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<http://www.csee.com.tw>

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強淞企業股份有限公司

CSE. CHIANG SUNG ENTERPRISE CO., LTD.

2019.05 print



The logo that you can trust

**HYGIENIC FLUID CONTROL VALVE,  
FITTING, EQUIPMENT**

For: Food, Pharmaceutical, Semi-conductor Industry.



**Worldwide service:**

**New York | India | Thailand | China | Xiamen | Guangzhou**



QA:0410091424



BPE-122

**CSE Applied Material**

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19-64 **Auto Control Valve & Manual Control Valve**

65-99 **Sanitary Components, Fitting**

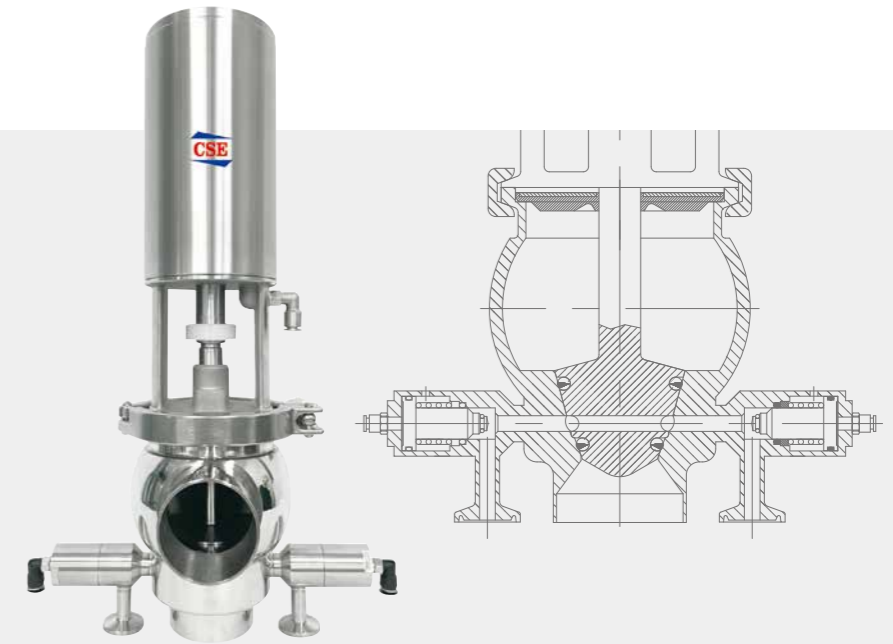
100-122 **3A. SMS. DIN. BS. AS Tube Line. Elbow / Tee / Reducer**

123-146 **BPE, Pharmaceutical Fitting / Semi-conductor Fitting**

147-154 **Semi-conductor Fitty Tube**

# Index

CSE Products with Technology, Purity, Service  
and keep going under control and stable quality



## Forward

CSE Chiang Sung Enterprise Co., Ltd. is a Taiwan-based corporation with professional dedication in the manufacture and exporting of sanitary, pharmaceutical, and vacuum fittings business. CSE was founded twenty-five years ago. Up until now CSE own 3 production sites respectively in Taiwan, China, and Thailand. Our sales offices have expanded to USA, Netherlands, and France besides Asia. Mr. Roger Shi is the great wizard behind the curtain who started from stone and sand since 1993. No matter in technology, quality or even new product, CSE is one of the best. It is the fact that working side by side with suppliers, partners or even competition, CSE will be leading the way and discovering new territory in the purity hygiene business.

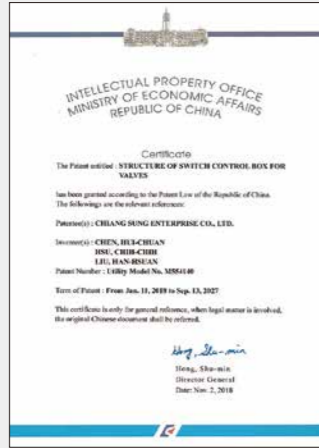
For decades, CSE enjoy a good reputation among highly numerous customers who believe in CSE's 100% dedication on new product research, modification of old types and even cases of OEM and ODM.

With that, we surf from food grade to pharmaceutical world and to the field of semi-conductor business. During this long time, thanks to every valuable customer, CSE could walk across the thunder storm and regardless of the terrible world economy, make it to sales record year after year.

**CSE's of consistent management, rigorous quality guarantee, and intact responsibility**



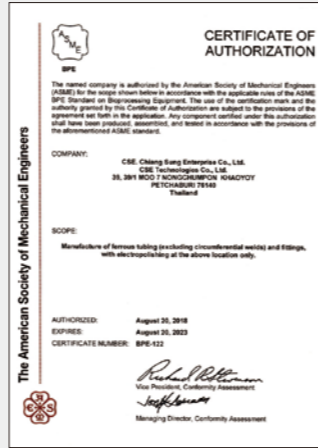
CSE Company Certificate by TUV



Patent For Control Box Of Actuator



Actuator CML 16ATEXT382



BPE-122



3A NO.58-01 Check Valve



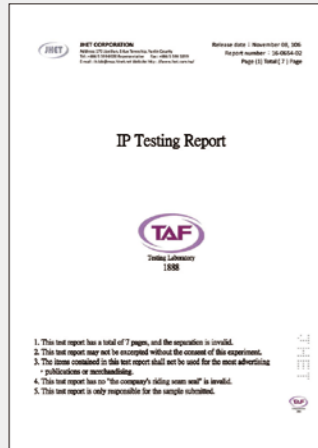
3A NO.65-01 Sight Glass



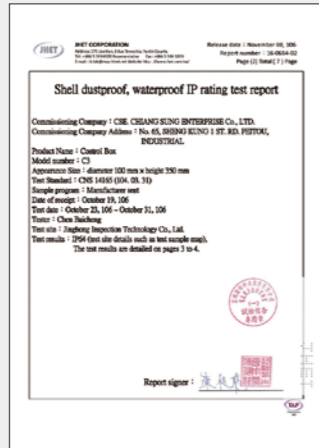
3A NO.63-03 Sanitary Fittings



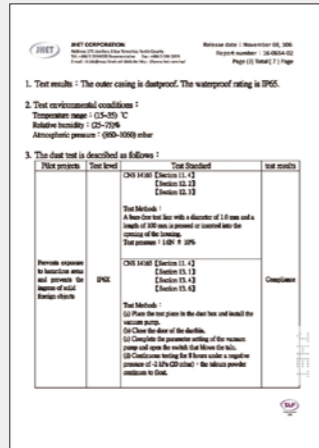
3A NO.33-02 Metal Tubing



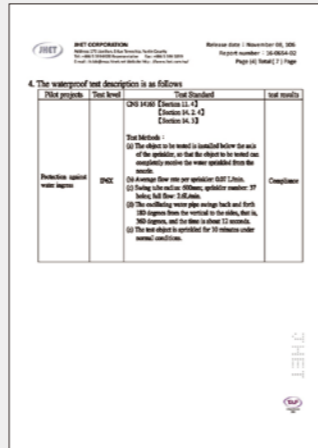
IP Test report of C3 control box



IP Test report of C3 control box



IP Test report of C3 control box



IP Test report of C3 control box



3A NO.54-02 Diaphragm Valve



3A NO.68-00 Ball Valve



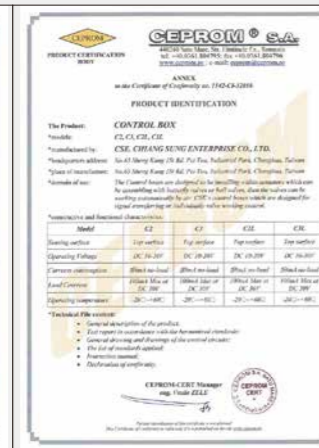
3A NO.53-06 Compression Valve



Product Liability Insurance



Control Box CE: No.1142-CI-32016/CSE-2016001-A1



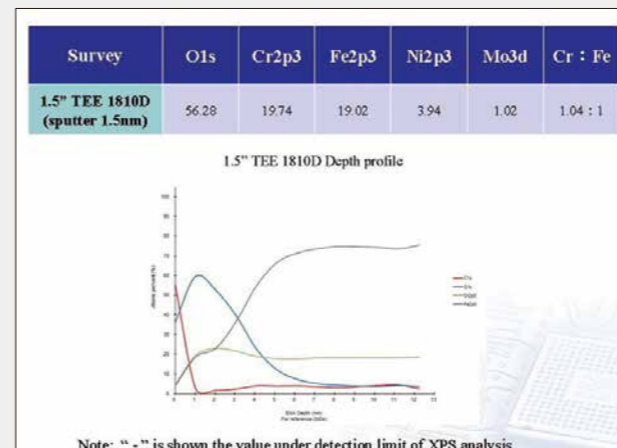
Control Box CE: No.1142-CI-32016/CSE-2016001-A1



ISO certificate



ISO certificate



**C.S.E. is certified by 3A and TÜV ISO 9001 with EN10204 3.1 material cert. will be your assurance of outstanding quality & service.**

## CSE Group

Taiwan / CSE Head Office



Office / Factory

Thailand



Office:  
Bangkok

Factory

China



Sale Office:  
Shanghai

Factory:  
Xiamen

Section	R&D Dept./ Sales Dept. / Financial Dept. Production Dept.	Sales Dept.	Production Dept.	Sales Dept.	Production Dept.
Employee	110 Peoples	15 Peoples	370 Peoples	20 Peoples	300 Peoples
Area	13,000m <sup>2</sup> - Build- 6,000m <sup>2</sup>	600 m <sup>2</sup>	65000 m <sup>2</sup>	1500 m <sup>2</sup>	35000 m <sup>2</sup>
Certificate of Quality	TUV ISO 9001 : 2000 / 3A/BPE/PED	TUV ISO 9001 : 2000 / 3A/BPE/PED		TUV ISO 9001 : 2000 / 3A/BPE/PED	
Main Products	Actuator / Control Valve / Butterfly Valve Sight Glass / Check Valve / BPE Valve	3A / SMS / DIN / BS / BPE Pipe Tube / Elbow / Tee / Cross / Reducer		Clamp / Ferrule / Forged / Unions 3A / DIN / SMS / BS / RJT / IDF / Fitting	
Facilities	CNC MachineX36 / CNC MillingX6 / Clean roomX1	Tube line X3, BendX 20 sets, E/P X 6 line Tube PolX10 ,Polishing Machine- over 100 sets.		Hot Forged X5 Line / Lost Wax Cast X60Tons / PressX20 / CNC Machine X110/ CNC MillingX6....	
Capacity	Butterfly , Check Valve - 15,000pcs/M. Control Valve, Actuator -2,000 pcs/M.	vacumm , BPE, 3A, SMS, DIN, BS ,AS... Long, Short Elbow, Tee, Reducer... 200,000pcs/Month, Tube- 60,000Ms/M.		Clamp-120,000pcs/M. Forged Ferrule- 80,000pcs/M. Total:Forged/cast Unions - Nut, Male, Liner -300,000pcs/M.	



MAJOR EQUIPMENT

- Ultrasonic Cleaning System
- Precision CNC Lathes
- CNC Milling Centers
- Hydraulic & Air Test Equipment & Leaking Test Machines
- Weld-Equipment



Business Service & Production Control



CNC Milling Center



QC



CNC Machining Section



Actuator for Butterfly Valve



Check Valve / Sight Glass



CSE OEM Valve / Tank Valve



Innovative Control Valve Range



Filter



CSE Technical, Orbital Weld Service & Valve Units.



CSE Width Range Butterfly Valve





## MAJOR EQUIPMENT

- Precision CNC Lathe Machines
- Specialized Machines
- Hydraulic & Air Test Equipment
- Leaking Test Machines
- Auto Bending Machines
- Tee Forming Machines
- Tube OD / ID Auto Polishers
- Polishing Machines
- Precision Press Machines
- Ultrasonic Cleaning System
- Hydraulic Equipment



Clean room



BPE EP Processing & Inspection



OD/ID Polishing Lines



Quality Guarantee



Long Bend Equipment / Packing Lines



Bright Annealing



Tube Fabrication



Range of Pipe Fittings



MAJOR EQUIPMENT

- Ultrasonic Cleaning System
- Precision Lathe Machines
- Precision CNC Lathes
- Plastic Injection Machines
- Milling Machines
- Press Machines
- Hydraulic Machines



SMS & DIN Fitting



BS, AS, RJT, CIP & IDF Fittings



Clamp & Ferrule



Fitting Stock



Lost Wax Casting



CNC Machining Processing



Roughness Test



Forging Lines

Manual Divert Valve



Auto Control Divert Valve



Pneumatic / Manual Diaphragm Valve / Tank Valve



Manual Ball Valve



Pneumatic / Position Control



Actuator for Butterfly Valve



Control Box



Plug Cock Valve



CSE Tank Valve  
Pneumatic / Manual



Sight Glass



Check Valve





CSE Manual for Butterfly Valve



OEM Pneumatic / Manual Valve



Clamp Unions / Seal / Tubing Hanger



Unions 3A, DIN, SMS, RJT, BS, AS...../ Seal



Spray Ball / Tank Covers



Pressure Gauge / Temperature / Filter



Sample Valve



Industrial Ball Valve



Unions 3A, DIN, SMS, RJT, BS, AS...../ Seal



Spectrum Analysis Machine



Orbital Welding



## Specialized Technology

Manifold Tubing



Technical, Orbital Weld Services & Valve Units



### Hose Adapter / Flexibles Hose



### Tube Fitting



### Tube



### BPE Pharmaceutical / Biotechnology Tube



CIP Cleaning System / SIP Sterilizing System /  
 UHT Sterilizing System / Water Flow-Process /  
 Mixing Tank / Filter / Auto Sterilizing & Cooling Machine /  
 Centrifuge / Chlorine Water System / High Speed Mixer /  
 Homogenizer / Hot Water System



# Auto Control Valve & Manual Control Valve



## CSE Innovative Control Valve Range

### CSE Width Range Products:

- Auto Control Divert Valve
- Actuator for Butterfly Valve
- Wide Range Butterfly Valve
- Sight Glass & Non-return Valve
- 3A,BS,AS,NZS,DIN,SMS,RJT,CIP,IDF...etc. Standard Union & Ferrule & Fitting
- 3A,DIN,SMS...etc. ASTM-A270 Sanitary Tube
- OEM Valve and Sanitary Ball Valve
- OEM/ODM Service



### CSE Technical Service for Manual & Control Valve Unit



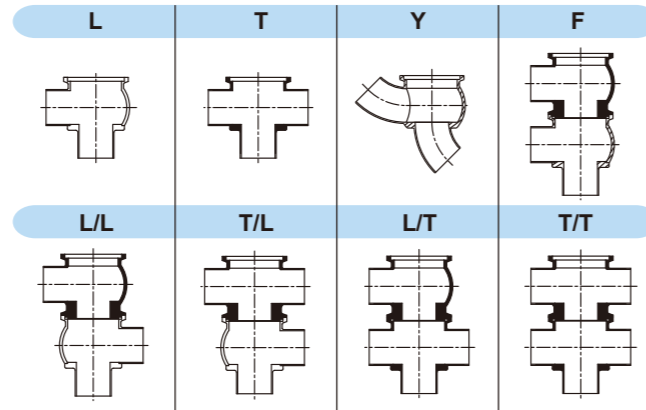
**For Joint any**  
 Tube fitting-3A, SMS, DIN, BS,  
 Elbow, Tee, Reducer  
 Clamp-Union-Weld/Expanding  
 Ferrule, Clamp, Valve-Butterfly,  
 Check, Sight Glass, Ball Valve  
 with our Orbitol weld Equipment



## CSE Auto Control Divert Valve

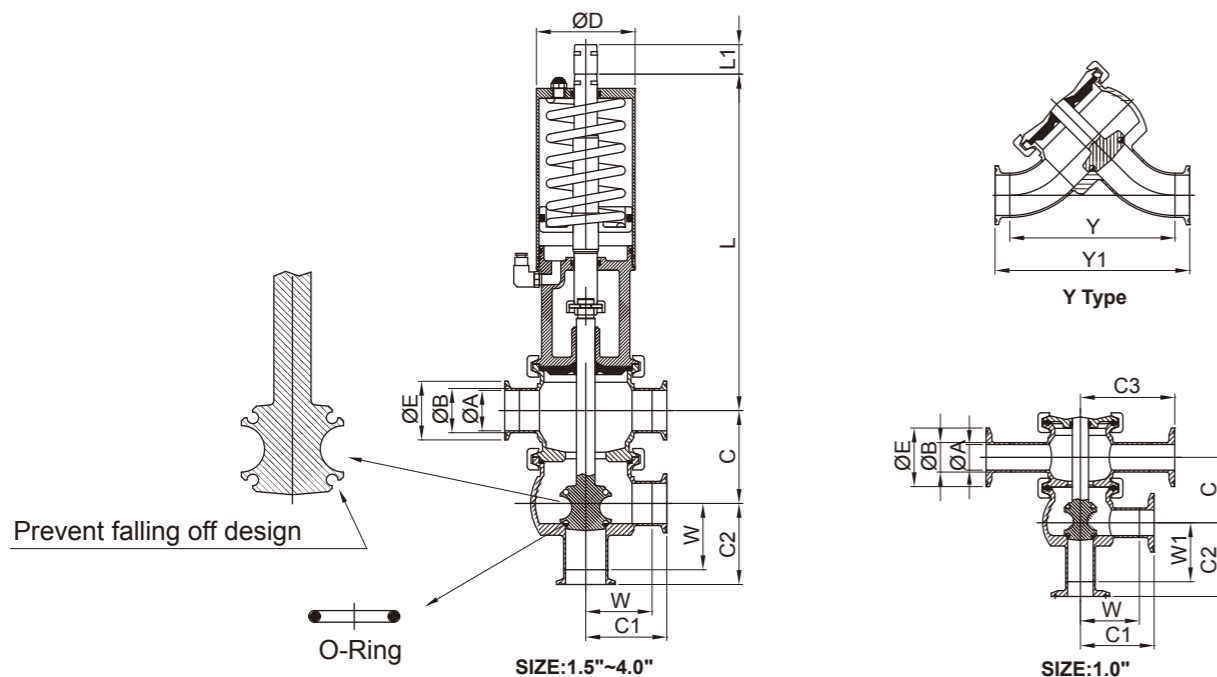


Type: L, T, Y and L/L, T/L, L/T, T/T



SIZE	1"	1.5"	2"	2.5"	3"	4"
ØA	22.1	34.8	47.5	60.2	72.9	97.4
ØB	25.4	38.1	50.8	63.5	76.2	101.6
C	56.7	80	92.4	120	128	150.8
C1	63.5	69.9	88.9	88.9	95.3	114.3
C2	63.5	69.9	88.9	88.9	95.3	114.3
C3	81.4	—	—	—	—	—
E	50.5	50.5	64	77.5	91	119
W	50.8	57.2	76.2	76.2	82.6	98.5
W1	50.8	57.2	76.2	76.2	82.6	98.5
ØD	60	85	85	133	133	133
L	153.6	290	296.3	365.8	368.9	645.7
L1	17	25	25	32	36	38
Y	96.1	142.3	168.6	211.6	244.7	303.1
Y1	121.5	167.7	194	237	270.1	334.7
(W/W1)+SMS male	19	23	23	27	27	—
(W/W1)+IDF male	21.5	21.5	21.5	21.5	21.5	—
(W/W1)+RJT male	27	27	27	27	27	—

- Opening/closing time will be effected by the following
  - The air supply(air pressure).
  - The length and dimensions of the air hose.
  - Number of valves connected to same air hose.
  - Use of single solenoid valve for serial connected air actuator functions.
- Product pressure.
- Air connections
- Compressed air: R1/8"(BSP), internal thread.
- Technical data
- Air pressure:----- 5 to 7 bar.



## CSE Auto Control Divert Valve

(Drawing A)



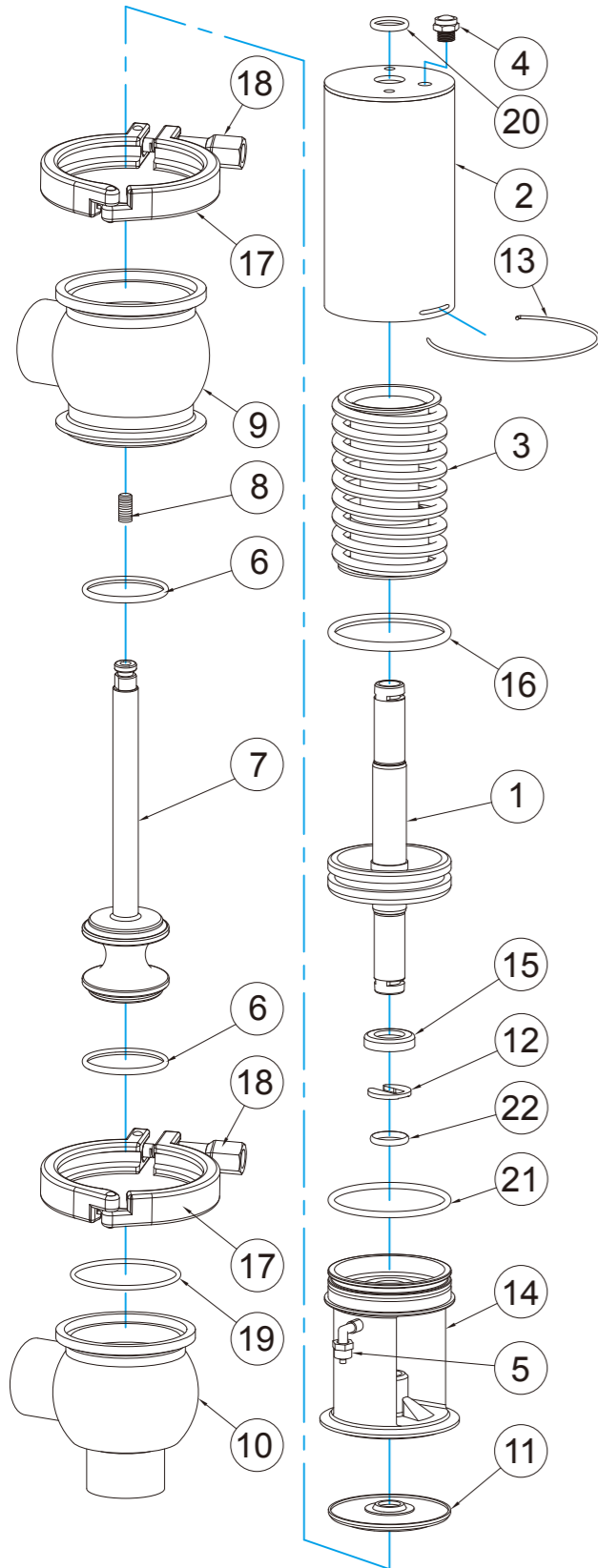
### Operation Instruction

- CSE pneumatic valve can be equipped with different type of flow design,(as drawing A) to get various flow control.
- Available for SMS, DIN, IDF, RJT, 3A....., Welding; Clamp; Unions.....connect end.
- Material:
  - All parts connect with fluid are made of stainless steel AISI 316/316L(1.4401/1.4404).
  - The other parts in AISI 304 (1.4301).
  - The valve stem is sealed by a special EPDM/ Silicone/ Viton (FKM)/ PTFE seal and according to international standard for using on food or pharmaceutical.
- Operating air pressure: 5bar-8bar compressed air.
- Control ways:
  - Designed different types for controlling control various flow, as type L; T; F...etc.
  - Choose appropriate dimensions and type, as 2".....clamp or welding.
  - Choose appropriate control ways (manual or pneumatic):
    - Manual control valve to be equipped with a rapid pitch screw with protection against unscrewing.
    - Or choose air/spring(simple effect); or air/air (double effect) for pneumatic control.
    - Can use CSE automatic control box to get signal transfer and complete individual valve control.
      - Signal transfer:
        - with 10-30VDC proximity switch connection:1 or 2pcs (PNP OR NPN)
        - Or 3A 125VAC,30VDC micro switch connection: 1 or 2pcs
      - Complete individual valve control:
 

Choose (a) or (b) +DC24 3.0W electric valve:1pc & air manifold (for complete control box).

# CSE Auto Control Divert Valve

## F type construction assembly drawing



Parts List			
Item	Parts name	Q'TY	Material
1	Piston	1	St.St 304
2	Cylinder	1	St.St 304
3	Spring assembly	1	St.St 304
4	Silencer	1	Cupler
5	Air connect	1	Cupler
6	O-Ring	2	EPDM
7	Stem-F	1	St.St 316L
8	Screws	1	St.St 304
9	Valve body-upper	1	St.St 316L
10	Valve body-lower	1	St.St 316L
11	Lip seal	1	304/EPDM
12	Clip complete	1	St.St 304
13	Lock wire clip	1	St.St 304
14	Bracket	1	St.St 304
15	Stop ring	1	PE
16	O-ring	1	NBR
17	Clamp	2	St.St 304
18	Wing nut	2	St.St 304
19	Valve body-seal ring	1	EPDM
20	O-ring	1	NBR
21	O-ring	1	NBR
22	O-ring	1	NBR



Please reference the detail  
by **YouTube**

# CSE Auto Control Divert Valve

## Operation instruction

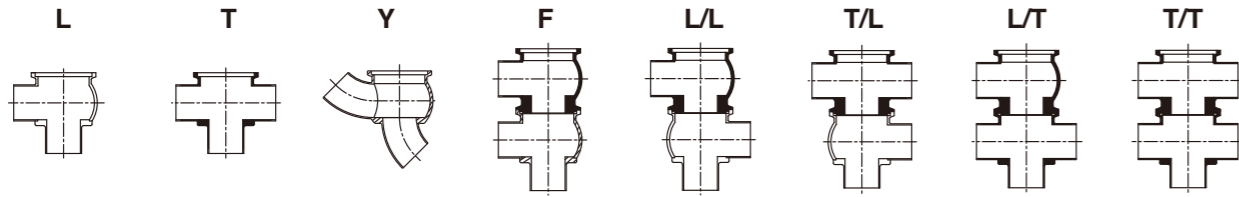
Max. flow tube pressure without leakage of valve seat.  
If over table Max. pressure suggestion add proof Mix. valve

(10) SA. Pneumatic downward movement, spring return (NO/ lower seat)  
Actuator type / function: (20) AS. Pneumatic upward movement, spring return (NC/ lower seat)  
(30) AA. Pneumatic upward and downward movement (A/A)

NO : Normal open NC : Normal close A/A : Air/Air doubt action Stop and change-over valves- Max. pressure without leakage at the valve seat ○ = Max. air input pressure is 8 bar ➔ = Tube-Line flow pressures									
	Spring closes	Air closes	Air closes	Spring closes	Air closes	Air closes	Air closes	Air closes	Air closes
Actuator/Valve body combination and direction of pressure									
Air pressure (bar)		5	8	5	20	5	8	5	8
Actuator Type/Function	10 (NO)	10	(NO)	20 (NC)	20 (NC)	30	30	30	30
Valve size (Max. Pressure)	DN25 ( 1.0")	9.5	10	10	9.5	10	10	10	10
	DN38 ( 1.5")	4.5	7.0	10	4.5	7.0	9.0	10	10
	DN51 ( 2.0")	4.5	4.0	5.0	4.5	5.0	9.0	10	9.0
	DN63.5 ( 2.5")	3.0	3.0	4.0	3.0	7.0	8.0	9.0	6.0
	DN76 ( 3.0")	5.0	4.0	6.0	4.5	6.0	10	10	10

# CSE Manual Divert Valve

Type: L, T, Y and L/L, T/L, L/T, T/T



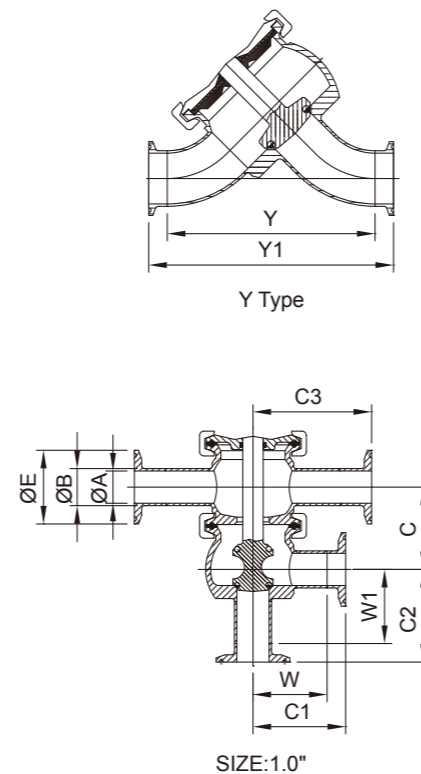
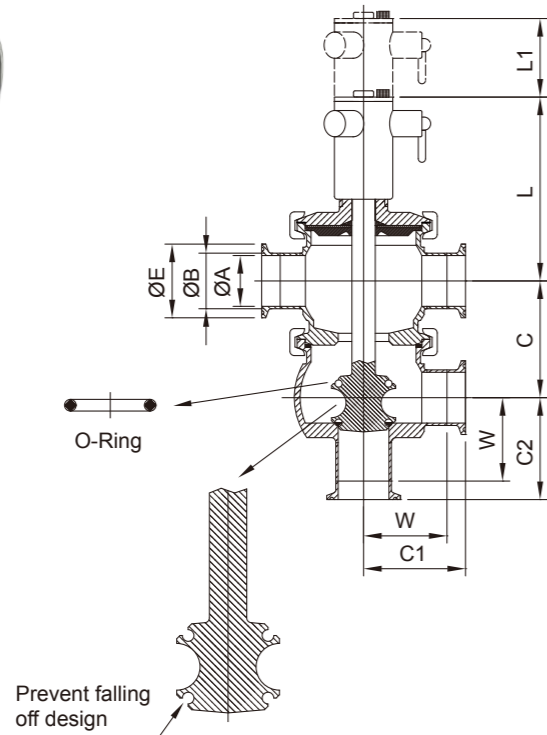
**Materials:**

- Flow area : AISI 316L
- Other steel parts : AISI 304
- Plug stem : AISI 316L with Chromium Plated Surface
- Gasket for Flow Area : EPDM/NBR/FKM/PTFE
- Other seals : NBR and EPDM
- OD Surface : Mirror/Satin/Sand Blast

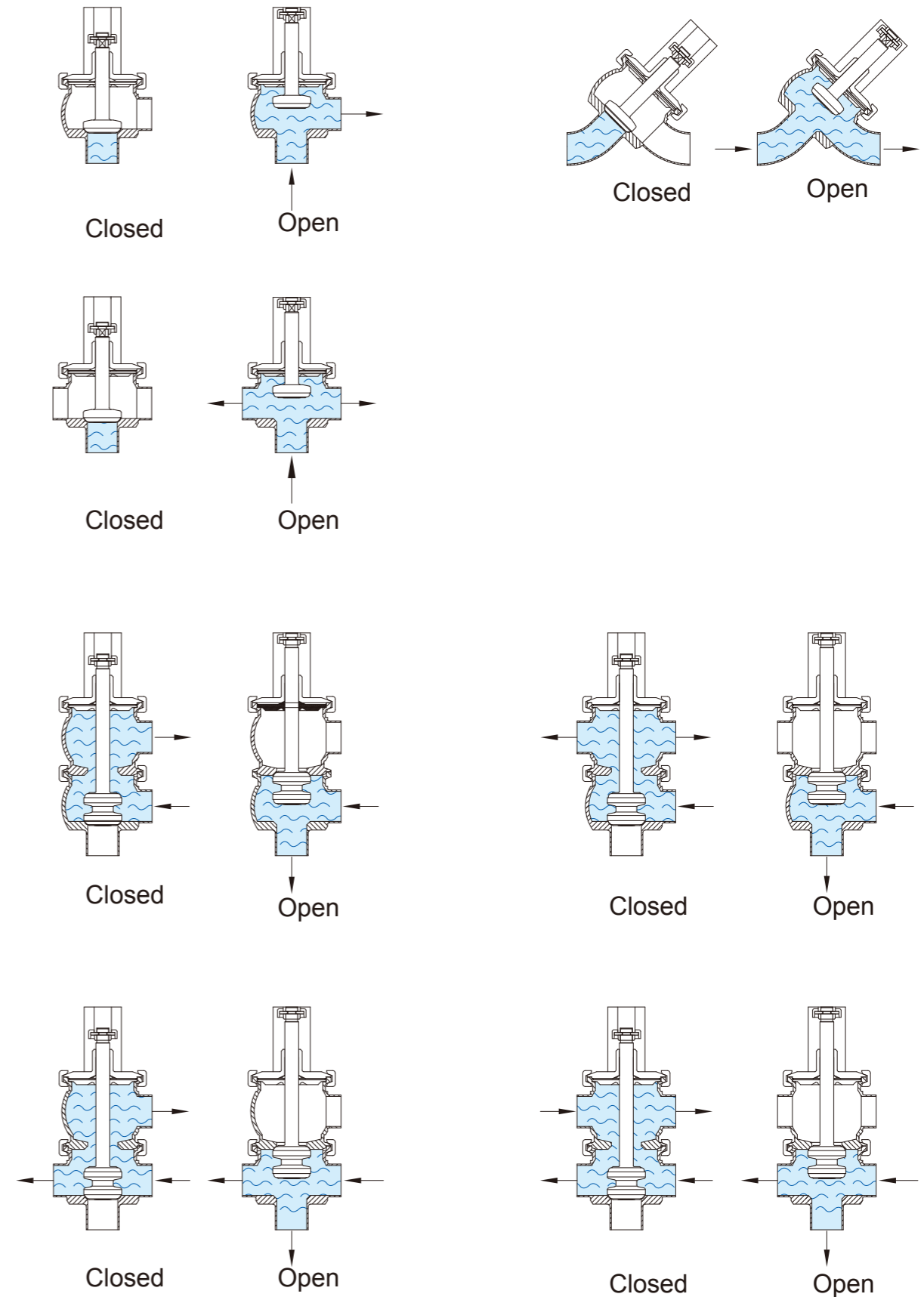
**Technical data:**

- Max. production pressure : 1000kpa(10bar).
- Temperature range : -10°C to +104°C (EPDM).

SIZE	1"	1.5"	2"	2.5"	3"	4"
ØA	22.1	34.8	47.5	60.2	72.9	97.4
ØB	25.4	38.1	50.8	63.5	76.2	101.6
C	56.7	80	92.4	120	128	150.8
C1	63.5	69.9	88.9	88.9	95.3	114.3
C2	63.5	69.9	88.9	88.9	95.3	114.3
C3	81.4	—	—	—	—	—
E	50.5	50.5	64	77.5	91	119
L	101	126	135	167	170	645.7
L1	17	25	25	32	36	38
W	50.8	57.2	76.2	76.2	82.6	98.5
W1	50.8	57.2	76.2	76.2	82.6	98.5
Y	96.1	142.3	168.6	211.6	244.7	303.1
Y1	121.5	167.7	194	237	270.1	334.7
(W/W1)+SMS male	19	23	23	27	27	—
(W/W1)+IDF male	21.5	21.5	21.5	21.5	21.5	—
(W/W1)+RJT male	27	27	27	27	27	—



# Configuration and Flow Direction



## CSE Manual and Auto Control Tank Valve

### Materials:

- Flow area: AISI 316L
- Other steel parts: AISI 304
- Plug stem: AISI 316L with chromium plated surface
- Gasket for flow area: EPDM/ FKM/ PTFE
- Other seals: NBR and EPDM
- OD Surface: Mirror/ satin /sand Blasted

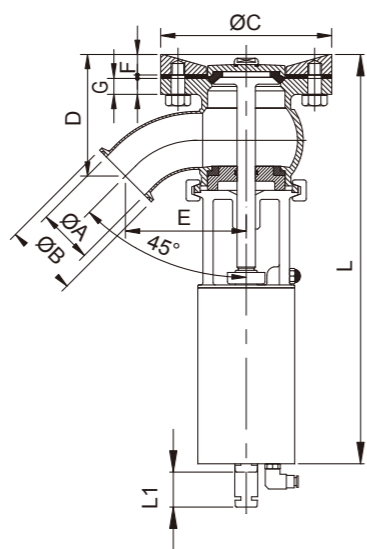
### Technical data:

- Max. production pressure :1000kpa(10bar).
- Temperature range: -10°C to +104°C(EPDM).

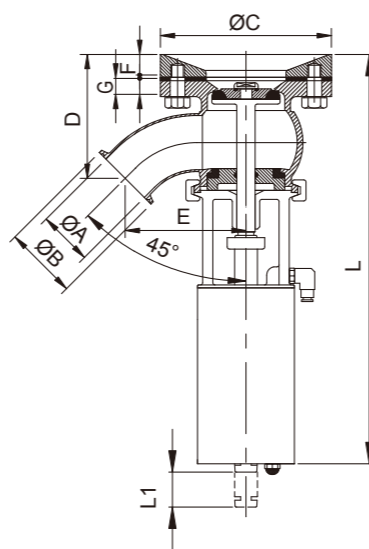
SIZE	1.0"	1.5"	2.0"	2.5"	3.0"
ØA	22.1	34.8	47.5	60.2	72.9
ØB	50.5	50.5	64	77.5	91
ØC	110	140	150	180	200
D	56.8	95.1	106.5	124.7	137.5
E	65.8	93	106	125.5	149.5
F	14	20	20	20	20
G	10	14	14	14	14
L	190	354	360	446	450
L1	22	31	31	39	39
L2	94	122	127	158	164
L3	30	35	35	45	45



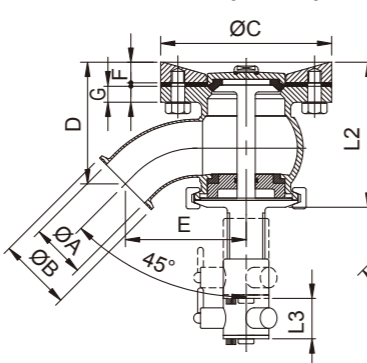
Auto : Up to open



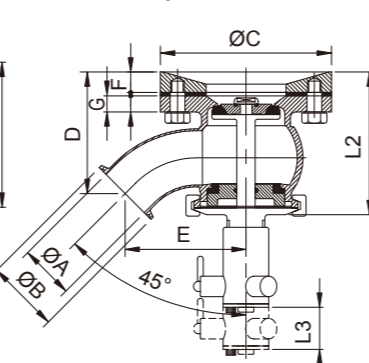
Up to close



Manual : Up to open



Up to close

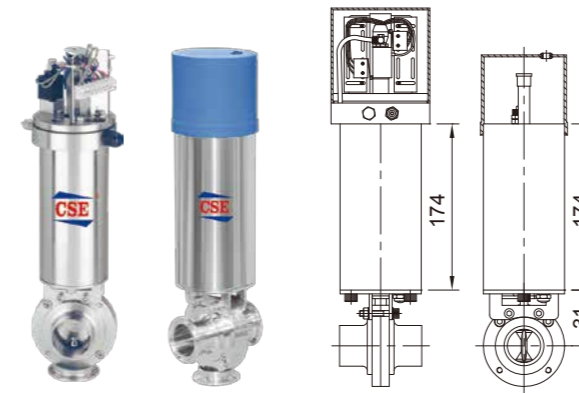


## CSE Auto Control Actuator For Butterfly Valve

### C2, C3 actuator instruction

- C2, C3: Shut-Off time: 1.5 second ; Weight: 3.85KGS.  
C101: Shut-Off time: 1.7 second ; Weight: 4.7KGS
- Operating air pressure: 6 kg/cm<sub>2</sub> ; Min. 5bar ; Max. 9bar compress air
- C2, C3 Air consumption: 0.266 Liter at 5 bar ; C101 Air consumption: 0.550 Liter at 5 bar.
- Material: stainless steel AISI 304
- Can be equipped with normal close or open.

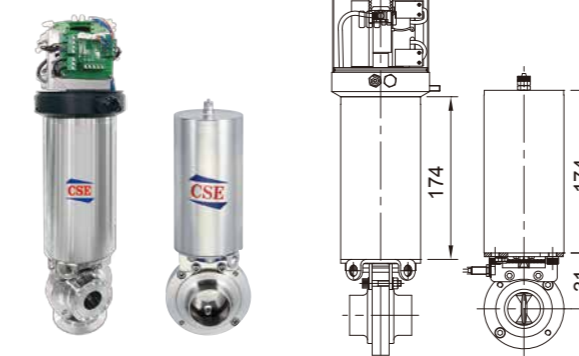
### C2



### Operation instruction

- C2 Actuator apply to butterfly valve in size 1"-3" of the disc head DIA. 12mm X 8mm.(other size can be required)
- Control ways:
  - Signal transfer:
    - With 10-30VDC proximity switch contact: 1 or 2pcs.
    - Or 3A 125VAC. 30VDC microswitch: 2pcs
  - Individual control: Choice (a) or (b) + DC24 3.0W electric valve: 1pc & Air manifold (for complete control box).
- Air/Air (double effect) actuator or air/spring (simple effect) actuator are available.
- Accessories: adapter: 1pcs ; M6 X 35 screw: 2pcs ; washer: 4pcs ; M6 nut: 2pcs ; 1/8PT quick coupler: 1pcs

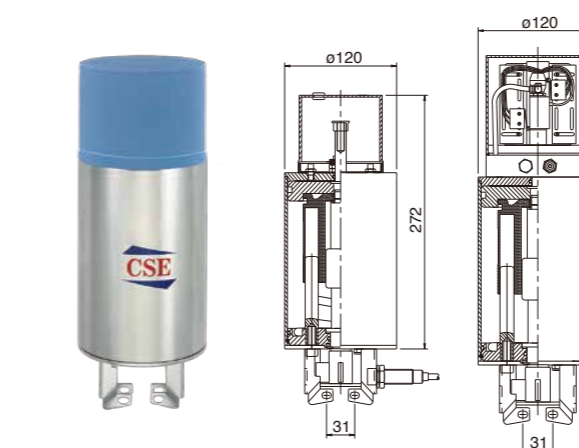
### C3



### Operation instruction

- C3 Actuator apply to butterfly valve in size 1"-3" of the disc head DIA. 12mm X 8mm. (other size can be required)
- Signal transfer: can be connect with M12 screw proximity switch.
- Air/Air (double effect) actuator or air/spring (simple effect) actuator are available.
- Accessories: adapter: 1pc ; M6 X 35 screw: 2pcs ; washer: 4pcs ; M6 nut: 2pcs ; 1/8PT quick coupler: 1pc

### C101



### Operation instruction

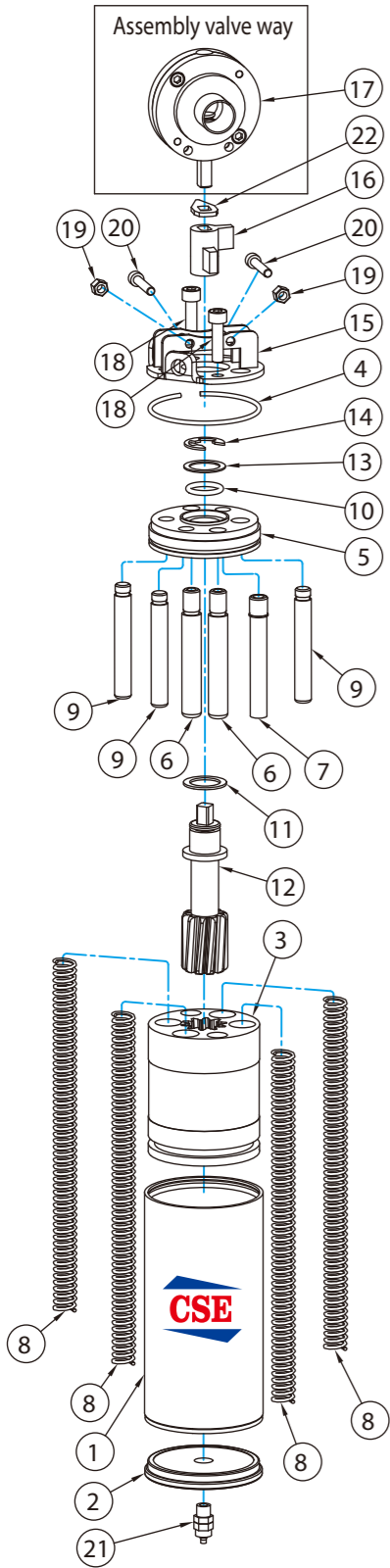
- C101 Actuator apply to butterfly valve in size 4"-6" of the disc head DIA. 12mm X 12mm.
- Control ways:
  - Signal transfer:
    - Can be connect with M18 or M12 screw proximity switch (PNP or NPN) as (1)
    - With 10-30 VDC proximity switch contact: 1 or 2pcs (PNP OR NPN)
    - Or 3A 125VAC. 30VDC microswitch: 2pcs
  - Individual control: Choice (a) or (b) or (c) + DC24 3.0W electric valve: 1pc & air manifold (for complete control box).
- Air/Air (double effect) actuator or air/spring (simple effect) actuator are available.
- Accessories: adapter: 1pcs ; M6 X 40 screw: 2pcs ; washer: 4pcs ; M6 nut: 2pcs ; 1/8PT quick coupler: 1pcs

# CSE Auto Control Actuator for Butterfly Valve (Warn Gear Design)

## C3 Type construction assembly drawing & items list

Max. output torque 20N/M on C2 & C3

Max. output torque 30N/M on C101

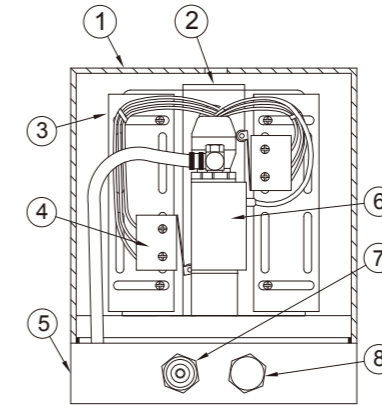
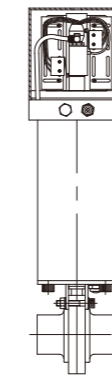


Parts List			
Item	Parts name	Q'TY	Material
1	St. St. cylinder	1	St. St. 304
2	St. St. cylinder cap	1	St. St. 304
3	Piston stem	1	Tenac 4010/SH410
4	Lock wire clip	1	St. St. 304
5	Lower cylinder end	1	St. St. 304
6	Piston guide part	2	St. St. 304
7	Piston guide part	1	St. St. 304
8	Compress spring	4	St. St. 304
9	Piston guide part	3	St. St. 304
10	Piston axle O-ring	1	Teflon
11	Teflon gasket	1	Teflon
12	Coupling axle piece	1	St. St. 304
13	Contact seal	1	St. St. 304
14	Circlip	1	St. St. 304
15	Mounting bracket	1	St. St. 304
16	Connection piece	1	St. St. 304
17	Assembly valve way	1	St. St. 304/316(L)
18	M8x12 St. St. screw	2	St. St. 304
19	M6 Nut	2	St. St. 304
20	M6x35 St. St. screw	2	St. St. 304
21	Air connection	1	Copper
22	Positioning index	1	St. St. 304

# CSE Control Box for Auto Actuator and Divert Valve

C2 & C101

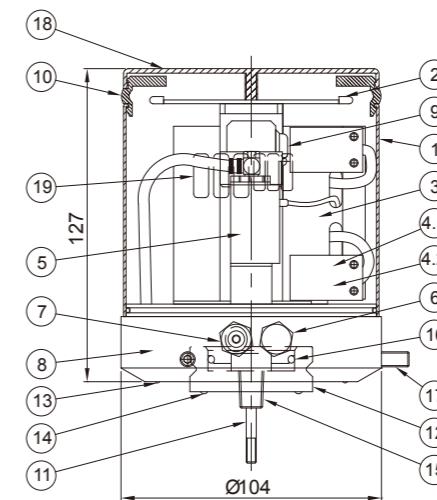
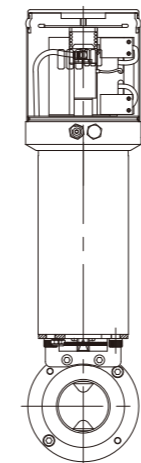
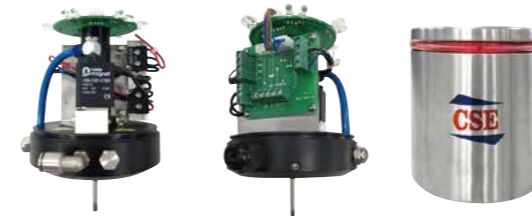
C2-LED



## Control box construction assembly drawing & items list

Parts List			
Item	Parts name	Q'TY	Material
1	Cover	1	PC or St.St 304
2	Switch plate	1	St.St 304
3	Plastic hanger	2	St.St 304
4	Micro switch	2	3A 125VAC. 30VDC
5	Air manifold	1	P.O.M (Plastic) or St.St 304
6	Electrovalve	1	DC24 3.0W
7	Air connection	1	Cu
8	E/N connect	1	St.St 304

C3 #-LED

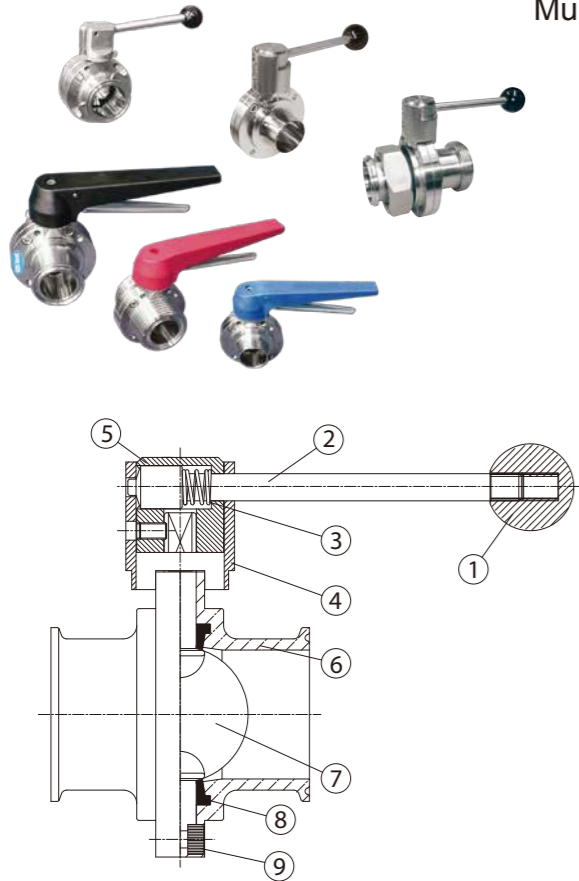


Parts List			
Item	Parts name	Q'TY	Material
1	Cover	1	St.St 304
2	LED Light	1	
3	Switch bracket	1	St.St 304
4.1	Proximity sensor	2	3A 125VAC. 30VDC
4.2	Mirco switch	2	3A 125VAC. 30VDC
5	Electrovalve	1	DC24 3.0W AC110V AC220V
6	E/N connect piece	1	St.St 304
7	Air connection	1	Cu
8	Air manifold	1	P.O.M St.St 304
9	Contact head	1	St.St 304
10	Light screen	1	PC
11	Sensor pin	1	St.St 304
12	Plate	1	St.St 304
13	O-Ring	1	NBR
14	O-Ring	1	NBR
15	Adapter (3/8" NPT)	1	St.St 304
16	O-Ring	1	NBR
17	Set screw	3	St.St 304
18	Top cover	1	St.St 304/PE
19	PCB board	1	



## CSE Range of Butterfly Valve

Multi Connection With St.St Pull Handle, 4 Position



Item	Parts List
1	Knob
2	Steel-Bar
3	Spring St.st
4	Fixed Piece
5	Holder
6	Body
7	Disc
8	EPDM Rubber Seat
9	Screw Bolt

### Torque for Full Open/Close

1.0"	< 9.8 N.m
1.5"	< 9.8 N.m
2.0"	13 N.m
2.5"	15 N.m
3.0"	20 N.m
4.0"	30 N.m
6.0"	70 N.m

\*1kgf-m = 9.8 N.m = 86.8 lbf-in = 7.23 lbf-ft

### Width Range of CSE Butterfly Valve-C & C Type

Body: SUS304 \ 316L material made out from precision CNC milling machined.

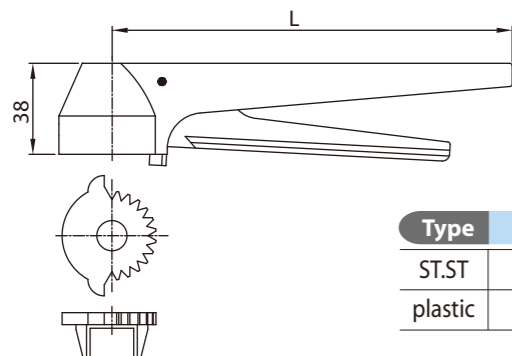
Body can be changeable, and low torque. BS \ SMS \ DIN \ 3A Weld end and Male/Male end and Clamp end.

Disk: Made out from full machined, high polished. Ra less than 0.6  $\mu$ m. 9.5x9.5mm and 8x12mm, 12x12mm head for USA and europe required. Electropolished and PTFE coating can be required.

Handle: Different nylon re-forced and stainless steel handle gripper, pull, Press type.

From 2 Position-12 Position, designed for your width range choice.

