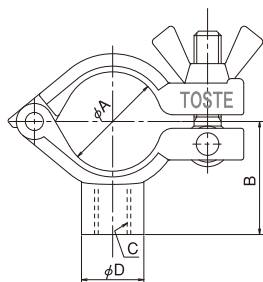
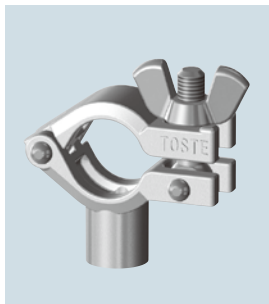
SIZE	φ A	B	C	φ D1	φ D2
1	25.5	37.5	G 3/8	21.7	22
1 1/2	38.5	43	G 3/8		
2	51	49.8	G 3/8		
2 1/2	64	56.4	G 3/8	25.4	25
3	77	67	G 1/2		
4	102	80.6	G 1/2		

(mm)

► Small-bore pipe hanger

P-HANGER(S)

- This small-bore pipe hanger is made by lost-wax casting of SCS-13.



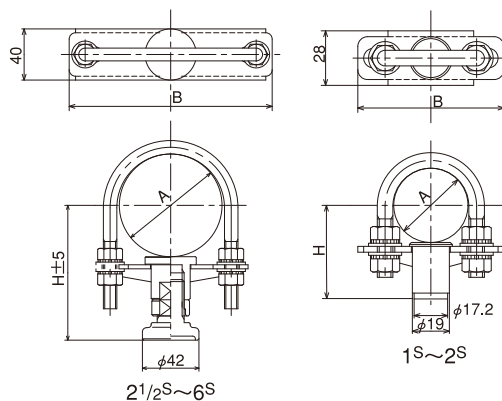
SIZE	φ A	B	C	φ D
8A	14.0	25	M8	13.8
10A	17.5	25	M8	13.8
15A	22.0	25	M8	13.8

(mm)

► Pipe support/U bolt

P-SUPPORT-UB

- This pipe support can be used for level adjustment (2 1/2s to 6s). Furthermore, it can be set in any direction through 360 degrees. These parts are made of SUS304.



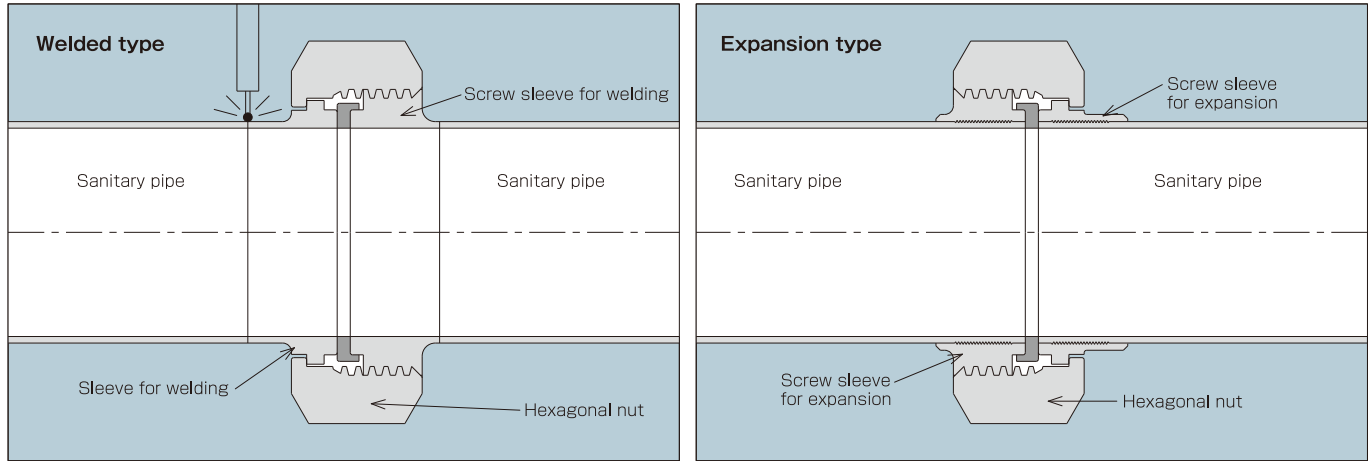
SIZE	φ A	B	H
1	25.4	54	41.7
1 1/2	38.1	75	48.1
2	50.8	75	54.4
2 1/2	63.5	115	93.8
3	76.3	115	100.2
3 1/2	89.1	155	106.6
4	101.6	155	112.8
4 1/2	114.3	155	119.2
5	139.8	220	131.9
6	165.2	220	144.6

(mm)

Technical material

► Piping type

This fitting is a piping type consisting of a hexagon nut, screw sleeve and sleeve using an Acme thread type union.