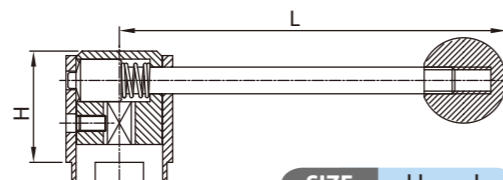
### GRIPPER HANDLE 12 POSITION-G12 (NYLON & STAINLESS)



Type	L
ST.ST	159
plastic	167

Can fit  $\square$ 9.5x9.5 and  $\square$  $\varnothing$ 12x8 or  $\square$ 12x12

### PULL HANDLE 4 POSITION-P4



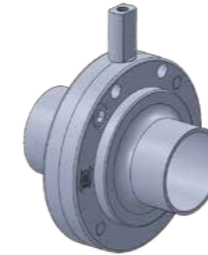
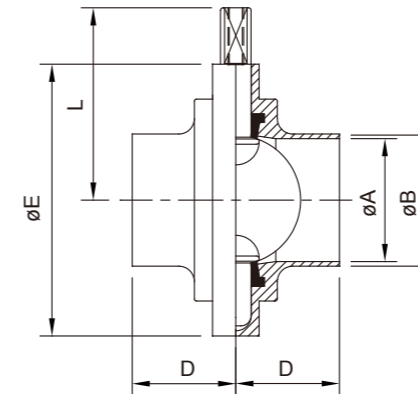
SIZE	H	L
1.0"~3.0"	41.7	145
4.0"	41.7	175
6.0"	52.5	212.5

Can fit  $\square$ 9.5x9.5 and  $\square$  $\varnothing$ 12x8 or  $\square$ 12x12

### Other Handle

## CSE Full Forged Butterfly Valves

### Weld End



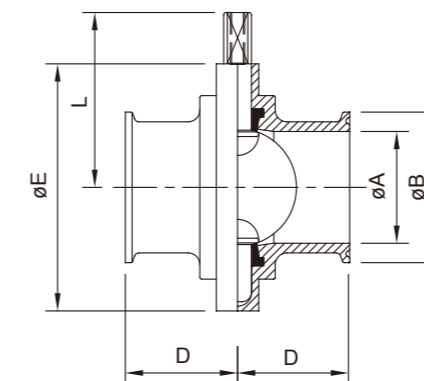
### DIN WELD BUTTERFLY VALVE

SIZE	A type		B type		D	ØE	L
	ØA	ØB	ØA	ØB			
DN10	10	13	9	12	34	79	61
DN15	16	19	15	18	34	79	61
DN20	20	23	19	22	34	79	61
DN25	26	29	25	28	34	79	61
DN32	32	35	31	34	38	85	64.3
DN40	38	41	37	40	38	90	66.7
DN50	50	53	49	52	40	105	77.6
DN65	66	70	70	70	41	125	84.8
DN80	81	85	85	85	42	137	91.6
DN100	97.6	101.6	101.6	101.6	44	157	101.75
	100	104	104	104	44	157	101.75

### IMPERIAL OD/BS/SMS WELD BUTTERFLY VALVE

SIZE	ØA	ØB	SIZE	ØA	ØB	D	ØE	L
1/2"	9.4	12.7	—	—	—	34	79	61
3/4"	15.75	19.05	—	—	—	34	79	61
1.0"	22.1	25.4	DN25	22.5	25	34	79	61
1.5"	34.8	38.1	DN38	35.5	38	38	85	64.3
2.0"	47.5	50.8	DN50	48.5	51	40	105	74.3
2.5"	60.2	63.5	DN63	60.3	63.5	40	112	77.6
3.0"	72.9	76.2	DN76	72.9	76.1	41	125	84.8
4.0"	97.4	101.6	DN100	100	104	44	157	101.75
6.0"	146.86	152.4	—	—	—	40	216.5	132.5

### Clamp End

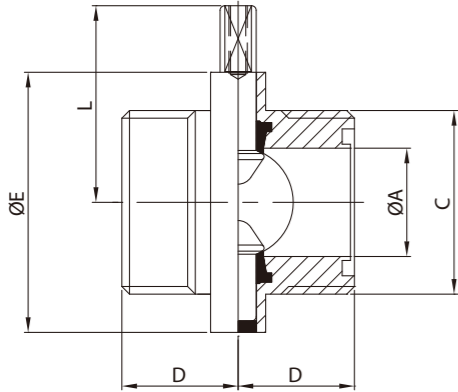


### IMPERIAL OD CLAMP BUTTERFLY VALVE

SIZE	ØA	ØB	D	ØE	L
1/2"	9.4	25.2	34	79	61
3/4"	15.75	25.2	34	79	61
1.0"	22.1	50.5	33	79	61
1.5"	34.8	50.5	33	85	64.3
2.0"	47.5	64	35	105	74.3
2.5"	60.2	77.5	35	112	77.6
3.0"	72.2	91	38	125	84.8
4.0"	97.6	119	38	157	101.75
6.0"	146.86	166.87	70	216.5	132.5

## CSE Full Forged Butterfly Valves

### Male End



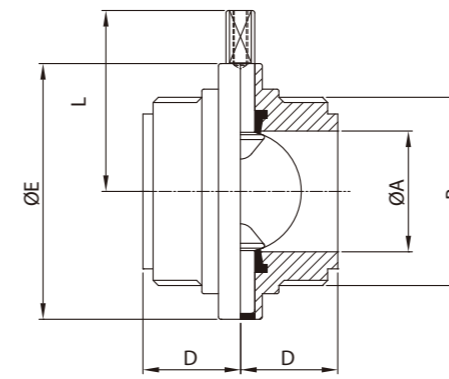
**SMS MALE BUTTERFLY VALVE**

SIZE	ØA	C	D	ØE	L
DN25	22.5	RD40x1/6	34	79	61
DN38	35.4	RD60x1/6	38	85	64.3
DN50	48	RD70x1/6	40	105	74.3
DN63	60.2	RD85x1/6	40	112	77.6
DN76	72.1	RD98x1/6	41	125	84.8
DN100	97.6	RD125x1/4	50	157	101.75
DN100	100	RD125x1/4	50	157	101.75



## CSE Range of Butterfly Valve

### Male End

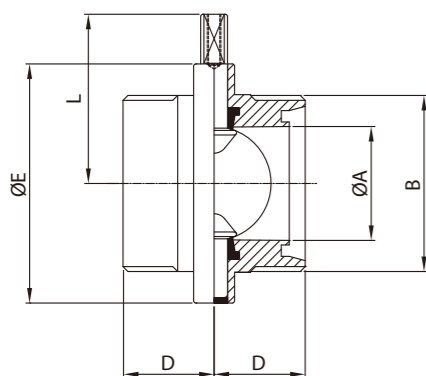


**IDF MALE/MALE BUTTERFLY VALVE**

SIZE	ØA	B	D	ØE	L
1.0"	22.4	37.13x8T ACME	34	79	61
1.5"	35.1	50.65x8T ACME	38	85	64.3
2.0"	47.8	64.16x8T ACME	40	105	74.3
2.5"	60.5	77.76x8T ACME	40	112	77.6
3.0"	72.1	91.19x8T ACME	41	125	84.8
4.0"	97.6	125.9x6T ACME	44	157	101.75



### Male End

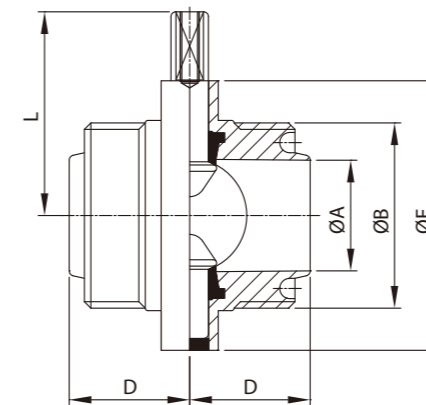


**DIN MALE BUTTERFLY VALVE**

SIZE	ØA	B	D	ØE	L
DN25	26	RD52*1/6	34	79	61
DN32	32	RD58*1/6	38	85	64.3
DN40	38	RD65*1/6	38	90	66.7
DN50	50	RD78*1/6	40	105	77.6
DN65	66	RD95*1/6	41	125	84.8
DN80	81	RD110*1/4	42	137	91.6
DN101.6	99	RD130*1/4	50	157	101.75
DN104	100	RD130*1/4	50	157	101.75

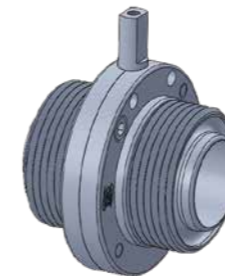


### Male End



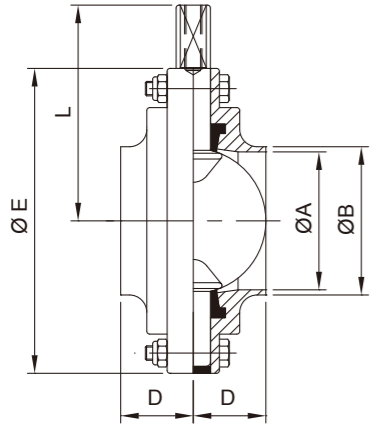
**RJT MALE/MALE BUTTERFLY VALVE**

SIZE	ØA	B	D	ØE	L
1.0"	22.2	45.72x8T WHIT	34	79	61
1.5"	34.82	58.42x8T WHIT	38	85	64.3
2.0"	47.52	72.72x6T WHIT	40	105	74.3
2.5"	60.2	85.42x6T WHIT	40	112	77.6
3.0"	72.9	98.12x6T WHIT	41	125	84.8
4.0"	97.69	123.52x6T WHIT	50	157	101.75



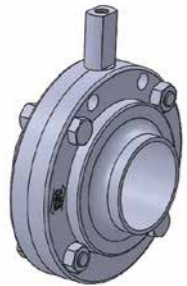
## CSE Full Forged Butterfly Valve

### CSE G TYPE



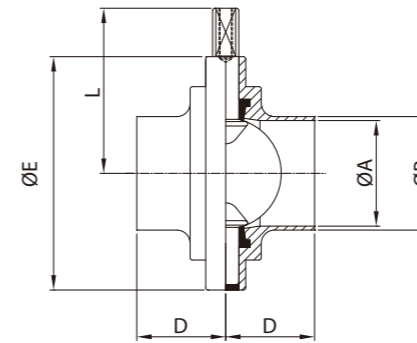
**DIN WELD/WELD BUTTERFLY VALVE**

SIZE	ØA	ØB	D	ØE	L
DN25	26	29	20	79	61
DN32	32	35	21	85	64.3
DN40	38	41	25	90	66.7
DN50	50	53	25	105	77.6
DN65	66	70	25	125	84.8
DN80	81	85	30	137	91.6
DN100	100	104	32	157	101.75



## CSE Wine Macon Butterfly Valve

### Macon Butterfly Valve

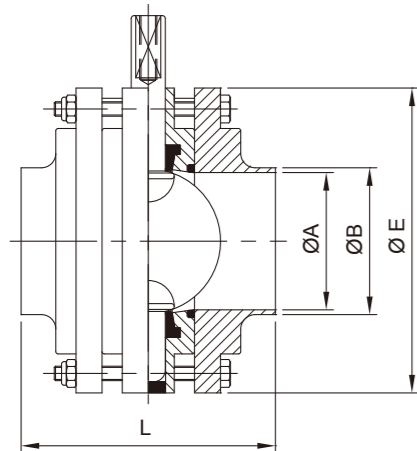


**WINE WELD/WELD BUTTERFLY VALVE**

SIZE	ØA	ØB	D	ØE	L
DN40/43	40	43	37	90	61
DN50/53	50	53	40	105	64.3
DN60/63	60	63	40	112	74.3
DN70/73	70	73	41	125	77.6
DN80/83	80	83	40	137	84.8
DN100/103	100	103	44	157	101.6

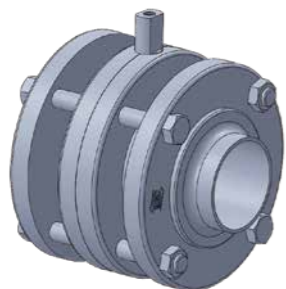


## 3 Piece G Type Butterfly Valves

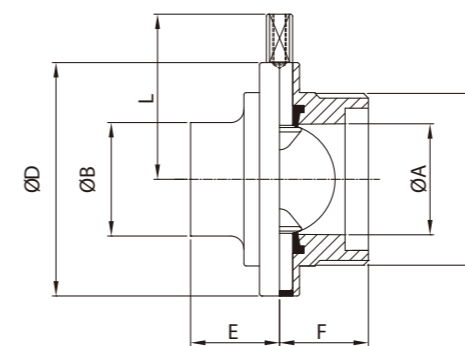


**DIN WELD BUTTERFLY VALVE**

SIZE	ØA	ØB	ØE	L
DN25	26	29	79	89
DN32	32	35	85	89
DN40	38	41	90	98.2
DN50	50	53	105	98.2
DN65	66	70	125	98.2
DN80	81	85	137	134.2
DN100	100	104	157	134.2



## Macon Butterfly Valve



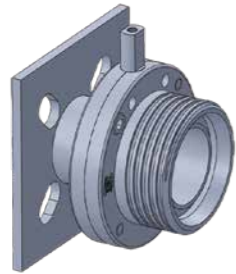
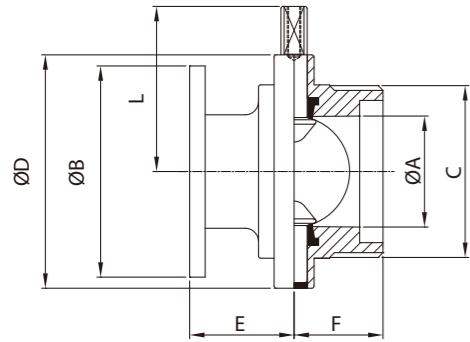
**WINE WELD/MALE BUTTERFLY VALVE**

SIZE	ØA	ØB	C	ØD	E	F	L
DN40/43	40	43	M55x3	90	37	37	61
DN50/53	50	53	M67x3	105	40	40	64.3
DN60/63	60	63	M79x3.5	112	40	40	74.3
DN70/73	70	73	M90x3.5	125	41	41	77.6
DN80/83	80	83	M102x4	137	40	40	84.8
DN100/103	100	103	M125x4	157	44	45	101.6



# CSE Wine Macon Butterfly Valve

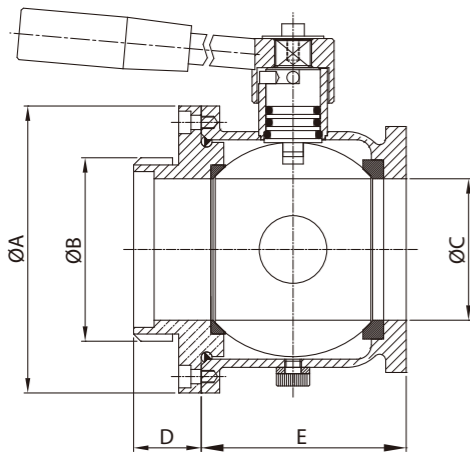
## Macon Butterfly Valve



**WINE MALE/FLANGE BUTTERFLY VALVE**

SIZE	ØA	ØB	C	ØD	E	F	L
DN40/43	40	100	M55x3	90	45	37	61
DN50/53	50	100	M67x3	105	48	40	64.3
DN60/63	60	120	M79x3.5	112	50	40	74.3
DN70/73	70	120	M90x3.5	125	51	41	77.6
DN80/83	80	140	M102x4	137	50	40	84.3
DN100/103	100	140	M125x4	157	55	44	101.6

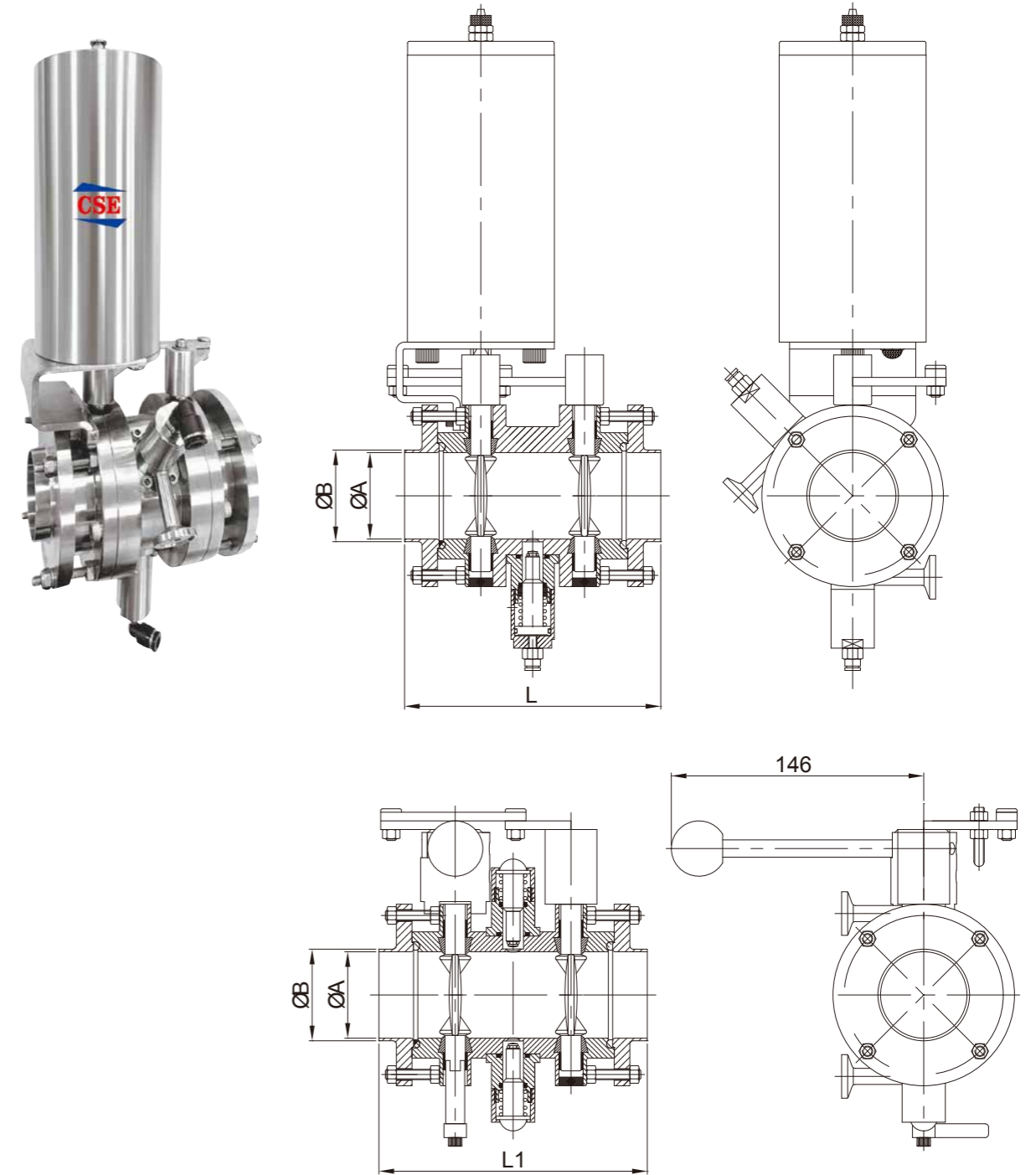
## CSE Wine Ball Valve



**WINE MALE/FLANGE BALL VALVE**

SIZE	ØA	ØB	ØC	D	E
DN43	94	M55x3	40	32.6	72
DN53	105	M67x3	50	33	79
DN73	140	M90x3.5	69	33	100

# Mix-Proof Butterfly Valve Series



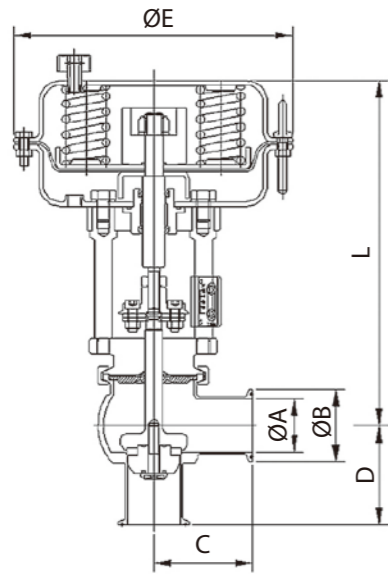
**DIN**

SIZE	ØA	ØB	L	L1
DN40	37	40	143	150
DN50	49	52	148	155
DN65	66	70	160	167
DN80	81	85	176	183
DN100	100	104	200	207

**Imperial**

SIZE	ØA	ØB	L	L1
1.5"	34.8	38.1	143	150
2.0"	47.5	50.8	148	155
2.5"	60.2	63.5	160	167
3.0"	72.9	76.2	176	183
4.0"	97.4	101.6	200	207

## CSE Manual and Auto Control Modulating Valve



### PNEUMATIC MODULATING VALVE TYPE L

SIZE	ØA	ØB	C	D	ØE	L
1.0"	22.1	50.5	58.5	50.6	250	489
1.5"	34.8	50.5	81.2	61	300	557
2.0"	47.5	64	85.7	65.4	300	564
2.5"	60.2	77.5	103.1	72.1	300	580
3.0"	72.9	91	116.4	79.7	350	651



**Size Range :** From DN25 (1") to DN100 (4")

**Leakage standard :** PTFE material soft seats meet FDA.

**Travel :** 20mm for DN25 (1") to DN50 (2"), 30mm for DN65 (2-1/2") to DN100 (4")

**Surface finish :** 0.4µm for Internal ; 0.8µm for external

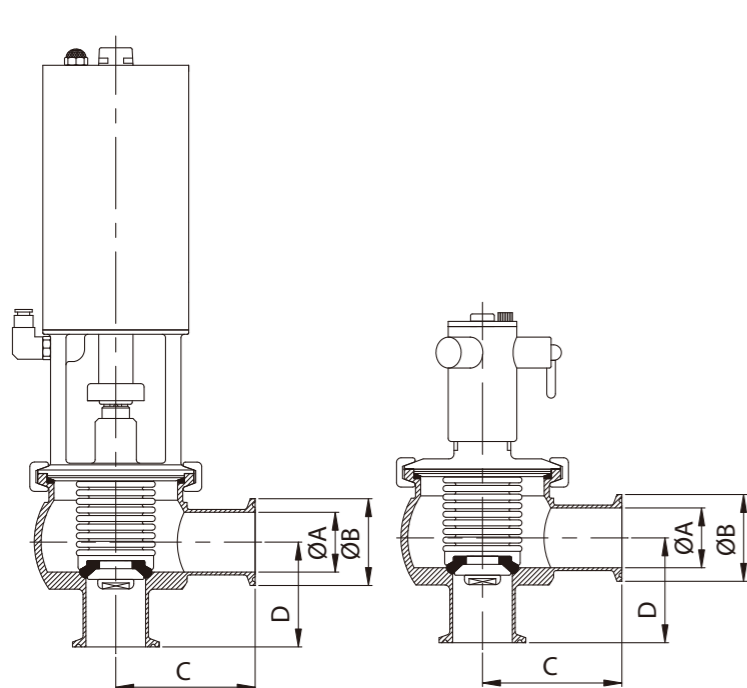
**Actuator :** Stainless steel diaphragm actuator cases make resist to get rusty out door, and accept polish finish optional case.

Support air supply fail to open and close.

**Connection :** Clamp connections accord to ISO 2852.

**Quick Change Trim :** Each size has 2 to 4 flow capacity plug chokes, and allows to quickly change the plug. Easy to maintenance.

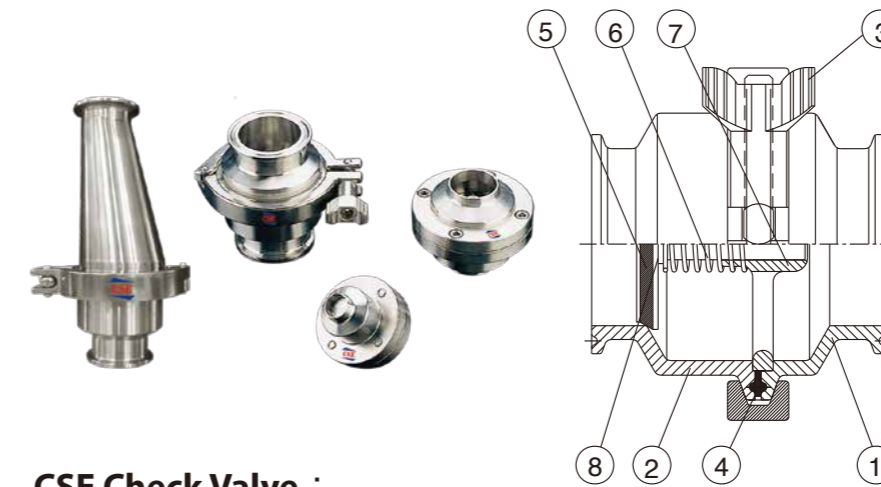
## Pneumatic and Manual Control Bellow Valves



### BELLOW STERILE VALVES

SIZE	ØA	ØB	C	D
1.0"	22.1	50.5	58.5	50.6
1.5"	34.8	50.5	81.2	61
2.0"	47.5	64	85.7	65.4

## CSE Non Return Valve (Check Valve)



NO.	NAME
1	Short Body
2	Long Body
3	Clamp
4	13PG
5	Seal-Ring
6	ST.ST Spring
7	Flow Support Plate
8	Disc

### CSE Check Valve :

#### Materials

Steel parts : Stainless steel SS316(L)

Seal rings : EPDM Rubber or Silicone/Viton (FKM)

Finish : OD ≤ 0.8 , ID ≤ 0.8 or 0.4µm

#### Connections

The valve is available with welding ends for tubing according to 3A, SMS, BS, DIN

#### Technical data

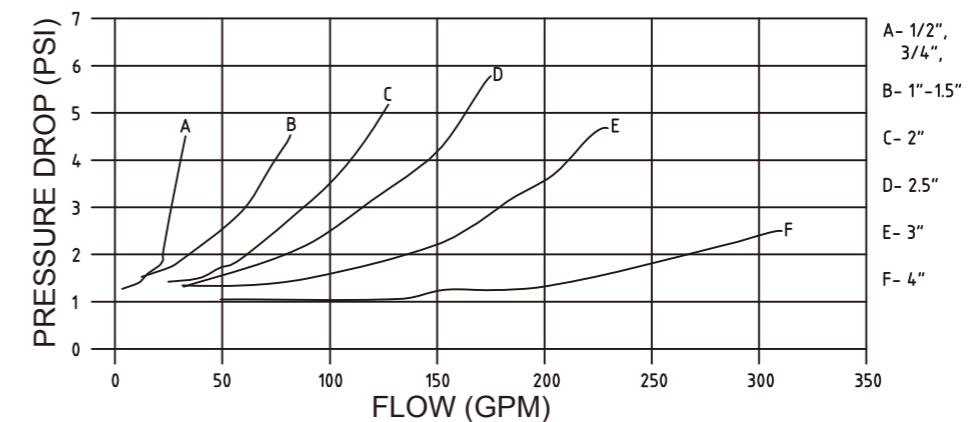
Required different pressure for opening the valve fitted in a vertical pipe, as shown in fig.3, the working pressure Max. product pressure : 1000kpa(10bar)

#### Material grades

Gasket-Body:EPDM/Silicone/FKM/NBR/PTFE

Flow Area-EPDM/Silicone/FKM/NBR

### SPRING CHECK VALVE flow rate (fig 3)



Note:  
For the diagram the following applies:  
Medium : Water(20°C)

Open pressure (PSI)

1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"
0.5	0.5	3.0	1.6	0.6	1.3	0.8	0.9

Open Pressure (fig. 1)

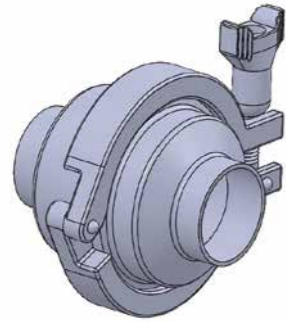
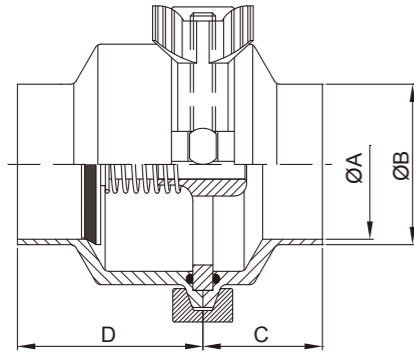
## CSE Non-Return Valve

### CHECK VALVE MIDDLE CLAMP TYPE/WELD END

3A/BS	ØA	ØB	C	D
1/2"	9.4	12.7	23	34
3/4"	15.75	19.05	23	34
1.0"	22.1	25.4	38	59
1.5"	34.8	38.1	38	59
2.0"	47.5	50.8	38	59
2.5"	60.2	63.5	38	59
3.0"	72.9	76.2	38	59
4.0"	97.6	101.6	44	50

SMS	ØA	ØB	C	D
DN25	22.5	25	38	59
DN38	35.4	38	38	59
DN50	48	51	38	59
DN63	60.3	63.5	38	59
DN76	72.1	76	38	59

DIN	ØA	ØB	C	D
DN25	25	28	38	59
DN32	31	34	38	59
DN40	37	40	38	59
DN50	49	52	38	59
DN65	66	70	38	59

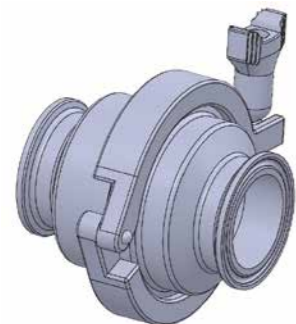
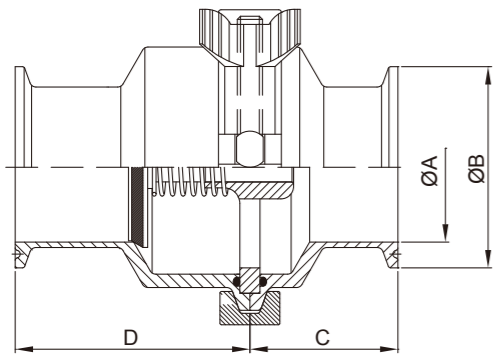


### CHECK VALVE MIDDLE CLAMP TYPE/CLAMP END

3A/BS	ØA	ØB	C	D
1/2"	9.4	25.2	28.5	39.5
3/4"	15.75	25.2	28.5	39.5
1.0"	22.1	50.5	42	59
1.5"	34.8	50.5	42	59
2.0"	47.5	64	42	59
2.5"	60.2	77.5	42	59
3.0"	72.9	91	42	59

SMS	ØA	ØB	C	D
DN25	22.5	50.5	42	59
DN38	35.4	50.5	42	59
DN50	48	64	42	59
DN63	60.3	77.5	42	59
DN76	72.1	91	42	59

DIN	ØA	ØB	C	D
DN25	25	50.5	42	59
DN32	31	50.5	42	59
DN40	37	50.5	42	59
DN50	49	64	42	59
DN65	66	91	42	59
DN80	81	106	42	59



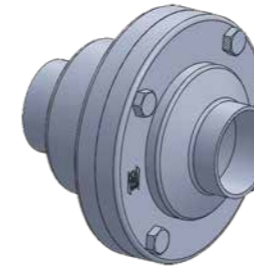
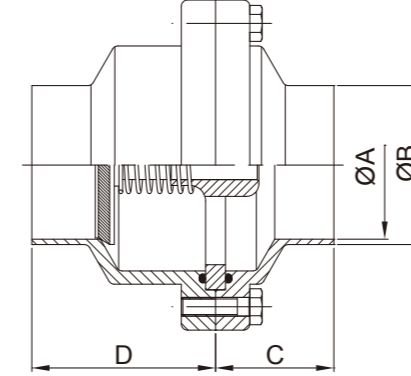
## CSE Non-Return Valve

### CHECK VALVE MIDDLE FLANGE TYPE/WELD END

3A/BS	ØA	ØB	C	D
1/2"	9.4	12.7	23	34
3/4"	15.75	19.05	23	34
1.0"	22.1	25.4	38	59
1.5"	34.8	38.1	38	59
2.0"	47.5	50.8	38	59
2.5"	60.2	63.5	38	59
3.0"	72.9	76.2	38	59
4.0"	97.6	101.6	44	50

SMS	ØA	ØB	C	D
DN25	22.5	25	38	59
DN38	35.4	38	38	59
DN50	48	51	38	59
DN63	60.3	63.5	38	59
DN76	72.1	76	38	59

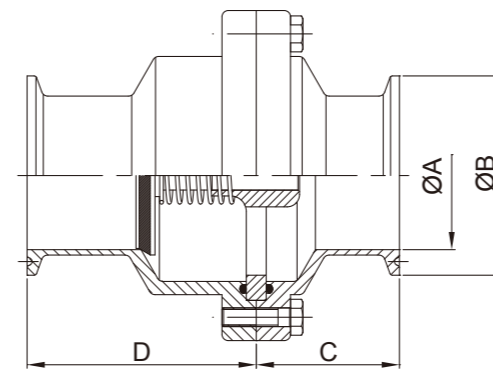
DIN	ØA	ØB	C	D
DN25	25	28	38	59
DN32	31	34	38	59
DN40	37	40	38	59
DN50	49	52	38	59
DN65	66	70	38	59
DN80	81	85	38	59



### CHECK VALVE MIDDLE FLANGE TYPE/CLAMP END

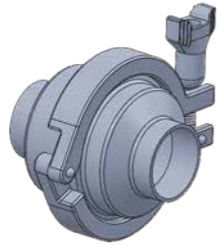
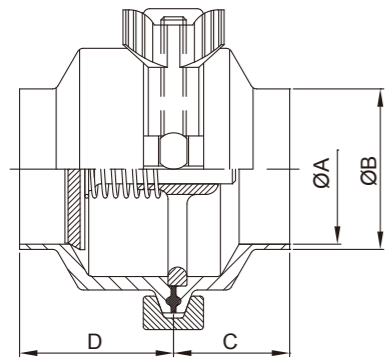
3A/BS	ØA	ØB	C	D
1/2"	9.4	25.2	28.5	39.5
3/4"	15.75	25.2	28.5	39.5
1.0"	22.1	50.5	42	59
1.5"	34.8	50.5	42	59
2.0"	47.5	64	42	59
2.5"	60.2	77.5	42	59
3.0"	72.9	91	42	59
4.0"	97.6	119	56.7	62.6

SMS	ØA	ØB	C	D
DN25	22.5	50.5	42	59
DN38	35.4	50.5	42	59
DN50	48	64	42	59
DN63	60.3	77.5	42	59
DN76	72.1	91	42	59



## CSE Non-Return Valve

### PG TYPE



### CHECK VALVE MIDDLE CLAMP TYPE/WELD END

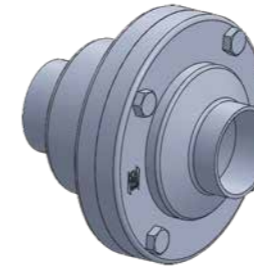
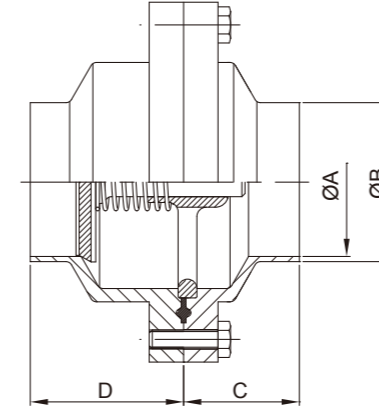
3A/BS	ØA	ØB	C	D
1/2"	9.4	12.7	24	34
3/4"	15.75	19.05	24	34
1.0"	22.1	25.4	34	48
1.5"	34.8	38.1	36	48
2.0"	47.5	50.8	36	48
2.5"	60.2	63.5	36	48
3.0"	72.9	76.2	36	48
4.0"	97.6	101.6	47	54

SMS	ØA	ØB	C	D
DN25	22.5	25	34	48
DN38	35.5	38	36	48
DN50	48.5	51	36	48
DN63	60.3	63.5	36	48
DN76	72.1	76.1	36	48
DN100	100	104	47	54

DIN	ØA	ØB	C	D
DN25	25	28	24	34
DN32	31	34	24	34
DN40	37	40	34	48
DN50	49	52	36	48
DN65	66	70	36	48
DN80	81	85	36	48
DN100	100	104	47	54

## CSE Non-Return Valve

### PG TYPE



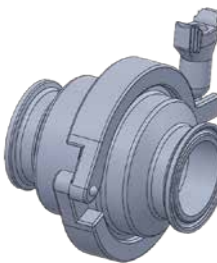
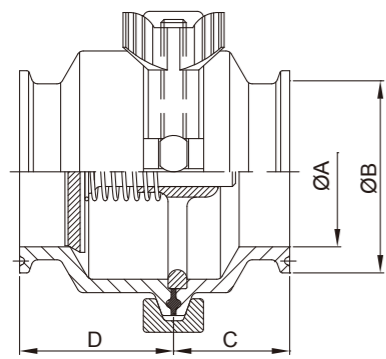
### CHECK VALVE MIDDLE FLANGE TYPE/WELD END

3A/BS	ØA	ØB	C	D
1.0"	22.1	25.4	34	48
1.5"	34.8	38.1	36	48
2.0"	47.5	50.8	36	48
2.5"	60.2	63.5	36	48
3.0"	72.9	76.2	36	48
4.0"	97.6	101.6	47	54

SMS	ØA	ØB	C	D
DN25	22.5	25	34	48
DN38	35.5	38	36	48
DN50	48.5	51	36	48
DN63	60.3	63.5	36	48
DN76	72.1	76.1	36	48
DN100	100	104	47	54

DIN	ØA	ØB	C	D
DN25	25	28	34	48
DN32	31	34	36	48
DN40	37	40	36	48
DN50	49	52	36	48
DN65	66	70	36	48
DN80	81	85	36	48

### PG TYPE



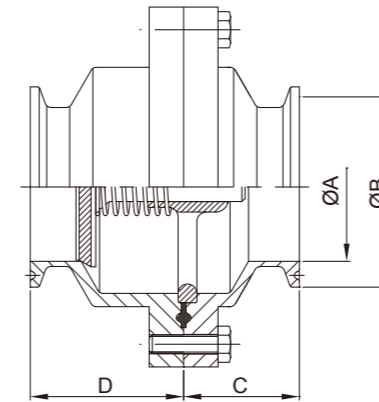
### CHECK VALVE MIDDLE CLAMP TYPE/CLAMP END

3A/BS	ØA	ØB	C	D
1/2"	9.4	25.2	28.5	39.5
3/4"	15.75	25.2	28.5	39.5
1.0"	22.1	50.5	34	48
1.5"	34.8	50.5	36	48
2.0"	47.5	64	36	48
2.5"	60.2	77.5	36	48
3.0"	72.9	91	36	48
4.0"	97.6	119	47	54

SMS	ØA	ØB	C	D
DN25	22.5	50.5	34	48
DN38	35.5	50.5	36	48
DN50	48.5	64	36	48
DN63	60.3	77.5	36	48
DN76	72.1	91	36	48
DN100	100	119	47	54

DIN	ØA	ØB	C	D
DN25	25	50.5	34	48
DN32	31	50.5	36	48
DN40	37	50.5	36	48
DN50	49	64	36	48
DN65	66	91	36	48
DN80	81	106	36	48
DN100	100	119	47	54

### PG TYPE



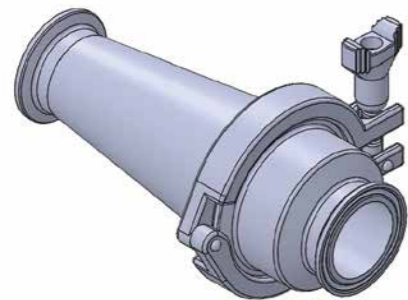
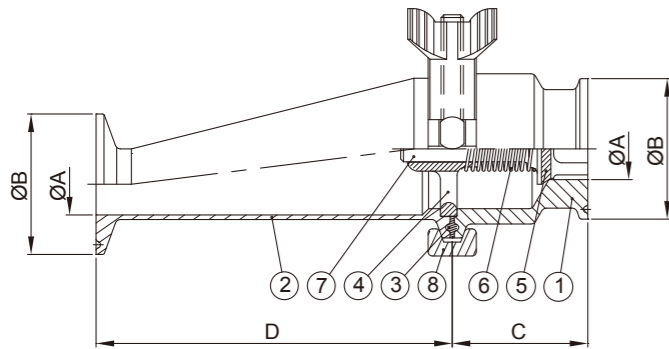
### CHECK VALVE MIDDLE FLANGE TYPE/CLAMP END

3A/BS	ØA	ØB	C	D
1.0"	22.1	50.5	34	48
1.5"	34.8	50.5	36	48
2.0"	47.5	64	36	48
2.5"	60.2	77.5	36	48
3.0"	72.9	91	36	48
4.0"	97.6	119	47	54

SMS	ØA	ØB	C	D
DN25	22.5	50.5	34	48
DN38	35.5	50.5	36	48
DN50	48.5	64	36	48
DN63	60.3	77.5	36	48
DN76	72.1	91	36	48
DN100	100	119	47	54

## CSE Non-Return Valve

### LEVEL TYPE

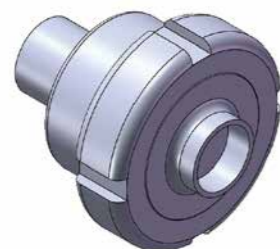
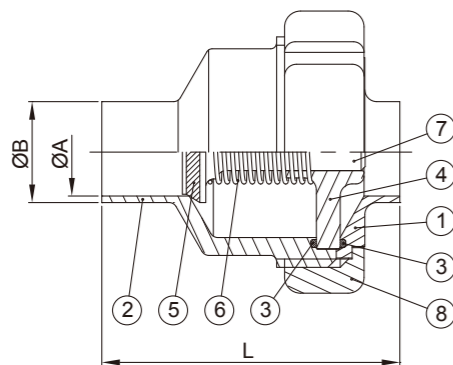


### 3A ECCENTRIC CHECK VALVE CLAMP END

SIZE	ØA	ØB	C	D
1.0"	22.1	50.5	48	127.3
1.5"	34.8	50.5	48	127.3
2.0"	47.5	64	48	127.3
2.5"	60.2	77.5	48	127.3

NO.	NAME
1	Short body
2	Long body
3	13PG
4	Flow support plate
5	Seal-Ring
6	Spring
7	Disc
8	Clamp

### UNION TYPE



### 3A CHECK VALVE WELD END

SIZE	ØA	ØB	L
1.0"	22.1	25.4	75
1.5"	34.8	38.1	76
2.0"	47.5	50.8	76
2.5"	60.2	63.5	78
3.0"	72.9	76.2	78
4.0"	97.6	101.6	80

NO.	NAME
1	Short body
2	Long body
3	O-Ring
4	Flow support plate
5	Seal-Ring
6	Spring
7	Disc
8	Nut

## CSE Hygienic Sight Glass



### CSE Hygienic Sight Glass:

**Glass:** Clean, High Press Pyrex Glass. Max Work 10 bar.  
Can be changeable.

**Body:** SUS304, 316L Precision Machined Body.  
With Width Connection End.3A, DIN, SMS, RJT, IDF  
Male/Male.Weld and Female End.

**Screw Blot:** Full Stainless Steel.

**Seal:** EPDM, Silicone and FKM.

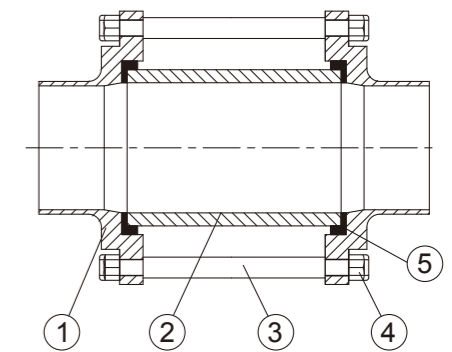
### Pyrex Glass data:

#### Pyrex Borosilicate Glass Composition

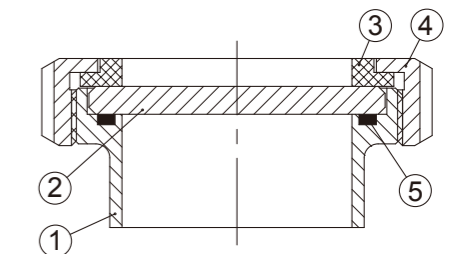
Contact	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	B <sub>2</sub> O <sub>3</sub>	Na <sub>2</sub> O	K <sub>2</sub> O
%	80.9	2.3	0.03	12.7	4.0	0.04

### Physical Properties

Young's module	6.4x10 <sup>5</sup> kg/cm <sup>3</sup>
Poisson's ratio	0.20
Shear modules	2.7x10 <sup>5</sup> kg/cm <sup>2</sup>
Knoop hardness (100g)	418KHN
Bending strength	4~7x10 <sup>5</sup> kg/cm <sup>2</sup>
Design stress (Safety factor)	67 kg/cm <sup>2</sup>



Item	Parts list
1	Body
2	High Pressure Clean Glass
3	Screw Blot
4	Nylon Lock Nut
5	Seal

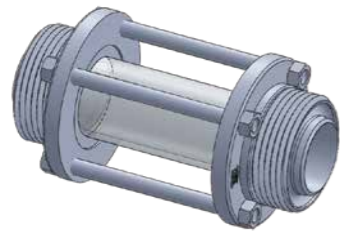
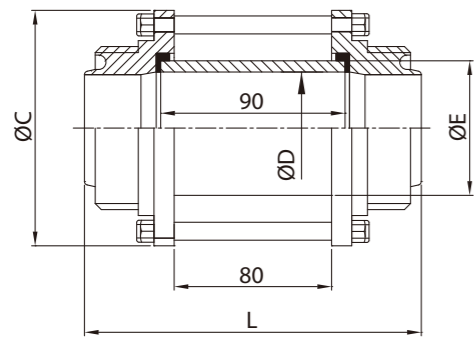


Item	Parts list
1	Body
2	High Press Clean Glass
3	Teflon Gasket
4	NUT
5	Seal

With weld end only!



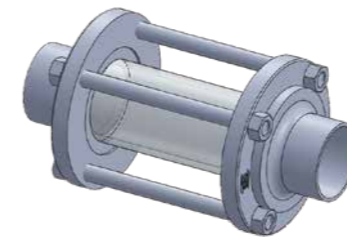
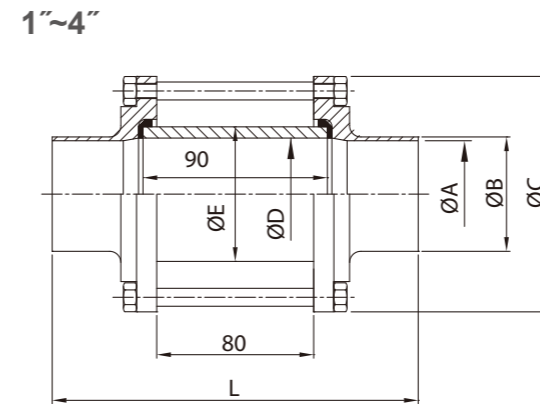
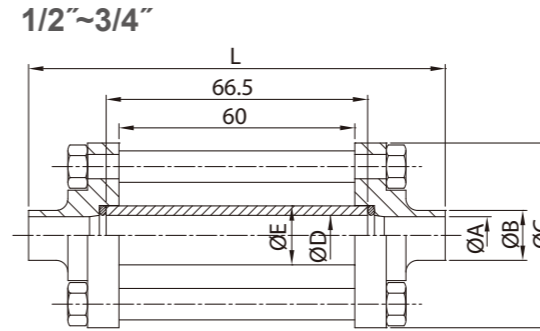
## CSE Hygienic Sight Glass



### RJT/SMS/DIN/IDF MALE END SIGHT GLASS

SIZE	ØC	ØD	ØE	L
25	79	26	32	148
38	85	34	40	156
50	105	50	60	160
63	112	65	75	160
76	125	75.4	85	162
100	157	100	110	168

## CSE Hygienic Sight Glass



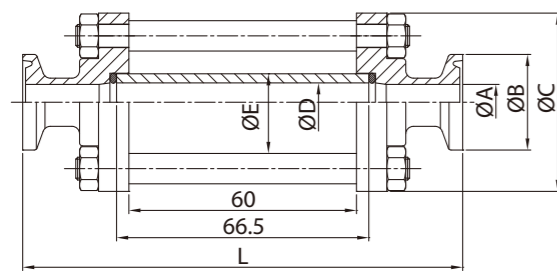
### 3A/BS WELD END SIGHT GLASS

SIZE	ØA	ØB	ØC	ØD	ØE	L
1/2"	9.4	12.7	47	10.2	15	106
3/4"	15.75	19.05	47	17	22	106
1.0"	22.1	25.4	79	26	32	148
1.5"	34.8	38.1	85	34	40	156
2.0"	47.5	50.8	105	50	60	160
2.5"	60.2	63.5	112	65	75	160
3.0"	72.9	76.2	125	75.4	85	162
4.0"	97.6	101.6	157	100	110	167

### SMS WELD END SIGHT GLASS

SIZE	ØA	ØB	ØC	ØD	ØE	L
DN25	22.5	25	79	26	32	148
DN38	35.4	38	85	34	40	156
DN50	48	51	105	50	60	160
DN63	60.2	63.5	112	65	75	160
DN76	72	76	125	75.4	85	162
DN100	100	104	157	100	110	168

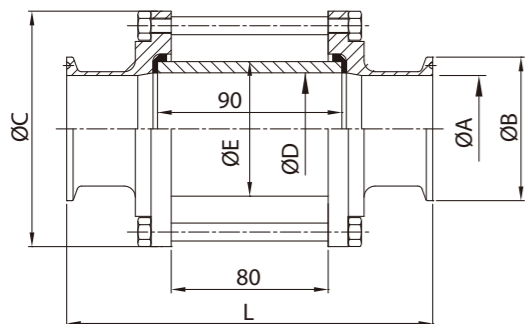
1/2"~3/4"



### 3A/BS CLAMP END SIGHT GLASS

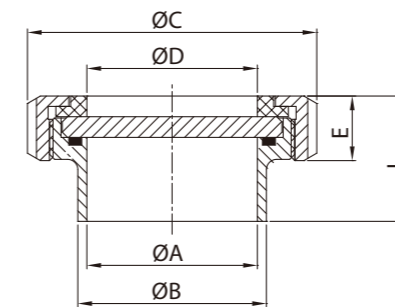
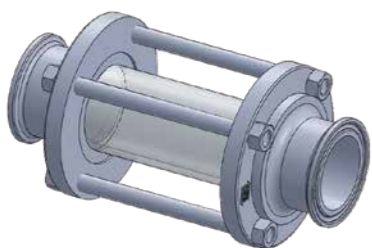
SIZE	ØA	ØB	ØC	ØD	ØE	L
1/2"	9.4	25.2	47	10.2	15	116
3/4"	15.75	25.2	47	17	22	116
1.0"	22.1	50.5	79	26	32	143
1.5"	34.8	50.5	85	34	40	146
2.0"	47.5	64	105	50	60	150
2.5"	60.2	77.5	112	65	75	150
3.0"	72.9	91	125	75.4	85	156
4.0"	97.6	119	157	100	110	156

1"~4"



### SMS CLAMP END SIGHT GLASS

SIZE	ØA	ØB	ØC	ØD	ØE	L
DN25	22.5	50.5	79	26	32	143
DN38	35.4	50.5	85	34	40	146
DN50	48	64	105	50	60	150
DN63	60.2	77.5	112	65	75	150
DN76	72	91	125	75.4	85	156
DN100	100	119	157	100	110	156



### DIN WELD END SIGHT GLASS

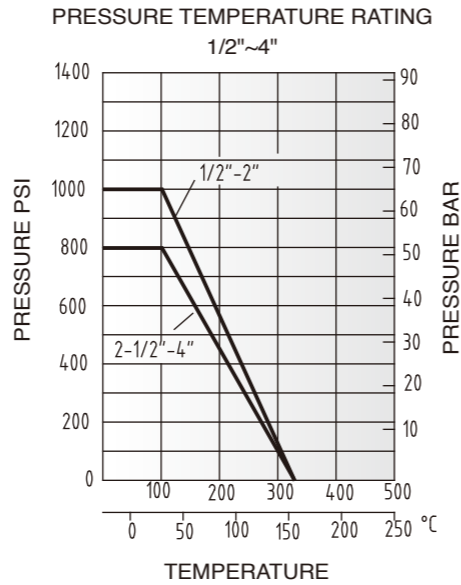
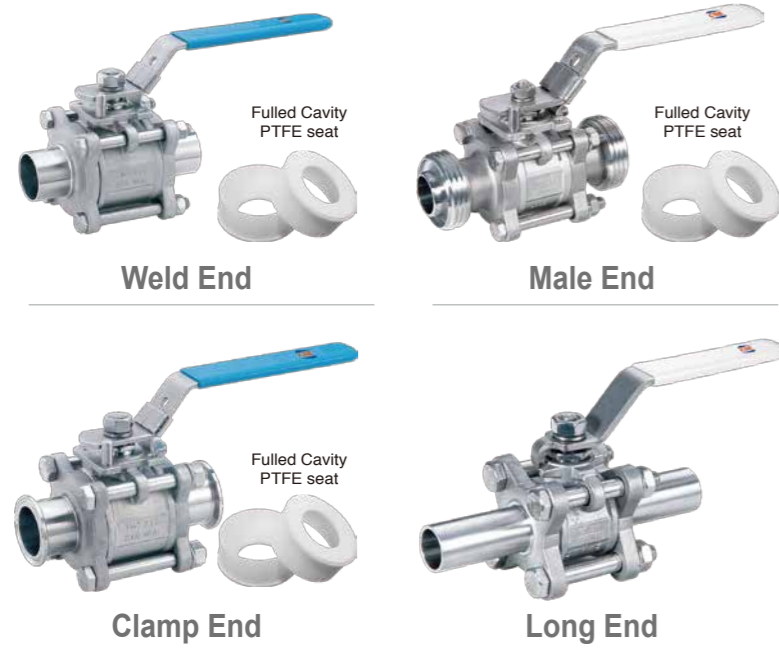
SIZE	ØA	ØB	ØC	ØD	E	L
DN25	26	35	63	26	21	37
DN32	32	41	70	32	21	40
DN40	38	48	78	38	21	41
DN50	50	61	92	50	22	42.5
DN65	66	79	112	66	25	48.5
DN80	81	93	127	82	29	52.5
DN100	100	114	148	100	31	61.5

### SMS WELD END SIGHT GLASS

SIZE	ØA	ØB	ØC	ØD	E	L
DN25	22.5	25	51	22.5	19	34
DN38	35.5	38	74	35.5	23	40
DN50	48.5	51	84	48.5	24	42
DN63	60.5	63.5	100	60.5	28	46
DN76	72.9	76.1	114	72.9	30	47
DN100	100	105	138	100	31	49



## Ball Valve For Food And BPE Use With ISO Mount Plate Weld/male/clamp End-fulled Cavity Seat



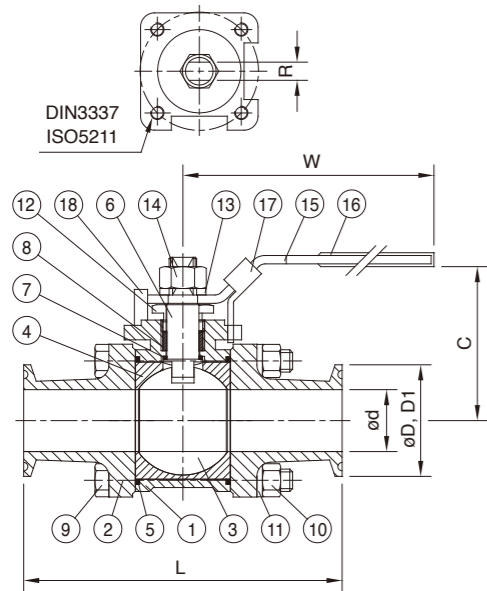
- Lock device can be required.
- 100% air tested under water at 100psi, open and closed positions.
- Hydrostatic test pressure :  
Body W.P 1000 PSI Tube End W.P 200 PSI
- Standard End: Weld & Clamp-End  
Other SMS. DIN. RJT. IDF  
Male/Male can be required.

### Specifications for clamp & weld end

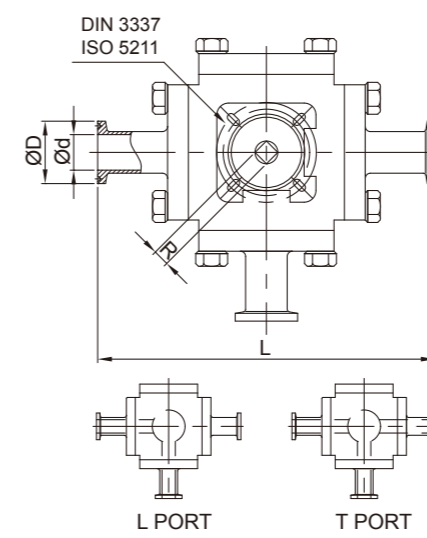
SIZE	1/2"	3/4"	1"	1.5"	2"	2.5"	3"	4"
	DN15	DN20	DN25	DN40	DN50	DN65	DN80	DN100
ISO-5211	F03	F03	F04	F05	F05	F07	F07	F10
C	58.3	62.9	68	87	95	127	136	159
ød	9.4	15.75	22.1	34.8	47.5	60.2	72.9	97.4
øD	25.2	25.2	50.5	50.5	64	77.5	91	119
øD1	12.7	19.05	25.4	38.1	50.8	63.5	76.2	101.6
L	89	101	114	140	156	197	229	243
R	5	5	6.5	8.5	8.5	12	12	16
W	130	130	166.7	194.3	194.3	252	252	333
L1	135	135	165	165	190	205	265	306

### Parts List

Item	Part Name	Material
1	Body	ASTM-A743-CF8M
2	Cap	ASTM-A743-CF8M
3	Ball	A351-CF8M
4	Seat	PTFE
5	Gasket	PTFE
6	Stem	SUS316
7	Thrust washer	PTFE
8	Stem packing	PTFE
9	Bolt	SUS304
10	Hex nut	SUS304
11	Bolt washer	SUS304
12	Gland	SUS304
13	Washer	SUS304
14	Nut	SUS304
15	Handle	SUS304
16	Plastic cover	Plastic
17	Lock device	SUS304
18	Stop pin	SUS304

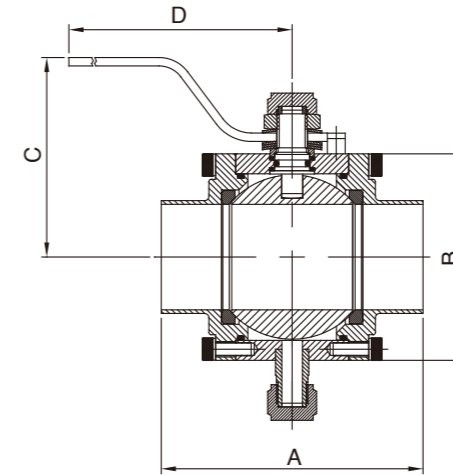


## Sanitary-Ball Valve For Food Chemical, and Vacuum use. With ISO Mount Plate Weld/Male End



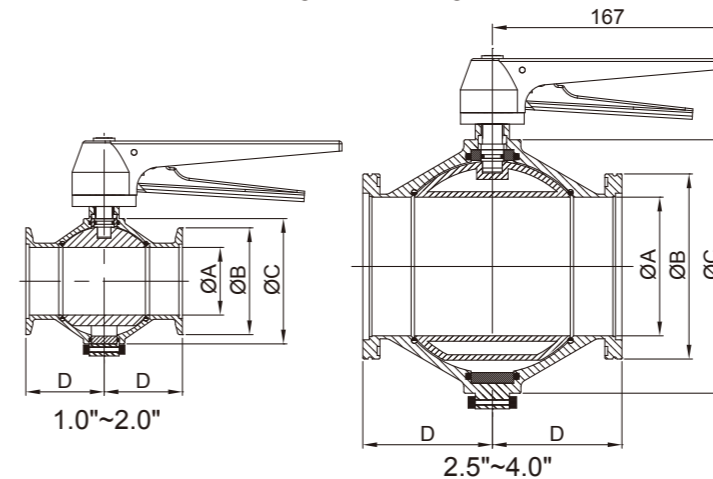
SIZE	ISO-5211	ød	øD	L	R	
1/2"	DN15	F03	9.5	25.4	118	9
3/4"	DN20	F03	15.8	25.4	127	9
1.0"	DN25	F04	22.2	50.4	152.6	11
1.5"	DN40	F05	35	50.4	175	14
2.0"	DN50	F05	47.6	63.9	190	14
2.5"	DN65	F07	60.2	77.5	228	17
3.0"	DN80	F10	73	90.9	260.6	22
4.0"	DN100	F10	97.4	118.9	290	22

## HIGH PURITY BALL VALVE - Filled Cavity PTFE Seat, or Half Cavity Seat



SIZE	A	B	C	D
1.0"	95.3	58.7	60.3	163.5
1.5"	108	77.8	71.4	163.5
2.0"	119	93.7	79.4	163.5
2.5"	135	106.4	85.7	163.5
3.0"	165.1	125.4	95.3	163.5

## Vacuum BFV Type Purity Ball Valve



SIZE	øA	øB	øC	D
1.0"	22.1	40	100	45
1.5"	34.8	55	105	55
2.0"	47.5	75	105	55
2.5"	60.2	95	145	65
3.0"	72.9	110	159	79
4.0"	97.4	130	198	91

## Sanitary-ball Valve For Food And Chemical Use With ISO Mount Plate Weld/male End



LIMIT SWITCH BOX-ALS10



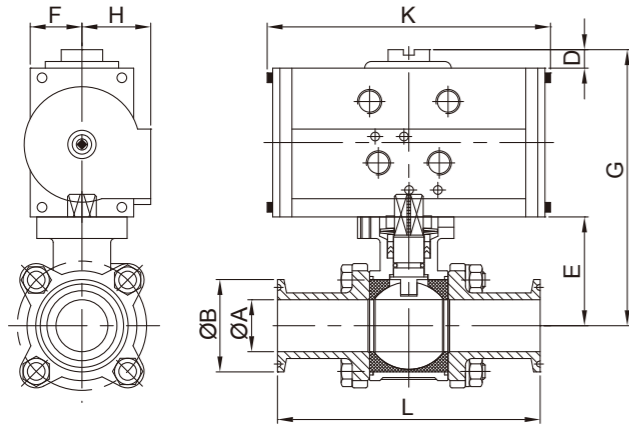
SOLENOID VALVE-SN3101 Series



Actuator can be installed on CSE 2 way or 3 way low & high ISO 5211 mount plate.  
(An additional bracket is needed in cases of low plate ball valves)

Material:ASTM-CF8M A351 (316)  
Seat:PTFE/PTFE+15% Gass Fiber.

VDA/VS	DN	D	F	G	H	K
C-125	15	20	28.5	121	33.7	120
C-125	20	20	28.5	131	33.7	120
C-250	25	20	33.6	156.2	47.8	144.3
C-450	40	20	43.5	196.2	51.5	149.2
C-1000	50	20	54.5	227.2	64.5	183
C-1000	65	20	54.5	250.2	64.5	183
C-2250	80	20	65	278.7	75.5	259.6
C-2250	100	20	65	302.2	75.5	259.6



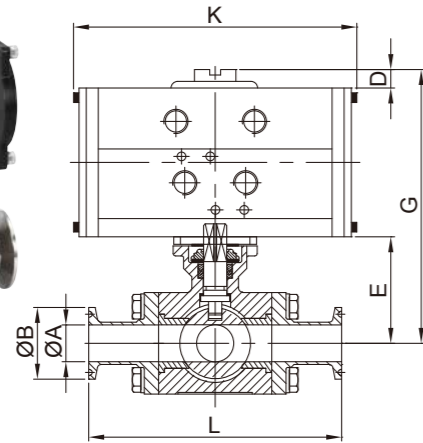
BALL VALVE / SERIES 26

SIZE	ISO-5211	øA	øB	E	L	TORQUE LBS / INCH	
1/2"	DN15	F03/F04	9.4	25.2	38.2	89	90
3/4"	DN20	F03/F04	15.75	25.2	47.5	101	100
1"	DN25	F04/F05	22.1	50.5	57	114	140
1.5"	DN40	F05/F07	34.8	50.5	78.55	140	240
2"	DN50	F05/F07	47.5	64	86.5	156	480
2.5"	DN65	F07/F10	60.3	77.5	109.2	197	650
3"	DN80	F07/F10	73	91	116.2	229	1150
4"	DN100	F10/F12	97.4	119	133.5	241	1400

VDA/VS	DN	D	F	G	H	K
C-125	15	20	28.5	121	33.7	120
C-125	20	20	28.5	131	33.7	120
C-250	25	20	33.6	156.2	47.8	144.3
C-450	40	20	43.5	196.2	51.5	149.2
C-1000	50	20	54.5	227.2	64.5	183
C-1000	65	20	54.5	250.2	64.5	183
C-2250	80	20	65	278.7	75.5	259.6
C-2250	100	20	65	302.2	75.5	259.6

BALL VALVE / SERIES 26

SIZE	ISO-5211	øA	øB	E	L	TORQUE LBS / INCH	
1/2"	DN15	F03	9.5	25.2	41	118	79
3/4"	DN20	F03	15.8	25.2	47.5	127	85
1"	DN25	F04	22.2	50.5	57	152.6	110
1.5"	DN40	F05	35	50.5	71.5	175	290
2"	DN50	F05	47.6	64	79.8	190	425
2.5"	DN65	F07	60.2	77.5	97.5	228	1085
3"	DN80	F07	73	91	120.5	260.6	1597
4"	DN100	F10	97.4	119	125.5	290	1780



HIGH MOUNT PLATE DESIGN

## CSE CHEMICAL BALL VALVE & CHEMICAL UNIONS



### Ball Valve

- 1PC- 800WOG Ball valve NPT, PF, BSPT thread end, PTFE/PTFE+15% glass fiber seat.
- 2PC- full port reduction port WOG 1,000psi Ball valve, with lock design and ISO 5211 mount plate can be specified.  
Flange end: PN 10/16 , JIS 5/10 K  
Seat: PTFE/PTFE+15% G.F
- 3PC- full port-WOG 1,000psi with lock design and ISO5211 mount plate can be specified.  
Flange end: PN 10/16 , JIS 5/10 K  
Seat: PTFE/PTFE+15% G.F

Design tested to CE 97/23/EC ART 3 § 3 ≤ DN25, and table 6 D1 standard.

ISO5211 mount plate and special design can be specified.



### Chemical Unions

CSE makes a full range of lost wax cast 150psi, screw fittings.  
We also offer high class chemical screw fittings, unions and nipples....with solid bar, hex bar, pipe and precision CNC finished surface.  
Welcome: OEM, ODM, services.



### Ball for Valve

Joint CSE Taiwan the abilities of the casting, CNC machining, welding, hydraulic pressure, polishing, multi-surface finished,CSE offer not only OEM parts, but also for parts of products, such as the BALL for ball valve.

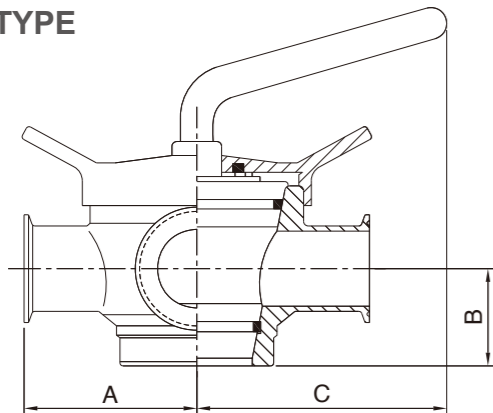
Material: Stainless steel 304 / 316 / 316L

## 2WAY & 3WAY Plug Valves



Plug Cock Valve are excellent hygienic design. Base on Taper and not any gasket in flow port. So, big popular use on the Milk industry. CSE Plug Cock combinec European and USA design, using pure materials and excellent processing technology. Material Plug- SS304 or SS316L with hard / thick chrome coation for long-term recycling and easy clean maintenance. Connect - Weld, Clamp and Male End. Max. Work pressure - 3 Bars~10 Bars.

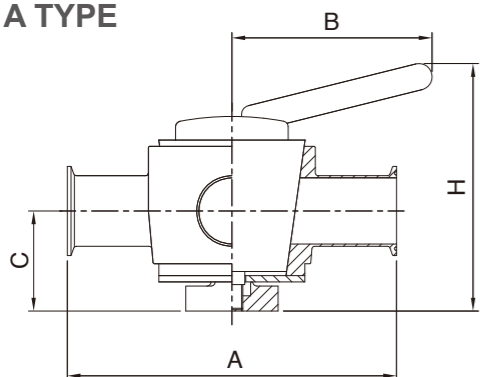
E TYPE



**2WAY & 3WAY-PLUG VALVE for Weld/- Male/Female/Clamp**

SIZE (Tube O.D)	Weld A	Male A	Clamp A	B	C
DN25 - 1"	66.3	95.3	94.9	26	139.19
DN40 - 1.5"	85.1	118.1	113.7	35	139.19
DN50 - 2"	114.2	149.2	142.8	45	143.01
DN65 - 2.5"	132.0	172.0	160.6	55	143.69
DN80 - 3"	168.6	213.6	197.2	70	143.81
DN100 - 4"	206.3	260.3	234.9	75	174.21

A TYPE

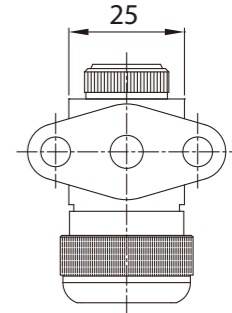
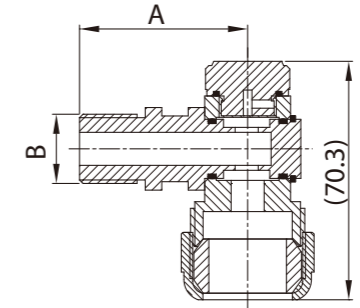


**2WAY & 3WAY-PLUG VALVE for Weld/- Male/Female/Clamp**

SIZE (Tube O.D)	Weld A	Clamp A	B	C	H
1"	184.2	115.9	117.0	58.3	128.4
1.5"	198.4	147.6	142.7	61.0	164.4
2"	223.8	173.0	144.2	72.4	178.0
2.5"	260.4	209.6	150.6	86.2	223.4
3"	290.5	239.7	180.7	90.6	241.4

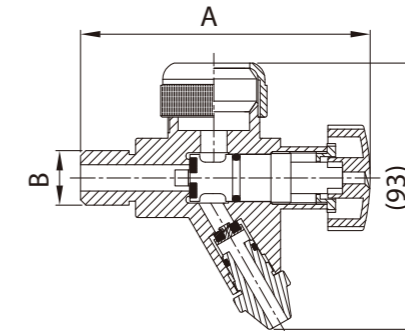
## CSE Sample Cock Valve

### Upper Valve



Type	A	B
16AMP	51	ø50.5
Ferrule	66.4	ø50.5
Male	51	1/2"-PF
Flange	52.6	60x29

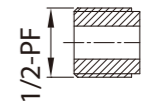
### Level Valve



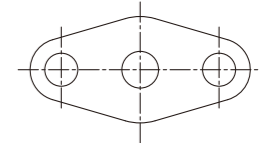
Type	A	B
16AMP	81.8	ø50.5
Ferrule	95.2	ø50.5
Male	109	1/2"-PF
Flange	81.5	60x29

### Connecting End

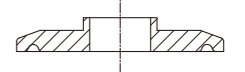
(1) PF Thread End



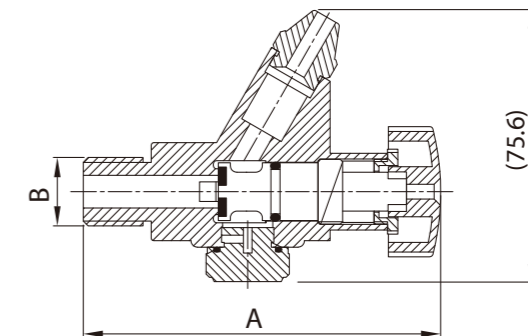
(2) Welding Flange End



(2) Welding Ferrule End



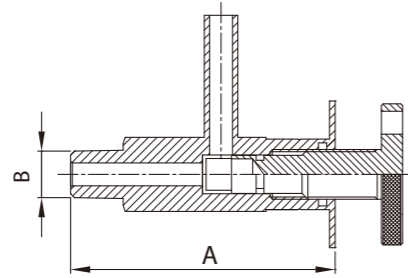
### Test Valve



Type	A	B
16AMP	81.8	ø50.5
Ferrule	95.33	ø50.5
Male	109	1/2"-PF
Flange	81.5	60x29

## CSE Sample Cock Valve

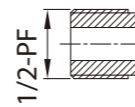
### A Type



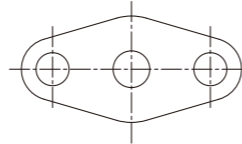
Type	A	B
16AMP	66.4	ø50.5
Ferrule	79.9	ø50.5
Male	75	1/4 NPT 3/8 NPT 1/2 NPT
Flange	81.5	60x29

### Connecting End

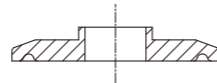
(1) PF Thread End



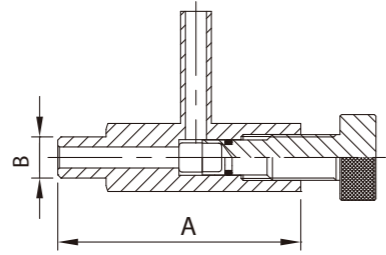
(2) Welding Flange End



(2) Welding Ferrule End

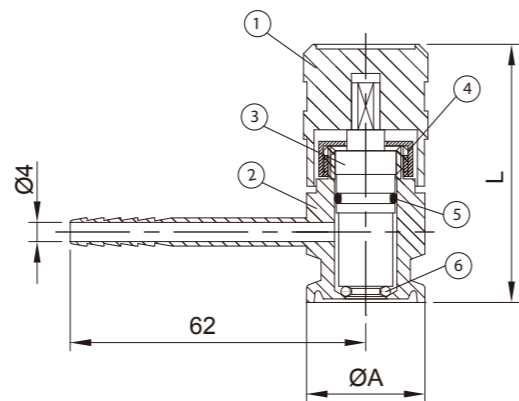


### B Type



Type	A	B
16AMP	(82)	ø50.5/ø64
Ferrule	(90.6)	ø25
Male	(91.9)	1/4 NPT 3/8 NPT 1/2 NPT

### C Type

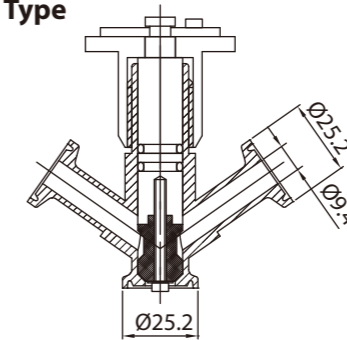


Item	PART NAME	Q'TY	MATERIAL
1	Rotating Nut	1	POM
2	Body	1	SUS304/316(L)
3	Flow support	1	SUS304/316(L)
4	Locknut	1	SUS304/316(L)
5	O-Ring	1	EPDM
6	O-Ring	1	EPDM

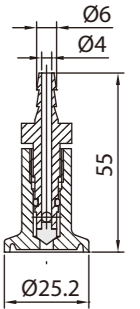
SIZE	ØA	L
1/2"	25.2	70
1"	50.5	70

## CSE Sample Cock Valve

### D Type

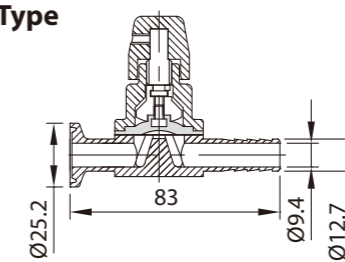


### F Type

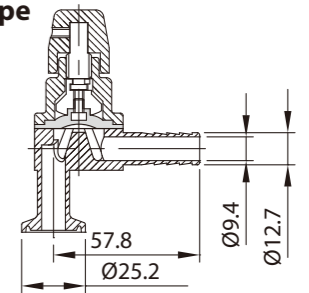


## CSE Diaphragm Sample Valve

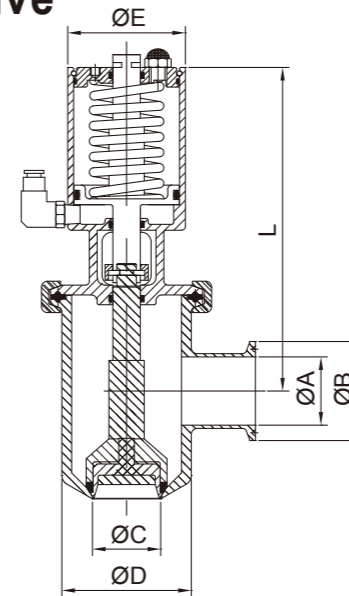
### I Type



### L Type

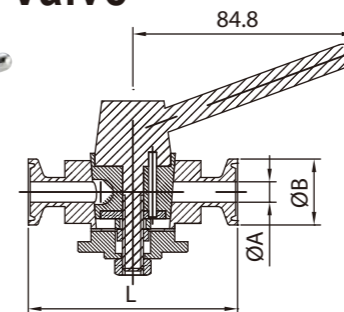


## CSE Filling Valve



SIZE	ØA	ØB	ØC	ØD	ØE	L
1"x1"	22.1	50.5	22.1	55	60	165
1"x1.5"	34.8	50.5	22.1	55	60	165
1"x2"	47.5	64	22.1	66	85	292
1.5"x1.5"	34.8	50.5	34.8	66	60	165
1.5"x2"	47.5	64	34.8	66	85	292

## CSE Four-way Valve



SIZE	ØA	ØB	L
3/8"	7.8	25.2	80
1/2"	9.4	25.2	80
3/4"	15.8	25.2	80

# CSE Hygienic Sample Valve for BPE

DA Type

DB Type

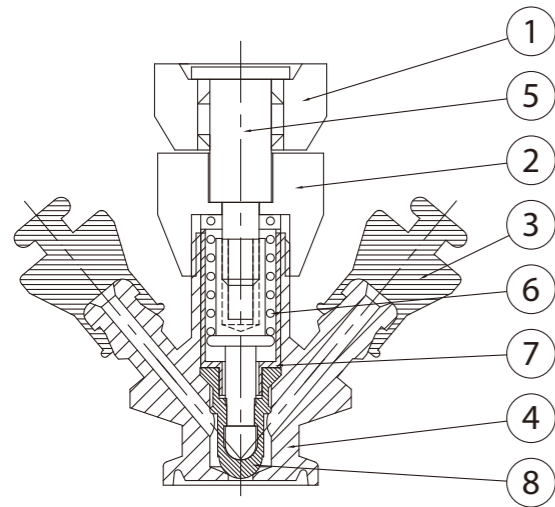


**Materials:**

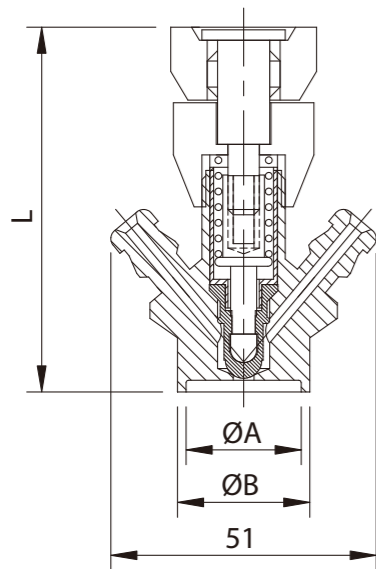
- Flow area: AISI 316L
- Other steel parts: AISI 316
- Plug stem: AISI 316L
- Gasket for flow area: EPDM/ Silicon/ FKM

**Technical data:**

- Temperature range: Full vacuum. -10°C to +140°C(EPDM).

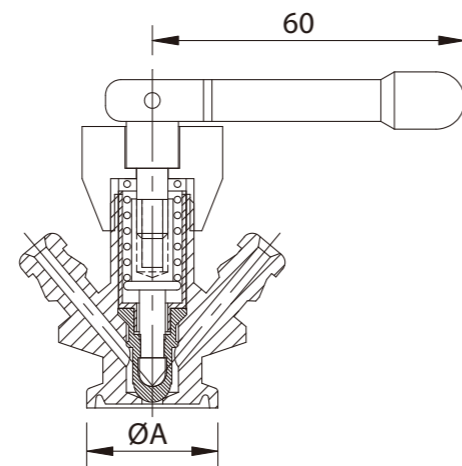


Parts List			
Item	Parts name	QTY	Material
1	Rotating Nut	1	SUS304/316(L)
2	Lucknut	1	SUS304/316(L)
3	Seal	1	EPDM
4	Body	1	SUS304/316(L)
5	Flow Supports	1	SUS304/316(L)
6	Spring	1	SUS304/316(L)
7	Bushing	1	SUS304/316(L)
8	Seal	1	EPDM



**Weld**

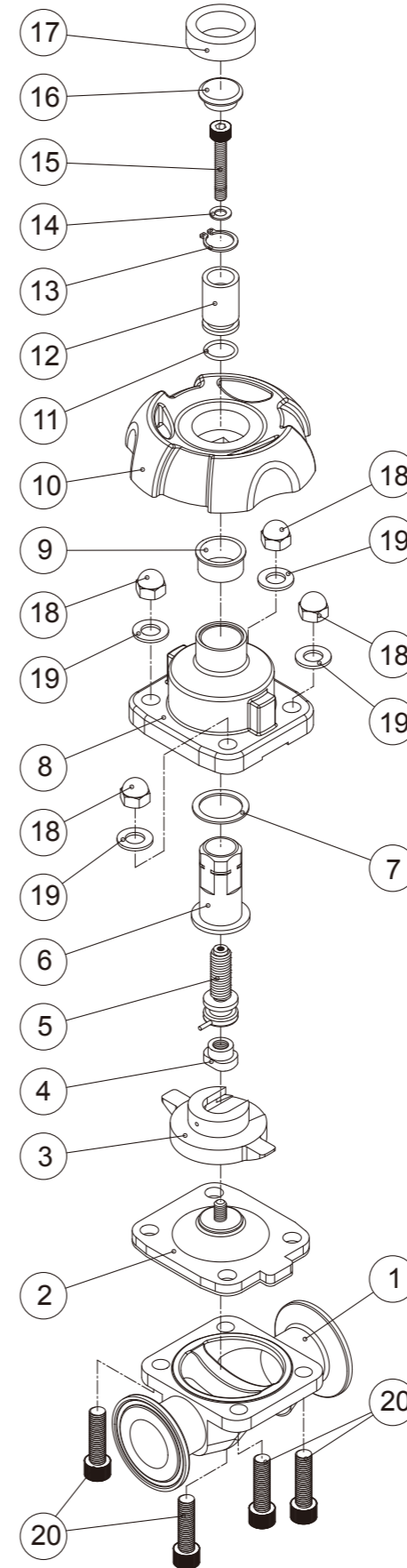
SIZE	ØA	ØB	L
1/2"	9.4	12.7	71.5
3/4"	15.75	19.05	71.5
1.0"	22.1	25.4	71.5



**Clamp**

SIZE	ØA	L
A37	34	70
1/2"	25.2	70
3/4"	25.2	70
1.0"	50.5	70

# Pneumatic/Manual Diaphragm Valve 2WAY/Tank Bottom Valve



Parts List			
Item	Parts name	QTY	Material
1	Body	1	SUS316L
2	Seal	1	EPDM+PTFE
3	Seat	1	SUS304
4	Screw	1	SUS304
5	Blot	1	SUS304
6	Blot sleeve	1	SUS304
7	Seal	1	PTFE
8	Bonnet	1	SUS304
9	sleeve	1	PEEK
10	Handwheel	1	EPDM+PTFE
11	O-Ring	1	NBR
12	Positioning index	1	MC(Blue)
13	Circlip	1	SUS304
14	Washer	1	SUS304
15	Screw	1	SUS304
16	Cover	1	MC(Blue)
17	CAP	1	EPDM+PTFE
18	Nut	4	SUS304
19	Washer	4	SUS304
20	Screw	4	SUS304

**Material:**

- Body: Forged/316L
- Diaphragm: EPDM+PTFE/NC or NO
- The seal of Diaphragm is exchangeable with GEMU

**Connection:**

- Clamp end/weld end

**Body type:**

- Direct connection(two way)/equal T/ reducing T/U-point.....

**Operation:**

- Normal open/normal close

**Work temp:**

- Diaphragm: EPDM+PTFE(-10°C~150°C)

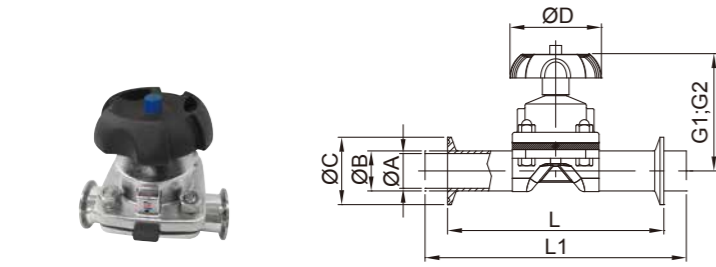
**Work pressure:**

- Max: 10 Bar

**Surface:**

- SF1: ID polished to Ra ≤ 0.5µm/ SF4: EP finished to Ra ≤ 0.38µm/ ID/OD mirror polished & ID Ra ≤ 0.5µm/OD sand blasted.....

## Pneumatic/Manual Diaphragm Valve 2WAY

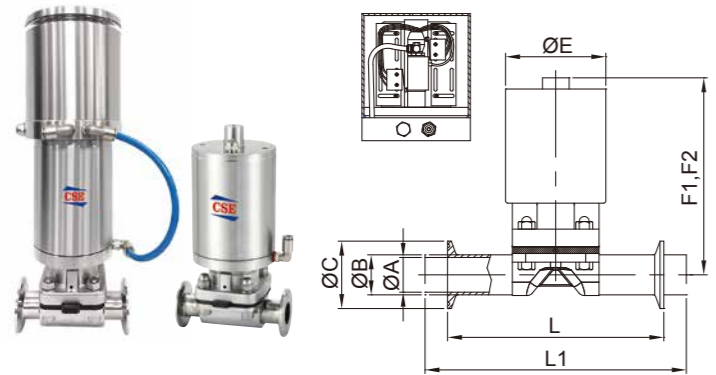


### 3A/BPE

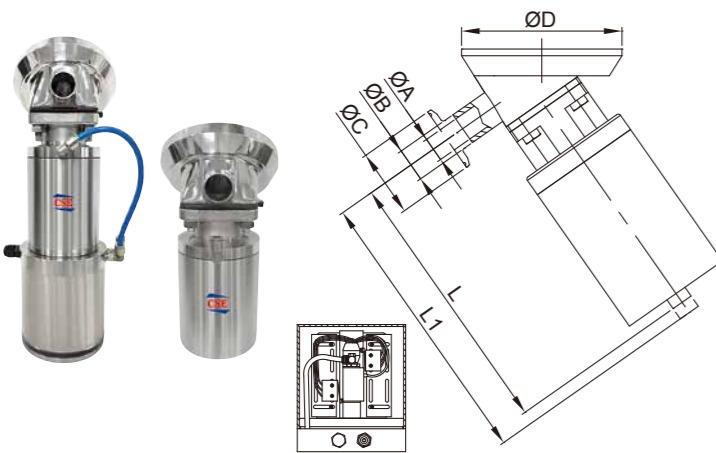
SIZE	1/2"	3/4"	1"	1.5"	2"
ØA	9.4	15.75	22.1	34.8	47.5
ØB	12.7	19.05	25.4	38.1	50.8
ØC-3A	25	25	50.5	50.5	64
ØC-BPE	25	25	25/50.39	50.39	63.91
ØD	60	60	95	95	118
ØE	60	60	85	85	133
F1	122	122	212	217	315
F2	131	131	225	232	333
G1	74	74	100	119	135
G2	83	83	113	134	153
L	88.9	101.6	114.3	139.7	158.8
L1	124	135	141.2	168.4	190.5

### DIN

DIN	DN10	DN20	DN25	DN32	DN40	DN50
ØA	10	20	26	32	38	50
ØB	13	23	29	35	41	53
ØC	34	34	50.5	50.5	50.5	64
ØD	—	60	60	95	95	118
ØE	60	85	85	85	85	133
F1	122	212	212	217	217	315
F2	131	225	225	232	232	333
G1	74	100	100	119	119	135
G2	83	113	113	134	134	153
L	88.9	101.6	114.3	139.7	139.7	158.8
L1	124	135	141.2	168.4	168.4	190.5



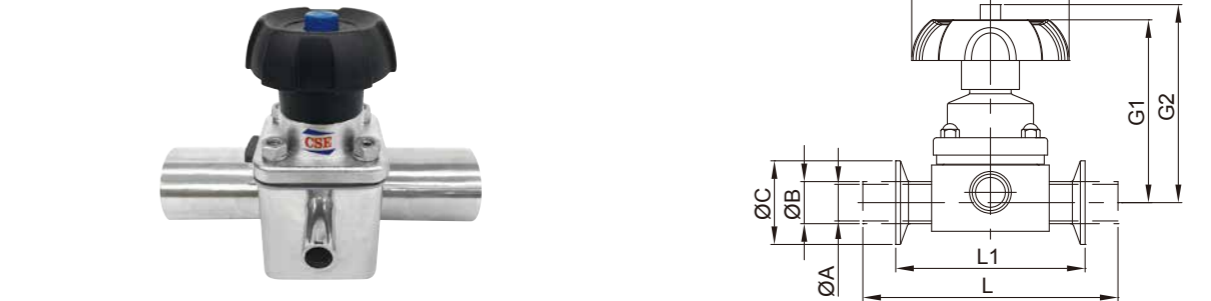
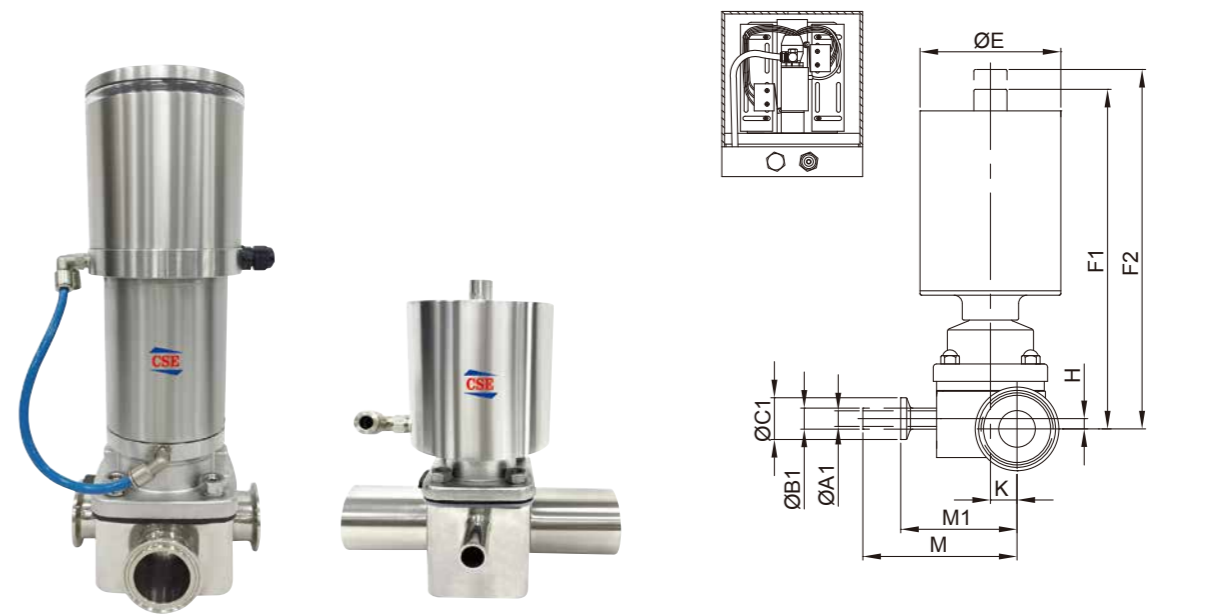
## Tank Bottom Valve



SIZE	1/2"	3/4"	1"	1.5"	2"
ØA	9.4	15.75	22.1	34.8	47.5
ØB	12.7	19.05	25.4	38.1	50.8
ØC	25	25	50.5	50.5	64
ØD	100	100	120	160	160
L	122	122	212	217	315
L1	131	131	225	232	333
L2	74	74	100	119	135
L3	83	83	113	134	153

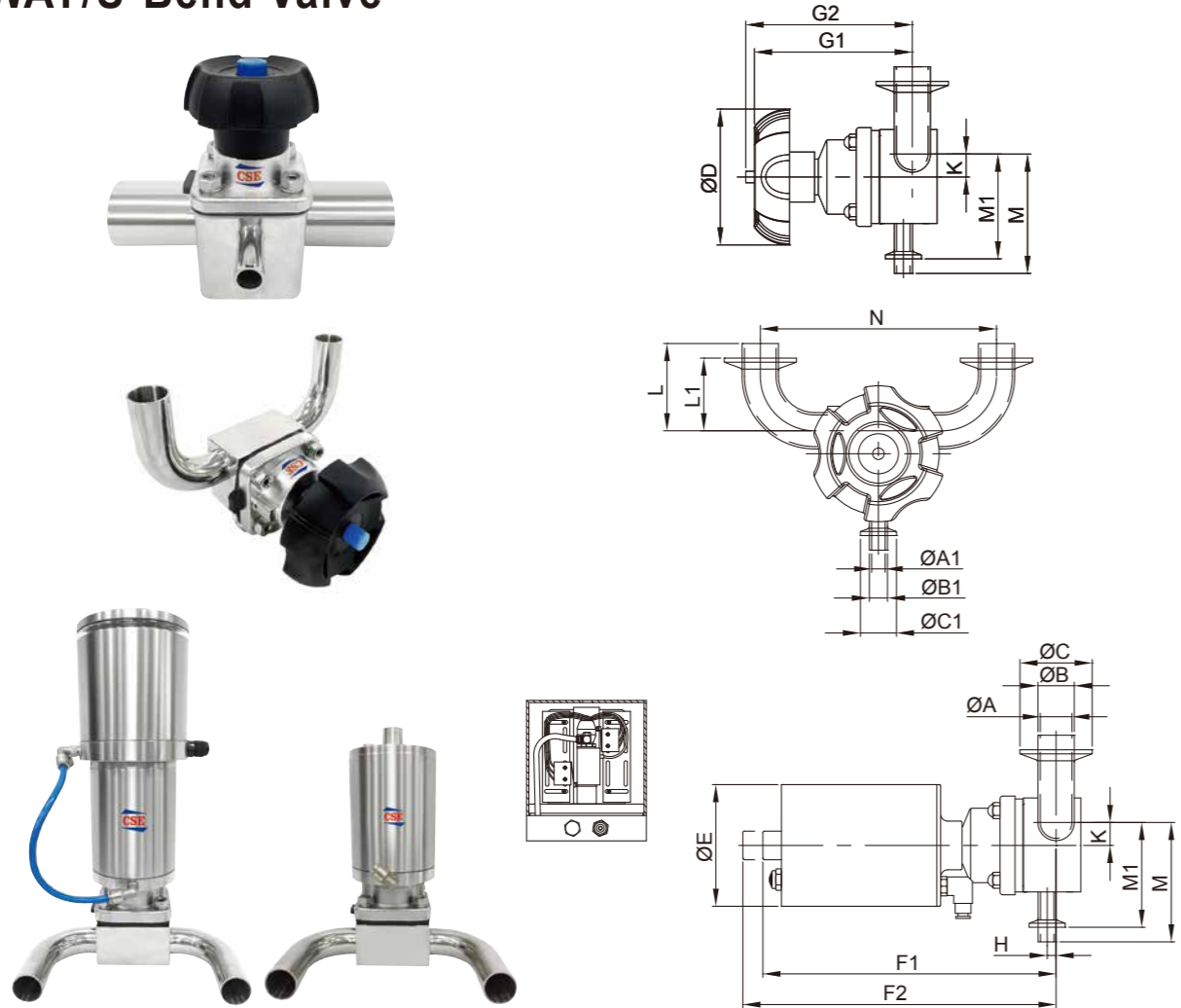


## Pneumatic/Manual Diaphragm Valve T-TYPE 3WAY



SIZE	1/2"x1/2"	1/2"x3/4"	1/2"x1"	1/2"x1.5"	1/2"x2"	3/4"x3/4"	3/4"x1"	3/4"x1.5"	3/4"x2"	1"x1"	1"x1.5"	1"x2"	1.5"x1.5"	1.5"x2"	2"x2"
ØA	9.4	15.75	22.1	34.8	47.5	15.75	22.1	34.8	47.5	22.1	34.8	47.5	34.8	47.5	47.5
ØB	12.7	19.05	25.4	38.1	50.8	19.05	25.4	38.1	50.8	25.4	38.1	50.8	38.1	50.8	50.8
ØC	25	25	50.5	50.5	64	25	50.5	50.5	64	50.5	50.5	64	50.5	64	64
ØA1	9.4	9.4	9.4	9.4	9.4	15.75	15.75	15.75	15.75	22.1	22.1	22.1	34.8	34.8	47.5
ØB1	12.7	12.7	12.7	12.7	12.7	19.05	19.05	19.05	19.05	25.4	25.4	25.4	38.1	38.1	50.8
ØC1	25	25	25	25	25	25	25	25	25	50.5	50.5	50.5	50.5	50.5	64
ØD	60	60	60	60	60	60	60	60	60	95	95	95	95	95	118
ØE	60	60	60	60	60	60	60	60	60	85	85	85	85	85	133
F1	122	122	122	122	122	122	122	122	122	212	212	212	217	217	315
F2	131	131	131	131	131	131	131	131	131	225	225	225	232	232	333
G1	74	74	74	74	74	74	74	74	74	100	100	100	119	119	135
G2	83	83	83	83	83	83	83	83	83	113	113	113	134	134	153
H	—	6.18	13.2	19.5	19.5	4.5	10.7	17.5	17.5	6.2	14.5	18.4	6.2	13.7	—
K	6.8	9.98	13.15	19.5	25.85	9.98	13.15	19.5	25.85	16.05	22.4	28.75	22.4	28.75	28.75
L	139.7	139.7	154	153.6	153.6	139.7	153.6	153.6	153.6	172.6	172.6	172.6	197.6	197.6	211.6
L1	88.9	88.9	114.3	114.3	114.3	88.9	114.3	114.3	114.3	114.3	114.3	114.3	139.7	139.7	158.8
M	69.4	72.58	75.75	82.1	88.45	72.58	75.75	82.1	88.45	86.65	93	99.35	105	111.35	123.75
M1	51	54.18	57.35	63.7	70.05	54.18	57.35	63.7	70.05	70.6	74.6	80.95	86.6	92.95	98.95

# Pneumatic/Manual Diaphragm Valve 3WAY/U-Bend Valve

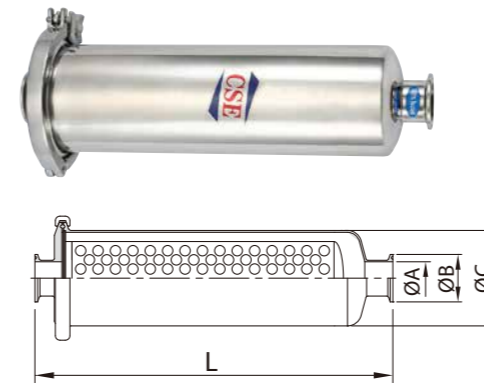


SIZE	1/2"x1/2"	3/4"x1/2"	1"x1/2"	1.5"x1/2"	2"x1/2"	3/4"x3/4"	1"x3/4"	1.5"x3/4"	2"x3/4"	1"x1"	1.5"x1"	2"x1"	1.5"x1.5"	2"x1.5"	2"x2"
ØA	9.4	15.75	22.1	34.8	47.5	15.75	22.1	34.8	47.5	22.1	34.8	47.5	34.8	47.5	47.5
ØB	12.7	19.05	25.4	38.1	50.8	19.05	25.4	38.1	50.8	25.4	38.1	50.8	38.1	50.8	50.8
ØC	25	25	50.5	50.5	64	25	50.5	50.5	64	50.5	50.5	64	50.5	64	64
ØA1	9.4	9.4	9.4	9.4	9.4	15.75	15.75	15.75	15.75	22.1	22.1	22.1	34.8	34.8	47.5
ØB1	12.7	12.7	12.7	12.7	12.7	19.05	19.05	19.05	19.05	25.4	25.4	25.4	38.1	38.1	50.8
ØC1	25	25	25	25	25	25	25	25	25	50.5	50.5	50.5	50.5	64	64
ØD	60	60	60	60	60	60	60	60	60	95	95	95	95	95	118
ØE	60	60	60	60	60	60	60	60	60	85	85	85	85	85	133
F1	122	122	122	122	122	122	122	122	122	212	212	212	217	217	315
F2	131	131	131	131	131	131	131	131	131	225	225	225	232	232	333
G1	74	74	74	74	74	74	74	74	74	100	100	100	119	119	135
G2	83	83	83	83	83	83	83	83	83	113	113	113	134	134	153
H	—	6.18	13.44	19.5	19.5	4.5	10.7	17.5	17.5	6.2	14.5	18.4	6.2	13.7	—
K	6.8	9.98	13.15	19.5	25.85	9.98	13.15	19.5	25.85	16.05	22.4	28.75	22.4	28.75	28.75
L	57.15	66.68	76.2	95.3	120.7	66.68	76.2	95.3	120.7	76.2	95.3	120.7	95.3	120.7	120.7
L1	31.75	41.25	50.8	69.9	88.9	41.28	50.8	69.9	88.9	50.8	69.9	88.9	69.9	88.9	88.9
M	69.4	72.85	75.75	82.1	88.45	72.58	72.75	82.1	88.45	70.6	93	99.35	105	111.35	123.75
M1	51	54.18	57.35	63.7	70.05	54.18	57.35	63.7	70.05	68.25	74.6	80.95	86.6	92.95	98.95
N	101.7	120.7	165.1	203.3	241.3	120.7	165.1	203.3	241.3	165.1	203.3	241.3	228.7	266.7	285.8

# CSE S-TRAINERS

- Material: SUS304/SUS316L
- Mesh: 20~400
- Aperture Size: 1~10(mm)
- P.D.Press(MPa): 0.05~0.2
- Types: Weld end/ Clamp end/ Male end/ Female end

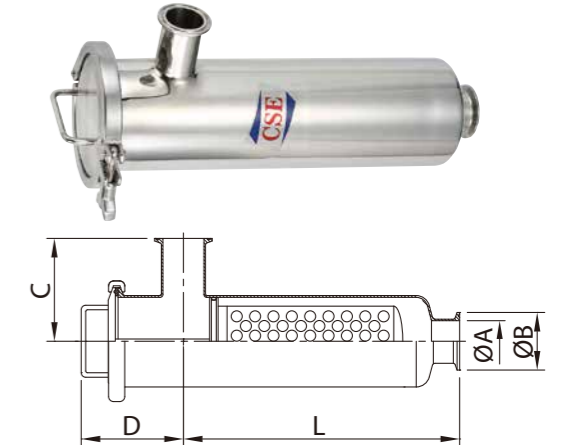
## INLINE STRAINER I TYPE



### STRAINER INLINE TYPE (I)

SIZE	ØA	ØB	ØC	L
1.0"	22.2	50.5	101.6	380
1.5"	34.8	50.5	101.6	380
2.0"	47.5	64	101.6	380
2.5"	60.2	77.5	101.6	450
3.0"	72.9	91	101.6	550

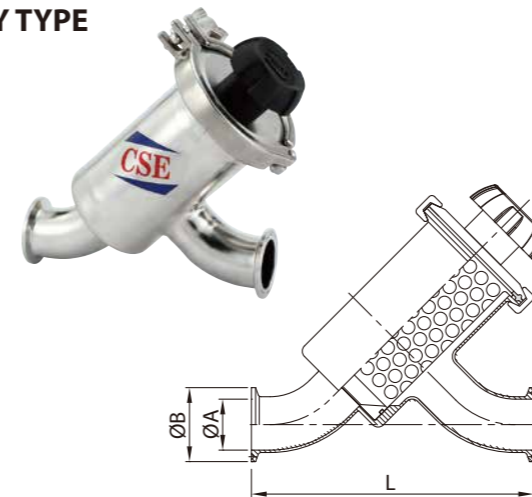
## SIDE OUTLET STRAINER L TYPE



### STRAINER SIDE OUTLET TYPE (L)

SIZE	ØA	ØB	C	D	L
1"	22.1	50.5	104.8	110	310
1.5"	34.8	50.5	104.8	110	310
2"	47.5	64	114.3	110	310
2.5"	60.2	77.5	108	110	410
3"	72.9	91	108	110	490

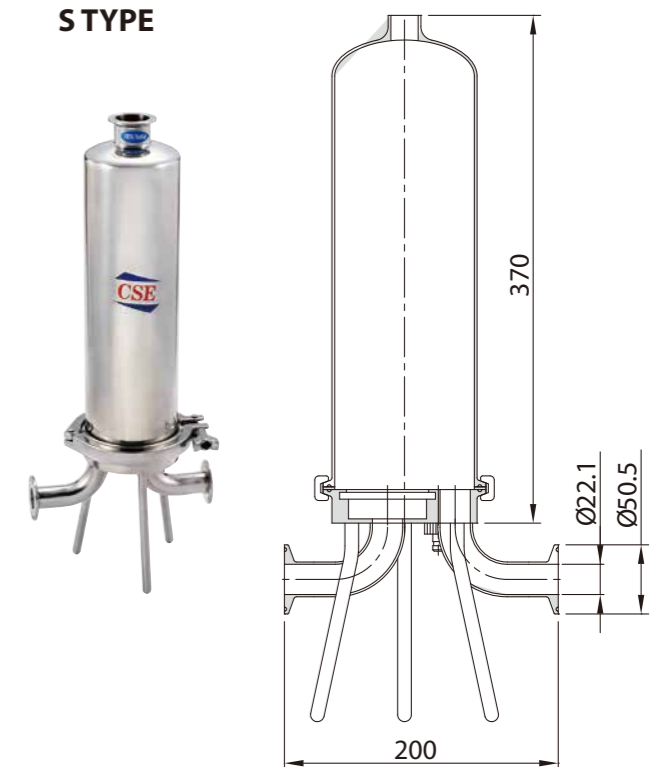
## Y TYPE



### STRAINER Y TYPE

SIZE	ØA	ØB	L
1.0"	22.1	50.5	155.65
1.5"	34.8	50.5	192.63
2.0"	47.5	64	208.17
2.5"	60.2	77.5	271.26
3.0"	72.9	91	300.83

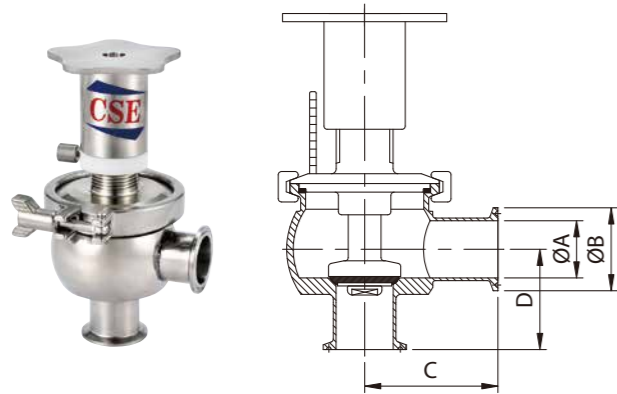
## S TYPE





## CSE Kinds of Special Valve

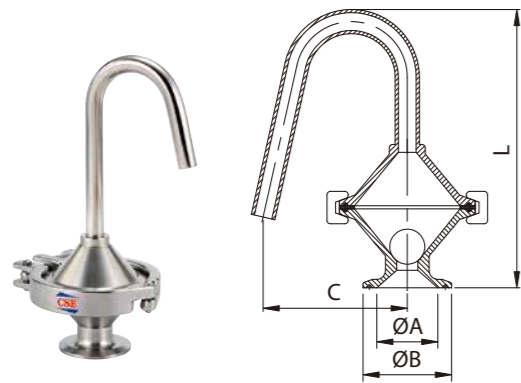
- Material: SUS304 or SUS316L.  
Forged or Solid Bar Body.
- Surface: Polished, Electric Polished.  
ID Ra<0.8µm. or 0.4µm.
- Can be made by your requirement design.