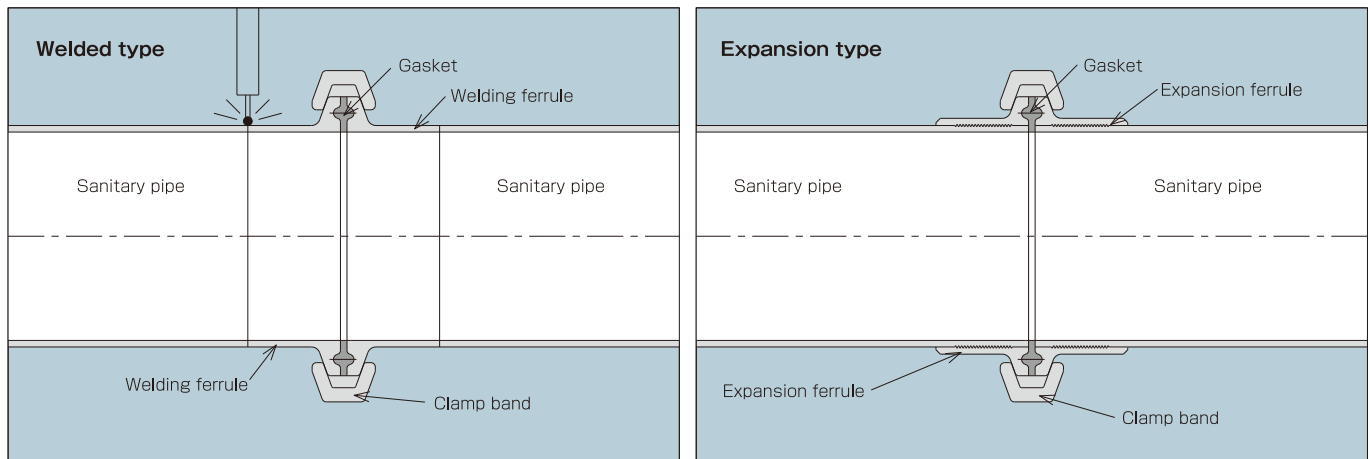


Features

- Tighten this product using a special spanner.
- The seat surface is bilaterally symmetric and convex.
- Two types are available: Welded type and expansion type.
- Use this fitting at usage pressures of 1 MPa or less.
- The expansion type is suitable for low-pressure simple piping.

► Piping type

This fitting is a piping type consisting of a ferrule, clamp band, and gasket using a clamp-type union.



Features

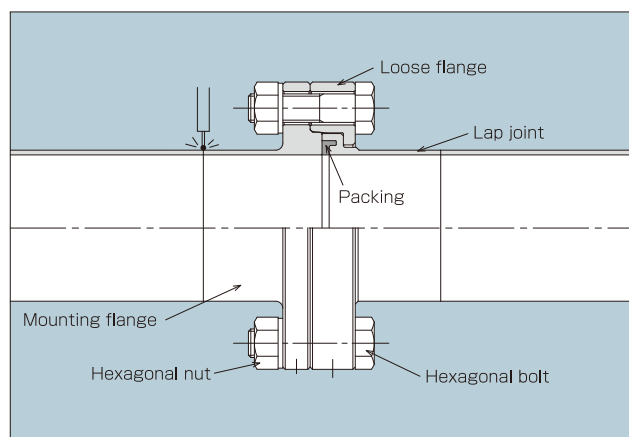
- Since this fitting is a manual-tightening type, it is unnecessary to use a spanner. *1
- It is easy to detach and attach piping.
- The shape of the union is bilaterally symmetric. Therefore, the required number of fittings can be reduced, which allows you to maintain and repair piping easily.
- Two types are available: Welded type and expansion type.
- Use this fitting at usage pressures of 1 MPa or less.
- The expansion type is suitable for low-pressure simple piping.

*1 The separated-type clamp band requires a 13mm spanner.

Technical material

► Flange piping type

This fitting is a union consisting of a mounting flange, lap joint, loose flange and packing for welding piping using a flange-type union.

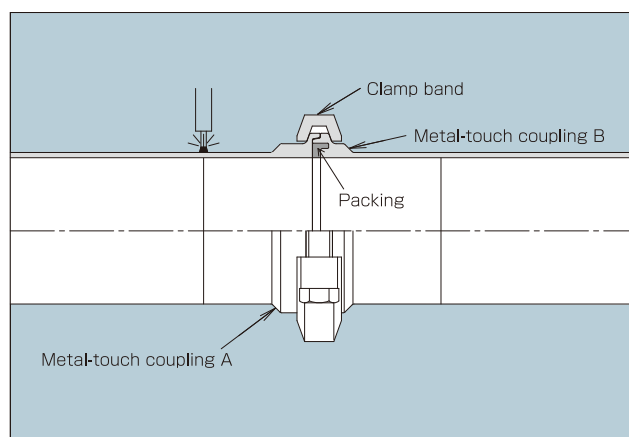


Features

- Does not produce liquid pools at the seat surface.
- Both the mounting flange and loose flange have a centering structure, which prevents the piping from being misaligned.
- Use this fitting at usage pressures of 1.5MPa or less.
- The sanitary packing has been developed specifically for high-pressure use.
- Loose flange type makes installation and attachment/removal of piping easy.
- Packings made of silicon, EPDM, FKM and Teflon are used.