**For your safety relief poessure.**  
(Working pressure-0.1~7kgs/cm<sup>2</sup>.)

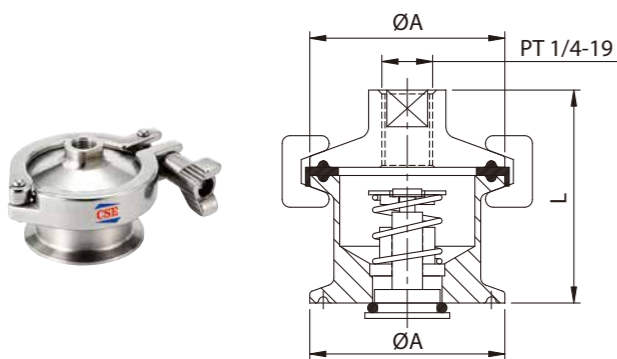
### Relief Valve

SIZE	ØA	ØB	C	D
1.0"	22.1	50.5	63.5	63.5
1.5"	34.8	50.5	69.85	69.85
2.0"	47.5	64	88.9	88.9
2.5"	60.2	77.5	88.9	88.9
3.0"	60.2	91	95.25	95.25



**Relief out over-load Air pressure on your Tank or Pipe Line.**  
**Air Release Valve**

SIZE	ØA	ØB	C	L
1.0"	22.1	50.5	82	158
1.5"	34.8	50.5	82	158
2.0"	47.5	64	82	158



**For Air Clean out the pipe Line.**  
**Air Blow Valve**

SIZE	ØA	L
1.0"	50.5	55
1.5"	50.5	55
2.0"	64	55

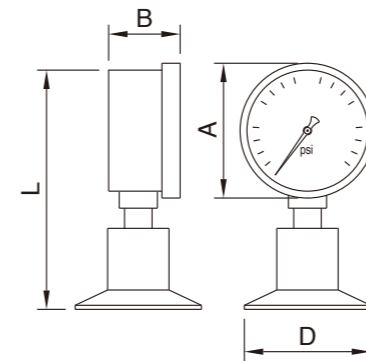
## CSE OEM series valves



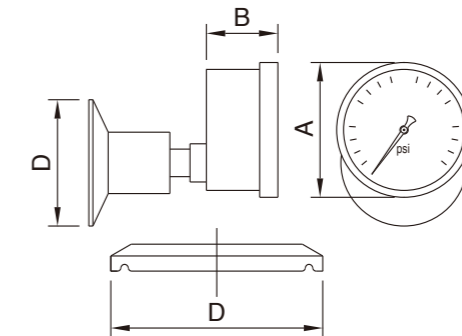
## Sanitary Standard Pressure Gauge

### Note:

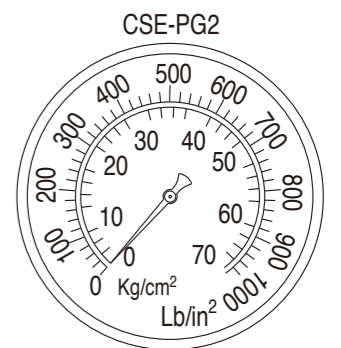
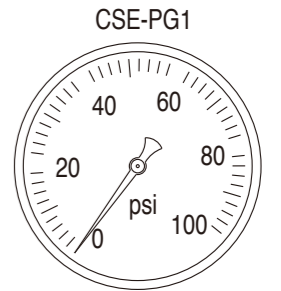
Sanitary pressure gauges are stainless steel products specifically designed to meet the demanding sanitary requirements for food dairy, beverage, pharmaceutical and biotech applications. Complies with 3A sanitary standard, water-proof, shock resistant, and closed structures are durable and accurate, good for long time running. All series are liquid-filled, special materials movement and bourdon tube have lasting durability. It is applicable to the places of both strong fluctuation and non-corrosive fluid, such as air, water and oil.



SIZE	A	B	L
Ø50	56	30	100
Ø63	69	30	122
Ø80	89	30	140
Ø100	112	47	166
Ø160	160	50	224



SIZE	D (Tri-clamp)
1.0"	50.5
1.5"	50.5
2.0"	64
2.5"	77.5
3.0"	91
4.0"	119

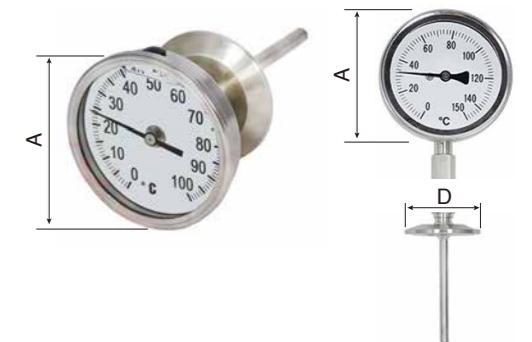


- Process connection : 1-1/2" , 2.0" , 2-1/2"
- Quick-release clamp piping system
- Suitable Pressure Ranges : 15psi to 600psi
- Instrument Connection : 1/4"NPT /BSPT or 1/2"NPT /BSPT
- Case & Movement Material : SS304
- Connection Material : SUS316L
- Diaphragm Material : SUS316L
- Fill Fluid : Glycerined (Vegetable oil)
- Bourdon Tube Material : SUS316L
- Ferrule Material : SUS304/SUS316L
- Lens : Safety Glass
- Max temperature : tandard-120°C , special-150°C

### Thermometer

CSE-TM-T

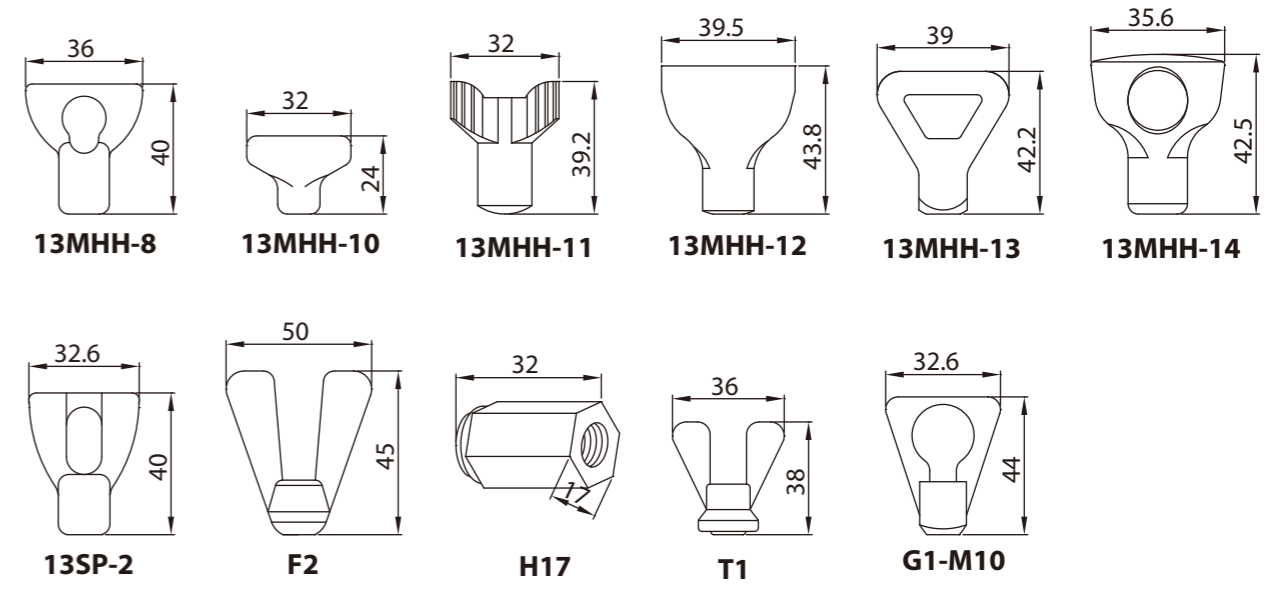
CSE-TM-I



- Process connection : 1-1/2" ~ 4"
- Quick-release clamp piping system
- Case & Movement Material : SS304
- Ferrule Material : SS304/ SUS316
- Lens : Safety Glass



### Heavy Duty Clamp-Ring

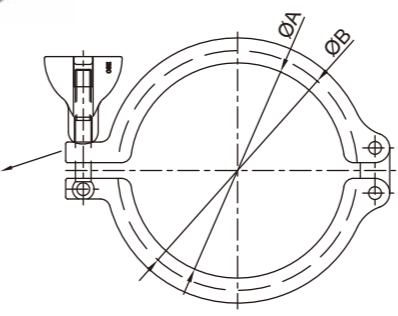


## Sanitary Components, Fitting..

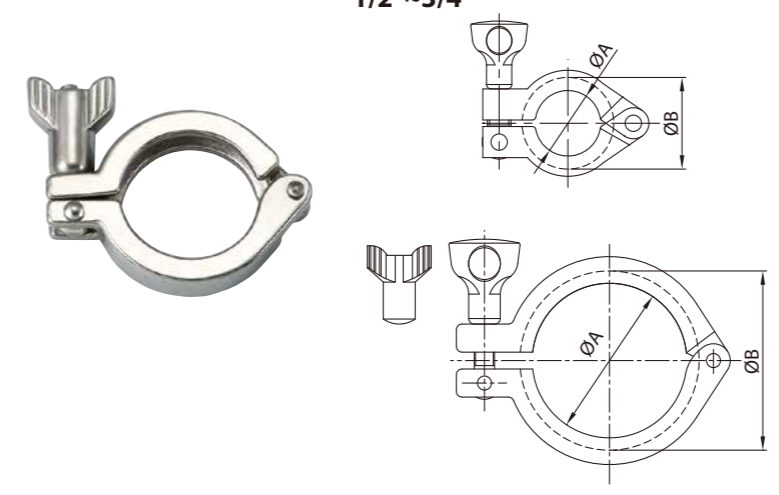


#### 13SC safety clamps

Imperial	ØA	ØB	DN	ØA	ØB
1/2"~3/4"	20.58	28.34	DN10~DN20	27.2	37
1.0"~1.5"	41.02	53.52	DN25~DN40	44.5	54.5
2.0"	54.54	67.04	DN50	57	68
2.5"	68.02	80.52	DN65	84	95
3.0"	81.52	94.02	DN80	99	110
4.0"	109.54	122.04	DN100	112	123
6.0"	157.6	175.1	DN115	123	134
8.0"	207.4	225.9	DN125	144	159
			DN150	172	187
			DN200	222.5	237.5
			DN250	257	272
			DN300	308	323



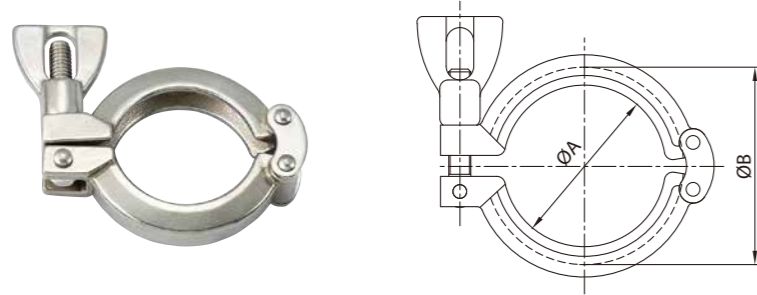
#### 1/2"~3/4"



#### 13MHH HEAVY DUTY SINGLE PIN CLAMP

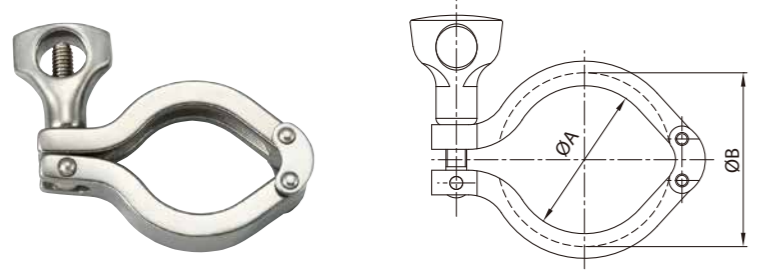
SIZE	ØA	ØB
1/2"~3/4"	21.2	28.2
A37	27.8	37
1"~1.5"	42	53.6
2"	55.4	67
2.5"	69	80.6
3"	82.6	94.2
3.5"	97.6	109.2
4"	110.6	122.2
4.5"	121.6	133.2
6"	156.2	170.4
8"	205.8	220

## Heavy Duty Clamp-Ring



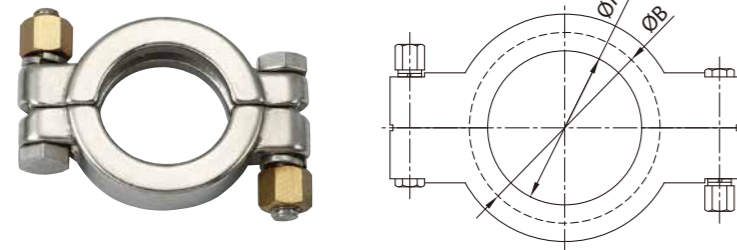
**13SF HEAVY DUTY DOUBLE PIN CLAMP**

SIZE	ØA	ØB
1/2"~3/4"	20	28
A37	27.5	42.9
1"~1.5"	45	53.6
2"	59	72
2.5"	67	84
3"	85	98
4"	114	127
6"	158	178
8"	210	227
10"	262	278



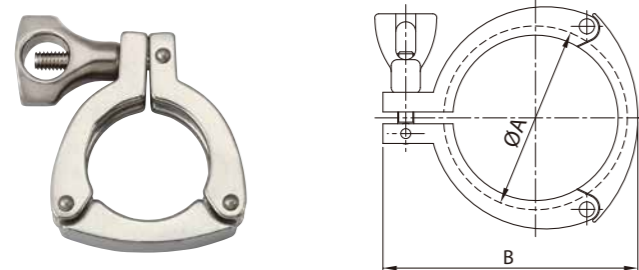
**13MHHM DOUBLE PIN CLAMP**

SIZE	ØA	ØB
1/2"~3/4"	20	28
A37	28	38
1"~1.5"	43.6	53.6
2"	57	67
2.5"	70.6	80.6
3"	84	94
4"	112	122
6"	155	170
8"	205	220.8



**13MHP HIGH PRESSURE BOLTED CLAMP**

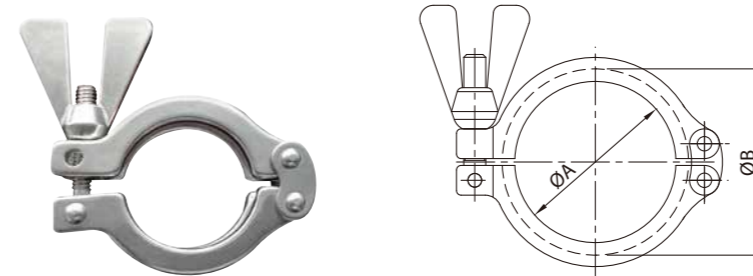
SIZE	ØA	ØB
1/2"~3/4"	20	28
1"~1.5"	43.32	52
2"	56.44	65.5
2.5"	69.54	79
3"	77.56	92.5
4"	108.86	120.5
6"	158	170
6.5"	173	186.2
8"	224	249
10"	258.2	276.8
12"	309	327.6



**13MHHS 3 PIECE CLAMP**

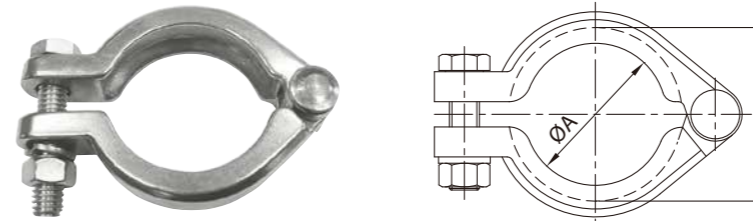
SIZE	ØA	B
1"~1.5"	54	80
2"	67.5	94
2.5"	80.9	109
3"	84.4	126
4"	122.4	154

## Heavy Duty Clamp-Ring



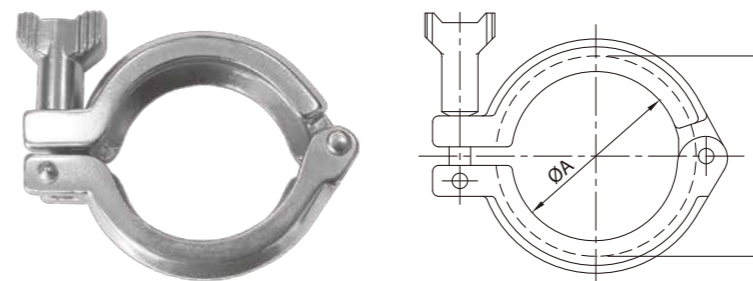
**13CS DOUBLE PIN CLAMP**

SIZE	ØA	ØB
1/2"~3/4"	20.58	28.34
DN10-20	27.2	37
1.5"	41.02	53.52
DN25-40	44.5	54.5
2.0"	54.54	67.04
DN50	57	68
2.5"	68.02	80.52
3.0"	81.52	94.02
DN65	84	95
DN80	99	110
4.0"	109.54	122.04
DN100	112	123
DN115	123	134
DN125	144	159
6.0"	157.6	175.1
DN150	172	187
8.0"	207.4	225.9
DN200	222.5	237.5
DN250	257	272
DN300	308	323



**13IU BOLTED CLAMP**

SIZE	ØA	ØB
1"~1.5"	45	55
2.0"	63	73
2.5"	74	89
3.0"	87	102
4.0"	111	128

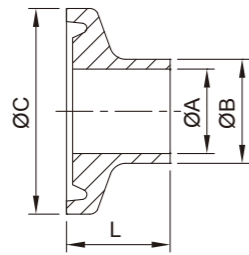


**13IS I-LINE CLAMP**

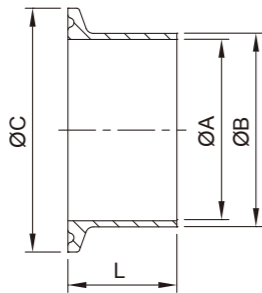
SIZE	ØA	ØB
1.0"~1.5"	44.4	53.4
2.0"	60.14	72.2
2.5"	78.62	88.1
3.0"	93.06	102.4
4.0"	118.6	127.8
6.0"	178.3	195.3

# Ferrule Adapter

**3A-1/2"~3/4"**  
**SMS-DN15~DN20**  
**DIN-DN6~DN8**  
**DIN(ISO)-DN6~DN10**



**3A-1.0"~12"**  
**SMS-DN25~DN100**  
**DIN-DN10~DN100**  
**DIN(ISO)-DN15~DN200**



### DIN(ISO) Ferrule

SIZE	ØA	ØB	ØC	L
DN6	7	10.2	25	12.7
DN8	10.3	13.5	25	12.7
DN10	14	17.2	25	12.7
DN15	18.1	21.3	50.5	21.5
DN20	23.7	26.9	50.5	21.5
DN25	29.7	33.7	50.5	21.5
DN32	38.4	42.4	64	21.5
DN40	44.3	48.3	64	21.5
DN50	56.3	60.3	77.5	28
DN65	72.1	76.1	91	28
DN80	84.3	88.9	106	28
DN100	109.7	114.3	130	28
DN125	134.5	139.7	155	28
DN150	163.1	168.3	183	28
DN200	213.9	219.1	233.5	28

### 3A/SMS Welding Ferrule

14WMP 14MMP 14AMP

SIZE	ØA	ØB	ØC	L	L	L
1/4"	3.9	6.35	25	12.7	21.5	28.6
1/2"	9.4	12.7	25	12.7	21.5	28.6
DN15	9.7	12.7	25.4	12.7	21.5	28.6
3/4"	15.75	19.05	25	12.7	21.5	28.6
DN20	15.95	19.05	25.4	12.7	21.5	28.6
1"	22.1	25.4	50.5	12.7	21.5	28.6
DN25	22.5	25	50.5	12.7	21.5	28.6
1.25"	28.45	31.75	50.5	12.7	21.5	28.6
1.5"	34.8	38.1	50.5	12.7	21.5	28.6
DN38	35.5	38	50.5	12.7	21.5	28.6
2.0"	47.5	50.8	64	12.7	21.5	28.6
DN50	48.5	51	64	12.7	21.5	28.6
2.5"	60.2	63.5	77.5	12.7	21.5	28.6
DN63	60.3	63.5	77.5	12.7	21.5	28.6
DN76	72.9	76.1	91	12.7	21.5	28.6
3.0"	72.9	76.2	91	12.7	21.5	28.6
DN104	100	104	119	15.8	21.5	28.6
4.0"	97.4	101.6	119	15.8	21.5	28.6
5.0"	121.46	127	144.45	15.8	21.5	28.6 or 38.1
6.0"	146.86	152.4	166.87	—	21.5	28.6 or 38.1
8.0"	197.66	203.2	217.67	—	21.5	28.6 or 38.1
10"	247.2	254	268.47	—	21.5	28.6 or 38.1
12"	298	304.8	319.27	—	21.5	28.6 or 38.1

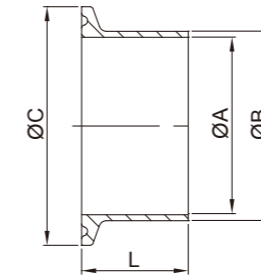
### DIN Ferrule

SIZE	DA		DB		ØC	L
	ØA	ØB	ØA	ØB		
DN6	6	8	—	—	25	12.7
DN8	8	10	—	—	25	12.7
DN10	10	13	9	12	34	18
DN15	16	19	15	18	34	18
DN20	20	23	19	22	34	18
DN25	26	29	25	28	50.5	21.5
DN32	32	35	31	34	50.5	21.5
DN40	38	41	37	40	50.5	21.5
DN50	50	53	49	52	64	21.5
DN65	66	70	66	70	91	28
DN80	81	85	81	85	106	28
DN101.6	—	—	97.6	101.6	119	28
DN100	100	104	100	104	119	28
DN125	125	129	125	129	155	28
DN150	150	154	150	154	183	28
DN200	200	204	200	204	233.5	28

# Ferrule Adapter

### ISO(REP) Ferrule

SIZE	ØA	ØB	ØC1	L
DN8	10.3	13.5	34	28.6
DN10	14	17.2	34	28.6
DN15	18.1	21.3	34	28.6
DN20	23.7	26.9	50.5	28.6
DN25	30.5	33.7	50.5	28.6
DN32	39.2	42.4	50.5	28.6
DN40	45.1	48.3	64	28.6
DN50	56.3	60.3	77.5	28.6
DN65	72.1	76.1	91	28.6
DN80	84.3	88.9	106	28.6
DN100	109.7	114.3	130	28.6
DN125	133.7	139.7	155	28.6
DN150	162.3	168.3	183	28.6
DN200	211.1	219.1	233.5	28.6
DN250	266.3	273.1	233.5	28.6



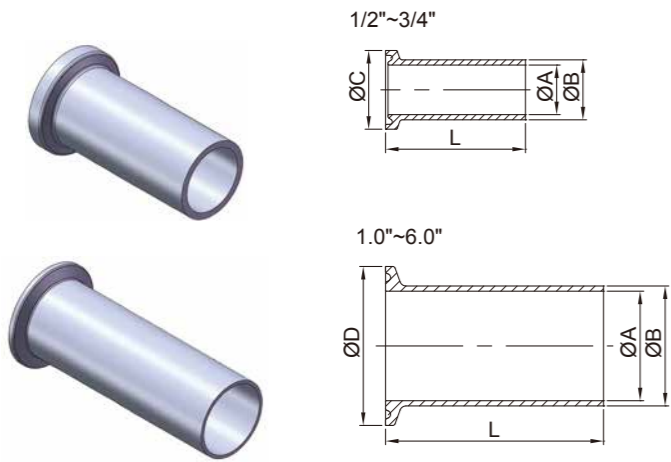
### ISO-2852 Ferrule

SIZE	ØA	ØB	ØC	L
25	22.6	25.6	50.5	21.5
33.7	31.3	34.3	50.5	21.5
38	35.6	38.6	50.5	21.5
40	37.6	40.6	64	21.5
51	48.6	51.6	64	21.5
63.5	60.3	64.1	77.5	21.5
70	66.8	70.6	91	21.5
76.1	72.9	76.7	91	21.5
88.9	84.9	89.8	106	21.5
101.6	97.6	102.5	119	21.5
114.3	110.3	115.6	130	28
139.7	135.7	141.2	155	28
168.3	163.1	170	183	28
219.1	213.9	221.2	233.5	28

### IDF/JIS Ferrule

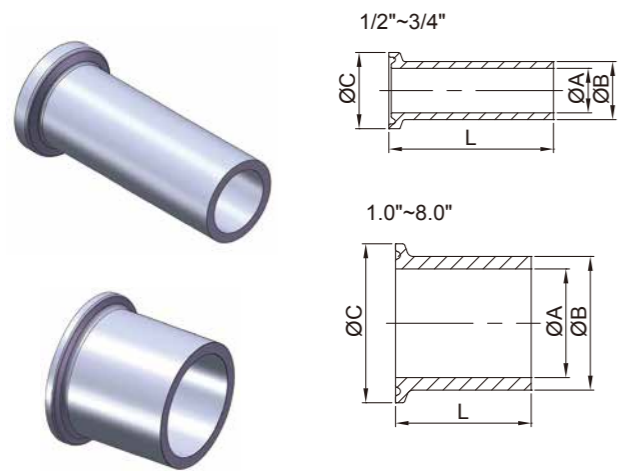
SIZE	ØA	ØB	ØC	L
1.0S	23	25.4	50.5	21.5
1.25S	29.4	31.8	50.5	17
1.5S	35.7	38.1	50.5	21.5
2.0S	47.8	50.8	64	21.5
2.5S	59.5	63.5	77.5	21.5
3.0S	72.3	76.3	91	21.5
3.5S	85.1	89.1	106	21.5
4.0S	97.6	101.6	119	28
4.5S	108.3	114.3	130	28
5.5S	133.8	139.8	165	28
6.5S	159.2	165.2	183	28

## Ferrule Adapter



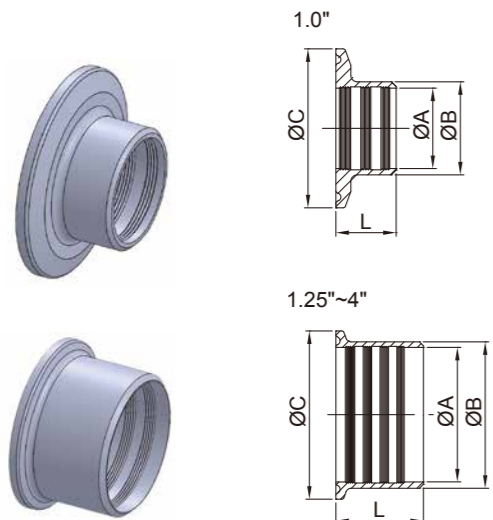
### 14MPHT

SIZE	ØA	ØB	ØC	L	L
1/2"	9.4	12.7	25	44.45	101.6
3/4"	15.75	19.05	25	44.45	101.6
1.0"	22.1	25.4	50.5	114.3	—
1.5"	34.8	38.1	50.5	114.3	—
2.0"	47.5	50.8	64	114.3	—
2.5"	60.2	63.5	77.5	114.3	—
3.0"	72.9	76.2	91	114.3	—
4.0"	97.4	101.6	119	117.9	—
6.0"	146.86	152.4	166.87	152.4	—



### 14MPW Heavy Tank Ferrule

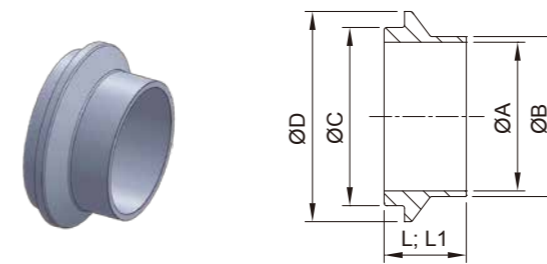
SIZE	ØA	ØB	ØC	L
1/2"	8.15	12.75	25	54
3/4"	14.6	19.05	25	54
1.0"	22.1	29.5	50.5	41.3
1.5"	34.8	42.6	50.5	41.3
2.0"	47.5	55.7	64	44.5
2.5"	60.2	68.8	77.5	44.5
3.0"	72.9	81.9	91	46.1
4.0"	97.4	108.1	119	54
6.0"	146.25	157.3	166.87	63.5
8.0"	197.05	208.1	217.67	63.5



### 14RMP 3A-Roll-on ferrule

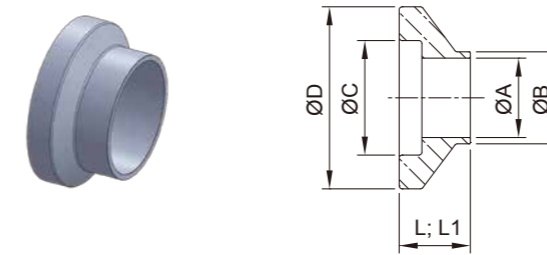
SIZE	ØA	ØB	ØC	L
1.0"	25.4	29.5	50.5	19.1
1.25"	31.75	36.3	50.5	21.5
1.5"	38.1	42.6	50.5	28.6
2.0"	50.8	55.7	64	33.3
2.5"	63.5	68.8	77.5	34.9
3.0"	76.2	81.9	91	36.5
4.0"	101.6	108.1	119	38.1

## I-Line Ferrule Adapter



### 14WI I-Line Ferrule Male

SIZE	ØA	ØB	ØC	ØD	L	L1
1.0"	22.1	25.4	31.5	50.67	19.84	44.65
1.5"	34.8	38.1	44.2	50.67	23.8	51.75
2.0"	47.5	50.8	56.9	67.05	26.19	58.88
2.5"	60.2	63.5	69.6	84	29.36	63.47
3.0"	72.9	76.2	83.82	98.3	30.94	68.17
4.0"	97.4	101.6	109.14	123.7	34.11	76.17
6.0"	146.86	152.4	173.5	190.4	28.58	73.1
8.0"	197.66	203.2	224.3	241.2	28.58	73.1



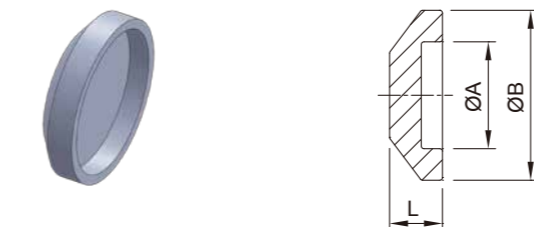
### 15WI I-Line Ferrule Female

SIZE	ØA	ØB	ØC	ØD	L	L1
1.0"	22.1	25.4	31.88	50.67	19.84	44.5
1.5"	34.8	38.1	44.58	50.67	23.8	51.6
2.0"	47.5	50.8	57.28	67.05	26.19	58.7
2.5"	60.2	63.5	69.98	84	29.36	63.5
3.0"	72.9	76.2	84.2	98.3	30.94	68.3
4.0"	97.4	101.6	109.6	123.7	34.11	76.2
6.0"	146.86	152.4	175.7	190.4	28.58	76.2
8.0"	197.66	203.2	226.5	241.2	28.58	76.2



### 16AI-14I Male I-Line End Cap

SIZE	ØA	ØB	L
1.0"	31.5	50.67	12.37
1.5"	44.2	50.67	12.37
2.0"	56.9	67.05	14.11
2.5"	69.6	84	18.72
3.0"	83.82	98.3	19.32
4.0"	109.14	123.7	19.32
6.0"	173.5	190.4	18.88
8.0"	224.3	241.2	18.88



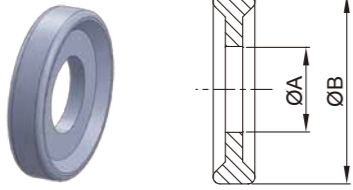
### 16AI-15I Female I-Line End Cap

SIZE	ØA	ØB	L
1.0"	31.88	50.67	12.75
1.5"	44.58	50.67	12.75
2.0"	57.28	67.05	17.66
2.5"	69.98	84	18.77
3.0"	84.2	98.3	19.37
4.0"	109.6	123.7	19.37
6.0"	175.7	190.4	22
8.0"	226.5	241.2	22

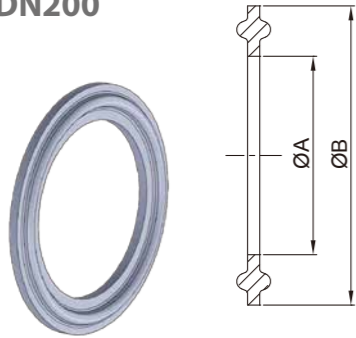
# Ferrule Adapter

## 13PG

## 1/2"-3/4"



## 1"~8" DN10~DN200



### 13PG (EPDM \ SILICONE \ VITON \ PTFE)

Imperial	ØA	ØB
1/2"	9.9	21.8
3/4"	16.3	21.8
A37	19	33
1"	22.7	50
1.25"	29.5	50.5
1.5"	35.9	50
2"	48.6	63.5
2.5"	61.3	76.2
3"	74	88.9
3.5"	86	105
4"	98.6	118
4.5"	110.5	129
5"	134.7	153
6"	147.8	165
8"	198.6	216

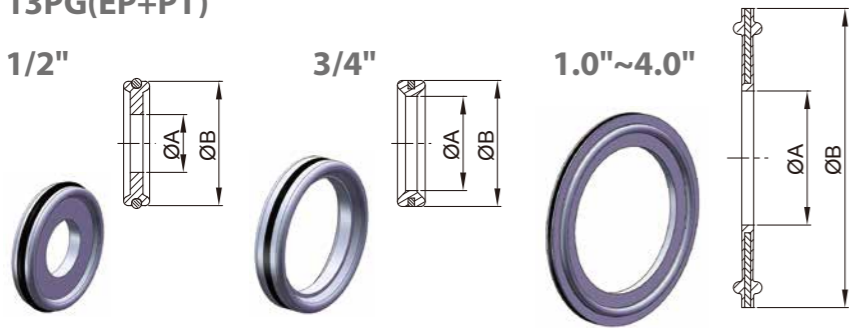
ISO(PTFE)	ØA	ØB	DIN(EPDM)	ØA	ØB
DN8	11.1	33.2	DN10	9.8	33.2
DN12	14.8	33.2	DN15	15.8	33.2
DN15	18.9	33.2	DN20	19.8	33.2
DN20	24.5	49.7	DN28	25.8	49.7
DN25	31.3	49.7	DN34	31.8	49.7
DN32	40	49.7	DN40	37.8	49.7
DN40	45.9	63.2	DN52	49.8	63.2
DN50	57.1	76.7	DN70	66.8	90.2
DN65	72.9	90.2	DN85	81.8	105.2
DN80	85.7	105.2	DN101.6	98.4	118.2
DN100	109.9	129.2	DN104	100.8	118.2
DN125	134.5	154.2	DN125	125.8	154.2
DN150	163.1	182.2	DN150	150.8	182.2
DN200	211.9	232.7	DN200	200.8	232.7

## 13PG(EP+PT)

### 1/2"

### 3/4"

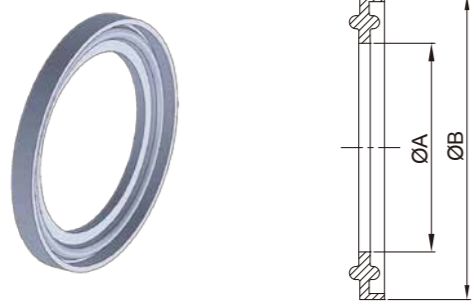
### 1.0"~4.0"



### Imperial 13PG(EP+PT)

SIZE	ØA	ØB
1/2"	10	21.5
3/4"	16.3	21.8
1"	22.5	50.2
1.5"	34.9	50.2
2"	47.6	63.5
2.5"	60.5	77.7
3"	73.2	90.5
4"	97.7	118.4

## 13FG



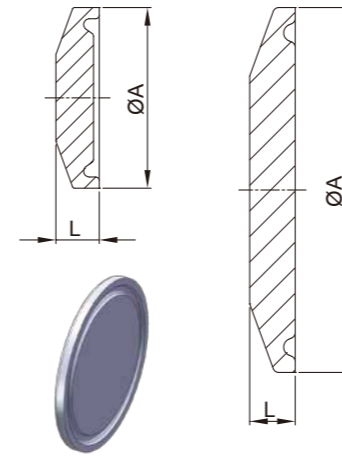
### FLANGE TYPE 13FG

SIZE	ØA	ØB
1"	22.8	52.7
1.5"	35.8	52.7
2"	48.8	66.2
2.5"	60.5	79.7
3"	73.1	93.2
4"	97.8	121.2
6"	148	169.1
10"	249	270.7
12"	300	321.5

# Ferrule Adapter

## 1/2"~3/4" DIN6~DIN8

## A37"~12" DIN10~DIN200 ISO(REP)



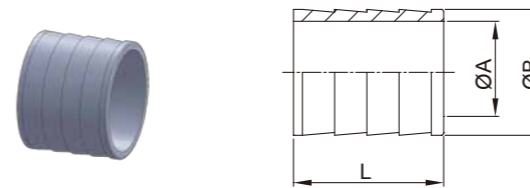
### Imperial 16AMP

### DIN 16AMP

### ISO(REP) 16AMP

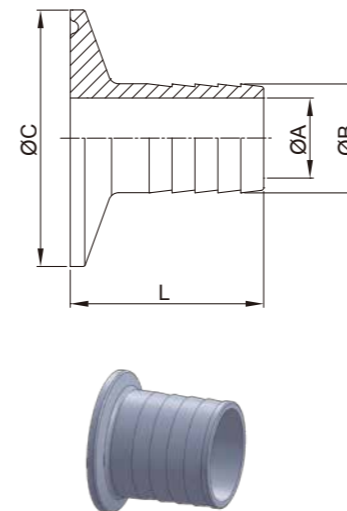
SIZE	ØA	L	SIZE	ØA	L	SIZE	ØA	L
1/2"	25	6	DN6	25	4.75	DN8	34	6.3
3/4"	25	6	DN8	25	4.75	DN12	34	6.3
A37	34	6.3	DN10	34	6.35	DN15	34	6.3
1.0"	50.5	6.3	DN15	34	6.35	DN20	50.5	6.3
1.5"	50.5	6.3	DN20	34	6.35	DN25	50.5	6.3
2.0"	64	6.3	DN25	50.5	6.35	DN32	50.5	6.3
2.5"	77.5	6.3	DN32	50.5	6.35	DN40	64	6.3
3.0"	91	6.3	DN40	50.5	6.35	DN50	77.5	6.3
3.5"	106	6.3	DN50	64	6.35	DN65	91	6.3
4.0"	119	7.9	DN65	91	6.35	DN80	106	6.3
6.0"	166.87	11.1	DN80	106	6.35	DN100	130	7.9
8.0"	217.67	11.1	DN100	119	8	DN125	155	7.9
10"	268.47	11.1	DN125	155	8	DN150	183	11.1
12"	319.27	11.1	DN150	183	11.1	DN200	233.5	11.1
			DN200	233.5	11.1			

## 14WHR HOSE ADAPTER



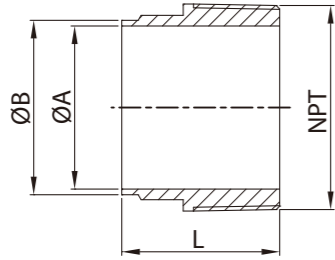
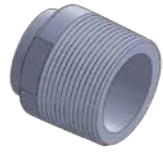
SIZE	ØA	ØB	ØC	L
1/2"	9.5	13.7	25.2	25.3
3/4"	15.8	21.4	25.2	25.3
1.0"	20.6	25.4	50.5	30.3
1.5"	33.2	38.1	50.5	30.3
2.0"	46	50.8	64	46
2.5"	58.7	63.5	77.5	46.8
3.0"	72	76.2	91	65.9
4.0"	97.6	101.6	119	72.8

## 14MPHR HOSE ADAPTER



SIZE	ØA	ØB	ØC	L	SIZE	ØA	ØB	ØC	L
1/2"×1/4"	3.175	7.3	25.2	38	1.0"×1.0"	20.6	25.4	50.5	43
1/2"×3/8"	6.35	10.4	25.2	38	1.5"×3/8"	6.35	10.4	50.5	38
1/2"×1/2"	9.5	13.7	25.2	38	1.5"×1/2"	9.5	13.7	50.5	38
1/2"×5/8"	12.7	16.8	25.2	38	1.5"×5/8"	12.7	16.8	50.5	38
3/4"×1/4"	3.175	7.3	25.2	38	1.5"×3/4"	15.8	21.4	50.5	38
3/4"×3/8"	6.35	10.4	25.2	38	1.5"×1.0"	20.6	25.4	50.5	43
3/4"×1/2"	9.5	13.7	25.2	38	1.5"×1.25"	26.8	31.75	50.5	43
3/4"×5/8"	12.7	16.8	25.2	38	1.5"×1.5"	33.2	38.1	50.5	43
3/4"×3/4"	15.8	21.4	25.2	38	2.0"×1.25"	26.8	31.75	64	43
1.0"×1/4"	3.175	7.3	50.5	38	2.0"×1.5"	33.2	38.1	64	43
1.0"×3/8"	6.35	10.4	50.5	38	2.0"×2.0"	46	50.8	64	58.7
1.0"×1/2"	9.5	13.7	50.5	38	2.5"×2.5"	58.7	63.5	77.5	59.5
1.0"×5/8"	12.7	16.8	50.5	38	3.0"×3.0"	72	76.2	91	78.6
1.0"×3/4"	15.8	21.4	50.5	38	4.0"×4.0"	97.6	101.6	119	85.5

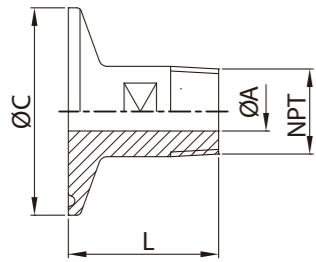
## Ferrule Adapter



### 19W thread male

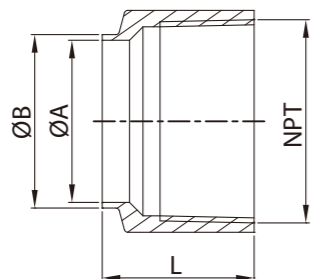
SIZE	ØA	ØB	NPT	L
1/2"	9.4	12.7	1/2"	41.3
3/4"	15.75	19.05	3/4"	41.3
1.0"	22.1	25.4	1.0"	44.5
1.5"	34.8	38.1	1.5"	44.5
2.0"	47.5	50.8	2.0"	46
2.5"	60.2	63.5	2.5"	58.7
3.0"	72.9	76.2	3.0"	63.5
4.0"	97.4	101.6	4.0"	65.1
6.0"	146.9	152.4	6.0"	76.2

### 21MP



SIZE	ØA	ØC	NPT	L	SIZE	ØA	ØC	NPT	L
1/2"×1/2"	9.5	25	1/2"	45	2.0"×3.0"	73	64	3.0"	70
3/4"×1/4"	7.95	25	1/4"	45	2.0"×4.0"	97.6	64	4.0"	75
3/4"×1/2"	15.8	25	1/2"	45	2.5"×1.0"	22.2	77.5	1.0"	50
3/4"×3/4"	15.8	25	3/4"	45	2.5"×1.5"	34.9	77.5	1.5"	50
1.0"×1.5"×1/4"	3.18	50.5	1/4"	40	2.5"×2.0"	47.6	77.5	2.0"	55
1.0"×1.5"×3/8"	6.35	50.5	3/8"	40	2.5"×2.5"	60.3	77.5	2.5"	60
1.0"×1.5"×1/2"	9.5	50.5	1/2"	40	2.5"×3.0"	73	77.5	3.0"	70
1.0"×1.5"×3/4"	15.8	50.5	3/4"	45	2.5"×4.0"	97.6	77.5	4.0"	75
1"×1.5"×1.0"	22.2	50.5	1.0"	50	3.0"×1.0"	22.2	91	1.0"	55
1.0"×1.5"×1.25"	28.6	50.5	1.25"	50	3.0"×1.5"	34.9	91	1.5"	55
1.0"×1.5"×1.5"	34.9	50.5	1.5"	50	3.0"×2.0"	47.6	91	2.0"	55
1.0"×1.5"×2.0"	47.6	50.5	2.0"	55	3.0"×2.5"	60.3	91	2.5"	60
2.0"×1/4"	3.18	64	1/4"	40	3.0"×3.0"	73	91	3.0"	70
2.0"×3/8"	6.35	64	3/8"	40	3.0"×4.0"	97.6	91	4.0"	75
2.0"×1/2"	9.5	64	1/2"	40	4.0"×1.0"	22.2	119	1.0"	55
2.0"×3/4"	15.8	64	3/4"	50	4.0"×1.5"	34.9	119	1.5"	55
2.0"×1.0"	22.2	64	1.0"	50	4.0"×2.0"	47.6	119	2.0"	55
2.0"×1.5"	34.9	64	1.5"	50	4.0"×2.5"	60.3	119	2.5"	60
2.0"×2.0"	47.6	64	2.0"	55	4.0"×3.0"	73	119	3.0"	70
2.0"×2.5"	60.3	64	2.5"	60	4.0"×4.0"	97.6	119	4.0"	75

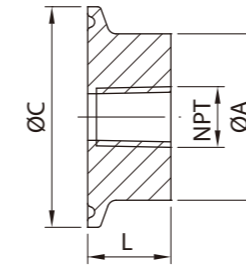
### 22W thread female



SIZE	ØA	ØB	NPT	L
1.0"	22.1	25.4	1.0"	34.9
1.5"	34.8	38.1	1.5"	33.4
2.0"	47.5	50.8	2.0"	44.5
2.5"	60.2	63.5	2.5"	46.1
3.0"	72.9	76.2	3.0"	57.2
4.0"	97.4	101.6	4.0"	60.3

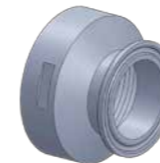
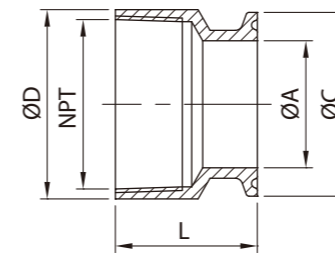
## Ferrule Adapter

### 22MP



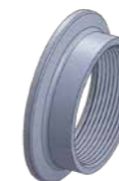
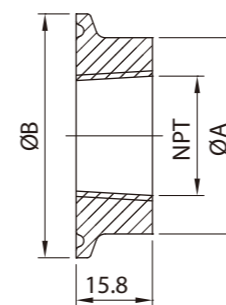
SIZE	ØA	ØC	L	NPT	SIZE	ØA	ØC	L	NPT
1.0"×1.5"×1/4"	38.1	50.5	19	1/4"	2.5"×1.0"	63.5	77.5	35	1.0"
1.0"×1.5"×3/8"	38.1	50.5	19	3/8"	2.5"×1.5"	63.5	77.5	35	1.5"
1.0"×1.5"×1/2"	38.1	50.5	19	1/2"	2.5"×2.0"	65	77.5	35	2.0"
1.0"×1.5"×3/4"	38.1	50.5	19	3/4"	3.0"×1.0"	76.2	91	35	1.0"
1.0"×1.5"×1.0"	40	50.5	19	1.0"	3.0"×1.5"	76.2	91	35	1.5"
2.0"×1/4"	50.8	64	19	1/4"	3.0"×2.0"	76.2	91	35	2.0"
2.0"×3/8"	50.8	64	19	3/8"	4.0"×1.0"	101.6	119	35	1.0"
2.0"×1/2"	50.8	64	19	1/2"	4.0"×1.5"	101.6	119	35	1.5"
2.0"×3/4"	50.8	64	19	3/4"	4.0"×2.0"	101.6	119	35	2.0"
2.0"×1.0"	50.8	64	19	1.0"	4.0"×2.5"	101.6	119	35	2.5"
2.0"×1.5"	53	64	19	1.5"	4.0"×3.0"	101.6	119	35	3.0"

### 22MP



SIZE	1.0" ØA	1.5" ØA	ØC	ØD	NPT	L
1/2"×1/4"	9.5		25	30	1/4"	33
1/2"×1/2"	9.5		25	30	1/2"	33
3/4"×1/2"	15.75		25	30	1/2"	38.1
3/4"×3/4"	15.8		25	31	3/4"	33
1.0"×1.5"×1.25"	22.2	34.9	50.5	52	1.25"	39
1.0"×1.5"×1.5"	22.2	34.9	50.5	54	1.5"	39
1.0"×1.5"×2.0"	22.2	34.9	50.5	65	2.0"	40
2.0"×2.0"	47.6		64	65	2.0"	40
2.5"×2.5"	60.3		77.5	80	2.5"	50
3.0"×2.5"	73		91	95	2.5"	50
3.0"×3.0"	73		91	95	3.0"	52
4.0"×4.0"	97.6		119	120	4.0"	54

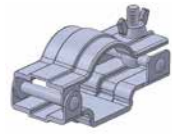
### 23BMP



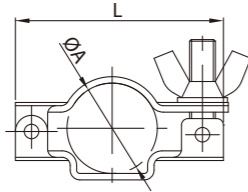
SIZE	ØA	ØB	NPT	SIZE	ØA	ØB	NPT
1.0"×1/8"	25.4	50.5	1/8"	2.5"×1/2"	63.5	77.5	1/2"
1.0"×1/4"	25.4	50.5	1/4"	2.5"×3/4"	63.5	77.5	3/4"
1.0"×3/8"	25.4	50.5	3/8"	2.5"×1.0"	63.5	77.5	1.0"
1.0"×1/2"	25.4	50.5	1/2"	2.5"×1.5"	63.5	77.5	1.5"
1.5"×1/8"	38.1	50.5	1/8"	2.5"×2.0"	63.5	77.5	2.0"
1.5"×1/4"	38.1	50.5	1/4"	3.0"×1/2"	76.2	91	1/2"
1.5"×3/8"	38.1	50.5	3/8"	3.0"×3/4"	76.2	91	3/4"
1.5"×1/2"	38.1	50.5	1/2"	3.0"×1.0"	76.2	91	1.0"
1.5"×3/4"	38.1	50.5	3/4"	3.0"×1.5"	76.2	91	1.5"
1.5"×1.0"	38.1	50.5	1.0"	3.0"×2.0"	76.2	91	2.0"
2.0"×1/2"	50.8	64	1/2"	4.0"×3/4"	101.6	119	3/4"
2.0"×3/4"	50.8	64	3/4"	4.0"×1.0"	101.6	119	1.0"
2.0"×1.0"	50.8	64	1.0"	4.0"×1.5"	101.6	119	1.5"
2.0"×1.5"	50.8	64	1.5"	4.0"×2.0"	101.6	119	2.0"
				4.0"×2.5"	101.6	119	2.5"
				4.0"×3.0"	101.6	119	3.0"

## Tubing Hanger

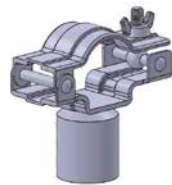
TH-1



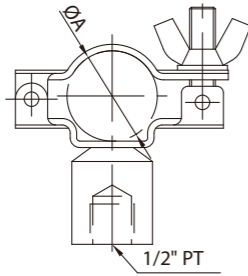
Type A



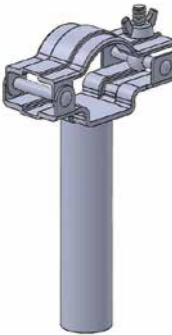
Imperial	ØA	L
1"	25.4	66
1.5"	38.1	76
2"	50.8	90
2.5"	63.5	105
3"	76.2	120
4"	101.6	146



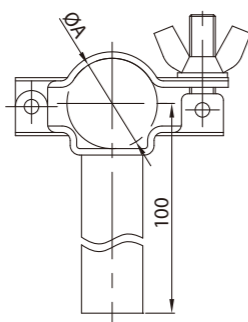
Type B



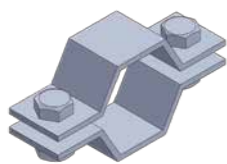
DIN	ØA	L
DN15	18/19	69
DN20	22/23	66
DN25	28/29	64.5
DN32	34/35	78.5
DN40	40/41	80.5
DN50	52/53	94
DN65	70	123.5
DN80	85	130.5
DN100	104	150
DN125	129	175.5
DN150	154	206.5



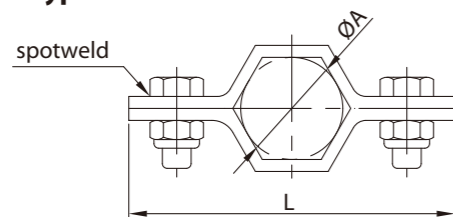
Type C



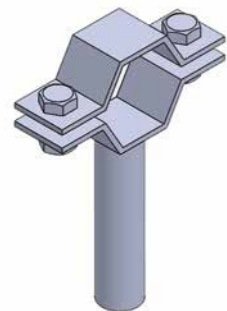
TH-2



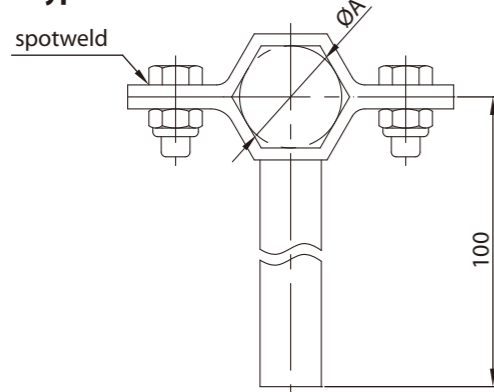
Type A



ISO	ØA	L
ISO-21.3	21.3	68
ISO-26.9	26.9	74
ISO-33.7	33.7	82
ISO-42.4	42.4	93
ISO-48.3	48.3	101
ISO-60.3	60.3	114
ISO-88.9	88.9	149
ISO-114.3	114.3	177
ISO-139.7	139.7	221.7
ISO-168.7	168.7	254.8



Type C



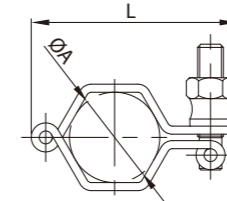
SMS	ØA	L
DN25	25	74
DN38	38	87
DN50	51	105
DN63	63.5	117
DN76	76.1	133
DN100	104	165
DN125	139.7	221.7
DN150	168.3	254.8

## Tubing Hanger

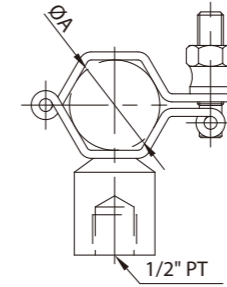
TH-3



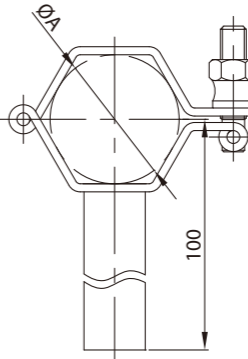
Type A



Type B



Type C

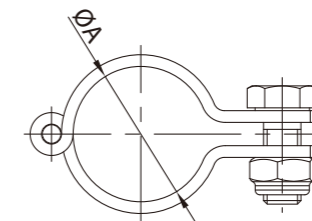
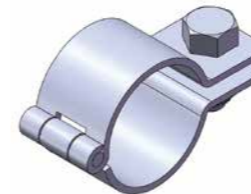


TH-3 (Hexagon)

DIN	ØA	L
DN25	28	64
DN32	34	64
DN40	40	78
DN50	52	90
DN65	70	111
DN80	85	129
DN100	101.6	150

SMS	ØA	L
DN25	25	61
DN38	38	76
DN50	51	90
DN63	63.5	106
DN76	76.1	124
DN100	104	154

Hinged pipe clamp (Round)



DIN	ØA	L
DN20	23	57
DN25	29	63
DN32	35	67
DN40	41	73
DN50	53	91
DN65	70	108
DN80	85	123
DN100	104	142



# Tubing Hanger

## TH-4 (RG type)

1/2"

3/4"~6.0"

SIZE	ØA	ØC	L
1/2"	12.7	12.7	79
3/4"	19.05	12.7	79
1.0"	25.4	15.9	79
1.5"	38.1	19	95
2.0"	50.8	19	117.9
2.5"	63.5	19	120
3.0"	76.2	19	135.1
4.0"	101.6/104	19	168.4
6.0"	152.4	19	225

Rubber Grommets

## TH-4 (PP type)

1/2"

3/4"~6.0"

SIZE	ØA	ØC	L
1/2"	12.7	12.7	79
3/4"	19.05	12.7	79
1.0"	25.4	15.9	79
1.5"	38.1	19	95
2.0"	50.8	19	117.9
2.5"	63.5	19	120
3.0"	76.2	19	135.1
4.0"	101.6/104	19	168.4
6.0"	152.4	19	225

PP Sleeve

# Tubing Hanger

Type A

Type C

## TH-5

3A	ØA	ØC	L
1/2"	12.7	6	46.5
3/4"	19.05	8	50
1.0"	25.4	8	62.5
1.25"	31.75	10	70.5
1.5"	38.1	10	81.5
2.0"	50.5	12	92
2.5"	63.5	12	123.5
3.0"	76.2	15	141
4.0"	101.6	15	177.5
5.0"	127	18	201
6.0"	152.4	18	231.5
8.0'	203.2	—	279.5

DIN	ØA	L	ØC
DN10	12/13	46.5	6
DN15	18/19	50	8
DN20	22/23	55	8
DN25	28/29	73.5	8
DN32	34/35	70.5	10
DN40	40/41	80.4	10
DN50	52/53	96.5	12
DN65	70	120	12
DN80	85	137	15
DN100	104	182	15
DN125	129	202	18
DN150	154	231	18

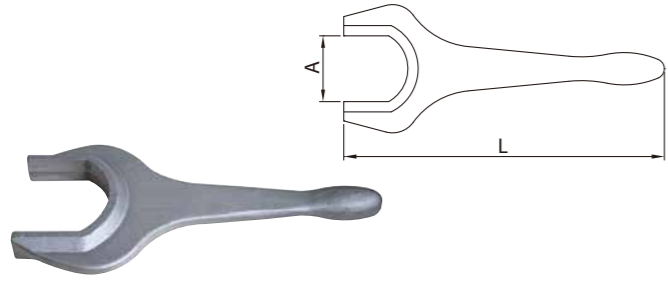
## TH-6

SIZE	ØA	H	L
1/2"	12.7	90	83
3/4"	19.05	90	83
1"	25.4	90	83
1.5"	38.1	90	97.7
2"	50.8	90	111.7
2.5"	63.5	90	124
3"	76.2	90	140.5
4"	101.6	90	162
6"	152.4	145	217

1/2"~3/4"

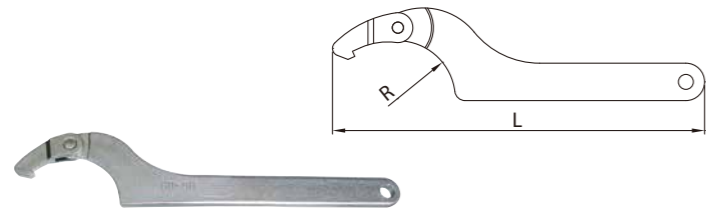
1.0"~6.0"

## Kinds of Parts



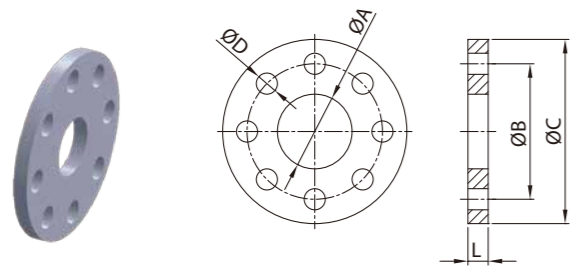
### HEXAGONAL SPANNER

SIZE	3A	A	RJT	L
1.0"	47		51.8	240
1.5"	62.1		66	288
2.0"	77.2		80.4	300
2.5"	92.5		93.2	326
3.0"	107.9		106.3	440
4.0"	131.5		139.1	448



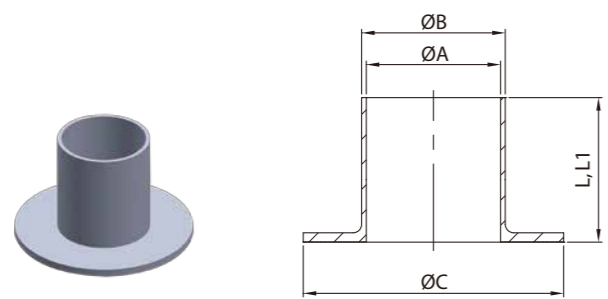
### DIN SPANNER

SIZE	R	L
DN10~DN20	22	175
DN25~DN40	31	247
DN50~DN100	49	290
DN125~DN150	82.5	515



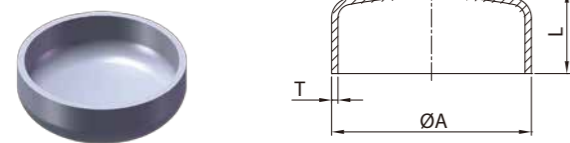
### BACK-UP FLANGE

SIZE	ØA	ØB	ØC	ØD	L
1"	27	79.4	108	4-15.9	9.5
1.5"	39.7	98.4	127	4-15.9	9.5
2"	52.4	120.7	152.4	4-19.05	11.1
2.5"	65.1	139.7	177.8	4-19.05	11.1
3"	77.8	152.4	190.5	4-19.05	12.7
4"	103.2	190.5	228.6	8-19.05	12.7
6"	154	241.3	279.4	8-22.2	14.3



### 14VB STUB END

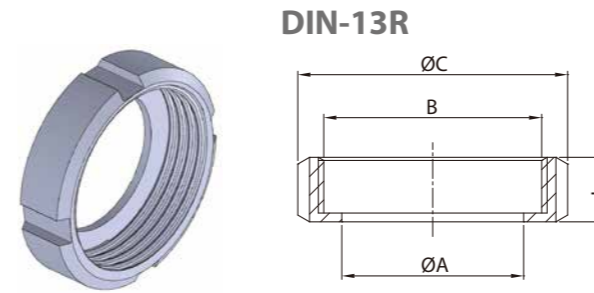
SIZE	ØA	ØB	ØC	L	L1
1/2"	9.4	12.7	38.1	6.5	28.6
3/4"	15.75	19.05	38.1	6.5	34.9
1"	22.1	25.4	50.8	6.5	41.3
1.5"	34.8	38.1	73	6.5	44.5
2"	47.5	50.8	92.1	6.5	38.1
2.5"	60.2	63.5	104.8	6.5	50.8
3"	72.9	76.2	127	7.4	57.2
4"	97.4	101.6	157.2	7.4	66.7
6"	146.86	152.4	215.9	8.8	76.2
8"	197.66	203.2	269.9	8.8	76.2
10"	247.6	254	323.85	25.4	88.9
12"	298	304	381	25.4	76.2



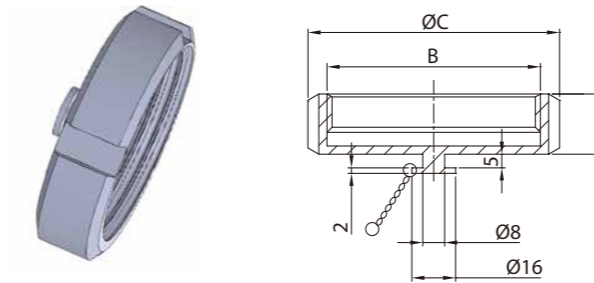
### 16W CAP

SIZE	ØA	T	L
1/2"	12.7	1.65	6.4
3/4"	19.05	1.65	7.9
1"	25.4	1.65	19.1
1.5"	38.1	1.65	14.2
2"	50.8	1.65	19.1
2.5"	63.5	1.65	25.4
3"	76.2	1.65	31.8
4"	101.6	2.1	38.1
6"	152.4	2.77	57.2

## DIN 11851 Unions



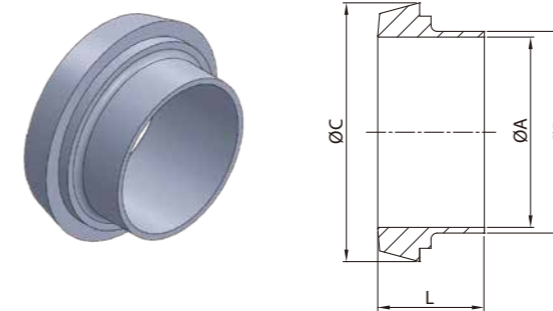
### DIN-13R



### DIN-13RBN

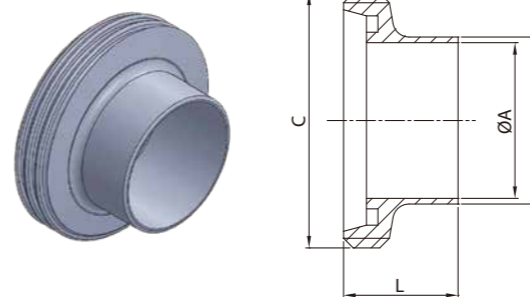
### DIN-13 ROUND NUT

SIZE	ØA	B	ØC	L	SLOTS
10	19	RD 28*1/8	38	18	4
15	25	RD 34*1/8	44	18	4
20	31	RD 44*1/6	54	20	4
25	36	RD 52*1/6	63	21	4
32	42	RD 58*1/6	70	21	4
40	49	RD 65*1/6	78	21	4
50	62	RD 78*1/6	92	22	4
60	70	RD 85*1/6	99	22	4
65	80	RD 95*1/6	112	25	6
80	94	RD110*1/4	127	29	6
90	104	RD120*1/4	138	30	6
100	115	RD130*1/4	148	31	6
125	138	RD160*1/4	178	35	6
150	164	RD190*1/4	210	40	6



### DIN-14DA/DB WELDING LINER

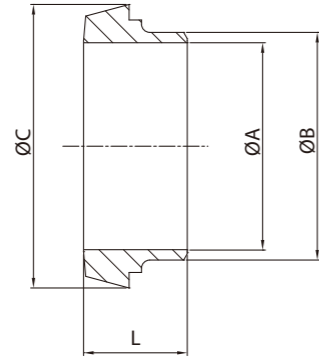
SIZE	ØA	ØB	ØA	ØB	ØC	L
10	10	13	9	12	22.5	17
15	16	19	15	18	28.5	17
20	20	23	19	22	36.5	18
25	26	29	25	28	44	22
32	32	35	31	34	50	25
40	38	41	37	40	56	26
50	50	53	49	52	68.5	28
60	57	61	57	61	76	30
65	66	70	66	70	86	32
80	81	85	81	85	100	37
100	100	104	100	104	121	44
125	125	129	125	129	150	34
150	150	154	150	154	176	37



### DIN-15DA/DB WELDING MALE

SIZE	ØA	ØB	ØA	ØB	C	L
10	10	13	9	12	RD 28*1/8	21
15	16	19	15	18	RD 34*1/8	21
20	20	23	19	22	RD 44*1/6	24
25	26	29	25	28	RD 52*1/6	29
32	32	35	31	34	RD 58*1/6	32
40	38	41	37	40	RD 65*1/6	33
50	50	53	49	52	RD 78*1/6	35
60	57	61	57	61	RD 85*1/6	36
65	66	70	66	70	RD 95*1/6	40
80	81	85	81	85	RD 110*1/4	45
90	89	93	89	93	RD 120*1/4	54
100	100	104	100	104	RD 130*1/4	54
125	125	129	125	129	RD 160*1/4	46
150	150	154	150	154	RD 190*1/4	50

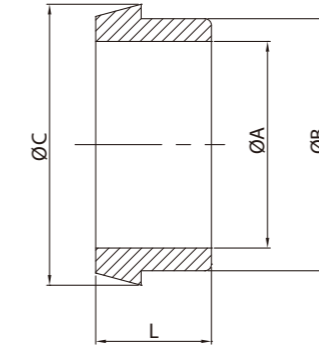
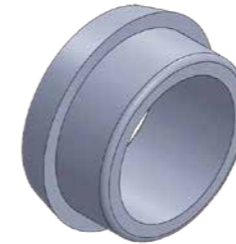
## DIN 11851 Unions



### DIN-14 WELDING LINER

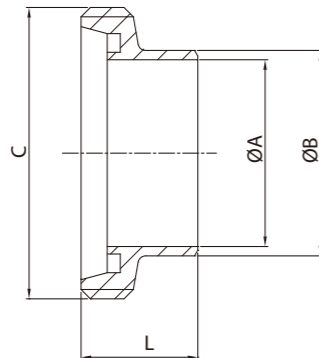
SIZE	ØA	ØB	ØC	L
10	10	15	22.5	17
15	16	21	28.5	17
20	20	25	36.5	18
25	26	31	44	22
32	32	37	50	25
40	38	43	56	26
50	50	55	68.5	28
60	57	63	76	30
65	66	72	86	32
80	81	87	100	37
100	99	104	121	44
125	125	132	150	44
150	150	157	176	37

## DIN 11851 Unions



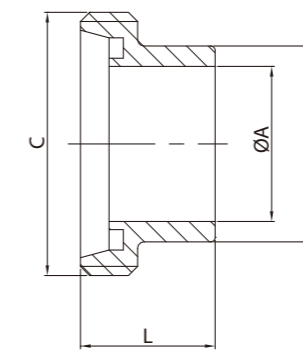
### DIN-14T WELDING LINER

SIZE	ØA	ØB	ØC	L
10	10	18	22.5	17
15	16	24	28.5	17
20	20	30	36.5	18
25	26	35	44	22
32	32	41	50	25
40	38	48	56	26
50	50	61	68.5	28
65	66	79	86	32
80	81	93	100	37
100	99	112	121	44
125	125	137	150	44
150	150	163	176	37



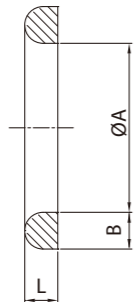
### DIN-15 WELDING MALE

SIZE	ØA	ØB	C	L
10	10	15	RD 28*1/8	21
15	16	21	RD 34*1/8	21
20	20	25	RD 44*1/6	24
25	26	31	RD 52*1/6	29
32	32	37	RD 58*1/6	32
40	38	43	RD 65*1/6	33
50	50	55	RD 78*1/6	35
60	57	63	RD 85*1/6	36
65	66	72	RD 95*1/6	40
80	81	87	RD 110*1/4	45
100	99	104	RD 130*1/4	54
125	125	132	RD 160*1/4	54
150	150	157	RD 190*1/4	50



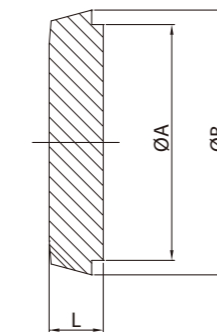
### DIN-15T WELDING MALE

SIZE	ØA	ØB	C	L
10	10	18	RD 28*1/8	21
15	16	24	RD 34*1/8	21
20	20	30	RD 44*1/6	24
25	26	35	RD 52*1/6	29
32	32	41	RD 58*1/6	32
40	38	48	RD 65*1/6	33
50	50	61	RD 78*1/6	35
65	66	79	RD 95*1/6	40
80	81	93	RD 110*1/4	45
100	99	112	RD 130*1/4	54
125	125	137	RD 160*1/4	54
150	150	163	RD 190*1/4	50



### DIN SEAL RING (EPDM、SILICONE、Viton (FKM))

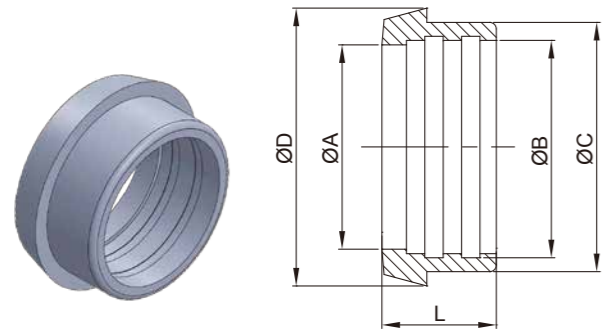
SIZE	ØA	B	L
10	12	4	4.5
15	18	4	4.5
20	23	5	4.5
25	30	5	5
32	36	5	5
40	42	5	5
50	54	5	5
65	71	5	5
80	85	5	5
100	104	5	5
125	130	6	7
150	155	6	7



### DIN-14B END CAP

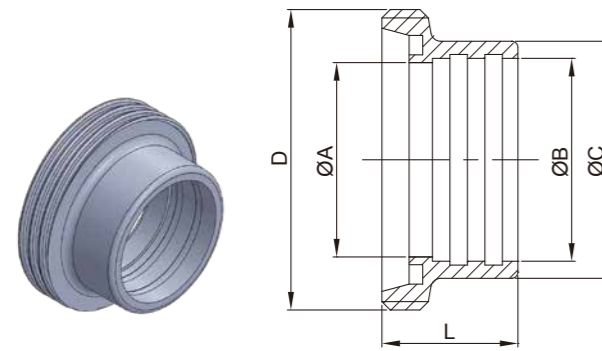
SIZE	ØA	ØB	L
10	18	22.5	9
15	24	28.5	9
20	30	36.5	11
25	35	44	13
32	41	50	13
40	48	56	13
50	61	68.5	14
65	79	86	16
80	93	100	16
90	103	111	19
100	114	121	20
125	137	150	22
150	163	176	24

## DIN 11851 Expanding/Imperial Unions



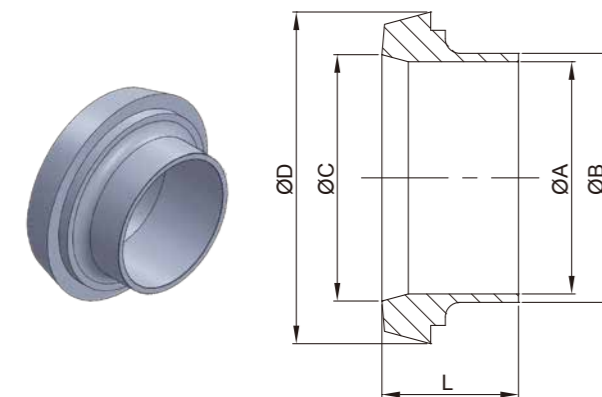
**DIN-14R expanding liner**

SIZE	ØA	ØB	ØC	ØD	L
10	10	12.2	18	22.5	17
15	16	18.2	24	28.5	17
20	20	22.2	30	36.5	18
25	26	28.2	35	44	22
32	32	34.2	41	50	25
40	38	40.3	48	56	26
50	50	52.3	61	68.5	28
65	66	70.4	79	86	32
80	81	85.4	93	100	37
100	100	105	114	121	44
125	125	129	137	150	34
150	150	154	163	176	37



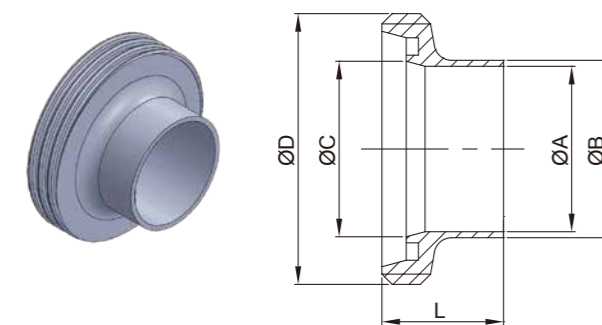
**DIN-15R expanding male**

SIZE	ØA	ØB	ØC	D	L
10	10	12.2	18	RD 28*1/8	21
15	16	18.2	24	RD 34*1/8	21
20	20	22.2	30	RD 44*1/6	24
25	26	28.2	35	RD 52*1/6	29
32	32	34.2	41	RD 58*1/6	32
40	38	40.3	48	RD 65*1/6	33
50	50	52.3	61	RD 78*1/6	35
65	66	70.4	79	RD 95*1/6	40
80	81	85.4	93	RD 110*1/4	45
100	100	105	114	RD 130*1/4	54
125	125	129	137	RD 160*1/4	46
150	150	154	163	RD 190*1/4	50



**DIN-14I imperial welding liner**

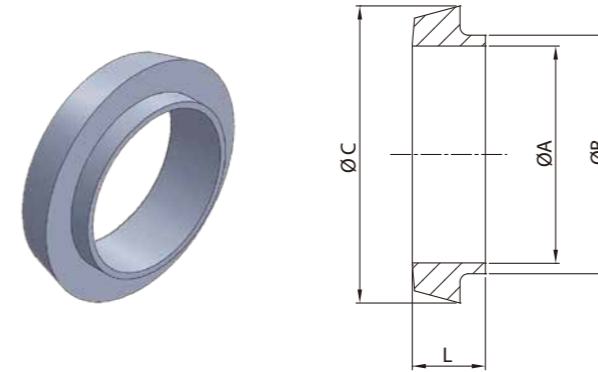
SIZE	ØA	ØB	ØC	ØD	L
1/2"	9.4	12.7	10	22.5	17
3/4"	15.75	19.05	20	36.5	18
1"	22.1	25.4	26	44	22
1.25"	28.45	31.75	32	50	25
1.5"	34.8	38.1	38	56	26
2"	47.5	50.8	50	68.5	28
2.5"	60.2	63.5	66	86	32
3"	72.9	76.2	81	100	37
4"	97.6	101.6	100	121	44



**DIN-15I imperial welding male**

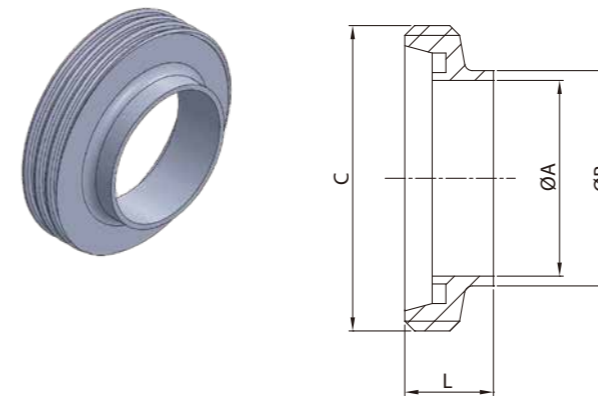
SIZE	ØA	ØB	ØC	D	L
1/2"	9.4	12.7	10	RD 28*1/8	21
3/4"	15.75	19.05	20	RD 44*1/6	24
1"	22.1	25.4	26	RD 52*1/6	29
1.25"	28.45	31.75	32	RD 58*1/6	32
1.5"	34.8	38.1	38	RD 65*1/6	33
2"	47.5	50.8	50	RD 78*1/6	35
2.5"	60.2	63.5	66	RD 95*1/6	40
3"	72.9	76.2	81	RD 110*1/4	45
4"	97.6	101.6	100	RD 130*1/4	54

## DIN 11851 Expanding/Imperial Unions



**DIN-14E SHORT WELDING LINER**

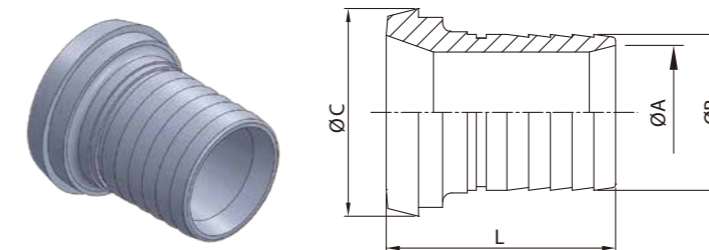
SIZE	DA		DB		ØC	L
	ØA	ØB	ØA	ØB		
10	10	13	9	12	22.5	13
15	16	19	15	18	28.5	13
20	20	23	19	22	36.5	13
25	26	29	25	28	44	15
32	32	35	31	34	50	15
40	38	41	37	40	56	15
50	50	53	49	52	68.5	16
60	57	61	57	61	76	16
65	66	70	66	70	86	17
80	80	85	81	85	100	17
100	100	104	100	104	121	20
125	125	129	125	129	150	23.5
150	150	154	150	154	176	27



**DIN-15E SHORT WELDING MALE**

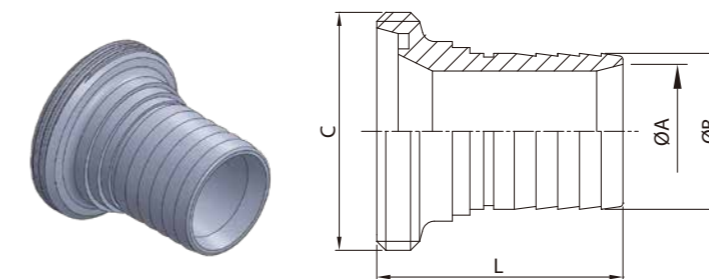
SIZE	DA		DB		C	L
	ØA	ØB	ØA	ØB		
10	10	13	9	12	RD 28*1/8	17
15	16	19	15	18	RD 34*1/8	17
20	20	23	19	22	RD 44*1/6	19
25	26	29	25	28	RD 52*1/6	22
32	32	35	31	34	RD 58*1/6	22
40	38	41	37	40	RD 65*1/6	22
50	50	53	49	52	RD 78*1/6	23
60	57	61	57	61	RD 85*1/6	23
65	66	70	66	70	RD 95*1/6	25
80	81	85	81	85	RD 110*1/4	25
90	89	93	89	93	RD 120*1/4	30
100	100	104	100	104	RD 130*1/4	30
125	125	129	125	129	RD 160*1/4	35.5
150	150	154	150	154	RD 190*1/4	40

**DIN 11851 HOSE ADAPTER**



**DIN-14AHR HOSE ADAPTER**

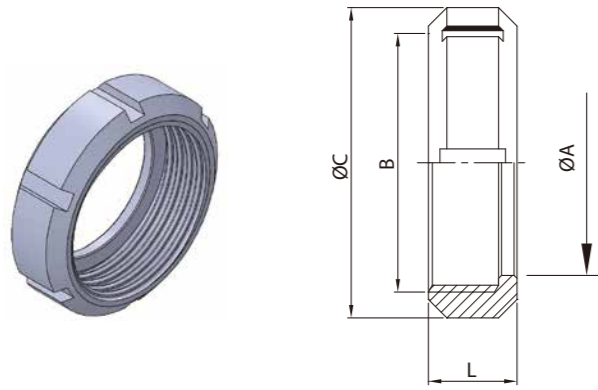
SIZE	ØA	ØB	ØC	L
25	22.2	25	44	67
32	28.7	32.2	50	71
40	34	38	56	78
50	47	50.5	68	89
65	59	63.2	86	100
80	71.5	75.5	100	108
100	95	100.8	121	120



**DIN-15AHR HOSE ADAPTER**

SIZE	ØA	ØB	C	L
25	22.2	25	RD 52*1/6	69
32	28.7	32.2	RD 58*1/6	73
40	34	38	RD 65*1/6	80
50	47	50.5	RD 78*1/6	90
65	59	63.2	RD 95*1/6	108
80	71.5	75.5	RD 110*1/4	116
100	95	100.8	RD 130*1/4	128

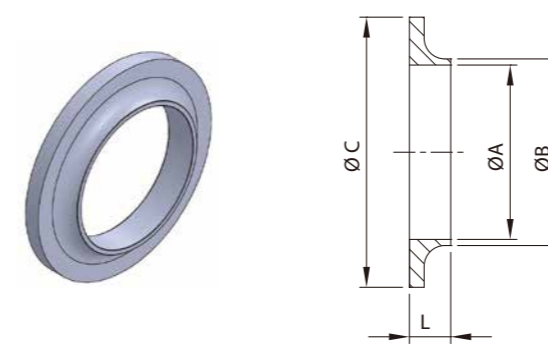
## SMS Unions



**SMS-13R NUT 6 SLOTS**

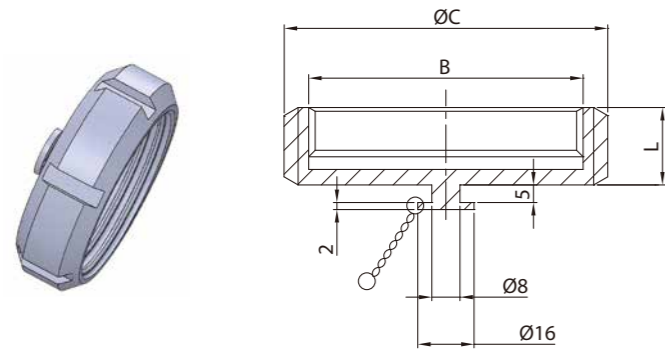
SIZE	ØA	B	ØC	L
25	32.3	RD 40*1/6	51	19
32	40.3	RD 48*1/6	60	22
38	48.5	RD 60*1/6	74	23
50	61	RD 70*1/6	84	24
63	74	RD 85*1/6	100	28
76	87	RD 98*1/6	114	30
101.6	113	RD125*1/4	138	31
104	113	RD125*1/4	138	31
102.5	117	RD132*1/6	150	31

## SMS Unions



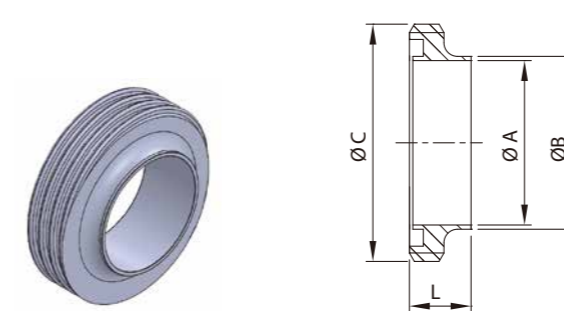
**SMS-14S SHORT WELDING LINER**

SIZE	ØA	ØB	ØC	L
25	22.5	25	35.5	7.5
38	35.5	38	55	8
50	48.5	51	65	9
63	60.5	63.5	80	9
76	72.9	76.1	93	9
101.6	97.6	101.6	118	10
104	100	104	118	12
102.5	98.5	102.5	127	12



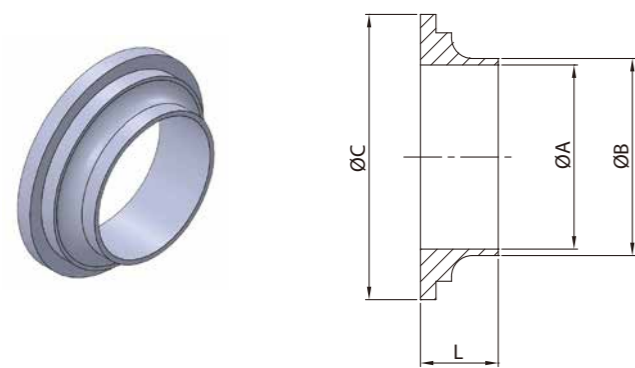
**SMS-13RBN ROUND BLANK NUT**

SIZE	B	ØC	L
25	RD 40*1/6	51	19
32	RD 48*1/6	60	22
38	RD 60*1/6	74	23
50	RD 70*1/6	84	24
63	RD 85*1/6	100	28
76	RD 98*1/6	114	30
104	RD125*1/4	138	31
102.5	RD132*1/6	150	31



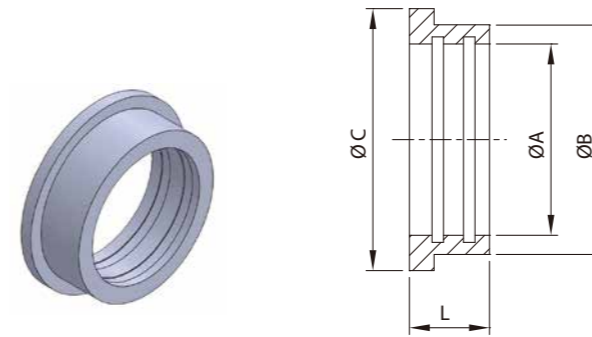
**SMS-15S SHORT WELDING MALE**

SIZE	ØA	ØB	C	L
25	22.5	25	RD 40*1/6	15
38	35.5	38	RD 60*1/6	20
50	48.5	51	RD 70*1/6	20
63	60.5	63.5	RD 85*1/6	24
76	72.9	76.1	RD 98*1/6	24
101.6	97.6	101.6	RD125*1/4	30
104	100	104	RD125*1/4	30
102.5	98.5	102.5	RD132*1/6	35



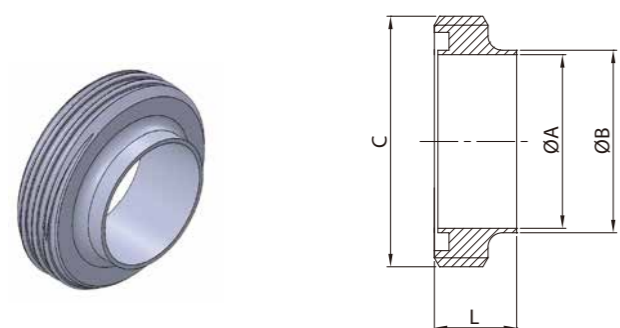
**SMS-14 LONG WELDING LINER**

SIZE	ØA	ØB	ØC	L
25	22.5	25	35.5	15.5
38	35.5	38	55	16
50	48.5	51	65	17
63	60.5	63.5	80	17
76	72.9	76.1	93	19
101.6	97.6	101.6	118	19
104	100	104	118	19
102.5	98.5	102.5	127	19



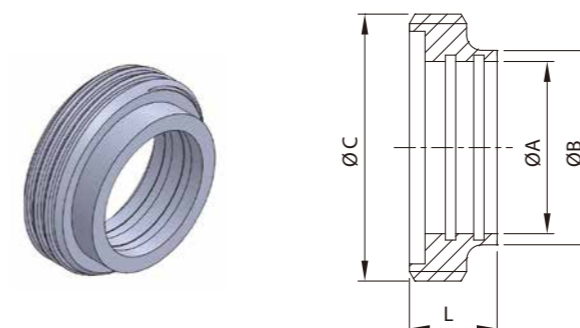
**SMS-14R EXPANDING LINER**

SIZE	ØA	ØB	ØC	L
25	25	32	35.5	17
32	32	40	43.5	17
38	38	47.9	55	20
40	40	48	55	20
50	51	60.4	65	20
63	63.5	73.5	80	25
76	76.1	86.5	93	30
101.6	101.6	112.5	118	27
104	105	112.5	118	27



**SMS-15 LONG WELDING MALE**

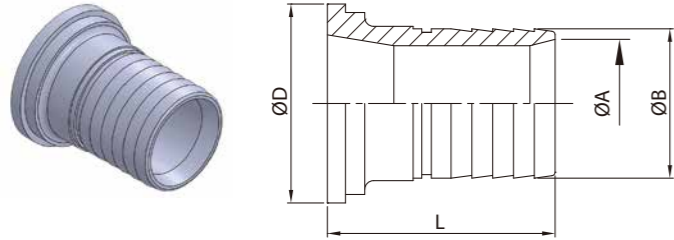
SIZE	ØA	ØB	ØC	L
25	22.5	25	RD 40*1/6	19
38	35.5	38	RD 60*1/6	23
50	48.5	51	RD 70*1/6	23
63	60.5	63.5	RD 85*1/6	27
76	72.9	76.1	RD 98*1/6	27
101.6	97.6	101.6	RD125*1/4	30
104	100	104	RD125*1/4	30
102.5	98.5	102.5	RD132*1/6	35



**SMS-15R EXPANDING MALE**

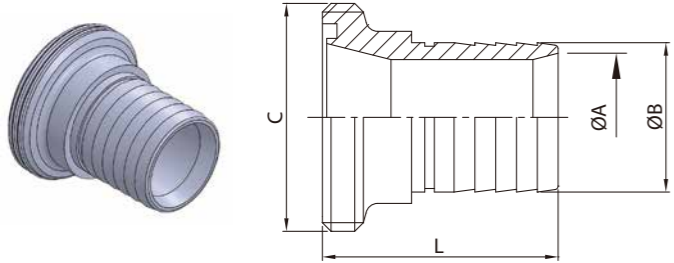
SIZE	ØA	ØB	C	L
25	25	32	RD 40*1/6	20
32	32	40	RD 48*1/6	20
38	38	47.9	RD 60*1/6	23
40	40	48	RD 60*1/6	23
50	51	60.4	RD 70*1/6	25
63	63.5	73.5	RD 85*1/6	30
76	76.1	86.5	RD 98*1/6	35
101.6	101.6	112.5	RD125*1/4	30
104	105	112.5	RD125*1/4	30

## SMS Unions Range



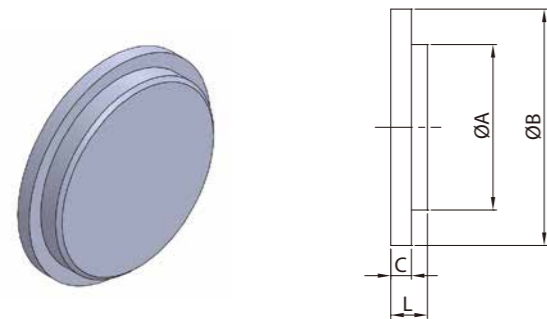
**SMS-14AHR HOSE ADAPTER**

SIZE	ØA	ØB	ØD	L
25	22.2	25	35.5	60.5
38	34	38	55	72
50	47	50.5	65	82
63	59	63.2	80	95
76	71.5	75.5	93	97
104	95	100.8	118	109



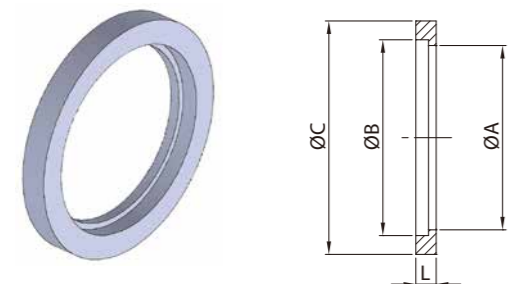
**SMS-15AHR HOSE ADAPTER**

SIZE	ØA	ØB	C	L
25	22.2	25	RD 40*1/6	64
38	34	38	RD 60*1/6	79
50	47	50.5	RD 70*1/6	89
63	59	63.2	RD 85*1/6	102
76	71.5	75.5	RD 98*1/6	105
104	95	100.8	RD 125*1/4	120



**SMS-14B BLANK END CAP**

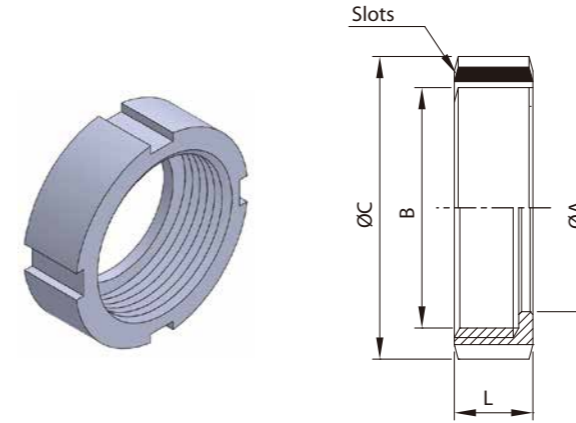
SIZE	ØA	ØB	C	L
25	32	35.5	3.5	7.5
38	48	55	5	9
50	60	65	5	10
63	73.5	80	5	10
76	86	93	5	11
101.6/104	116	118	6	11
102.5	112	128	6	11



**SEAL RING L TYPE (EPDM · SILICONE · VITON (FKM))**

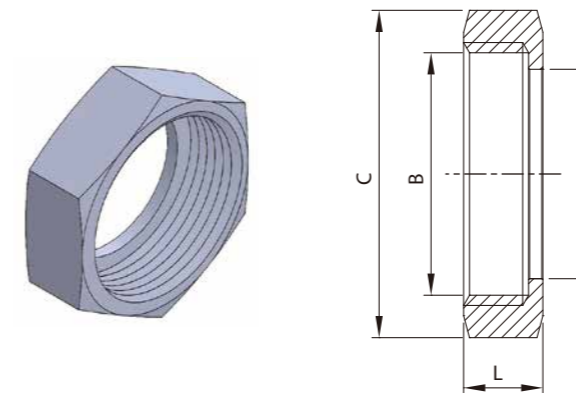
SIZE	ØA	ØB	C	L
25	22.8	25.1	31.8	5.3
38	35.8	38.1	47.8	5.3
50	48.8	51.1	60.8	5.3
63	61	63.6	73.3	5.3
76	73.4	76.1	85.8	5.3
104/102.5	100.5	104	115.7	5.3

## RJT (BS) Unions



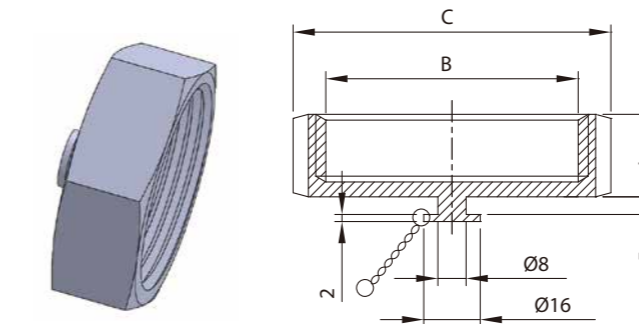
**RJT-13R Round nut**

SIZE	ØA	B	ØC	L	Slots
1.0"	33.45	42.266x8TPI WHIT	58.5	22.2	4
1.5"	46	54.966x8TPI WHIT	74	22.2	4
2.0"	58.67	67.92x6TPI WHIT	85.5	22.2	4
2.5"	71.4	80.62x6TPI WHIT	98.5	22.2	4
3.0"	84.1	93.32x6TPI WHIT	111.6	22.2	4
4.0"	109.7	118.72x6TPI WHIT	138	22.2	4
6.0"	163	169.52x6TPI WHIT	197	23.5	4



**RJT-13H Hex.nut**

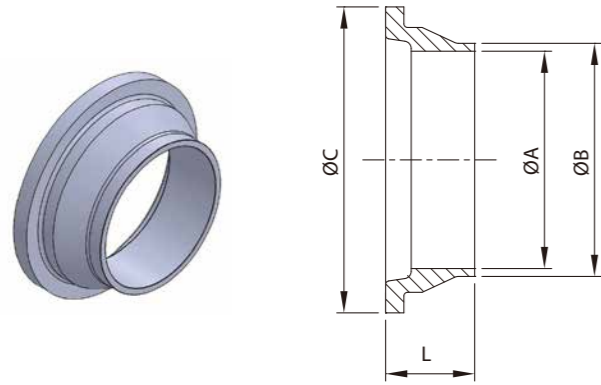
SIZE	ØA	B	C	L
1/2"	14.5	19.6x10TPI WHIT	28.5	16
3/4"	21	26.2x10TPI WHIT	33	16
1.0"	33.45	42.266x8TPI WHIT	50.8	22.2
1.5"	46	54.966x8TPI WHIT	65	22.2
2.0"	58.67	67.92x6TPI WHIT	79.4	22.2
2.5"	71.4	80.62x6TPI WHIT	92	22.2
3.0"	84.1	93.32x6TPI WHIT	104.8	22.2
4.0"	109.7	118.72x6TPI WHIT	130	22.2
6.0"	163	169.52x6TPI WHIT	184	24



**RJT-13HBN Hex.blank nut**

SIZE	B	C	L
1.0"	42.266x8TPI WHIT	50.8	23.5
1.5"	54.966x8TPI WHIT	65	23.5
2.0"	67.92x6TPI WHIT	79.4	23.5
2.5"	80.62x6TPI WHIT	92	23.5
3.0"	93.32x6TPI WHIT	104.8	23.5
4.0"	118.72x6TPI WHIT	130	23.5
6.0"	169.52x6TPI WHIT	184	23.5

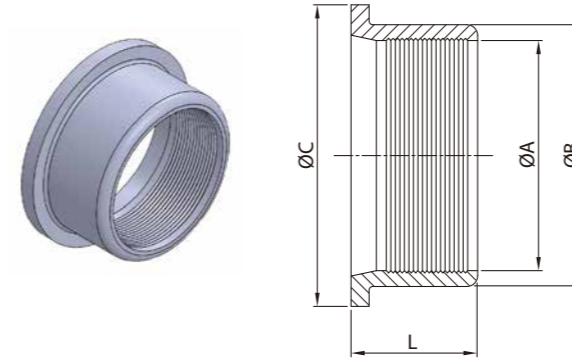
## RJT (BS) Unions



**RJT-14 WELDING LINER**

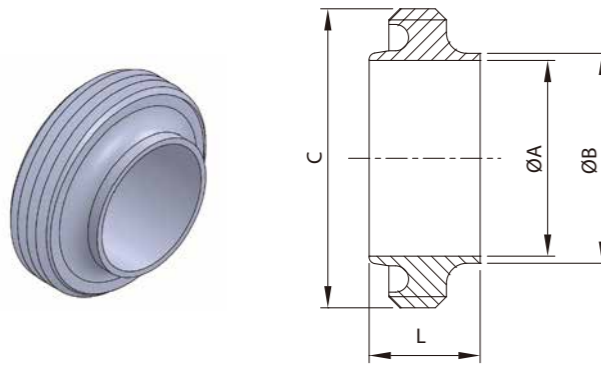
SIZE	ØA	ØB	ØC	L
1/2"	9.6	14	18	11.4
3/4"	16	20	23.1	11.4
1.0"	22.1	25.4	41.3	19.5
1.5"	34.8	38.1	54	19.5
2.0"	47.5	50.8	66.7	19.5
2.5"	60.2	63.5	79.4	19.5
3.0"	72.9	76.2	92.1	19.5
4.0"	97.6	101.6	117.5	19.5
6.0"	146.86	152.4	169.1	23.5

## RJT (BS) Unions



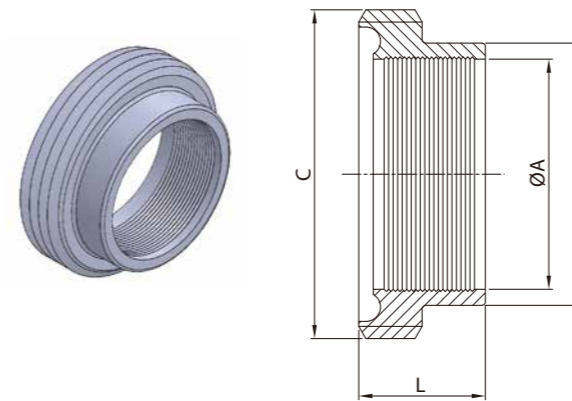
**RJT-14R EXPANDING LINER**

SIZE	ØA	ØB	ØC	L
1"	25.4	32.5	41.3	20
1.5"	38.1	45.2	54	24
2"	50.8	57.9	66.7	28
2.5"	63.5	70.6	79.4	32
3"	76.2	83.3	92.1	32
4"	101.6	108.7	117.5	32



**RJT-15 WELDING MALE**

SIZE	ØA	ØB	C	L
1/2"	9.6	13.7	21.2 *10TP WHIT	16.5
3/4"	16	20	27.6 *10TP WHIT	16.5
1.0"	22.1	25.4	45.72 *8TP WHIT	27
1.5"	34.8	38.1	58.42 *8TP WHIT	27
2.0"	47.5	50.8	72.72 *6TP WHIT	27
2.5"	60.2	63.5	85.42 *6TP WHIT	27
3.0"	72.9	76.2	98.12 *6TP WHIT	27
4.0"	97.6	101.6	123.52 *6TP WHIT	27
104	100	104	123.52 *6TP WHIT	27
6.0"	146.86	152.4	174.32 *6TP WHIT	24



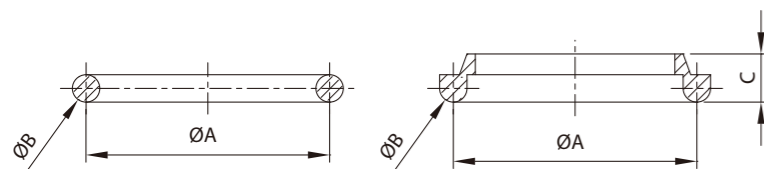
**RJT-15R EXPANDING MALE**

SIZE	ØA	ØB	C	L
1"	25.4	32.5	45.72 *8TP WHIT	20
1.5"	38.1	45.2	58.42 *8TP WHIT	24
2"	50.8	57.9	72.72 *6TP WHIT	28
2.5"	63.5	70.6	85.42 *6TP WHIT	32
3"	76.2	83.3	98.12 *6TP WHIT	32
4"	101.6	108.7	123.52 *6TP WHIT	32

**O-Ring**

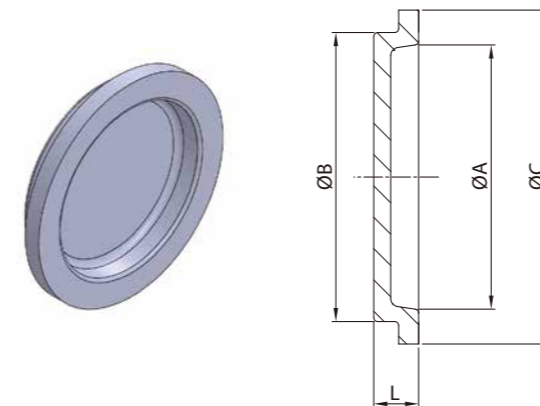


**U Type**



**RJT-15 EXPANDING MALE**

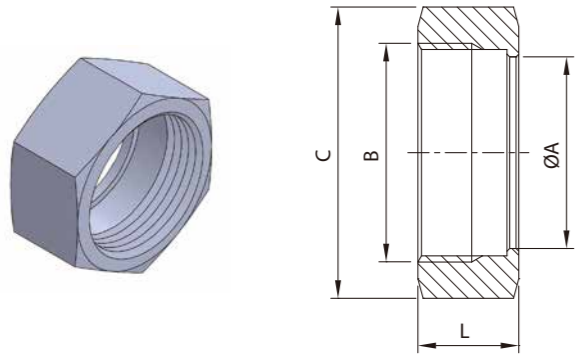
SIZE	ØA	ØB	C
1"	33.3	6.5	7
1.5"	46	6.5	7
2"	58.7	6.5	7
2.5"	71.4	6.5	7
3"	84.1	6.5	7
4"	109.5	6.5	7
6"	160.3	6.5	7