► Clamp piping type

This fitting is a coupling with excellent sanitairiness in which spigot joint type A and B ferrules are secured with clamp bands.



Features

- Does not produce liquid pools at the packing surface.
- Both ferrule A and B have a centering structure, which prevents piping from being misaligned.
- Use this fitting at usage pressures of 0.7MPa or less.
- The same sanitary packings as for the flange type can be used. Select from silicon, EPDM, FKM and Teflon-lined packing.
- Since this coupling is connected using clamp bands, use extra caution regarding piping work accuracy and support before and after the installation position.

► Gasket selection standard

Ethylene propylene rubber (material highly resistant to alkali and steam)

- **PL-90/EP-85** High-hardness L-GASKET and 8A to 15A size 40MP material capable of packing with a large tightening force. Color: Black
- **EPDM** Low-hardness 1s to 4s size 40MP material. Color: White
- **E-81** Material having low compression-triggered permanent distortion or black leaching phenomenon. Color: Black

Silicon rubber (bland and innocuous material having little extraction for drugs and foods)

- **SI** Material for gasket. Color: White
- **Si** 8A to 4.5s size 40MP material. Semi-transparent
- **SE72** High-strength 5s and 6s size 40MP material. Color: Gray

Fluororubber (material highly resistant to acid)

- **F8** SF-G material with excellent impact resilience. Color: Black
- **FKM** FKM: 40MP material. Color: Black

Fluororesin products (material with excellent resistance to heat, acid, alkali, and solvents)

- **TFE** Material made of fluororesin (PTFE solid). Color: White
- **TLE, TLX** TLE is a material whose base material EPDM is given a fluororesin (PTFE) film lining to have elasticity and resistance to liquids. TLX is a material whose base material silicon rubber is given a fluororesin (PTFE) film lining to have elasticity and resistance to liquids.
- **PFA/V** Viton rubber O-rings protected with Teflon (PFA).

Reference

* All materials conform to the Food Sanitation Law.

* For fluororesin products, tighten them additionally as needed.

Sanitary fitting type symbol table

Name	JIS material classification	Finish classification	Pipe end classification	Size classification	Product name/type
Symbol	3 0 4 · 3 1 6 L	0 P · 1 P · 2 P	M · C · W	× ×	
	①	②	③	④	⑤

① Material classification (main body)

Category	Symbol	Material
Standard	304	SUS304
Option	316-L	SUS316L
Special	—	—

② Finish classification

Category	Symbol	Finish	
		Internal finish	External finish
Standard	0P	Pickling	Pickling or beads shot blast
	1P	#400 or equivalent polished finish	Pickling or beads shot blast
	2P	#400 or equivalent polished finish	#180 Hairline finish #320 to #400 or equivalent polished finish
Option	ODP	Pickling	#180 Hairline finish #320 buff polished finish
	EP(1P)	Electrolytic polishing finish	Pickling or beads shot blast
	EP(2P)	Electrolytic polishing finish	#180 Hairline finish #320 buff polished finish
	XP	Special	Special

③ Pipe end classification

Category	Symbol	Details
Standard	M	ISO male on both ends
	C	ISO clamp on both ends
Option	W	Weld
	N	ISO nut
	L	ISO liner
	T	Sanitary flange
	R	Sanitary loose flange + lap joint
	10F	JIS 10K flange
	5F	JIS 5K flange

④ Size classification

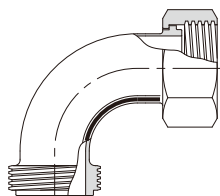
Sanitary size			Chemical size	
Symbol	Details (O.D. outside diameter)		Symbol	Details (O.D. outside diameter)
02	8A	13.8	2A	8A 13.8
03	10A	17.3	3A	10A 17.3
04	15A	21.7	4A	15A 21.7
10	1S	25.4	06	20A 27.2
13	1 1/4S	31.8	1B	25A 34.0
15	1 1/2S	38.1	12	32A 42.7
20	2S	50.8	14	40A 48.6
25	2 1/2S	63.5	2B	50A 60.5
30	3S	76.3	24	65A 76.3
35	3 1/2S	89.1	3B	80A 89.1
40	4S	101.6	34	90A 101.6
45	4 1/2S	114.3	4B	100A 114.3
50	5S	139.8	5B	125A 139.8
60	6S	165.2	6B	150A 165.2

⑤ Specific type symbol

(Ex)

×	Product name/type
×	1 N - 9 0 ° E L

Symbol → **1N-90°EL**
● 90° elbow with 1 nut



Note

- ③ * For reducers, enter values for the larger bore side first
* For tees, enter values in the order of main pipe left, main pipe right and branch pipe.
- ④ * For reducers, enter values for the larger bore side first
* For tees, enter values in the order of main pipe size and branch pipe.



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