**RJT-14B BLANK END CAP**

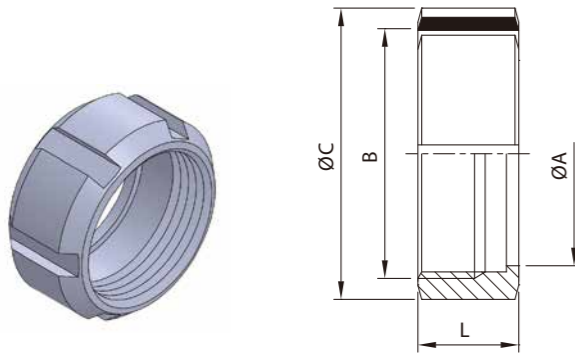
SIZE	ØA	ØB	ØC	L
1"	27.8	32.5	41.3	9
1.5"	40.5	45.2	54	9
2"	53.2	57.9	66.7	9
2.5"	65.9	70.6	79.4	9
3"	78.6	83.3	92.1	9
4"/104	104	108.7	117.5	9

## IDF/JIS Unions



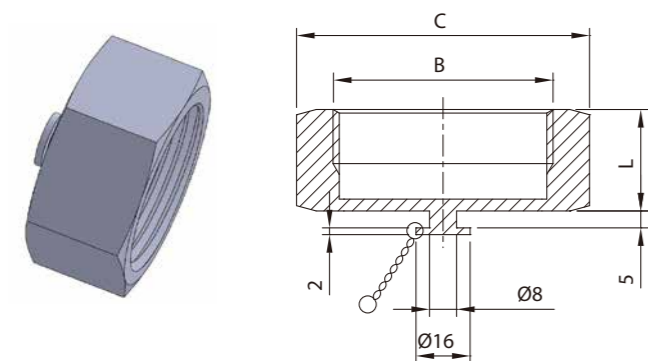
**IDF-13H Hex.nut**

SIZE	ØA	B	C	L
1.0"	30.5	34.49x8T ACME	46	30
1.5"	43.5	48.01x8T ACME	60	30
2.0"	57	61.52x8T ACME	75	30
2.5"	70.7	75.03x8T ACME	90	30
3.0"	83.3	88.55x8T ACME	105	30
4.0"	112	122.2x6T ACME	133	34.9



**IDF-13R Round nut**

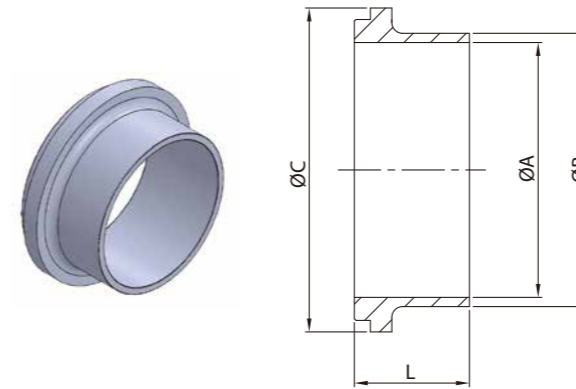
SIZE	ØA	B	ØC	L	Slots
1.0"	30.5	34.49x8T ACME	48	30	6
1.5"	43.5	48.01x8T ACME	64	30	6
2.0"	57	61.52x8T ACME	77	30	6
2.5"	70.7	75.03x8T ACME	91	30	6
3.0"	83.3	88.55x8T ACME	106	30	6
4.0"	110	115.56x8T ACME	135	34.9	6



**IDF-13HBN Hex.blank nut**

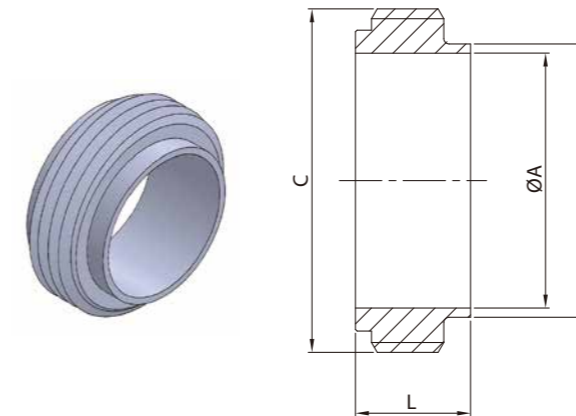
SIZE	B	C	L
1.0"	34.49x8T ACME	46	30
1.5"	48.01x8T ACME	60	30
2.0"	61.52x8T ACME	75	30
2.5"	75.03x8T ACME	90	30
3.0"	88.55x8T ACME	105	30
4.0"	122.2x6T ACME	133	34.9

## IDF/JIS G3447 Unions



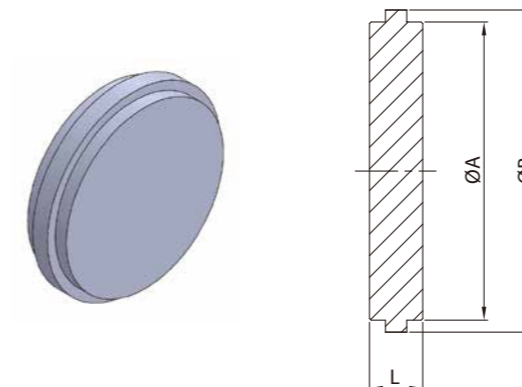
**IDF-14 WELDING LINER**

SIZE	IDF		JIS		ØC	L
	ØA	ØB	ØA	ØB		
1"	22.1	25.4	23	25.4	33.8	21.5
1.5"	34.8	38.1	35.7	38.1	47	21.5
2"	47.5	50.8	47.8	50.8	60.5	21.5
2.5"	60.2	63.5	59.5	63.5	74	21.5
3"	72.9	76.2	72.3	76.3	87.5	21.5
R 4"	97.6	101.6	—	—	114	30
H 4"	97.6	101.6	97.6	101.6	120.6	30



**IDF-15 WELDING MALE**

SIZE	IDF		JIS		C	L
	ØA	ØB	ØA	ØB		
1"	22.1	25.4	23	25.4	36.97*8T ACME	21.5
1.5"	34.8	38.1	35.7	38.1	50.49*8T ACME	21.5
2"	47.5	50.8	47.8	50.8	64*8T ACME	21.5
2.5"	60.2	63.5	59.5	63.5	77.51*8T ACME	21.5
3"	72.9	76.2	72.3	76.3	91.03*8T ACME	21.5
R 4"	97.6	101.6	—	—	118.04*8T ACME	30
H 4"	97.6	101.6	97.6	101.6	125.69*6T ACME	30

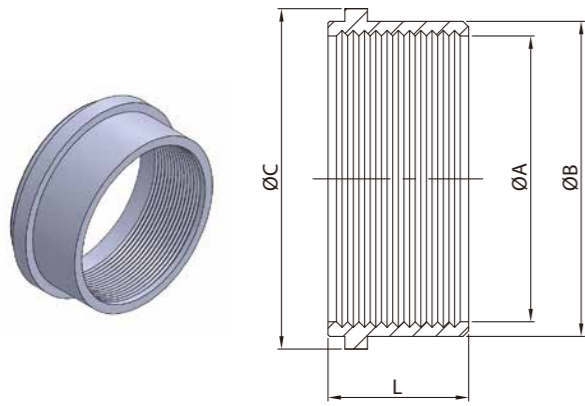


**IDF-14B BLANK END CAP**

SIZE	ØA	ØB	L
1"	29.2	33.8	10.5
1.5"	42.7	47	10.5
2"	56.2	60.5	10.5
2.5"	69.9	74	10.5
3"	82.6	87.5	10.5
R 4"	108.8	114.1	12.6
H 4"	111.1	120.6	12.6

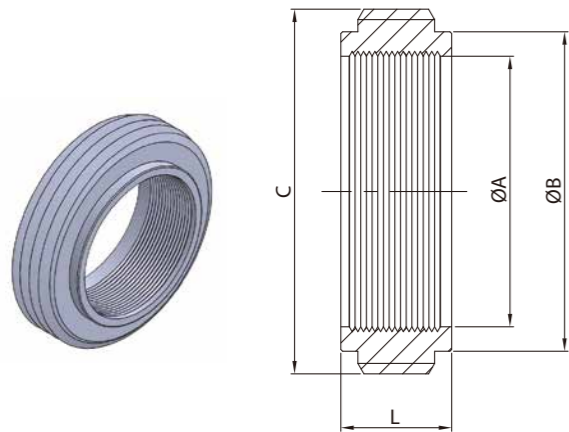


## IDF/JIS G3447 Unions



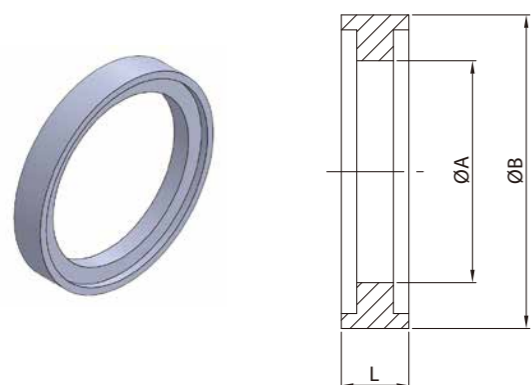
**IDF-14R RECESSLESS LINER**

SIZE	ØA	ØB	ØC	L
1"	25.4	29.2	33.8	20
1.5"	38.1	42.7	47	20
2"	50.8	56.2	60.5	25
2.5"	63.5	69.9	74	30
3"	76.2	82.6	87.5	30
R 4"	101.6	108.8	114	30
H 4"	101.6	111.1	120.6	30



**IDF-15R RECESSLESS MALE**

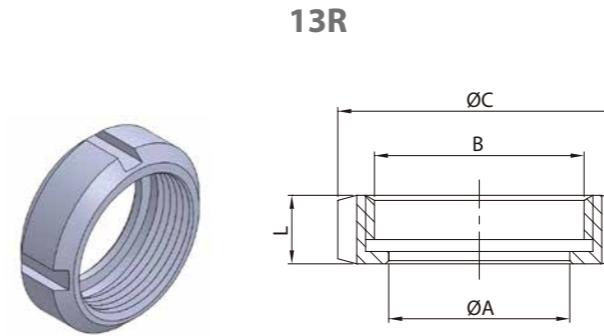
SIZE	ØA	ØB	C	L
1"	25.4	29.2	36.97*8T ACME	19.5
1.5"	38.1	42.7	50.49*8T ACME	19.5
2"	50.8	56.2	64*8T ACME	19.5
2.5"	63.5	69.9	77.51*8T ACME	25
3"	76.2	82.6	91.03*8T ACME	30
R 4"	101.6	108.8	118.04*8T ACME	35
H 4"	101.6	111.1	125.69*6T ACME	35



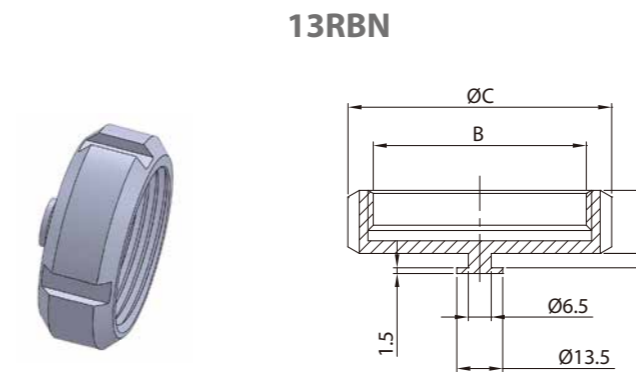
**IDF SEAL RING**

SIZE	ØA	ØB	L
1"	23	32.5	7
1.5"	36	46	7
2"	49	59.5	7
2.5"	60.7	73.2	7
3"	73.2	86.5	7
R 4"	98	113	7
H 4"	98	119.6	7

## Wine Unions



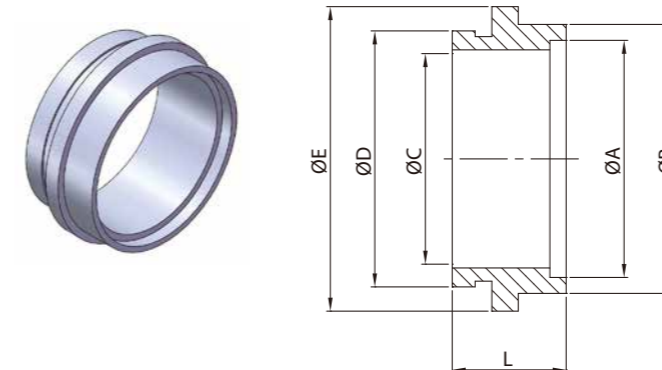
**13R**



**13RBN**

**MACON NUT 4 SLOTS M-13R**

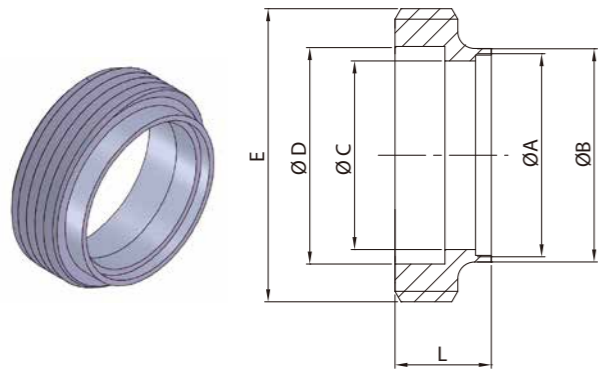
SIZE	ØA	B	ØC	L
DN33	37	39*11TPI WHIT	50	25
DN43	47	M55*P3.0	70	25
DN53	57	M67*P3.0	80	25
DN63	67	M79*P3.5	95	25
DN73	77	M90*P3.5	106	25
DN83	90	M102*P4.0	118	25
DN103	112	M125*P4.0	139	26



**MACON LINER M-14**

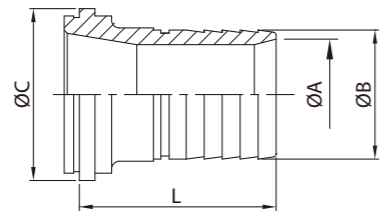
SIZE	ØA	ØB	ØC	ØD	ØE	L
DN33	33.3	36	28	31.5	38	22
DN38	38.2	46	35.9	44.5	50	29
DN40/43	43.3	46.3	40	44.5	50	22
DN51	51.2	56	48.5	54.5	62.5	29
DN50/53	53.3	56.3	50	54.5	62.5	22
DN60/63	63.3	66.3	60	64.5	73.5	22
DN70/73	73.3	76.3	70	74.5	85	22
DN76	72	76	70	74.5	85	22
DN80/83	83.3	86.3	80	84.5	96	22
DN103	104.2	108	100	104.5	119	22

## Wine Unions



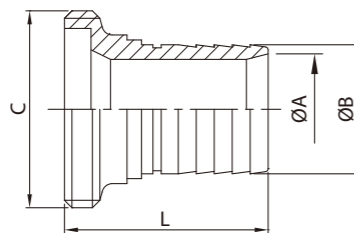
### MACON MALE M-15

SIZE	ØA	ØB	ØC	ØD	E	L
DN33	33.3	36.3	30	32	40.5*11TPI WHIT	22
DN38	38.2	46	35.9	45	M55*P3.0	30
DN43	43.3	46.3	40	45	M55*P3.0	22
DN51	51.2	56	48.5	55	M67*P3.0	30
DN53	53.3	56.3	50	55	M67*P3.0	22
DN60/63	63.3	66.3	60	66	M79*P3.5	22
DN70/73	73.3	76.3	70	76	M90*P3.5	22
DN76	72	76	70	76	M90*P3.5	22
DN80/83	83.3	86.3	80	86	M102*P4.0	22
DN103	104.2	108	100	106	M125*P4.0	22



### M-14AHR MACON LINER HOSE ADAPTER

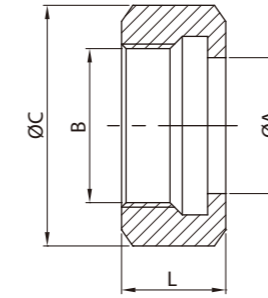
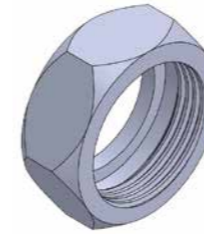
SIZE	ØA	ØB	ØC	L
DN40/43	40	43	50.8	79
DN50/53	50	53	63	79
DN60/63	59	53.2	75	102
DN70/73	70	73	85	79
DN80/83	71.5	75.5	97	110



### M-15AHR MACON MALE HOSE ADAPTER

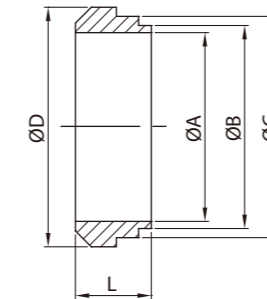
SIZE	ØA	ØB	C	L
DN40/43	40	43	M55*P3.0	79
DN50/53	50	53	M67*P3.0	79
DN60/63	59	53.2	M79*P3.5	104
DN70/73	70	73	M90*P3.5	79
DN80/83	71.5	75.5	M102*P4.0	112

## 3A Unions



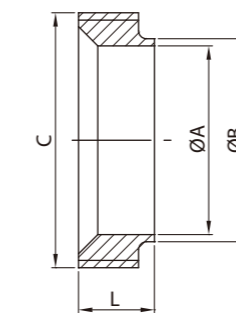
### 3A-13H HEXAGONAL NUT

SIZE	ØA	B	ØC	L
1"	30.3	38.02 ACME 8TPI	46	23
1.5"	43.4	51.54 ACME 8TPI	61.1	24.6
2"	56.5	65.05 ACME 8TPI	76.2	27
2.5"	69.6	78.56 ACME 8TPI	91.3	29.6
3"	82.7	92.08 ACME 8TPI	106.4	32.5
4"	108.9	120.14 ACME 6TPI	137.6	38.1



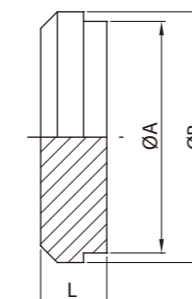
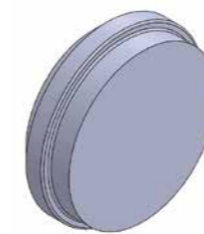
### 3A-14PRF SHORT BEVEL SEAT WELD LINER

SIZE	ØA	ØB	ØC	ØD	L
1"	22.1	25.4	29.5	33.3	18.3
1.5"	34.8	38.1	42.6	46.8	18.3
2"	47.5	50.8	55.7	60.3	19.1
2.5"	60.2	63.5	68.8	73.8	22.3
3"	72.9	76.2	81.9	87.3	23.1
4"	97.6	101.6	108.1	114.3	26.2



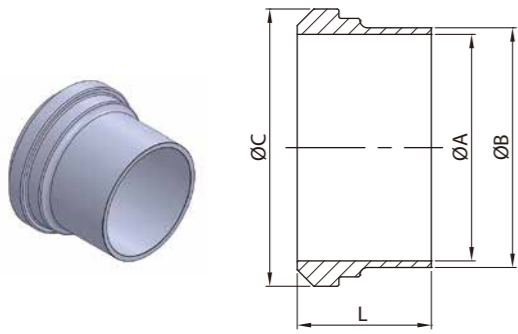
### 3A-15TRF SHORT BEVEL SEAT WELD MALE

SIZE	ØA	ØB	C	L
1"	22.1	25.4	36.97 ACME 8TPI	18.3
1.5"	34.8	38.1	50.49 ACME 8TPI	18.3
2"	47.5	50.8	64 ACME 8TPI	19.1
2.5"	60.2	63.5	77.51 ACME 8TPI	22.2
3"	72.9	76.2	91.03 ACME 8TPI	23.1
4"	97.6	101.6	119.04 ACME 6TPI	26.2



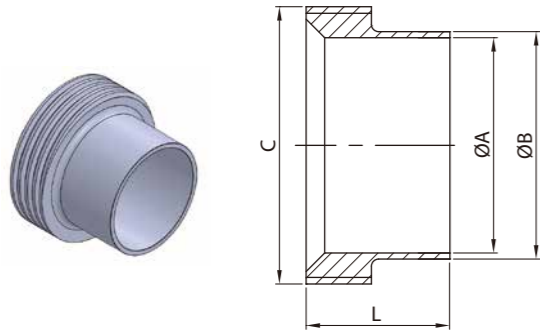
### 3A-16A BLANK END CAP

SIZE	ØA	ØB	L
1"	29.5	33.3	11.9
1.5"	42.6	46.8	14.3
2"	55.7	60.3	15.9
2.5"	68.8	73.8	16.7
3"	81.9	87.3	18.3
4"	108.1	114.3	20.6



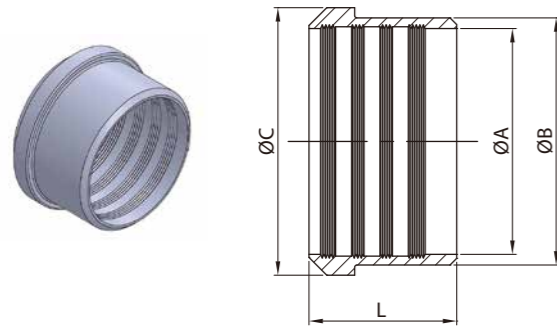
**3A-14A LONG WELD LINER**

SIZE	ØA	ØB	ØC	L
1"	22.1	25.4	33.3	34.9
1.5"	34.8	38.1	46.8	38.1
2"	47.5	50.8	60.3	38.1
2.5"	60.2	63.5	73.8	44.5
3"	72.9	76.2	87.3	44.5
4"	97.6	101.6	114.3	44.5



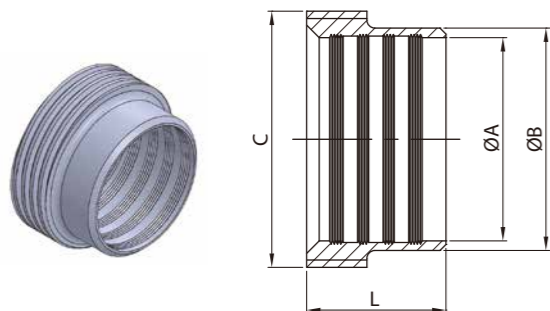
**3A-15A LONG WELD MALE**

SIZE	ØA	ØB	C	L
1"	22.1	25.4	36.97 ACME 8TPI	34.9
1.5"	34.8	38.1	50.49 ACME 8TPI	38.1
2"	47.5	50.8	64 ACME 8TPI	38.1
2.5"	60.2	63.5	77.51 ACME 8TPI	44.5
3"	72.9	76.2	91.03 ACME 8TPI	44.5
4"	97.6	101.6	119.04 ACME 6TPI	44.5



**3A-14R RECESSLESS LINER**

SIZE	ØA	ØB	ØC	L
1"	25.4	29.5	33.3	19.1
1.5"	38.1	42.6	46.8	28.6
2"	50.8	55.7	60.3	33.3
2.5"	63.5	68.8	73.8	34.9
3"	76.2	81.9	87.3	36.5
4"	101.6	108.1	114.3	38.1



**3A-15R RECESSLESS MALE**

SIZE	ØA	ØB	C	L
1"	25.4	29.5	36.97 ACME 8TPI	20.6
1.5"	38.1	42.6	50.49 ACME 8TPI	28.6
2"	50.8	55.7	64 ACME 8TPI	34.9
2.5"	63.5	68.8	77.51 ACME 8TPI	38.1
3"	76.2	81.9	91.03 ACME 8TPI	41.3
4"	101.6	108.1	119.04 ACME 6TPI	41.3

## 3A. SMS. DIN. BS. AS

# Tube Line / Elbow / Tee / Reducer



## CSE Wide Range Tube Line

CSE tube fittings can be used for sanitary, pharmaceutical, vacuum...etc purposes.



It can be equipped with different types or connection ends, as 45°/90° elbow, tee, concentric/ eccentric reducer...weld, clamp, unions....

Standard type: 3A, SMS, DIN, BS, BPE...etc.

Material: ASTM 304, 316, 316L

Surface: 1) ID/OD polishing .

2) Only ID polishing .

3) Only OD polishing .

4) unpolished.

Roughness: #400, #320, #240, #180....

Ra≤0.8µm, 0.6µm, 0.5µm, 0.4µm.....

(Other surface finished can be ordered).

### CSE Sanitary Tubes For Biochemistry, Pharmaceutical, Food...etc.

3A STANDRD			BPE STANDRD			IDF STANDRD			SMS STANDRD			DIN EN10357 DIN11850/11865					ISO 1127 series 1			A size (JIS G3459) STANDRD					
SIZE	O.D.	T	SIZE	O.D.	T	SIZE	O.D.	T	SIZE	O.D.	T	SIZE	OD-DB	OD-DA	OD(11865)	T	SIZE	O.D.	T	SIZE	OD	T	SCH.5S	T	SCH.11S
1/4"	6.35	1.245	1/4"	6.35	0.89	1.0 <sup>s</sup>	25.4	1.2	DN25	25	1.25/1.5	DN6	-	-	8	1	DN6	10.3	1/1.2/1.6	6A	10.5	1	1.2		
3/8"	9.525	1.245	3/8"	9.53	0.89	1.25 <sup>s</sup>	31.8	1.2	DN38	38	1.25/1.5	DN8	-	-	10	1	DN8	13.5	1/1.2/1.6	8A	13.8	1.2	1.65		
1/2"	12.7	1.65	1/2"	12.7	1.65	1.5 <sup>s</sup>	38.1	1.2	DN50	51	1.25/1.5	DN10	12	13	13	1.5	DN10	17.2	1/1.6	10A	17.3	1.2	1.65		
3/4"	19.05	1.65	3/4"	19.05	1.65	2.0 <sup>s</sup>	50.8	1.5	DN63	63.5	1.5	DN15	18	19	19	1.5	DN15	21.3	1/1.6	15A	21.7	1.65	2.1		
1.0"	25.4	1.65	1.0"	25.4	1.65	2.5 <sup>s</sup>	63.5	2	DN76	76.1	1.6/2	DN20	22	23	23	1.5	DN20	26.9	1/1.6	20A	27.2	1.65	2.1		
1.5"	38.1	1.65	1.5"	38.1	1.65	3.0 <sup>s</sup>	76.3	2	DN100	101.6/104	2	DN25	28	29	29	1.5	DN25	33.7	1.2/1.6	25A	34	1.65	2.8		
2.0"	50.8	1.65	2.0"	50.8	1.65	3.5 <sup>s</sup>	89.1	2				DN32	34	35	35	1.5	DN32	42.4	1.6/2	32A	42.7	1.65	2.8		
2.5"	63.5	1.65	2.5"	63.5	1.65	4.0 <sup>s</sup>	101.6	2				DN40	40	41	41	1.5	DN40	48.3	1.6/2	40A	48.6	1.65	2.8		
3.0"	76.2	1.65	3.0"	76.2	1.65	4.5 <sup>s</sup>	114.3	3				DN50	52	53	53	1.5	DN50	60.3	1.6/2	50A	60.5	1.65	2.8		
4.0"	101.6	2.1	4.0"	101.6	2.11	5.5 <sup>s</sup>	139.8	3				DN65	70	70	70	2	DN65	76.1	1.6/2	65A	76.3	2.1	3		
5.0"	127	2.77	5.0"	127	2.77	6.5 <sup>s</sup>	165.2	3				DN80	85	85	85	2	DN80	88.9	1.6/2	80A	89.1	2.1	3		
6.0"	152.4	2.77										DN100	104	104	104	2	DN100	114.3	1.6/2	90A	101.6	2.1	3		
8.0"	203.2	2.77										DN125	129	129	129	2	DN125	139.7	1.6/2	100A	114.3	2.1	3		
10"	254	3.05										DN150	154	154	154	2	DN150	168.3	1.6/2	125A	139.8	2.8	3.4		
12"	304.8	3.05										DN200	204	204	204	2	DN200	219.1	2/2.6	150A	165.2	2.8	3.4		
												DN250	254			2	DN250	273	2/2.6	200A	216.3	2.8	4		
												DN300	306			3	DN300	323.9	2.6/3.2	250A	267.4	3.4	4		
																				300A	318.5	4	4.5		

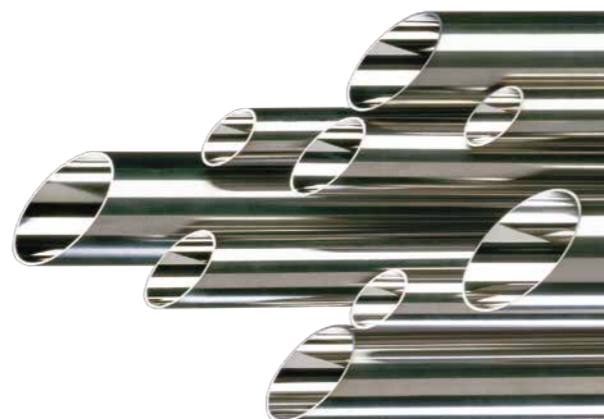
CSE Sanitary for food, and pharmaceutical industry

Material: ASTM 304, 304L, 316L

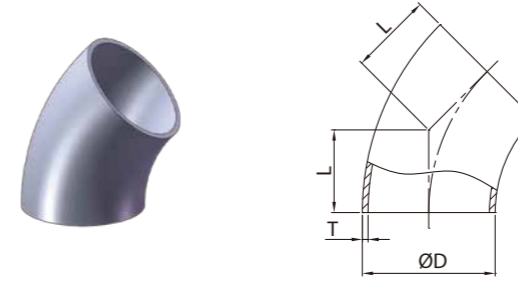
Spec: ASTM A269, A270.

Surface & Roughness:

1. OD/ID Pickle (Ra≤1.0µm)
2. Polished:
  - (1) ID Polished to 180Grit (Ra≤0.8µm).
  - (2) ID Polished to 240Grit (Ra≤0.6µm).
  - (3) ID Polished to 320Grit (Ra≤0.5µm).
  - (4) ID Polished to 420Grit (Ra≤0.4µm).
  - (5) Electro polished:
    - (5-1). ID Electro polished Ra≤0.5µm).
    - (5-2). ID Electro polished Ra≤0.38µm).

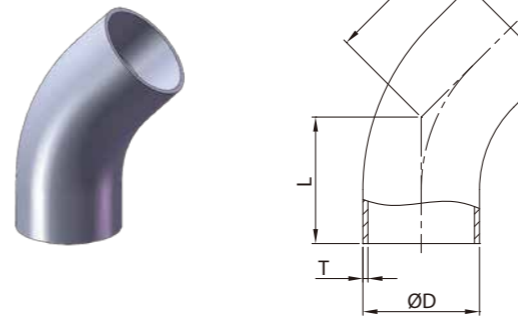


## 3A Tubular Items



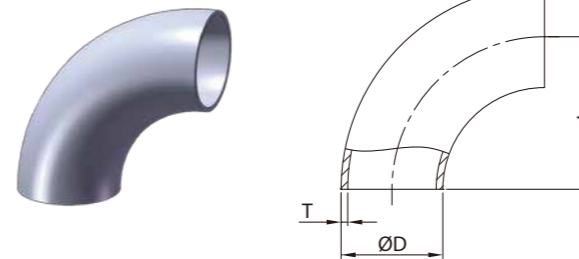
### 2WK SHORT 45° ELBOW

SIZE	ØD	L	T
1/2"	12.7	7.9	1.65
3/4"	19.05	11.8	1.65
1"	25.4	15.8	1.65
1.5"	38.1	23.8	1.65
2"	50.8	31.75	1.65
2.5"	63.5	39.6	1.65
3"	76.2	47.6	1.65
4"	101.6	63.5	2.1
5"	127	78.91	2.77
6"	152.4	95.25	2.77
8.0"	203.2	126.25	3.05
10"	254	157.82	3.05
12"	304.8	189.38	3.05



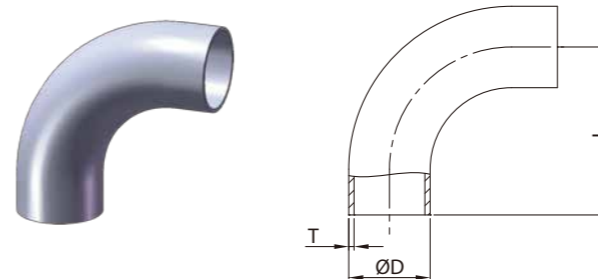
### L2KS LONG 45° ELBOW

SIZE	ØD	L	T
1/2"	12.7	30.2	1.65
3/4"	19.05	30.2	1.65
1"	25.4	30.2	1.65
1.5"	38.1	41.3	1.65
2"	50.8	58.7	1.65
2.5"	63.5	76.2	1.65
3"	76.2	93.7	1.65
4"	101.6	122.2	2.1
5"	127	142.41	2.77
6"	152.4	158.19	2.77
8"	203.2	189.75	3.05
10"	254	234.02	3.05
12"	304.8	265.58	3.05



### 2WCL SHORT WELD 90° ELBOW

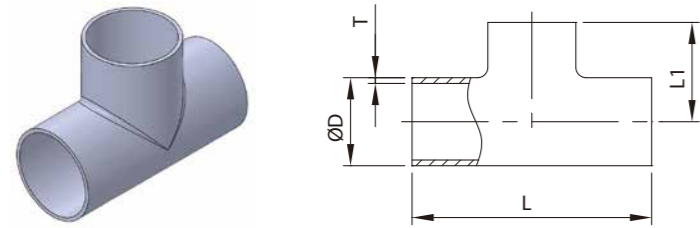
SIZE	ØD	L	T
1/2"	12.7	19.05	1.65
3/4"	19.05	28.58	1.65
1"	25.4	38.1	1.65
1.5"	38.1	57.2	1.65
2"	50.8	76.2	1.65
2.5"	63.5	95.25	1.65
3"	76.2	114.3	1.65
4"	101.6	152.4	2.1
5"	127	190.5	2.77
6"	152.4	228.6	2.77
8"	203.2	304.8	2.77
10"	254	381	3.05
12"	304.8	457.2	3.05



### L2S LONG WELD 90° ELBOW

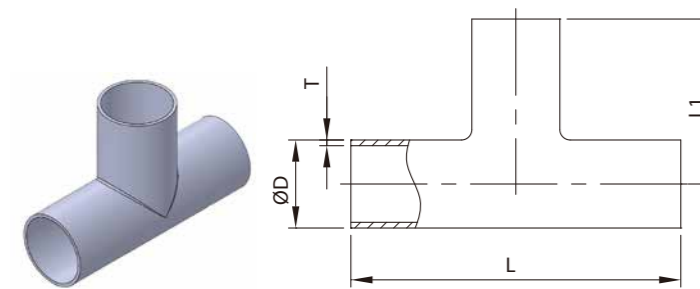
SIZE	ØD	L	T
1/2"	12.7	45	1.65
3/4"	19.05	60	1.65
1"	25.4	52.4	1.65
1.5"	38.1	74.6	1.65
2"	50.8	103.2	1.65
2.5"	63.5	131.8	1.65
3"	76.2	160.3	1.65
4"	101.6	211.1	2.1
5"	127	254	2.77
6"	152.4	292.1	2.77
8"	203.2	368.3	3.05
10"	254	457.2	3.05
12"	304.8	533.4	3.05

### 3A Tubular Items



**7WWW SHORT EQUAL WELD TEE**

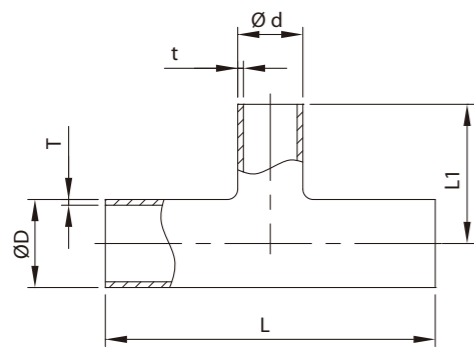
SIZE	ØD	L	L1	T
1/2"	12.7	38.1	19.05	1.65
3/4"	19.05	57.2	28.6	1.65
1.0"	25.4	57.2	28.6	1.65
1.5"	38.1	84.2	42.1	1.65
2.0"	50.8	104.8	52.4	1.65
2.5"	63.5	119	59.5	1.65
3.0"	76.2	131.8	65.9	1.65
4.0"	101.6	174.6	87.3	2.1
5.0"	127	254	127	2.77
6.0"	152.4	254	127	2.77
8.0"	203.2	355.6	177.8	3.05
10"	254	431.8	215.9	3.05
12"	304.8	508	254	3.05



**7W LONG EQUAL WELD TEE**

SIZE	ØD	L	L1	T
1/2"	12.7	95.2	47.6	1.65
3/4"	19.05	95.2	47.6	1.65
1.0"	25.4	95.2	47.6	1.65
1.5"	38.1	114.4	57.2	1.65
2.0"	50.8	152.4	76.2	1.65
2.5"	63.5	152.4	76.2	1.65
3.0"	76.2	165.2	82.6	1.65
4.0"	101.6	196.8	98.4	2.1
5.0"	127	285.8	142.9	2.77
6.0"	152.4	285.8	142.9	2.77
8.0"	203.2	355.6	177.8	3.05
10"	254	431.8	215.9	3.05
12"	304.8	508	254	3.05

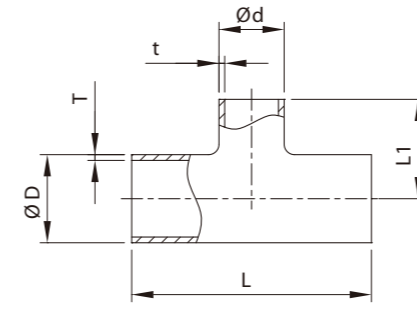
**7RW LONG REDUCING WELD TEE**



SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	95.5	47.6	1.65	1.65
1.0"×1/2"	25.4	12.7	95.5	25.4	1.65	1.65
1.0"×3/4"	25.4	19.05	95.5	28.45	1.65	1.65
1.5"×1/2"	38.1	12.7	114.3	31.75	1.65	1.65
1.5"×3/4"	38.1	19.05	114.3	35.05	1.65	1.65
1.5"×1.0"	38.1	25.4	114.3	53.98	1.65	1.65
2.0"×1/2"	50.8	12.7	152.4	38.1	1.65	1.65
2.0"×3/4"	50.8	19.05	152.4	41.4	1.65	1.65
2.0"×1.0"	50.8	25.4	152.4	60.3	1.65	1.65
2.0"×1.5"	50.8	38.1	152.4	63.5	1.65	1.65
2.5"×1.0"	63.5	25.4	152.4	69.85	1.65	1.65
2.5"×1.5"	63.5	38.1	152.4	69.85	1.65	1.65
2.5"×2.0"	63.5	50.8	152.4	82.55	1.65	1.65
3.0"×1.0"	76.2	25.4	165.1	79.38	1.65	1.65
3.0"×1.5"	76.2	38.1	165.1	76.2	1.65	1.65
3.0"×2.0"	76.2	50.8	165.1	88.9	1.65	1.65
3.0"×2.5"	76.2	63.5	165.1	82.55	1.65	1.65
4.0"×1.0"	101.6	25.4	196.8	92.08	2.1	1.65
4.0"×1.5"	101.6	38.1	196.8	92.08	2.1	1.65
4.0"×2.0"	101.6	50.8	196.8	101.6	2.1	1.65
4.0"×2.5"	101.6	63.5	196.8	95.25	2.1	1.65
4.0"×3.0"	101.6	76.2	196.8	95.25	2.1	1.65
6.0"×2.0"	152.4	50.8	285.8	120.65	2.77	1.65
6.0"×2.5"	152.4	63.5	285.8	120.65	2.77	1.65
6.0"×3.0"	152.4	76.2	285.8	120.65	2.77	1.65
6.0"×4.0"	152.4	101.6	285.8	123.8	2.77	2.1



### 3A Tubular Items

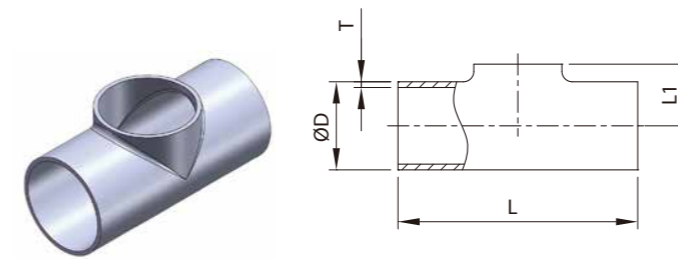


**7RWS SHORT REDUCING WELD TEE**

SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	95.3	15.9	1.65	1.65
1.0"×1/2"	25.4	12.7	95.5	25.4	1.65	1.65
1.0"×3/4"	25.4	19.05	95.5	28.45	1.65	1.65
1.5"×1/2"	38.1	12.7	84.2	31.75	1.65	1.65
1.5"×3/4"	38.1	19.05	84.2	35.05	1.65	1.65
1.5"×1.0"	38.1	25.4	84.2	34.9	1.65	1.65
2.0"×1/2"	50.8	12.7	104.8	38.1	1.65	1.65
2.0"×3/4"	50.8	19.05	104.8	41.4	1.65	1.65
2.0"×1.0"	50.8	25.4	104.8	41.3	1.65	1.65
2.0"×1.5"	50.8	38.1	104.8	48.4	1.65	1.65
2.5"×1.0"	63.5	25.4	119	47.6	1.65	1.65
2.5"×1.5"	63.5	38.1	119	54.8	1.65	1.65
2.5"×2.0"	63.5	50.8	119	58.7	1.65	1.65
3.0"×1.0"	76.2	25.4	131.8	54	1.65	1.65
3.0"×1.5"	76.2	38.1	131.8	61.1	1.65	1.65
3.0"×2.0"	76.2	50.8	131.8	65.1	1.65	1.65
3.0"×2.5"	76.2	63.5	131.8	65.9	1.65	1.65
4.0"×1.0"	101.6	25.4	174.6	66.7	2.1	1.65
4.0"×1.5"	101.6	38.1	174.6	73.8	2.1	1.65
4.0"×2.0"	101.6	50.8	174.6	77.8	2.1	1.65
4.0"×2.5"	101.6	63.5	174.6	78.6	2.1	1.65
4.0"×3.0"	101.6	76.2	174.6	80.2	2.1	1.65
6.0"×1.0"	152.4	25.4	254	111	2.77	1.65
6.0"×1.5"	152.4	38.1	254	114.3	2.77	1.65
6.0"×2.0"	152.4	50.8	254	117.5	2.77	1.65
6.0"×2.5"	152.4	63.5	254	120.7	2.77	1.65
6.0"×3.0"	152.4	76.2	254	123.8	2.77	1.65
6.0"×4.0"	152.4	101.6	254	130.2	2.77	2.1

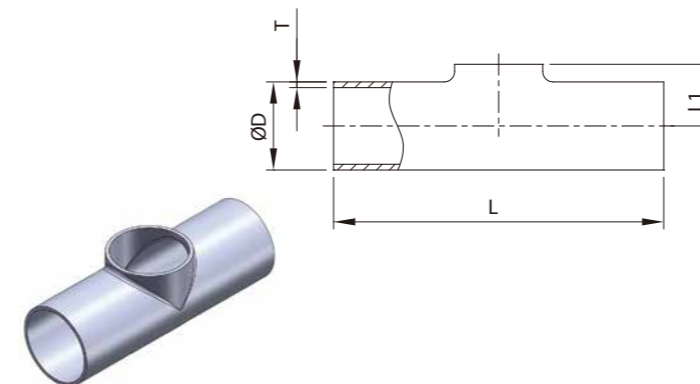


**7WWO SHORT EQUAL PULL WITHOUT STRAIGHT WELD TEE**



SIZE	ØD	L	L1	T
1.0"	25.4	57.2	16	1.65
1.5"	38.1	84.2	22	1.65
2.0"	50.8	104.8	29	1.65
2.5"	63.5	119	35	1.65
3.0"	76.2	131.8	41	1.65
4.0"	101.6	174.6	54	2.1

**7WLO LONG EQUAL PULL WITHOUT STRAIGHT WELD TEE**

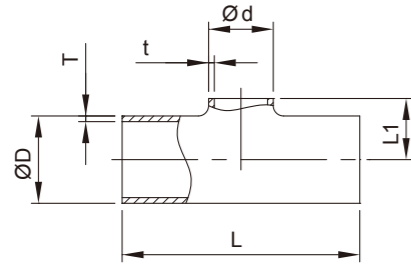


SIZE	ØD	L	L1	T
1/2"	12.7	95.2	9.35	1.65
3/4"	19.05	95.2	12.525	1.65
1.0"	25.4	95.2	16	1.65
1.5"	38.1	114.4	22	1.65
2.0"	50.8	152.4	29	1.65
2.5"	63.5	152.4	35	1.65
3.0"	76.2	165.2	41	1.65
4.0"	101.6	196.8	54	2.1

### 3A Tubular Items

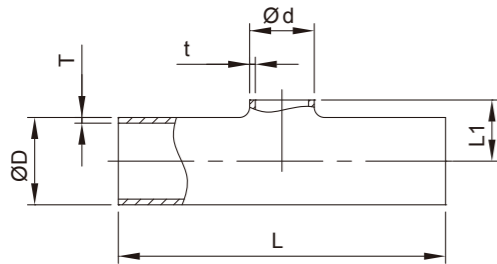
**7RWWO SHORT REDUCING PULL WITHOUT STRAIGHT WELD TEE**

SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	57.2	12.525	1.65	1.65
1.0"×1/2"	25.4	12.7	57.2	16	1.65	1.65
1.0"×3/4"	25.4	19.05	57.2	16	1.65	1.65
1.5"×1/2"	38.1	12.7	84.2	22	1.65	1.65
1.5"×3/4"	38.1	19.05	84.2	22	1.65	1.65
1.5"×1.0"	38.1	25.4	84.2	22	1.65	1.65
2.0"×1/2"	50.8	12.7	104.8	29	1.65	1.65
2.0"×3/4"	50.8	19.05	104.8	29	1.65	1.65
2.0"×1.0"	50.8	25.4	104.8	29	1.65	1.65
2.0"×1.5"	50.8	38.1	104.8	29	1.65	1.65
2.5"×1.0"	63.5	25.4	119	35	1.65	1.65
2.5"×1.5"	63.5	38.1	119	35	1.65	1.65
2.5"×2.0"	63.5	50.8	119	35	1.65	1.65
3.0"×1.0"	76.2	25.4	131.8	41	1.65	1.65
3.0"×1.5"	76.2	38.1	131.8	41	1.65	1.65
3.0"×2.0"	76.2	50.8	131.8	41	1.65	1.65
3.0"×2.5"	76.2	63.5	131.8	41	1.65	1.65
4.0"×1.0"	101.6	25.4	235	54	2.1	1.65
4.0"×1.5"	101.6	38.1	235	54	2.1	1.65
4.0"×2.0"	101.6	50.8	235	54	2.1	1.65
4.0"×2.5"	101.6	63.5	235	54	2.1	1.65
4.0"×3.0"	101.6	76.2	235	54	2.1	1.65



**7RWWO LONG REDUCING PULL WITHOUT STRAIGHT WELD TEE**

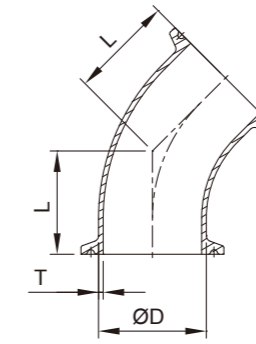
SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	95.5	12.525	1.65	1.65
1.0"×1/2"	25.4	12.7	95.5	16	1.65	1.65
1.0"×3/4"	25.4	19.05	95.5	16	1.65	1.65
1.5"×1/2"	38.1	12.7	114.3	22	1.65	1.65
1.5"×3/4"	38.1	19.05	114.3	22	1.65	1.65
1.5"×1.0"	38.1	25.4	114.3	22	1.65	1.65
2.0"×1/2"	50.8	12.7	152.4	29	1.65	1.65
2.0"×3/4"	50.8	19.05	152.4	29	1.65	1.65
2.0"×1.0"	50.8	25.4	152.4	29	1.65	1.65
2.0"×1.5"	50.8	38.1	152.4	29	1.65	1.65
2.5"×1.0"	63.5	25.4	152.4	35	1.65	1.65
2.5"×1.5"	63.5	38.1	152.4	35	1.65	1.65
2.5"×2.0"	63.5	50.8	152.4	35	1.65	1.65
3.0"×1.0"	76.2	25.4	165.1	41	1.65	1.65
3.0"×1.5"	76.2	38.1	165.1	41	1.65	1.65
3.0"×2.0"	76.2	50.8	165.1	41	1.65	1.65
3.0"×2.5"	76.2	63.5	165.1	41	1.65	1.65
4.0"×1.0"	101.6	25.4	196.8	54	2.1	1.65
4.0"×1.5"	101.6	38.1	196.8	54	2.1	1.65
4.0"×2.0"	101.6	50.8	196.8	54	2.1	1.65
4.0"×2.5"	101.6	63.5	196.8	54	2.1	1.65
4.0"×3.0"	101.6	76.2	196.8	54	2.1	1.65



### 3A Tubular Items

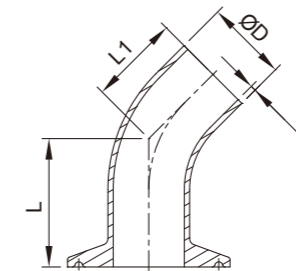
**2KMP TRI-CLAMP 45° ELBOW**

SIZE	ØD	L	T
1/2"	12.7	19.8	1.65
3/4"	19.05	24.6	1.65
1.0"	25.4	28.5	1.65
1.5"	38.1	36.5	1.65
2.0"	50.8	44.45	1.65
2.5"	63.5	52.3	1.65
3.0"	76.2	60.3	1.65
4.0"	101.6	76.2	2.1
5.0"	127	94.71	2.77
6.0"	152.4	117.5	2.77
8.0"	203.2	147.75	3.05
10"	254	179.32	3.05
12"	304.8	210.88	3.05



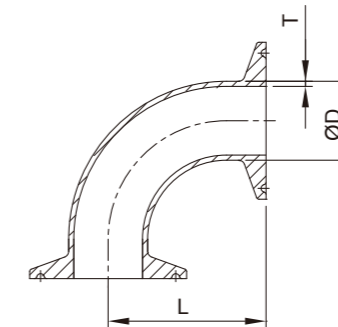
**L2KM WELD/CLAMP 45° ELBOW**

SIZE	ØD	L	L1	T
1.0"	25.4	42.9	30.2	1.65
1.5"	38.1	54	41.3	1.65
2.0"	50.8	71.4	58.7	1.65
2.5"	63.5	88.9	76.2	1.65
3.0"	76.2	106.4	93.7	1.65
4.0"	101.6	138	122.2	2.1



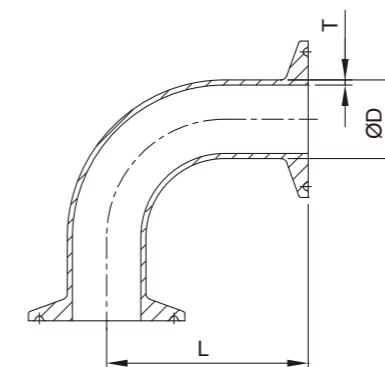
**2CMP TRI-CLAMP 90° SHORT ELBOW**

SIZE	ØD	L	T
1/2"	12.7	41.3	1.65
3/4"	19.05	41.3	1.65
1.0"	25.4	50.8	1.65
1.5"	38.1	69.9	1.65
2.0"	50.8	88.9	1.65
2.5"	63.5	107.95	1.65
3.0"	76.2	127	1.65
4.0"	101.6	168.2	2.1
5.0"	127	206.3	2.77
6.0"	152.4	250.8	2.77
8.0"	203.2	326.3	3.05
10"	254	402.5	3.05
12"	304.8	478.7	3.05

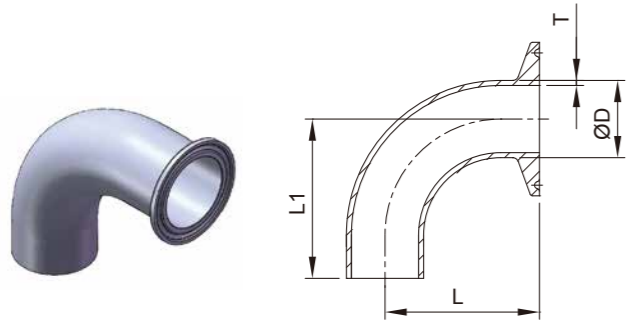


**TRI-CLAMP 90° LONG ELBOW**

SIZE	ØD	L	T
1/2"	12.7	57.7	1.65
3/4"	19.05	72.7	1.65
1.0"	25.4	65.1	1.65
1.5"	38.1	87.3	1.65
2.0"	50.8	115.9	1.65
2.5"	63.5	144.5	1.65
3.0"	76.2	173	1.65
4.0"	101.6	226.9	2.1
5.0"	127	269.8	2.77
6.0"	152.4	313.6	2.77
8.0"	203.2	389.8	3.05
10"	254	478.7	3.05
12"	304.8	554.9	3.05

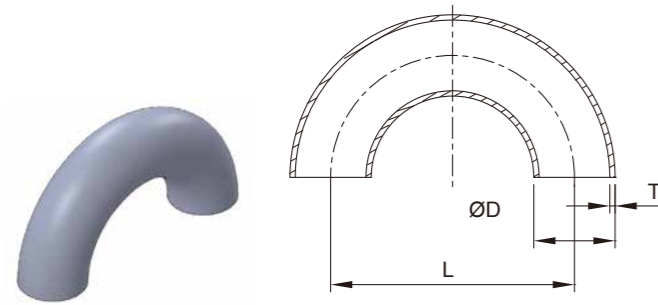


### 3A Tubular Items



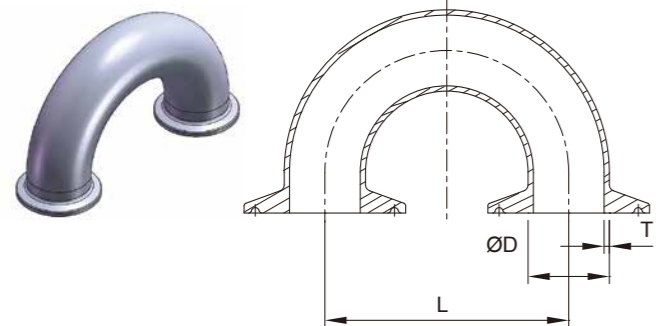
**L2CM WELD/CLAMP 90° ELBOW**

SIZE	ØD	L	L1	T
1.0"	25.4	65.1	52.4	1.65
1.5"	38.1	87.3	74.6	1.65
2.0"	50.8	115.9	103.2	1.65
2.5"	63.5	144.5	131.8	1.65
3.0"	76.2	173	160.3	1.65
4.0"	101.6	227	211.2	2.1



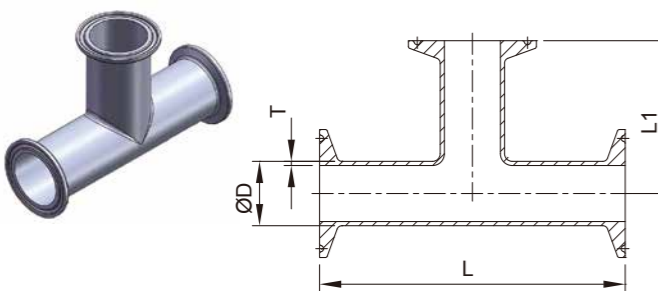
**180° WELD ELBOW**

SIZE	ØD	L	T
1/2"	12.7	38.1	1.65
3/4"	19.05	57.16	1.65
1.0"	25.4	76.2	1.65
1.5"	38.1	114.4	1.65
2.0"	50.8	152.4	1.65
2.5"	63.5	190.5	1.65
3.0"	76.2	228.6	1.65
4.0"	101.6	304.8	2.1
6.0"	152.4	457.2	2.77
8.0"	203.2	609.6	3.05
10"	254	762	3.05
12"	304.8	914.4	3.05



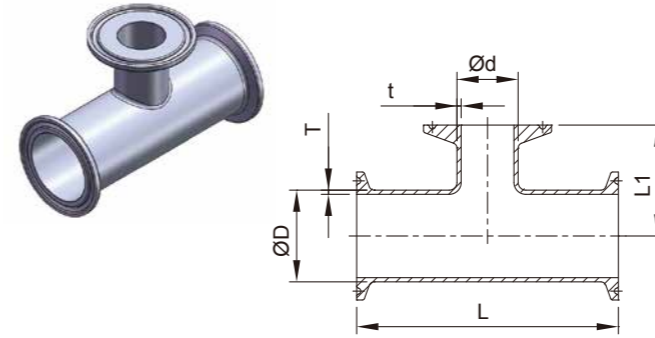
**180° CLAMP ELBOW**

SIZE	ØD	L	T
3/4"	19.05	57.16	1.65
1.0"	25.4	76.2	1.65
1.5"	38.1	114.4	1.65
2.0"	50.8	152.4	1.65
2.5"	63.5	190.5	1.65
3.0"	76.2	228.6	1.65
4.0"	101.6	304.8	2.1
6.0"	152.4	457.2	2.77
8.0"	203.2	609.6	3.05
10"	254	762	3.05
12"	304.8	914.4	3.05



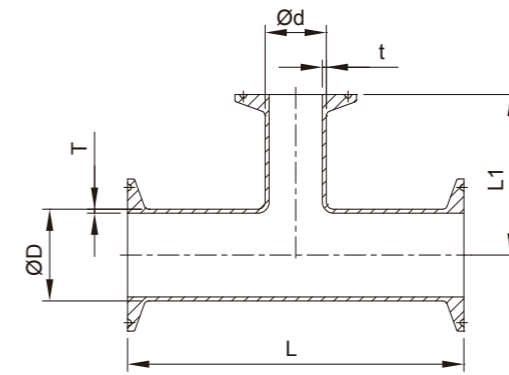
**7MP TRI-CLAMP EQUAL TEE**

SIZE	ØD	L	L1	T
1/2"	12.7	120.6	60.3	1.65
3/4"	19.05	120.6	60.3	1.65
1.0"	25.4	120.6	60.3	1.65
1.5"	38.1	139.8	69.9	1.65
2.0"	50.8	177.8	88.9	1.65
2.5"	63.5	177.8	88.9	1.65
3.0"	76.2	190.6	95.3	1.65
4.0"	101.6	228.4	114.2	2.1
5.0"	127	317.4	158.7	2.77
6.0"	152.4	330.2	165.1	2.77
8.0"	203.2	398.6	199.3	3.05
10"	254	474.8	237.4	3.05
12"	304.8	551	275.5	3.05



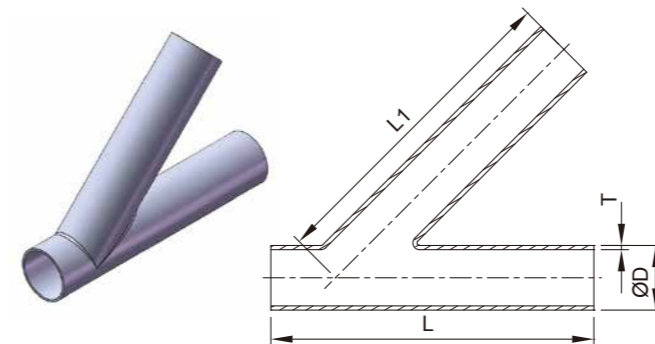
**7RMP TRI-CLAMP REDUCING SHORT TEE**

SIZE	ØD	Ød	L	L1	T	t
1.5"×1.0"	38.1	25.4	109.6	47.6	1.65	1.65
2.0"×1.5"	50.8	38.1	130.2	61.1	1.65	1.65
2.5"×2.0"	63.5	50.8	144.4	71.4	1.65	1.65
3.0"×2.0"	76.2	50.8	157.2	77.8	1.65	1.65
3.0"×2.5"	76.2	63.5	157.2	78.6	1.65	1.65
4.0"×2.0"	101.6	50.8	206.2	120.7	2.1	1.65
4.0"×2.5"	101.6	63.5	206.2	120.7	2.1	1.65
4.0"×3.0"	101.6	76.2	206.2	120.7	2.1	1.65



**TRI-CLAMP REDUCING LONG TEE**

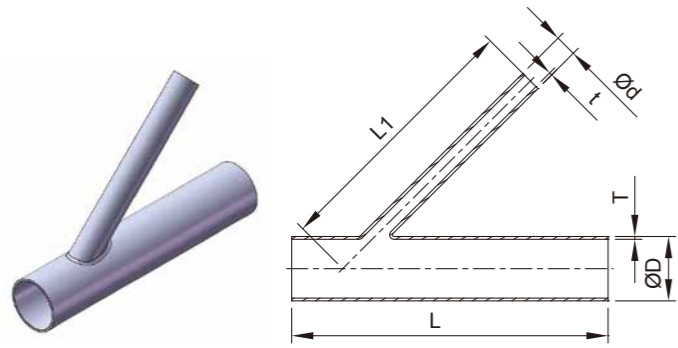
SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	120.9	60.3	1.65	1.65
1.0"×1/2"	25.4	12.7	120.9	38.1	1.65	1.65
1.0"×3/4"	25.4	19.05	120.9	41.15	1.65	1.65
1.5"×1/2"	38.1	12.7	139.7	44.45	1.65	1.65
1.5"×3/4"	38.1	19.05	139.7	47.75	1.65	1.65
1.5"×1.0"	38.1	25.4	139.7	66.68	1.65	1.65
2.0"×1/2"	50.8	12.7	177.8	50.8	1.65	1.65
2.0"×3/4"	50.8	19.05	177.8	54.1	1.65	1.65
2.0"×1.0"	50.8	25.4	177.8	73	1.65	1.65
2.0"×1.5"	50.8	38.1	177.8	76.2	1.65	1.65
2.5"×1.0"	63.5	25.4	177.8	82.55	1.65	1.65
2.5"×1.5"	63.5	38.1	177.8	82.55	1.65	1.65
2.5"×2.0"	63.5	50.8	177.8	95.25	1.65	1.65
3.0"×1.0"	76.2	25.4	190.5	92.08	1.65	1.65
3.0"×1.5"	76.2	38.1	190.5	88.9	1.65	1.65
3.0"×2.0"	76.2	50.8	190.5	101.6	1.65	1.65
3.0"×2.5"	76.2	63.5	190.5	95.25	1.65	1.65
4.0"×1.0"	101.6	25.4	228.4	104.78	2.1	1.65
4.0"×1.5"	101.6	38.1	228.4	104.78	2.1	1.65
4.0"×2.0"	101.6	50.8	228.4	114.3	2.1	1.65
4.0"×2.5"	101.6	63.5	228.4	107.95	2.1	1.65
4.0"×3.0"	101.6	76.2	228.4	107.95	2.1	1.65
6.0"×2.0"	152.4	50.8	328.8	133.35	2.77	1.65
6.0"×2.5"	152.4	63.5	328.8	133.35	2.77	1.65
6.0"×3.0"	152.4	76.2	328.8	133.35	2.77	1.65
6.0"×4.0"	152.4	101.6	328.8	139.6	2.77	2.1



**28WA 45° WELD EQUAL LATERALS**

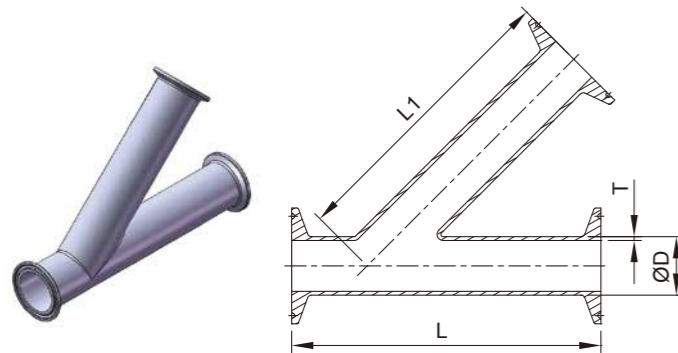
SIZE	ØD	L	L1	T
1/2"	12.7	152.4	127	1.65
3/4"	19.05	152.4	127	1.65
1.0"	25.4	152.4	127	1.65
1.5"	38.1	187.3	157.1	1.65
2.0"	50.8	222.3	181	1.65
2.5"	63.5	254	215.9	1.65
3.0"	76.2	273	225.4	1.65
4.0"	101.6	324	271.5	2.1
6.0"	152.4	470	374.7	2.77

### 3A Tubular Items



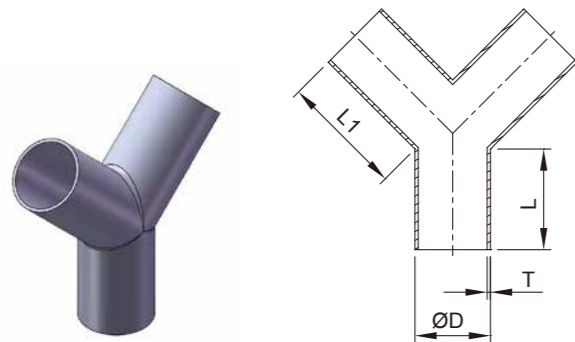
#### 45° WELD REDUCING LATERALS

SIZE	ØD	Ød	L	L1	T	t
1.5"×1/2"	38.1	12.7	187.3	157.1	1.65	1.65
1.5"×1.0"	38.1	25.4	187.3	157.1	1.65	1.65
2.0"×1/2"	50.8	12.7	222.3	181	1.65	1.65
2.0"×3/4"	50.8	19.05	222.3	181	1.65	1.65
2.0"×1.0"	50.8	25.4	222.3	181	1.65	1.65
2.0"×1.5"	50.8	38.1	222.3	181	1.65	1.65



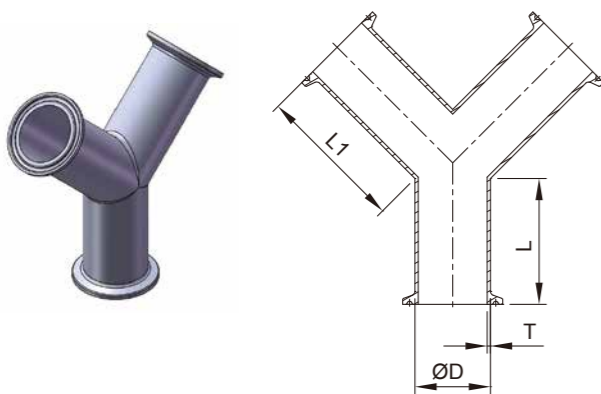
#### 28AMP 45° CLAMP EQUAL LATERALS

SIZE	ØD	L	L1	T
1/2"	12.7	177.8	139.7	1.65
3/4"	19.05	177.8	139.7	1.65
1.0"	25.4	177.8	139.7	1.65
1.5"	38.1	212.7	169.8	1.65
2.0"	50.8	247.7	193.7	1.65
2.5"	63.5	279.4	228.6	1.65
3.0"	76.2	298.4	238.1	1.65
4.0"	101.6	355.6	287.3	2.1
6.0"	152.4	501.7	390.5	2.77



#### 28W 90° Y TRUE WELD END

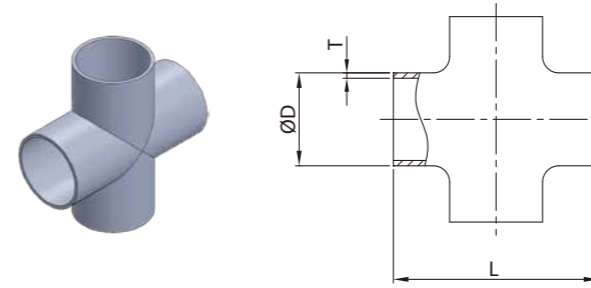
SIZE	ØD	L	L1	T
1/2"	12.7	48.17	48.17	1.65
3/4"	19.05	46.85	46.85	1.65
1.0"	25.4	50.8	61.9	1.65
1.5"	38.1	50.8	61.9	1.65
2.0"	50.8	66.7	82.6	1.65
2.5"	63.5	85.6	104.8	1.65
3.0"	76.2	101.6	123.8	1.65
4.0"	101.6	136.6	136.6	2.1
6.0"	152.4	171.64	171.46	2.77



#### 28BMP 90° Y TRUE CLAMP END

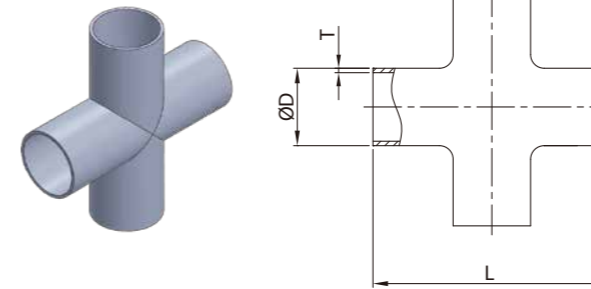
SIZE	ØD	L	L1	T
1/2"	12.7	60.87	60.87	1.65
3/4"	19.05	59.55	59.55	1.65
1.0"	25.4	63.5	74.6	1.65
1.5"	38.1	63.5	74.6	1.65
2.0"	50.8	79.4	95.3	1.65
2.5"	63.5	98.3	117.5	1.65
3.0"	76.2	114.3	136.5	1.65
4.0"	101.6	152.4	152.4	2.1
6.0"	152.4	193.14	193.14	2.77

### 3A Tubular Items



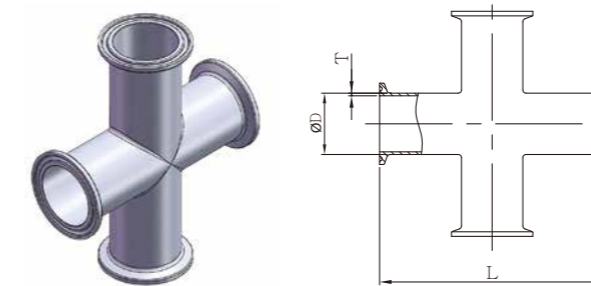
#### 9WWW SHORT EQUAL WELD CROSS

SIZE	ØD	L	T
1/2"	12.7	38.1	1.65
3/4"	19.05	57.2	1.65
1"	25.4	57.2	1.65
1.5"	38.1	84.2	1.65
2"	50.8	104.8	1.65
2.5"	63.5	119	1.65
3"	76.2	131.8	1.65
4"	101.6	174.6	2.1



#### 9W LONG EQUAL WELD CROSS

SIZE	ØD	L	T
1/2"	12.7	95.2	1.65
3/4"	19.05	95.2	1.65
1"	25.4	95.2	1.65
1.5"	38.1	114.4	1.65
2"	50.8	152.4	1.65
2.5"	63.5	152.4	1.65
3"	76.2	165.2	1.65
4"	101.6	196.8	2.1



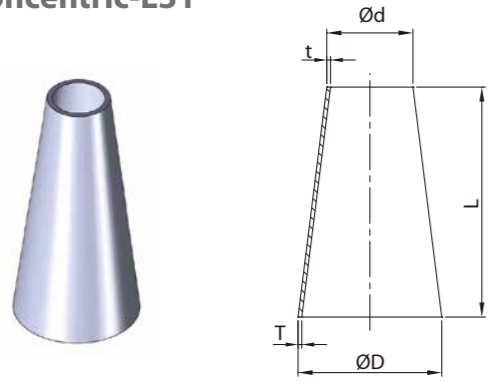
#### 9MP CLAMP LONG CROSS

SIZE	ØD	L	T
1"	25.4	120.6	1.65
1.5"	38.1	139.8	1.65
2"	50.8	177.8	1.65
2.5"	63.5	177.8	1.65
3"	76.2	190.6	1.65
4"	101.6	228.4	2.1

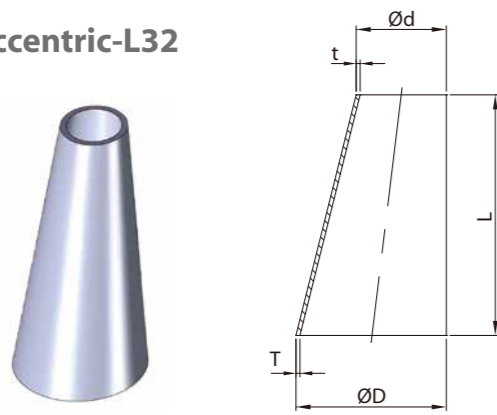


### 3A Tubular Items

Concentric-L31



Eccentric-L32



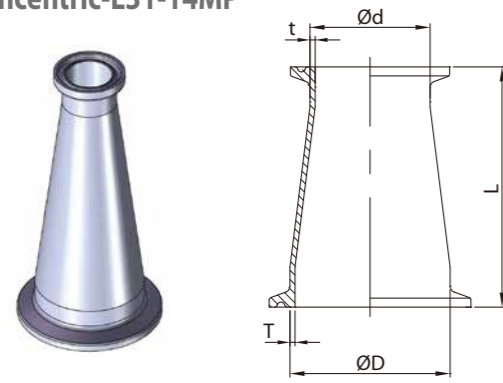
#### WELD REDUCERS

SIZE	ØD	Ød	L	T	t
3/4"×1/2"	19.05	12.7	25.4	1.65	1.65
1"×1/2"	25.4	12.7	50.8	1.65	1.65
1"×3/4"	25.4	19.05	25.4	1.65	1.65
1.5"×1/2"	38.1	12.7	101.6	1.65	1.65
1.5"×3/4"	38.1	19.05	76.2	1.65	1.65
1.5"×1"	38.1	25.4	50.8	1.65	1.65
2"×1/2"	50.8	12.7	152.4	1.65	1.65
2"×3/4"	50.8	19.05	127	1.65	1.65
2"×1"	50.8	25.4	101.6	1.65	1.65
2"×1.5"	50.8	38.1	50.8	1.65	1.65
2.5"×1"	63.5	25.4	152.4	1.65	1.65
2.5"×1.5"	63.5	38.1	101.6	1.65	1.65
2.5"×2"	63.5	50.8	50.8	1.65	1.65
3"×1"	76.2	25.4	203.2	1.65	1.65
3"×1.5"	76.2	38.1	152.4	1.65	1.65
3"×2"	76.2	50.8	101.6	1.65	1.65
3"×2.5"	76.2	63.5	50.8	1.65	1.65
4"×1"	101.6	25.4	304.8	2.1	1.65
4"×1.5"	101.6	38.1	254	2.1	1.65
4"×2"	101.6	50.8	203.2	2.1	1.65
4"×2.5"	101.6	63.5	152.4	2.1	1.65
4"×3"	101.6	76.2	101.6	2.1	1.65
6"×2"	152.4	50.8	139.7	2.77	1.65
6"×2.5"	152.4	63.5	139.7	2.77	1.65
6"×3"	152.4	76.2	139.7	2.77	1.65
6"×4"	152.4	101.6	139.7	2.77	2.1

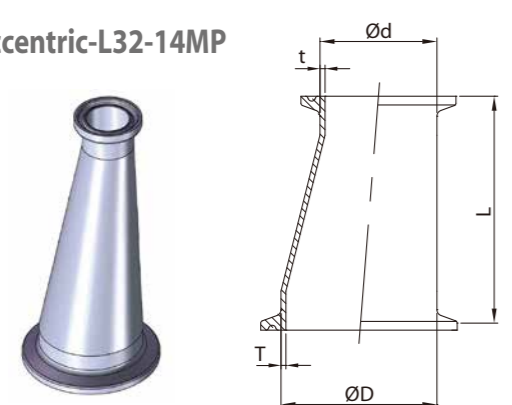
#### TRI-CLAMP REDUCERS

SIZE	ØD	Ød	L	T	t
3/4"×1/2"	19.05	12.7	50.8	1.65	1.65
1"×1/2"	25.4	12.7	76.2	1.65	1.65
1"×3/4"	25.4	19.05	50.8	1.65	1.65
1.5"×1/2"	38.1	12.7	127	1.65	1.65
1.5"×3/4"	38.1	19.05	101.6	1.65	1.65
1.5"×1"	38.1	25.4	76.2	1.65	1.65
2"×1/2"	50.8	12.7	177.8	1.65	1.65
2"×3/4"	50.8	19.05	152.4	1.65	1.65
2"×1"	50.8	25.4	127	1.65	1.65
2.5"×1"	63.5	25.4	177.8	1.65	1.65
2"×1.5"	50.8	38.1	76.2	1.65	1.65
2.5"×1.0"	63.5	25.4	177.8	1.65	1.65
2.5"×1.5"	63.5	38.1	127	1.65	1.65
2.5"×2"	63.5	50.8	76.2	1.65	1.65
3"×1"	76.2	25.4	228.6	1.65	1.65
3"×1.5"	76.2	38.1	177.8	1.65	1.65
3"×2"	76.2	50.8	127	1.65	1.65
3"×2.5"	76.2	63.5	76.2	1.65	1.65
4"×1.0"	101.6	25.4	333.3	2.1	1.65
4"×1.5"	101.6	38.1	282.5	2.1	1.65
4"×2"	101.6	50.8	231.7	2.1	1.65
4"×2.5"	101.6	63.5	180.9	2.1	1.65
4"×3"	101.6	76.2	130.1	2.1	1.65
6"×2"	152.4	50.8	173.9	2.77	1.65
6"×2.5"	152.4	63.5	173.9	2.77	1.65
6"×3"	152.4	76.2	173.9	2.77	1.65
6"×4"	152.4	101.6	177	2.77	2.1

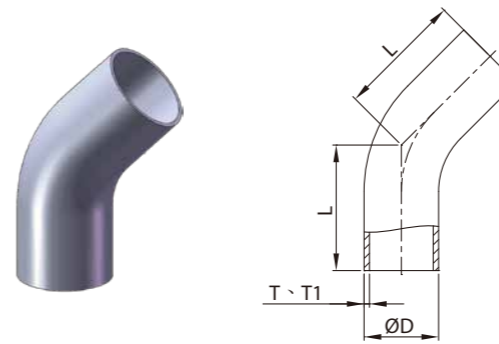
Concentric-L31-14MP



Eccentric-L32-14MP

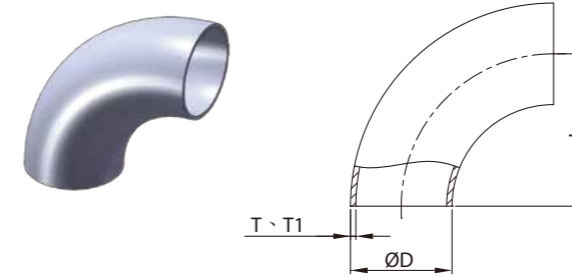


### SMS Tubular Items



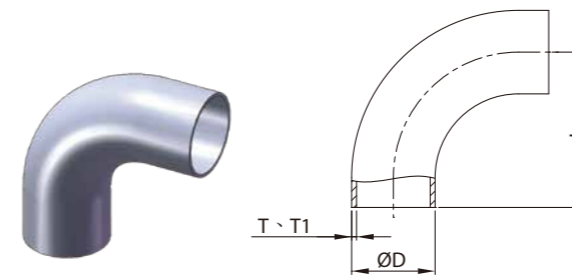
L2KS1D  
LONG 45° ELBOW

SIZE	ØD	L	T	T1
DN25	25	42.33	1.25	1.5
DN38	38	48.72	1.25	1.5
DN50	51	58.15	1.25	1.5
DN63	63.5	75.3	1.5	1.5
DN76	76.1	79.37	1.6	2
DN100	101.6/104	85.54	2	2



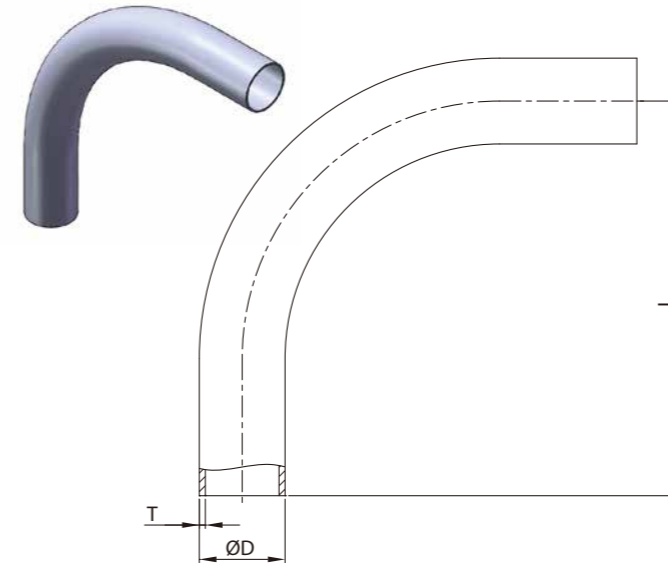
2WCL  
SHORT 90° ELBOW

SIZE	ØD	L	T	T1
DN25	25	37.5	1.25	1.5
DN38	38	57	1.25	1.5
DN50	51	76.5	1.25	1.5
DN63	63.5	95.25	1.5	1.5
DN76	76.1	114.15	1.6	2
DN100	101.6/104	152.1	2	2



L2S1D  
LONG 90° ELBOW

SIZE	ØD	L	T	T1
DN25	25	55	1.25	1.5
DN38	38	70	1.25	1.5
DN50	51	82	1.25	1.5
DN63	63.5	105	1.5	1.5
DN76	76.1	110	1.6	2
DN100	101.6/104	150	2	2

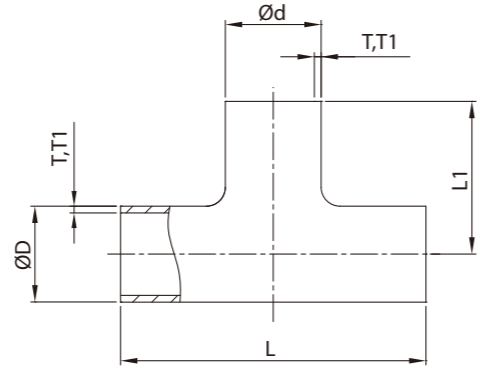
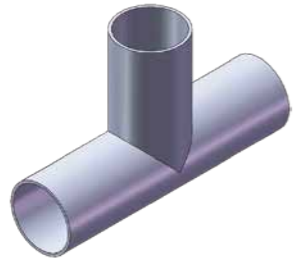


LONG 90° ELBOW (3D)

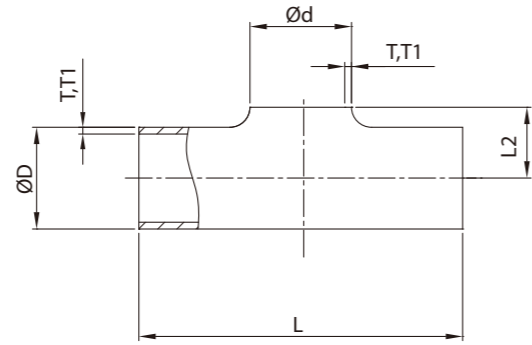
SIZE	ØD	L	T
DN25	25	115	1.2
DN38	38	138	1.2
DN40	40	170	1.5
DN50	51	180	1.2
DN63	63.5	230	1.5
DN76	76.1	250	1.6

## SMS Tubular Items

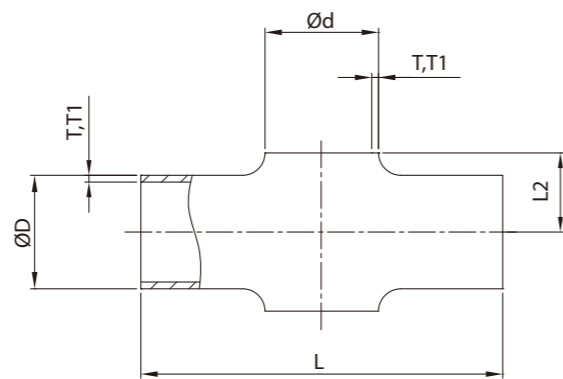
**SMS 7W**  
Tee With Stright-End



**SMS 7WO**  
TEE Without Straight-End



**SMS 9WO**  
Welding Cross Without Straight-End

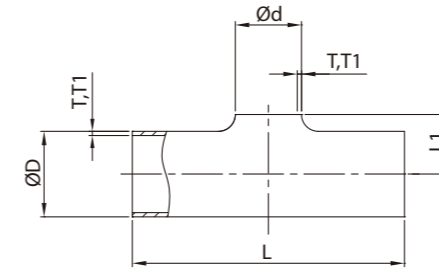


SIZE	ØD	Ød	L	L1	L2	T	T1
DN25	25	25	110	55	14	1.25	1.5
DN38	38	38	140	70	21	1.25	1.5
DN50	51	51	164	82	28.5	1.25	1.5
DN63	63.5	63.5	210	105	36	1.5	1.5
DN76	76.1	76.1	220	110	43	1.6	2
DN100	104	104	300	150	58	2	2

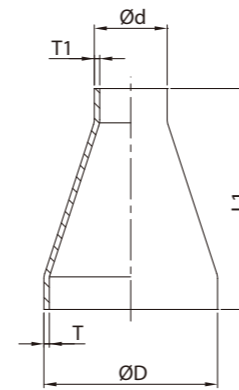
## SMS Tubular Items

**7RWO**  
WELDING REDUCING TEE WITHOUT STRAIGHT-END

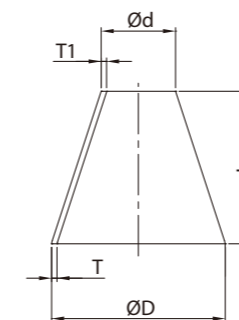
SIZE	ØD	Ød	L	L1	T	T1
38*25	38	25	140	21	1.25	1.5
50*25	51	25	164	29	1.25	1.5
50*38	51	38	164	29	1.25	1.5
63*25	63.5	25	210	34.5	1.5	1.5
63*38	63.5	38	210	35	1.5	1.5
63*50	63.5	51	210	36	1.5	1.5
76*25	76.1	25	220	41	1.6	2
76*38	76.1	38	220	42	1.6	2
76*50	76.1	51	220	43	1.6	2
76*63	76.1	63.5	220	43	1.6	2
100*25	104	25	300	56	2	2
100*38	104	38	300	56	2	2
100*50	104	51	300	57	2	2
100*63	104	63.5	300	58	2	2
100*76	104	76.1	300	58	2	2



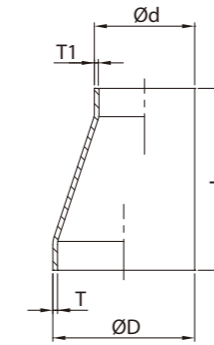
**SMS L31SE**  
Concentric Reducer



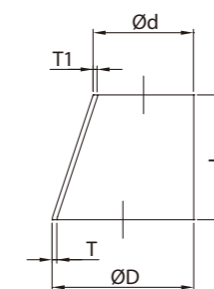
**SMS L31**  
Concentric Reducer



**SMS L32SE**  
Eccentric Reducer



**SMS L32**  
Eccentric Reducer



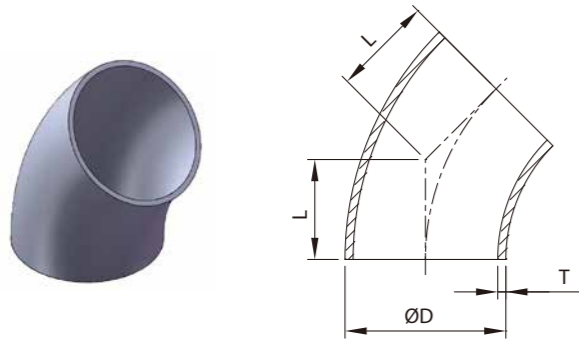
**WELD REDUCER**

SIZE	ØD	Ød	L	L1	T	T1
38*25	38	25	39	46	1.25	1.25
50*25	51	25	57	68	1.25	1.25
50*38	51	38	39	47	1.25	1.25
63*25	63.5	25	74	92	1.5	1.25
63*38	63.5	38	57	70	1.5	1.25
63*50	63.5	51	39	44	1.5	1.25
76*25	76.1	25	92	—	1.6	1.25
76*38	76.1	38	74	92	1.6	1.25
76*50	76.1	51	57	68	1.6	1.25
76*63	76.1	63.5	39	47	1.6	1.5
100*50	104	51	95	117	2	1.25
100*63	104	63.5	78	94	2	1.5
100*76	104	76.1	60	74	2	1.6

**W/O STRAIGHT END REDUCER**

SIZE	ØD	Ød	L1	T	T1
38*25	38	25	39	1.2	1.2
50*25	51	25	78	1.2	1.2
50*38	51	38	39	1.2	1.2
63*25	63.5	25	116	1.6	1.2
63*38	63.5	38	76	1.6	1.2
63*50	63.5	51	38	1.6	1.2
76*25	76.1	25	153	1.6	1.2
76*38	76.1	38	114	1.6	1.2
76*50	76.1	51	75	1.6	1.2
76*63	76.1	63.5	38	1.6	1.2
100*38	104	38	198	2	1.2
100*50	104	51	159	2	1.2
100*63	104	63.5	122	2	1.2
100*76	104	76.1	84	2	1.6

## DIN Tubular Items



**2WK SHORT 45° ELBOW**

SIZE	ØD	L	T
DN10	12/13	10.77	1.5
DN15	18/19	14.5	1.5
DN20	22/23	16.6	1.5
DN25	28/29	20.7	1.5
DN32	34/35	22.8	1.5
DN40	40/41	24.9	1.5
DN50	52/53	29	1.5
DN65	70	33.1	2
DN80	85	37.3	2
DN100	104	41.4	2
DN125	129	77.67	2
DN150	154	93.2	2
DN200	204	124.26	2
DN250	254	155.33	2
DN300	306	186.4	3



**2WCL SHORT 90° ELBOW**

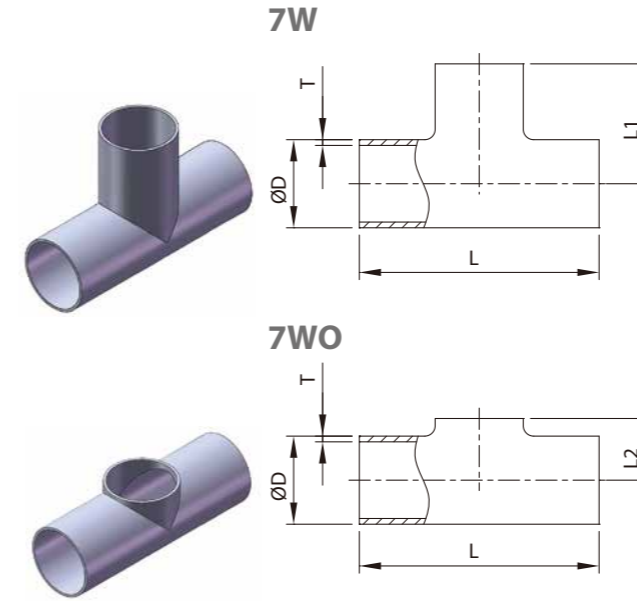
SIZE	ØD	L	T
DN10	12/13	26	1.5
DN15	18/19	35	1.5
DN20	22/23	40	1.5
DN25	28/29	50	1.5
DN32	34/35	55	1.5
DN40	40/41	60	1.5
DN50	52/53	70	1.5
DN65	70	80	2
DN80	85	90	2
DN100	101.6	152.4	2
DN125	129	187.5	2
DN150	154	225	2
DN200	204	300	2
DN250	254	375	2
DN300	306	450	3



**L2S LONG 90° ELBOW**

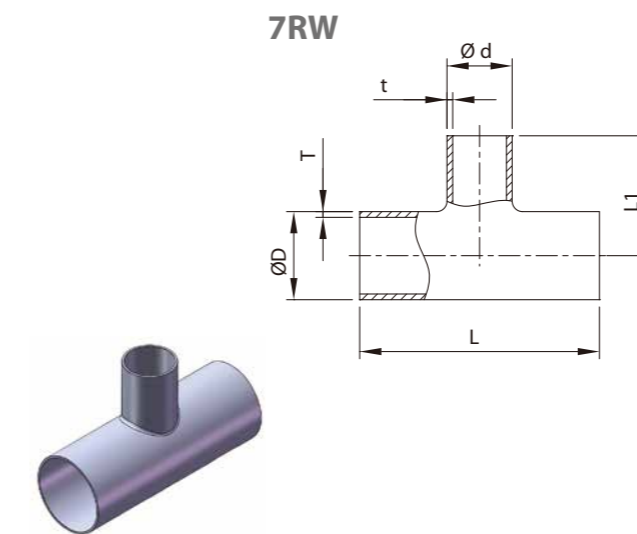
SIZE	ØD	L	T
DN10	12/13	51	1.5
DN15	18/19	60	1.5
DN20	22/23	52	1.5
DN25	28/29	65	1.5
DN32	34/35	73	1.5
DN40	40/41	80	1.5
DN50	52/53	92	1.5
DN65	70	105	2
DN80	85	119	2
DN100	101.6	175	2
DN125	129	251	2
DN150	154	288.5	2
DN200	204	363.5	2
DN250	254	451.2	2
DN300	306	526.2	3

## DIN Tubular Items



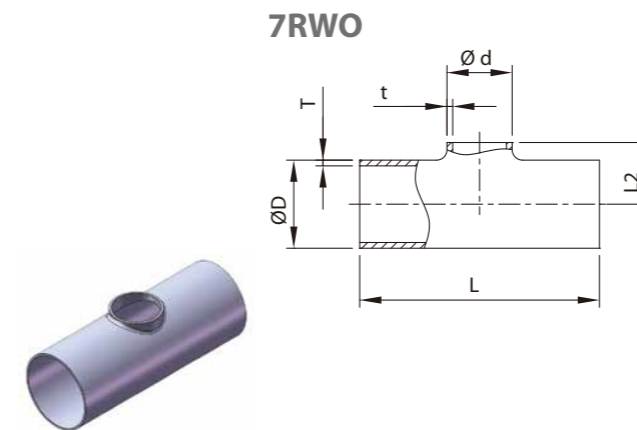
**TEE & PULL TEE**

SIZE	ØD	L	L1	L2	T
DN10	12/13	52	26	11	1.5
DN15	18/19	70	35	11	1.5
DN20	22/23	80	40	13	1.5
DN25	28/29	100	50	16	1.5
DN32	34/35	110	55	19.5	1.5
DN40	40/41	120	60	23	1.5
DN50	52/53	140	70	30	1.5
DN65	70	160	80	40	2
DN80	85	180	90	47.5	2
DN100	101.6	300	150	56	2
DN125	129	375	187.5	74	2
DN150	154	450	225	90	2
DN200	204	600	300	115	2
DN250	254	600	300	140	2
DN300	306	600	300	166	3



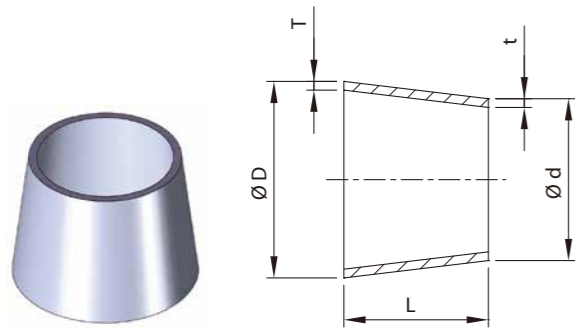
**REDUCING TEE & REDUCING PULL TEE**

SIZE	ØD	Ød	L	L1	L2	T	t
15*10	18/19	12/13	70	29	10.5	1.5	1.5
20*10	22/23	12/13	80	31	12.5	1.5	1.5
20*15	22/23	18/19	80	37	13	1.5	1.5
25*15	28/29	18/19	100	40	16	1.5	1.5
25*20	28/29	22/23	100	43	16	1.5	1.5
32*15	34/35	18/19	110	43	19	1.5	1.5
32*20	34/35	22/23	110	46	19	1.5	1.5
32*25	34/35	28/29	110	53	19	1.5	1.5
40*20	40/41	22/23	120	49	22	1.5	1.5
40*25	40/41	28/29	120	56	22	1.5	1.5
40*32	40/41	34/35	120	58	22.5	1.5	1.5
50*25	52/53	28/29	140	62	28	1.5	1.5
50*32	52/53	34/35	140	64	28.5	1.5	1.5
50*40	52/53	40/41	140	66	29	1.5	1.5
65*32	70	34/35	160	72.5	37	2	1.5
65*40	70	40/41	160	74.5	37.5	2	1.5
65*50	70	52/53	160	78.5	38.5	2	1.5
80*40	85	40/41	180	82	45	2	1.5
80*50	85	52/53	180	86	46	2	1.5
80*65	85	70	180	87.5	47.5	2	2
100*50	104	52/53	200	95.5	55.5	2	1.5
100*65	104	70	200	97	57	2	2
100*80	104	85	200	99.5	57	2	2
125*65	129	70	375	109.5	69.5	2	2
125*80	129	85	375	112	69.5	2	2
125*100	129	104	375	112.5	70.5	2	2
150*80	154	85	450	124.5	82	2	2
150*100	154	104	450	125	83	2	2
150*125	154	129	450	200	86.5	2	2
200*100	204	104	600	150	108	2	2
200*125	204	129	600	225	111.5	2	2
200*150	204	154	600	250	115	2	2



## DIN Tubular Items

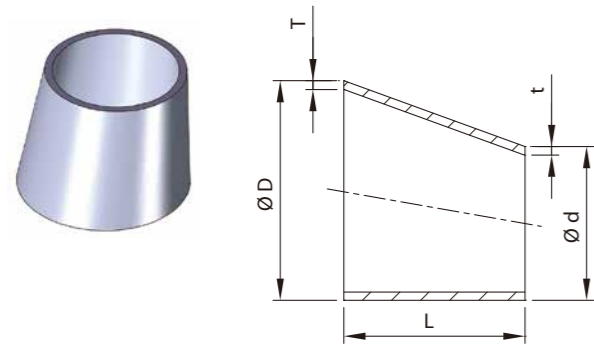
L31



### CONCENTRIC REDUCER

SIZE	ØD	Ød	L	T	t
15*10	18/19	12/13	11	1.5	1.5
20*10	22/23	12/13	18	1.5	1.5
20*15	22/23	18/19	7	1.5	1.5
25*15	28/29	18/19	18	1.5	1.5
25*20	28/29	22/23	11	1.5	1.5
32*20	34/35	22/23	22	1.5	1.5
32*25	34/35	28/29	25	1.5	1.5
40*20	40/41	22/23	33	1.5	1.5
40*25	40/41	28/29	23	1.5	1.5
40*32	40/41	34/35	23	1.5	1.5
50*25	52/53	28/29	27	1.5	1.5
50*32	52/53	34/35	28	1.5	1.5
50*40	52/53	40/41	27	1.5	1.5
65*25	70	28/29	35	2	1.5
65*40	70	40/41	39	2	1.5
65*50	70	52/53	29	2	1.5
80*50	85	52/53	45	2	1.5
80*65	85	70	33	2	2
100*50	104	52/53	50	2	1.5
100*65	104	70	44	2	2
100*80	104	85	60	2	2
125*80	129	85	79	2	2
125*100	129	104	45	2	2
150*100	154	104	90	2	2
150*125	154	129	45	2	2
200*150	204	154	90	2	2

L32

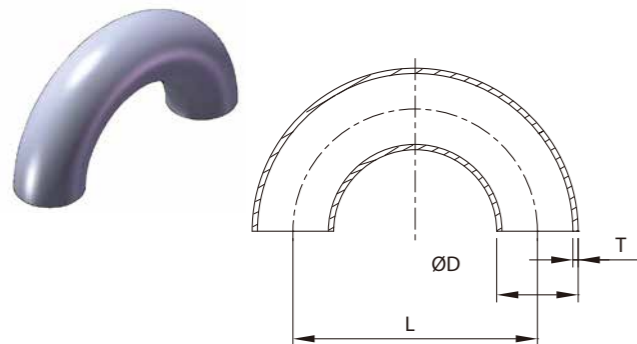


### ECCENTRIC REDUCER

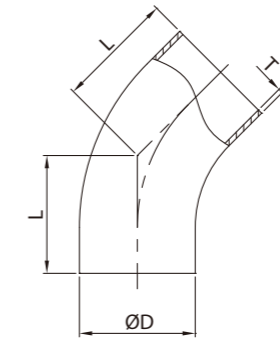
SIZE	ØD	Ød	L	T	t
32*25	34/35	28/29	16.5	1.5	1.5
40*25	40/41	28/29	33	1.5	1.5
40*32	40/41	34/35	16.5	1.5	1.5
50*25	52/53	28/29	66	1.5	1.5
50*32	52/53	34/35	49.5	1.5	1.5
50*40	52/53	40/41	33	1.5	1.5
65*40	70	40/41	77	2	1.5
65*50	70	52/53	44	2	1.5
80*50	85	52/53	85	2	1.5
80*65	85	70	41.2	2	2
100*50	104	52/53	137.5	2	1.5
100*65	104	70	93.5	2	2
100*80	104	85	52.5	2	2

### 180° WELD ELBOW

SIZE	ØD	L	T
DN10	12/13	52	1.5
DN15	18/19	70	1.5
DN20	22/23	80	1.5
DN25	28/29	100	1.5
DN32	34/35	110	1.5
DN40	40/41	120	1.5
DN50	52/53	140	1.5
DN65	70	160	2
DN80	85	180	2
DN100	104	200	2
DN125	129	375	2

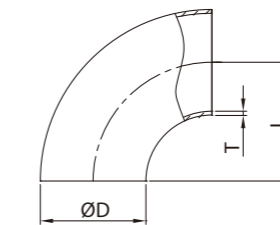


## BS Tubular Items



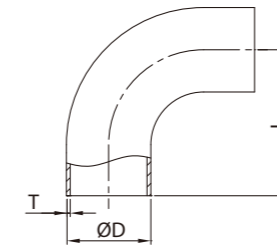
### L2KS LONG 45° ELBOW

SIZE	ØD	L	T
1"	25.4	30.2	1.65
1.5"	38.1	41.3	1.65
2"	50.8	58.7	1.65
2.5"	63.5	76.2	1.65
3"	76.2	93.7	1.65
4"	101.6	122.2	2.1



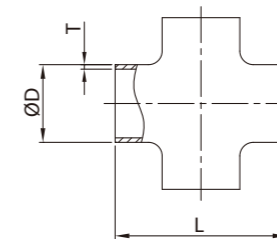
### 2WCL SHORT WELD 90° ELBOW

SIZE	ØD	L	T
1"	25.4	43.5	1.65
1.5"	38.1	63.5	1.65
2"	50.8	88.5	1.65
2.5"	63.5	113.5	1.65
3"	76.2	133.5	1.65
4"	101.6	173.5	2.1



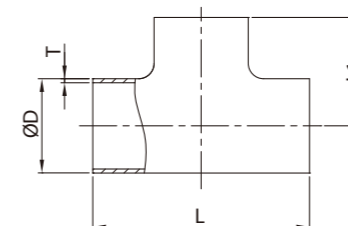
### L2S LONG WELD 90° ELBOW

SIZE	ØD	L	T
1/2"	12.7	45	1.65
3/4"	19.05	60	1.65
1"	25.4	65	1.65
1.5"	38.1	85	1.65
2"	50.8	110	1.65
2.5"	63.5	135	1.65
3"	76.2	155	1.65
4"	101.6	195	2.1



### 9W LONG CROSS

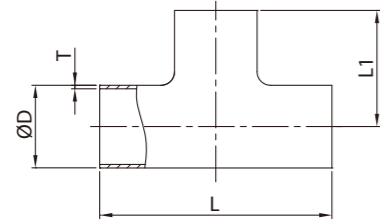
SIZE	ØD	L	T
1"	25.4	130	1.65
1.5"	38.1	170	1.65
2"	50.8	220	1.65
2.5"	63.5	270	1.65
3"	76.2	310	1.65
4"	101.6	390	2.1



### 7WWW SHORT TEE

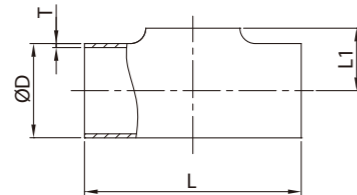
SIZE	ØD	L	L1	T
1"	25.4	87	43.5	1.65
1.5"	38.1	127	63.5	1.65
2"	50.8	177	88.5	1.65
2.5"	63.5	227	113.5	1.65
3"	76.2	267	133.5	1.65
4"	101.6	347	173.5	2.1

## BS Tubular Items



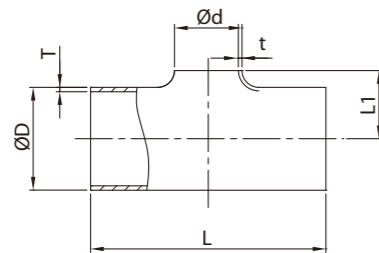
### 7W LONG TEE

SIZE	ØD	L	L1	T
1/2"	12.7	108	54	1.65
3/4"	19.05	108	54	1.65
1"	25.4	130	65	1.65
1.5"	38.1	170	85	1.65
2"	50.8	220	110	1.65
2.5"	63.5	270	135	1.65
3"	76.2	310	155	1.65
4"	101.6	390	195	2.1



### 7WO PULL TEE

SIZE	ØD	L	L1	T
1"	25.4	87	13.8	1.65
1.5"	38.1	127	19.9	1.65
2"	50.8	177	27.6	1.65
2.5"	63.5	227	34.9	1.65
3"	76.2	267	42.9	1.65
4"	101.6	347	54.7	2.1

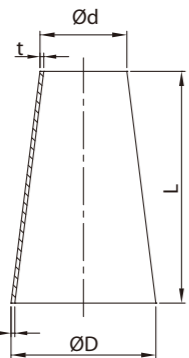


### 7RWO REDUCING PULL TEE

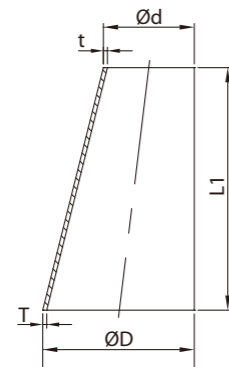
SIZE	ØD	Ød	L	L1	T	t
1.0"×1/2"	25.4	12.7	100	27	1.65	1.65
1.0"×3/4"	25.4	19.05	100	27	1.65	1.65
1.5"×1"	38.1	25.4	127	22	1.65	1.65
2.0"×1/2"	50.8	12.7	177	27.4	1.65	1.65
2.0"×3/4"	50.8	19.05	177	27.4	1.65	1.65
2"×1"	50.8	25.4	177	29	1.65	1.65
2"×1.5"	50.8	38.1	177	29	1.65	1.65
2.5"×1"	63.5	25.4	227	35	1.65	1.65
2.5"×1.5"	63.5	38.1	227	35	1.65	1.65
2.5"×2"	63.5	50.8	227	35	1.65	1.65
3"×1"	76.2	25.4	267	41	1.65	1.65
3"×1.5"	76.2	38.1	267	41	1.65	1.65
3"×2"	76.2	50.8	267	41	1.65	1.65
3"×2.5"	76.2	63.5	267	41	1.65	1.65
4"×1"	101.6	25.4	347	55	2.1	1.65
4"×1.5"	101.6	38.1	347	55	2.1	1.65
4"×2"	101.6	50.8	347	55	2.1	1.65
4"×2.5"	101.6	63.5	347	55	2.1	1.65
4"×3"	101.6	76.2	347	55	2.1	1.65



L31



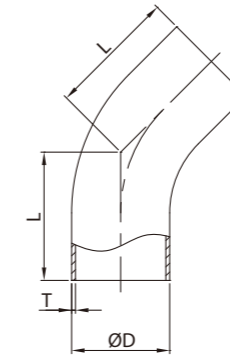
L32



### WELD REDUCERS

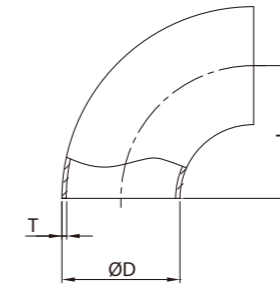
SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	—	25.4	1.65	1.65
1"×1/2"	25.4	12.7	25.4	38.1	1.65	1.65
1"×3/4"	25.4	19.05	25.4	25.4	1.65	1.65
1.5"×1"	38.1	25.4	48	33	1.65	1.65
2"×1"	50.8	25.4	50	66	1.65	1.65
2"×1.5"	50.8	38.1	66	33	1.65	1.65
2.5"×1"	63.5	25.4	68	73	1.65	1.65
2.5"×1.5"	63.5	38.1	48	68	1.65	1.65
2.5"×2"	63.5	50.8	66	39	1.65	1.65
3"×1"	76.2	25.4	98	95	1.65	1.65
3"×1.5"	76.2	38.1	75	70	1.65	1.65
3"×2"	76.2	50.8	70	48	1.65	1.65
3"×2.5"	76.2	63.5	72	40	1.65	1.65
4"×1.5"	101.6	38.1	60	98	2.1	1.65
4"×2"	101.6	50.8	60	98	2.1	1.65
4"×2.5"	101.6	63.5	76	70	2.1	1.65
4"×3"	101.6	76.2	50	77	2.1	1.65

## AS Tubular Items



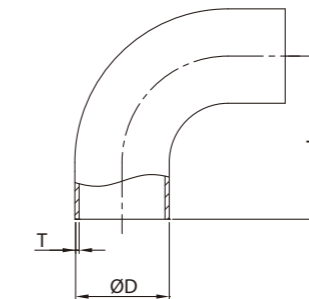
### L2KS LONG 45° ELBOW

SIZE	ØD	L	T
1/2"	12.7	37.91	1.6
3/4"	19.1	41.85	1.6
1"	25.4	45.78	1.6/2
1.25"	31.8	49.76	1.6/2
1.5"	38.1	53.61	1.6/2
2"	50.8	61.56	1.6/2
2.5"	63.5	69.35	1.6/2
3"	76.2	77.3	1.6/2
4"	101.6	93.13	1.6/2



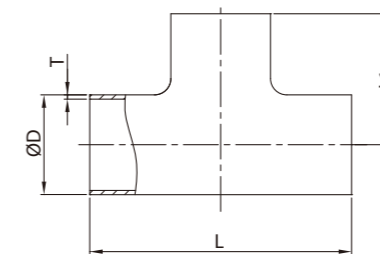
### 2WCL SHORT WELD 90° ELBOW

SIZE	ØD	L	T
1/2"	12.7	19.1	1.6
3/4"	19.1	28.6	1.6
1"	25.4	38.1	1.6/2
1.25"	31.8	47.7	1.6/2
1.5"	38.1	57	1.6/2
2"	50.8	76.2	1.6/2
2.5"	63.5	95	1.6/2
3"	76.2	114.2	1.6/2
4"	101.6	152.4	1.6/2
6"	152.4	228.5	1.6/2



### L2S LONG WELD 90° ELBOW

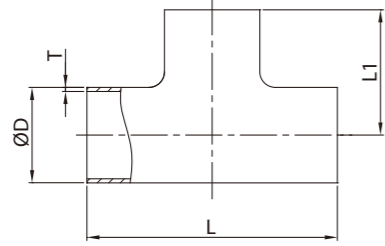
SIZE	ØD	L	T
1/2"	12.7	49.1	1.6/2
3/4"	19.1	58.6	1.6/2
1"	25.4	68.1	1.6/2
1.25"	31.8	77.7	1.6/2
1.5"	38.1	87	1.6/2
2"	50.8	106.2	1.6/2
2.5"	63.5	125	1.6/2
3"	76.2	144.2	1.6/2
4"	101.6	182.4	1.6/2



### 7W LONG EQUAL WELD TEE

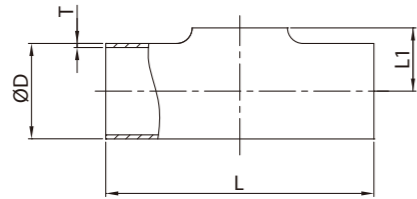
SIZE	ØD	L	L1	T
1/2"	12.7	98.2	49.1	1.6/2
3/4"	19.1	117.2	58.6	1.6/2
1"	25.4	136.2	68.1	1.6/2
1.25"	31.8	155.4	77.7	1.6/2
1.5"	38.1	174	87	1.6/2
2"	50.8	212.4	106.2	1.6/2
2.5"	63.5	250	125	1.6/2
3"	76.2	288.4	144.2	1.6/2
4"	101.6	364.8	182.4	1.6/2

## AS Tubular Items



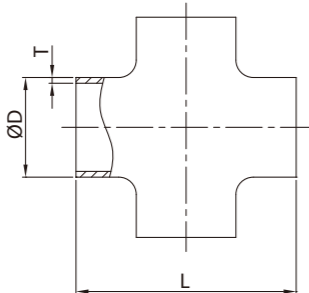
### 7WWW SHORT EQUAL WELD TEE

SIZE	ØD	L	L1	T
1/2"	12.7	38.2	19.1	1.6/2
3/4"	19.1	57.2	28.6	1.6/2
1"	25.4	76.2	38.1	1.6/2
1.25"	31.8	95.4	47.7	1.6/2
1.5"	38.1	114	57	1.6/2
2"	50.8	152.4	76.2	1.6/2
2.5"	63.5	190	95	1.6/2
3"	76.2	228.4	144.2	1.6/2
4"	101.6	304.8	152.4	1.6/2



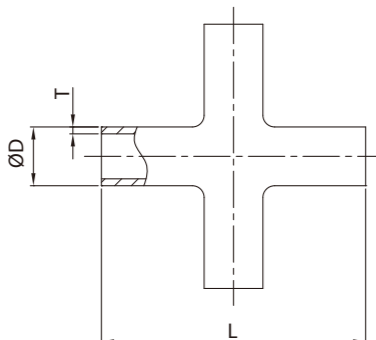
### 7WO EQUAL TEE W/O STRAIGHT END

SIZE	ØD	L	L1	T
1/2"	12.7	38.2	9.35	1.6/2
3/4"	19.1	57.2	12.55	1.6/2
1"	25.4	76.2	15.7	1.6/2
1.25"	31.8	95.4	18.9	1.6/2
1.5"	38.1	114	22.05	1.6/2
2"	50.8	152.4	28.4	1.6/2
2.5"	63.5	190	34.75	1.6/2
3"	76.2	228.4	41.1	1.6/2
4"	101.6	304.8	53.8	1.6/2



### 9WWW SHORT CROSS WELD END

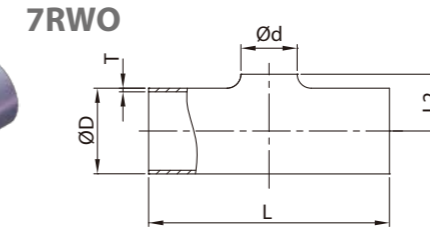
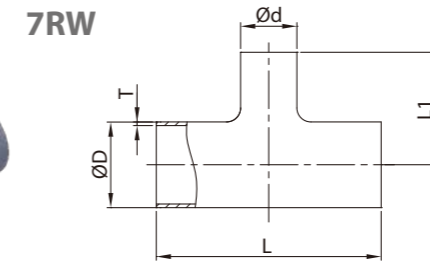
SIZE	ØD	L	T
1/2"	12.7	38.2	1.6/2
3/4"	19.1	57.2	1.6/2
1"	25.4	76.2	1.6/2
1.25"	31.8	95.4	1.6/2
1.5"	38.1	114	1.6/2
2"	50.8	152.4	1.6/2
2.5"	63.5	190	1.6/2
3"	76.2	228.4	1.6/2
4"	101.6	304.8	1.6/2



### 9W LONG CROSS WELD END

SIZE	ØD	L	T
1/2"	12.7	98.2	1.6/2
3/4"	19.1	117.2	1.6/2
1"	25.4	136.2	1.6/2
1.25"	31.8	155.4	1.6/2
1.5"	38.1	174	1.6/2
2"	50.8	212.4	1.6/2
2.5"	63.5	250	1.6/2
3"	76.2	288.4	1.6/2
4"	101.6	364.8	1.6/2

## AS Tubular Items

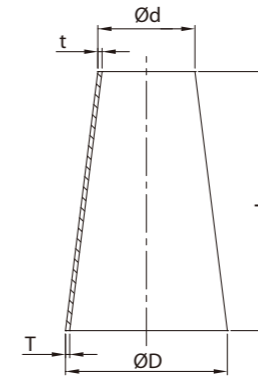


### REDUCING TEE/REDUCING TEE

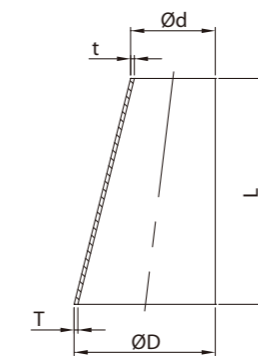
SIZE	ØD	Ød	L	L1	L2	T
1.5"×1"	38.1	25.4	160	80	22.05	1.6/2
2"×1"	50.8	25.4	160	80	28.4	1.6/2
2"×1.5"	50.8	38.1	160	80	28.4	1.6/2
2.5"×1.5"	63.5	38.1	160	80	34.75	1.6/2
2.5"×2"	63.5	50.8	160	80	37.75	1.6/2
3"×1.5"	76.2	38.1	160	80	41.1	1.6/2
3"×2"	76.2	50.8	160	80	41.1	1.6/2
3"×2.5"	76.2	63.5	190.5	95.3	41.1	1.6/2
4"×2"	101.6	50.8	160	80	53.8	1.6/2
4"×2.5"	101.6	63.5	190.5	95.3	53.8	1.6/2
4"×3"	101.6	76.2	228.6	114.3	53.8	1.6/2



L31



L32



### CONCENTRIC REDUCER/ECCENTRIC REDUCER

SIZE	ØD	Ød	L	T	t
3/4"×1/2"	19.1	12.7	19.1	1.6/2	1.6/2
1"×1/2"	25.4	12.7	25.4	1.6/2	1.6/2
1"×3/4"	25.4	19.1	25.4	1.6/2	1.6/2
1.25"×3/4"	31.8	19.1	31.8	1.6/2	1.6/2
1.25"×1"	31.8	25.4	31.8	1.6/2	1.6/2
1.5"×3/4"	38.1	19.1	38.1	1.6/2	1.6/2
1.5"×1"	38.1	25.4	38.1	1.6/2	1.6/2
1.5"×1.25"	38.1	31.8	38.1	1.6/2	1.6/2
2"×1/2"	50.8	12.7	50.8	1.6/2	1.6/2
2"×3/4"	50.8	19.1	50.8	1.6/2	1.6/2
2"×1"	50.8	25.4	50.8	1.6/2	1.6/2
2"×1.25"	50.8	31.8	50.8	1.6/2	1.6/2
2"×1.5"	50.8	38.1	50.8	1.6/2	1.6/2
2.5"×1"	63.5	25.4	63.5	1.6/2	1.6/2
2.5"×1.25"	63.5	31.8	63.5	1.6/2	1.6/2
2.5"×1.5"	63.5	38.1	63.5	1.6/2	1.6/2
2.5"×2"	63.5	50.8	63.5	1.6/2	1.6/2
3"×1"	76.2	25.4	76.2	1.6/2	1.6/2
3"×1.25"	76.2	31.8	76.2	1.6/2	1.6/2
3"×1.5"	76.2	38.1	76.2	1.6/2	1.6/2
3"×2"	76.2	50.8	76.2	1.6/2	1.6/2
3"×2.5"	76.2	63.5	76.2	1.6/2	1.6/2
4"×1"	101.6	25.4	101.6	1.6/2	1.6/2
4"×1.25"	101.6	31.8	101.6	1.6/2	1.6/2
4"×1.5"	101.6	38.1	101.6	1.6/2	1.6/2
4"×2"	101.6	50.8	101.6	1.6/2	1.6/2
4"×2.5"	101.6	63.5	101.6	1.6/2	1.6/2
4"×3"	101.6	76.2	101.6	1.6/2	1.6/2
5"×2"	127	50.8	127	1.6/2	1.6/2
5"×3"	127	76.2	127	1.6/2	1.6/2
5"×4"	127	101.6	127	1.6/2	1.6/2
6"×2"	152.4	50.8	152.4	1.6/2	1.6/2
6"×2.5"	152.4	63.5	152.4	1.6/2	1.6/2
6"×3"	152.4	76.2	152.4	1.6/2	1.6/2
6"×4"	152.4	101.6	152.4	1.6/2	1.6/2
6"×5"	152.4	127	152.4	1.6/2	1.6/2



# BPE, Pharmaceutical Fitting



## CSE HIGH PURITY TUBE & FITTING VALVE (ASME BPE STANDARD)

Pharmaceutical/Biotechnology fitting. CSE have over 15 years hygienic fitting experiences for developing out the ASME bioprocessing equipment (BPE) standard tube, fitting, valve components for high purity application such as water for injection, pharmaceutical, cosmetics use. Material : low sulphur ASTM SS316L, S :  $\leq 0.005\% \sim 0.017\%$ ,



MTR certificate will be offered.  
Surface options:

Ra Reading for Tubing

As drawing and / or mechanically polished			Mechanically Polished and Electropolished or Electropolished		
Surface Designation	Ra Average		Surface Designation	Ra Average	
	$\mu$ -in	$\mu$ -m		$\mu$ -in	$\mu$ -m
SF1	15	0.5	SF3	10	0.375
SF2	20	0.625	SF4	15	0.5
SF3	20	0.625	SF4	15	0.5

Ra Reading for Fitting

Mechanically polished			Mechanically Polished and Electropolished		
Surface Designation	Ra Average		Surface Designation	Ra Average	
	$\mu$ -in	$\mu$ -m		$\mu$ -in	$\mu$ -m
SF1	20	0.5	SF4	15	0.38
SF2	25	0.63	SF5	20	0.5
SF3	30	0.76	SF6	25	0.63

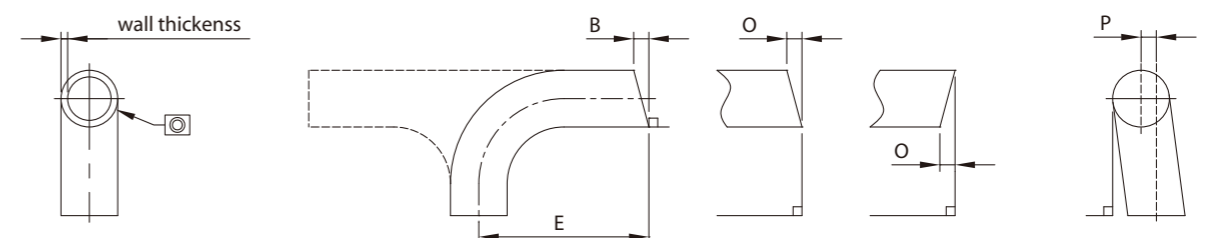
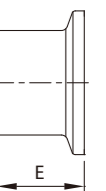
Outer surface: Tubes and fittings Ra $\leq$  32 $\mu$ in (0.8 $\mu$ m)

Dimension & tolerance :

SIZE	OD	Wall thickness		Squariness face To tangent ' B	Off angle O	Off plane P
		Mechanical polish	Electropolish			
1/2"	$\pm 0.13$	+0.13/-0.2	+0.13/-0.25	0.13	0.36	0.76
3/4"	$\pm 0.13$	+0.13/-0.2	+0.13/-0.25	0.13	0.46	0.76
1.0"	$\pm 0.13$	+0.13/-0.2	+0.13/-0.25	0.2	0.64	0.76
1.5"	$\pm 0.2$	+0.13/-0.2	+0.13/-0.25	0.2	0.86	1.27
2.0"	$\pm 0.2$	+0.13/-0.2	+0.13/-0.25	0.2	1.09	1.27
2.5"	$\pm 0.25$	+0.13/-0.2	+0.13/-0.25	0.25	1.37	1.27
3.0"	$\pm 0.25$	+0.13/-0.2	+0.13/-0.25	0.41	1.73	1.27
4.0"	$\pm 0.38$	+0.2/-0.25	+0.2/-0.30	0.41	2.18	1.52

General Notes :

Tolerance on E end-to-end and center-to-end : 1.27mm  
Tolerance for centerline radius (CLR) is  $\pm 10\%$  of the nominal dimension.



# BPE Stainless Steel Tubing

Absolutely hygienic conditions are necessary for the entire production cycle of pharmaceutical and ultra-high industries. Therefore, tubes, fittings, and valves with a smooth internal surface are extensively installed with the advantages of cleaning easily and avoiding bacteria contamination.

CSE only offers tubes that are manufactured, quality controlled, marked, and certified according to the highest standards for hygienic equipment design and guarantees extended quality and traceability. CSE BPE tubing significantly reduces inspection requirements prior to installation by utilizing only the highest quality stainless steel materials.

CSE delivers directly from stock the following stainless steel tubes in grade TP316L with low sulfur content of 0.005% to 0.0017% and SF1 and SF4 finishes (according to the ASME BPE specification)



### STANDARDS:

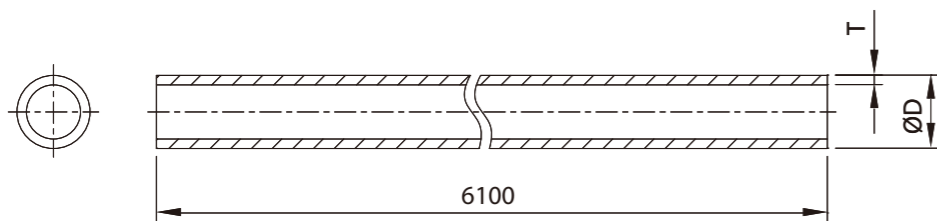
ASTM A270-2015 S2

### SURFACE FINISH: SF0~SF6

SF1 ID Pol. Ra<0.5µm/ OD Pol. Ra<0.8µm  
SF4 ID EP Finished Ra<0.38µm/ OD Pol. Ra<0.8µm

### CSE BPE EP products with following advantages:

- Homogeneously EP layer to minimize rouging
- Higher chrome concentration for better corrosion resistance
- Guaranteed smoothness of all internal surfaces to reduce Bio film



SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1.0"	1.5"	2.0"	2.5"	3.0"	4.0"	6.0"
ØD	3.18	6.35	9.53	12.7	19.05	25.4	38.1	50.8	63.5	76.2	101.6	152.4
T	0.56	0.89	0.89	1.65	1.65	1.65	1.65	1.65	1.65	1.65	2.11	2.77

### Marking:



ASME BPE (BPE REFERENCE NO.)  
TP316L size SFX  
(H.T.NO.)



ASTM A270 TP316L ASME-BPE DT-4-1 SF-X WLD NDE Size X length X Heat NO X

### Package Type:

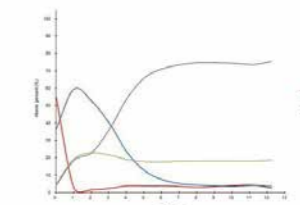
SF1

SF4



Survey	O1s	Cr2p3	Fe2p3	Ni2p3	Mo3d	Cr : Fe
1.5" TEE 1810D (sputter 1.5nm)	56.28	19.74	19.02	3.94	1.02	1.04 : 1

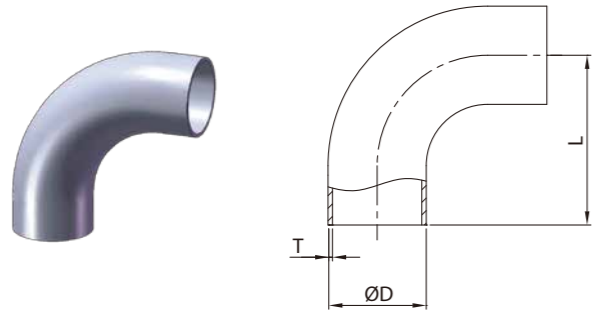
1.5" TEE 1810D Depth profile



Note: "-" is shown the value under detection limit of XPS analysis.

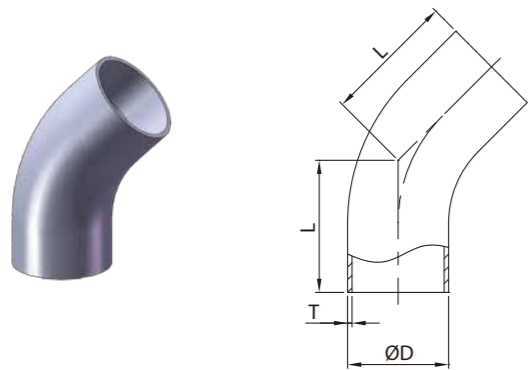


## BPE Fittings



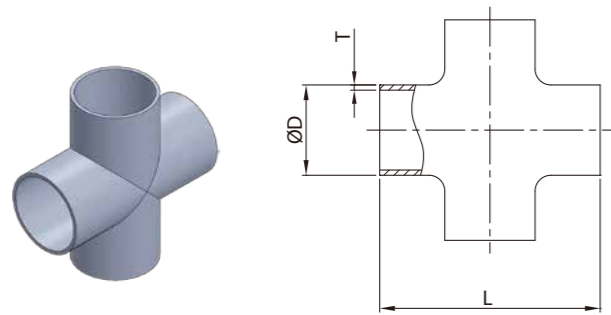
**DT-4.1.1-1 LONG WELD 90° ELBOW (DT-7)**

SIZE	ØD	L	T
1/2"	12.7	76.2	1.65
3/4"	19.05	76.2	1.65
1"	25.4	76.2	1.65
1.5"	38.1	95.25	1.65
2"	50.8	120.65	1.65
2.5"	63.5	139.7	1.65
3"	76.2	158.75	1.65
4"	101.6	203.2	2.11
6"	152.4	292.1	2.77



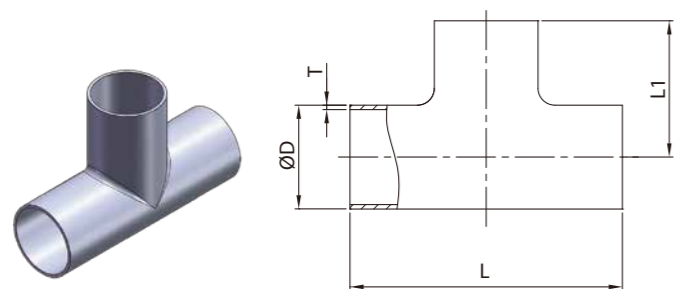
**DT-4.1.1-4 LONG 45° ELBOW (DT-8)**

SIZE	ØD	L	T
1/2"	12.7	57.15	1.65
3/4"	19.05	57.15	1.65
1"	25.4	57.15	1.65
1.5"	38.1	63.5	1.65
2"	50.8	76.2	1.65
2.5"	63.5	85.73	1.65
3"	76.2	92.08	1.65
4"	101.6	114.3	2.11
6"	152.4	158.75	2.77



**DT-4.1.2-1C CROSS (DT-9)**

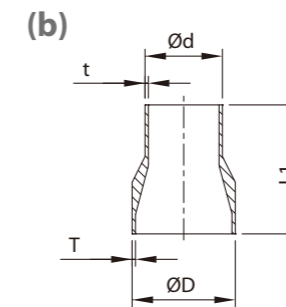
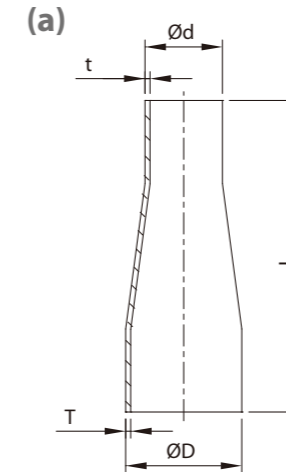
SIZE	ØD	L	T
1/2"	12.7	95.26	1.65
3/4"	19.05	101.6	1.65
1"	25.4	107.96	1.65
1.5"	38.1	120.66	1.65
2"	50.8	146.06	1.65
2.5"	63.5	158.76	1.65
3"	76.2	171.46	1.65
4"	101.6	209.56	2.11
6"	152.4	285.76	2.77



**DT-4.1.2-1T TEE (DT-9)**

SIZE	ØD	L	L1	T
1/2"	12.7	95.26	47.63	1.65
3/4"	19.05	101.6	50.8	1.65
1"	25.4	107.96	53.98	1.65
1.5"	38.1	120.66	60.33	1.65
2"	50.8	146.06	73.03	1.65
2.5"	63.5	158.76	79.38	1.65
3"	76.2	171.46	85.73	1.65
4"	101.6	209.56	104.78	2.11
6"	152.4	285.76	142.88	2.77

## BPE Fittings



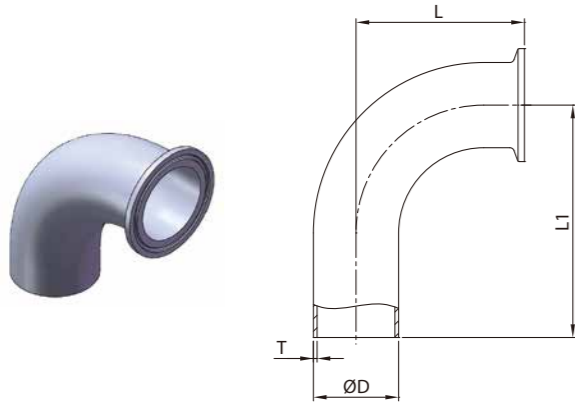
**DT-4.1.3-1 CONCENTRIC REDUCER (DT11)**

SIZE	ØD	Ød	L	L1	T	t
3/4"*1/2"	19.05	12.7	101.6	53.93	1.65	1.65
1.0"*1/2"	25.4	12.7	114.3	63.5	1.65	1.65
1.0"*3/4"	25.4	19.05	101.6	53.93	1.65	1.65
1.5"*1/2"	38.1	12.7	139.7	76.2	1.65	1.65
1.5"*3/4"	38.1	19.05	127	76.2	1.65	1.65
1.5"*1.0"	38.1	25.4	127	63.5	1.65	1.65
2.0"*1/2"	50.8	12.7	196.9	85.73	1.65	1.65
2.0"*3/4"	50.8	19.05	184.2	85.73	1.65	1.65
2.0"*1.0"	50.8	25.4	184.2	85.73	1.65	1.65
2.0"*1.5"	50.8	38.1	133.4	63.5	1.65	1.65
2.5"*1/2"	63.5	12.7	247.7	—	1.65	1.65
2.5"*3/4"	63.5	19.05	235	—	1.65	1.65
2.5"*1.0"	63.5	25.4	235	85.73	1.65	1.65
2.5"*1.5"	63.5	38.1	184.2	85.73	1.65	1.65
2.5"*2.0"	63.5	50.8	139.7	63.5	1.65	1.65
3.0"*1.0"	76.2	25.4	285.8	107.95	1.65	1.65
3.0"*1.5"	76.2	38.1	235	107.95	1.65	1.65
3.0"*2.0"	76.2	50.8	190.5	85.73	1.65	1.65
3.0"*2.5"	76.2	63.5	139.7	66.68	1.65	1.65
4.0"*1.0"	101.6	25.4	393.7	—	2.11	1.65
4.0"*1.5"	101.6	38.1	342.9	—	2.11	1.65
4.0"*2.0"	101.6	50.8	298.5	130.18	2.11	1.65
4.0"*2.5"	101.6	63.5	247.7	107.95	2.11	1.65
4.0"*3.0"	101.6	76.2	196.9	98.43	2.11	1.65
6.0"*3.0"	152.4	76.2	—	184.15	2.77	1.65
6.0"*4.0"	152.4	101.6	254	142.88	2.77	2.11

**DT-4.1.3-1 ECCENTRIC REDUCER (DT11)**

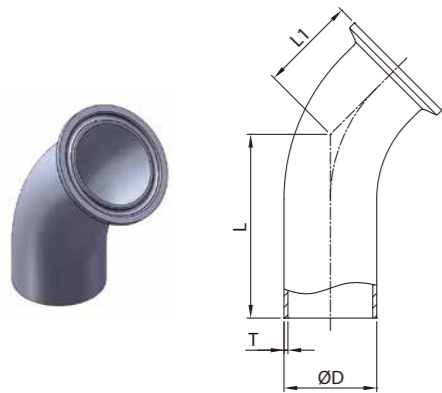
SIZE	ØD	Ød	L	L1	T	t
3/4"*1/2"	19.05	12.7	101.6	53.93	1.65	1.65
1.0"*1/2"	25.4	12.7	114.3	63.5	1.65	1.65
1.0"*3/4"	25.4	19.05	101.6	53.93	1.65	1.65
1.5"*1/2"	38.1	12.7	139.7	76.2	1.65	1.65
1.5"*3/4"	38.1	19.05	127	76.2	1.65	1.65
1.5"*1.0"	38.1	25.4	127	63.5	1.65	1.65
2.0"*1/2"	50.8	12.7	196.9	85.73	1.65	1.65
2.0"*3/4"	50.8	19.05	184.2	85.73	1.65	1.65
2.0"*1.0"	50.8	25.4	184.2	85.73	1.65	1.65
2.0"*1.5"	50.8	38.1	133.4	63.5	1.65	1.65
2.5"*1/2"	63.5	12.7	247.7	—	1.65	1.65
2.5"*3/4"	63.5	19.05	235	—	1.65	1.65
2.5"*1.0"	63.5	25.4	235	85.73	1.65	1.65
2.5"*1.5"	63.5	38.1	184.2	85.73	1.65	1.65
2.5"*2.0"	63.5	50.8	139.7	63.5	1.65	1.65
3.0"*1.0"	76.2	25.4	285.8	107.95	1.65	1.65
3.0"*1.5"	76.2	38.1	235	107.95	1.65	1.65
3.0"*2.0"	76.2	50.8	190.5	85.73	1.65	1.65
3.0"*2.5"	76.2	63.5	139.7	66.68	1.65	1.65
4.0"*1.0"	101.6	25.4	393.7	—	2.11	1.65
4.0"*1.5"	101.6	38.1	342.9	—	2.11	1.65
4.0"*2.0"	101.6	50.8	298.5	130.18	2.11	1.65
4.0"*2.5"	101.6	63.5	247.7	107.95	2.11	1.65
4.0"*3.0"	101.6	76.2	196.9	98.43	2.11	1.65
6.0"*3.0"	152.4	76.2	—	184.15	2.77	1.65
6.0"*4.0"	152.4	101.6	254	142.88	2.77	2.11

# BPE Fittings



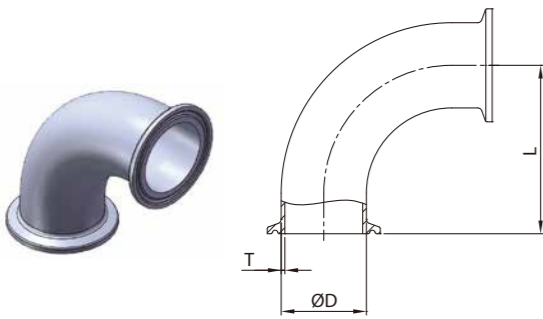
**DT-4.1.1-2 90° CLAMP/WELD ELBOW (DT-12)**

SIZE	ØD	L	L1	T
1/2"	12.7	41.28	76.2	1.65
3/4"	19.05	41.28	76.2	1.65
1"	25.4	50.8	76.2	1.65
1.5"	38.1	69.85	95.25	1.65
2"	50.8	88.9	120.65	1.65
2.5"	63.5	107.95	139.7	1.65
3"	76.2	127	158.75	1.65
4"	101.6	168.28	203.2	2.11
6"	152.4	266.7	292.1	2.77



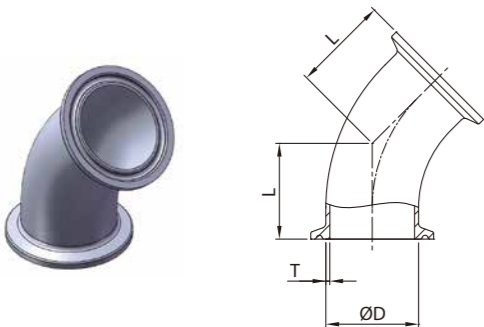
**DT-4.1.1-5 45° CLAMP/WELD ELBOW (DT-13)**

SIZE	ØD	L	L1	T
1/2"	12.7	57.15	25.4	1.65
3/4"	19.05	57.15	25.4	1.65
1"	25.4	57.15	28.58	1.65
1.5"	38.1	63.5	36.53	1.65
2"	50.8	76.2	44.45	1.65
2.5"	63.5	85.73	52.4	1.65
3"	76.2	92.08	60.33	1.65
4"	101.6	114.3	79.38	2.11
6"	152.4	158.75	133.35	2.77



**DT-4.1.1-3 90° CLAMP ELBOW (DT-16)**

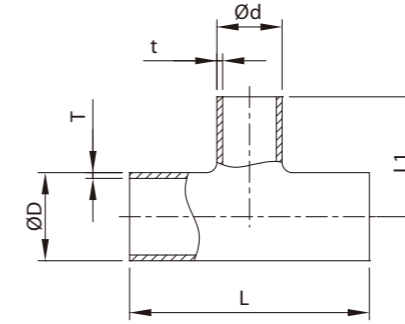
SIZE	ØD	L	T
1/2"	12.7	41.28	1.65
3/4"	19.05	41.28	1.65
1"	25.4	50.8	1.65
1.5"	38.1	69.85	1.65
2"	50.8	88.9	1.65
2.5"	63.5	107.95	1.65
3"	76.2	127	1.65
4"	101.6	168.28	2.11
6"	152.4	266.7	2.77



**DT-4.1.1-6 45° CLAMP ELBOW (DT-17)**

SIZE	ØD	L	T
1/2"	12.7	25.4	1.65
3/4"	19.05	25.4	1.65
1"	25.4	28.58	1.65
1.5"	38.1	36.5	1.65
2"	50.8	44.45	1.65
2.5"	63.5	52.4	1.65
3"	76.2	60.33	1.65
4"	101.6	79.38	2.11
6"	152.4	133.35	2.77

# BPE Fittings



**DT-4.1.2-6 REDUCING TEE (DT-10)**

SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	101.6	50.8	1.65	1.65
1"×1/2"	25.4	12.7	107.96	53.98	1.65	1.65
1"×3/4"	25.4	19.05	107.96	53.98	1.65	1.65
1.5"×1/2"	38.1	12.7	120.66	60.33	1.65	1.65
1.5"×3/4"	38.1	19.05	120.66	60.33	1.65	1.65
1.5"×1"	38.1	25.4	120.66	60.33	1.65	1.65
2"×1/2"	50.8	12.7	146.06	66.68	1.65	1.65
2"×3/4"	50.8	19.05	146.06	66.68	1.65	1.65
2"×1"	50.8	25.4	146.06	66.68	1.65	1.65
2"×1.5"	50.8	38.1	146.06	66.68	1.65	1.65
2.5"×1/2"	63.5	12.7	158.76	73.03	1.65	1.65
2.5"×3/4"	63.5	19.05	158.76	73.03	1.65	1.65
2.5"×1"	63.5	25.4	158.76	73.03	1.65	1.65
2.5"×1.5"	63.5	38.1	158.76	73.03	1.65	1.65
2.5"×2"	63.5	50.8	158.76	73.03	1.65	1.65
3"×1/2"	76.2	12.7	171.46	79.38	1.65	1.65
3"×3/4"	76.2	19.05	171.46	79.38	1.65	1.65
3"×1"	76.2	25.4	171.46	79.38	1.65	1.65
3"×1.5"	76.2	38.1	171.46	79.38	1.65	1.65
3"×2"	76.2	50.8	171.46	79.38	1.65	1.65
3"×2.5"	76.2	63.5	171.46	79.38	1.65	1.65
4"×1/2"	101.6	12.7	209.56	92.08	2.11	1.65
4"×3/4"	101.6	19.05	209.56	92.08	2.11	1.65
4"×1"	101.6	25.4	209.56	92.08	2.11	1.65
4"×1.5"	101.6	38.1	209.56	92.08	2.11	1.65
4"×2"	101.6	50.8	209.56	98.43	2.11	1.65
4"×2.5"	101.6	63.5	209.56	98.43	2.11	1.65
4"×3"	101.6	76.2	209.56	98.43	2.11	1.65
6"×3"	152.4	76.2	285.76	123.83	2.77	1.65
6"×4"	152.4	101.6	285.76	130.18	2.77	2.11

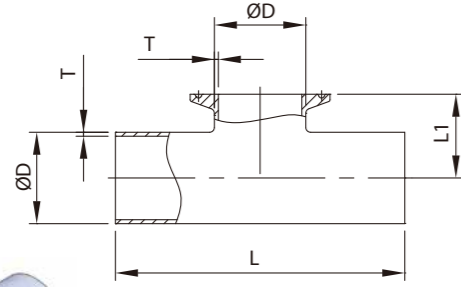


**DT-4.1.2-7 SHORT OUTLET W/C REDUCING TEE (DT-14)**

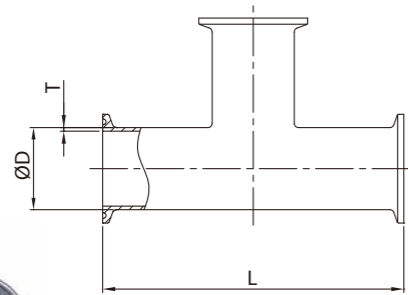
SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	101.6	25.4	1.65	1.65
1"×1/2"	25.4	12.7	107.96	28.58	1.65	1.65
1"×3/4"	25.4	19.05	107.96	28.58	1.65	1.65
1.5"×1/2"	38.1	12.7	120.66	34.93	1.65	1.65
1.5"×3/4"	38.1	19.05	120.66	34.93	1.65	1.65
1.5"×1"	38.1	25.4	120.66	34.93	1.65	1.65
2"×1/2"	50.8	12.7	146.06	41.28	1.65	1.65
2"×3/4"	50.8	19.05	146.06	41.28	1.65	1.65
2"×1"	50.8	25.4	146.06	41.28	1.65	1.65
2"×1.5"	50.8	38.1	146.06	41.28	1.65	1.65
2.5"×1/2"	63.5	12.7	158.76	47.63	1.65	1.65
2.5"×3/4"	63.5	19.05	158.76	47.63	1.65	1.65
2.5"×1"	63.5	25.4	158.76	47.63	1.65	1.65
2.5"×1.5"	63.5	38.1	158.76	47.63	1.65	1.65
2.5"×2"	63.5	50.8	158.76	47.63	1.65	1.65
3"×1/2"	76.2	12.7	171.46	53.98	1.65	1.65
3"×3/4"	76.2	19.05	171.46	53.98	1.65	1.65
3"×1"	76.2	25.4	171.46	53.98	1.65	1.65
3"×1.5"	76.2	38.1	171.46	53.98	1.65	1.65
3"×2"	76.2	50.8	171.46	53.98	1.65	1.65
3"×2.5"	76.2	63.5	171.46	53.98	1.65	1.65
4"×1/2"	101.6	12.7	209.56	66.68	2.11	1.65
4"×3/4"	101.6	19.05	209.56	66.68	2.11	1.65
4"×1"	101.6	25.4	209.56	66.68	2.11	1.65
4"×1.5"	101.6	38.1	209.56	66.68	2.11	1.65
4"×2"	101.6	50.8	209.56	66.68	2.11	1.65
4"×2.5"	101.6	63.5	209.56	66.68	2.11	1.65
4"×3"	101.6	76.2	209.56	66.68	2.11	1.65
6"×1/2"	152.4	12.7	285.76	92.08	2.77	1.65
6"×3/4"	152.4	19.05	285.76	92.08	2.77	1.65
6"×1"	152.4	25.4	285.76	92.08	2.77	1.65
6"×1.5"	152.4	38.1	285.76	92.08	2.77	1.65
6"×2"	152.4	50.8	285.76	92.08	2.77	1.65
6"×2.5"	152.4	63.5	285.76	92.08	2.77	1.65
6"×3"	152.4	76.2	285.76	92.08	2.77	1.65
6"×4"	152.4	101.6	285.76	92.25	2.77	2.11



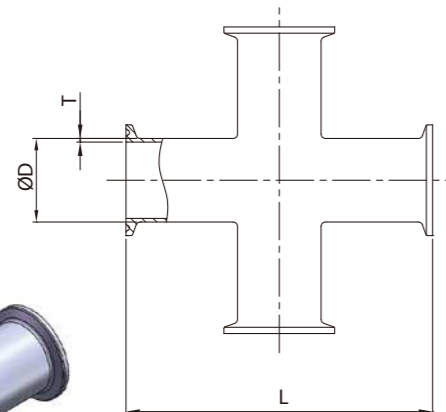
## BPE Fittings

**DT-4.1.2-2 EQUAL OUTLET WELD/CLAMP TEE (DT-15)**


SIZE	ØD	L	L1	T
1/2"	12.7	95.26	25.4	1.65
3/4"	19.05	101.6	28.58	1.65
1"	25.4	107.96	28.59	1.65
1.5"	38.1	120.66	34.39	1.65
2"	50.8	146.06	41.28	1.65
2.5"	63.5	158.76	47.63	1.65
3"	76.2	171.46	53.98	1.65
4"	101.6	209.56	69.85	2.11
6"	152.4	285.76	117.48	2.77


**DT-4.1.2-4T CLAMP TEE (DT-18)**


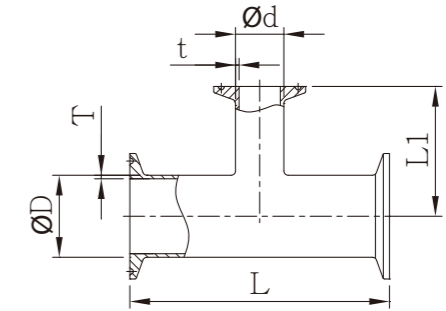
SIZE	ØD	L	T
1/2"	12.7	114.3	1.65
3/4"	19.05	120.66	1.65
1"	25.4	133.36	1.65
1.5"	38.1	146.06	1.65
2"	50.8	171.46	1.65
2.5"	63.5	184.16	1.65
3"	76.2	196.86	1.65
4"	101.6	241.3	2.11
6"	152.4	361.96	2.77


**DT-4.1.2-4C CLAMP CROSS (DT-18)**


SIZE	ØD	L	T
1/2"	12.7	114.3	1.65
3/4"	19.05	120.66	1.65
1"	25.4	133.36	1.65
1.5"	38.1	146.06	1.65
2"	50.8	171.46	1.65
2.5"	63.5	184.16	1.65
3"	76.2	196.86	1.65
4"	101.6	241.3	2.11
6"	152.4	361.96	2.77

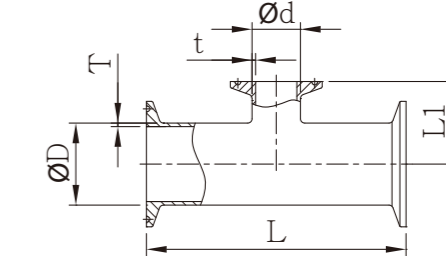


## BPE Fittings


**DT-4.1.2-8 REDUCING TEE CLAMP END (DT-19)**

SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	127	63.5	1.65	1.65
1.0"×1/2"	25.4	12.7	133.36	66.68	1.65	1.65
1.0"×3/4"	25.4	19.05	133.36	66.68	1.65	1.65
1.5"×1/2"	38.1	12.7	146.06	73.03	1.65	1.65
1.5"×3/4"	38.1	19.05	146.06	73.03	1.65	1.65
1.5"×1.0"	38.1	25.4	146.06	73.03	1.65	1.65
2.0"×1/2"	50.8	12.7	171.46	79.38	1.65	1.65
2.0"×3/4"	50.8	19.05	171.46	79.38	1.65	1.65
2.0"×1.0"	50.8	25.4	171.46	79.38	1.65	1.65
2.0"×1.5"	50.8	38.1	171.46	79.38	1.65	1.65
2.5"×1/2"	63.5	12.7	184.16	85.73	1.65	1.65
2.5"×3/4"	63.5	19.05	184.16	85.73	1.65	1.65
2.5"×1.0"	63.5	25.4	184.16	85.73	1.65	1.65
2.5"×1.5"	63.5	38.1	184.16	85.73	1.65	1.65
2.5"×2.0"	63.5	50.8	184.16	85.73	1.65	1.65

SIZE	ØD	Ød	L	L1	T	t
3.0"×1/2"	76.2	12.7	196.86	92.08	1.65	1.65
3.0"×3/4"	76.2	19.05	196.86	92.08	1.65	1.65
3.0"×1.0"	76.2	25.4	196.86	92.08	1.65	1.65
3.0"×1.5"	76.2	38.1	196.86	92.08	1.65	1.65
3.0"×2.0"	76.2	50.8	196.86	92.08	1.65	1.65
3.0"×2.5"	76.2	63.5	196.86	92.08	1.65	1.65
4.0"×1/2"	101.6	12.7	241.3	104.78	2.11	1.65
4.0"×3/4"	101.6	19.05	241.3	104.78	2.11	1.65
4.0"×1.0"	101.6	25.4	241.3	104.78	2.11	1.65
4.0"×1.5"	101.6	38.1	241.3	104.78	2.11	1.65
4.0"×2.0"	101.6	50.8	241.3	111.13	2.11	1.65
4.0"×2.5"	101.6	63.5	241.3	111.13	2.11	1.65
4.0"×3.0"	101.6	76.2	241.3	111.13	2.11	1.65
6.0"×3.0"	152.4	76.2	361.96	136.53	2.77	1.65
6.0"×4.0"	152.4	101.6	361.96	146.05	2.77	2.11


**DT-4.1.2-9 REDUCING TEE CLAMP END (DT-20)**

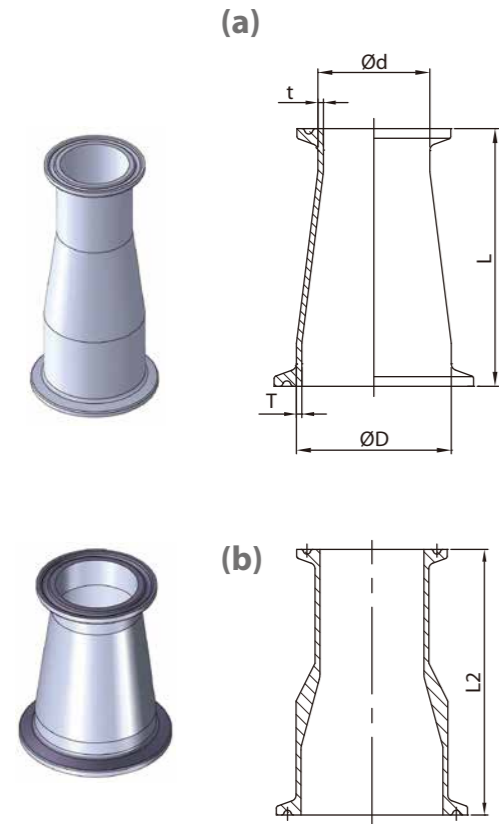
SIZE	ØD	Ød	L	L1	T	t
3/4"×1/2"	19.05	12.7	127	25.4	1.65	1.65
1.0"×1/2"	25.4	12.7	133.36	28.58	1.65	1.65
1.0"×3/4"	25.4	19.05	133.36	28.58	1.65	1.65
1.5"×1/2"	38.1	12.7	146.06	34.93	1.65	1.65
1.5"×3/4"	38.1	19.05	146.06	34.93	1.65	1.65
1.5"×1.0"	38.1	25.4	146.06	34.93	1.65	1.65
2.0"×1/2"	50.8	12.7	171.46	41.28	1.65	1.65
2.0"×3/4"	50.8	19.05	171.46	41.28	1.65	1.65
2.0"×1.0"	50.8	25.4	171.46	41.28	1.65	1.65
2.0"×1.5"	50.8	38.1	171.46	41.28	1.65	1.65
2.5"×1/2"	63.5	12.7	184.16	47.63	1.65	1.65
2.5"×3/4"	63.5	19.05	184.16	47.63	1.65	1.65
2.5"×1.0"	63.5	25.4	184.16	47.63	1.65	1.65
2.5"×1.5"	63.5	38.1	184.16	47.63	1.65	1.65
2.5"×2.0"	63.5	50.8	184.16	47.63	1.65	1.65
3.0"×1/2"	76.2	12.7	196.86	53.98	1.65	1.65
3.0"×3/4"	76.2	19.05	196.86	53.98	1.65	1.65
3.0"×1.0"	76.2	25.4	196.86	53.98	1.65	1.65

SIZE	ØD	Ød	L	L1	T	t
3.0"×1.5"	76.2	38.1	196.86	53.98	1.65	1.65
3.0"×2.0"	76.2	50.8	196.86	53.98	1.65	1.65
3.0"×2.5"	76.2	63.5	196.86	53.98	1.65	1.65
4.0"×1/2"	101.6	12.7	241.3	66.68	2.11	1.65
4.0"×3/4"	101.6	19.05	241.3	66.68	2.11	1.65
4.0"×1.0"	101.6	25.4	241.3	66.68	2.11	1.65
4.0"×1.5"	101.6	38.1	241.3	66.68	2.11	1.65
4.0"×2.0"	101.6	50.8	241.3	66.68	2.11	1.65
4.0"×2.5"	101.6	63.5	241.3	66.68	2.11	1.65
4.0"×3.0"	101.6	76.2	241.3	66.68	2.11	1.65
6.0"×1/2"	152.4	12.7	361.96	92.08	2.77	1.65
6.0"×3/4"	152.4	19.05	361.96	92.08	2.77	1.65
6.0"×1.0"	152.4	25.4	361.96	92.08	2.77	1.65
6.0"×1.5"	152.4	38.1	361.96	92.08	2.77	1.65
6.0"×2.0"	152.4	50.8	361.96	92.08	2.77	1.65
6.0"×2.5"	152.4	63.5	361.96	92.08	2.77	1.65
6.0"×3.0"	152.4	76.2	361.96	92.08	2.77	1.65
6.0"×4.0"	152.4	101.6	361.96	95.25	2.77	2.11

## BPE Fittings

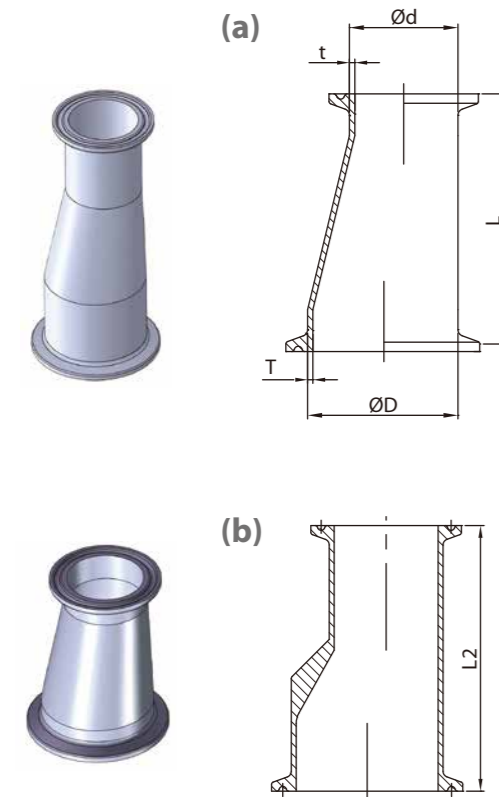
### DT-4.1.3-3 CLAMP CONCENTRIC REDUCER (DT-21)

SIZE	ØD	Ød	L	T	t	L2
3/4"×1/2"	19.05	12.7	50.8	1.65	1.65	79.38
1"×1/2"	25.4	12.7	63.5	1.65	1.65	88.9
1"×3/4"	25.4	19.05	50.8	1.65	1.65	79.38
1.5"×1/2"	38.1	12.7	88.9	1.65	1.65	101.6
1.5"×3/4"	38.1	19.05	76.2	1.65	1.65	101.6
1.5"×1"	38.1	25.4	76.2	1.65	1.65	88.9
2"×1/2"	50.8	12.7	139.7	1.65	1.65	111.13
2"×3/4"	50.8	19.05	127	1.65	1.65	111.13
2"×1"	50.8	25.4	127	1.65	1.65	111.13
2"×1.5"	50.8	38.1	76.2	1.65	1.65	88.9
2.5"×1/2"	63.5	12.7	190.5	1.65	1.65	—
2.5"×3/4"	63.5	19.05	177.8	1.65	1.65	—
2.5"×1"	63.5	25.4	177.8	1.65	1.65	111.13
2.5"×1.5"	63.5	38.1	127	1.65	1.65	111.13
2.5"×2"	63.5	50.8	76.2	1.65	1.65	88.9
3"×1"	76.2	25.4	288.6	1.65	1.65	133.35
3"×1.5"	76.2	38.1	117.8	1.65	1.65	133.35
3"×2"	76.2	50.8	127	1.65	1.65	111.13
3"×2.5"	76.2	63.5	76.2	1.65	1.65	92.08
4"×1"	101.6	25.4	333.4	2.11	1.65	—
4"×1.5"	101.6	38.1	282.6	2.11	1.65	—
4"×2"	101.6	50.8	231.8	2.11	1.65	158.75
4"×2.5"	101.6	63.5	181	2.11	1.65	136.53
4"×3"	101.6	76.2	130.2	2.11	2.1	127
6"×3"	152.4	76.2	—	2.77	1.65	215.9
6"×4"	152.4	101.6	193.7	2.77	2.11	177.8



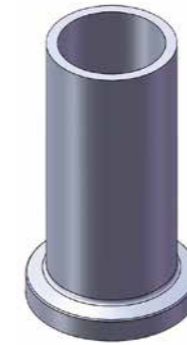
### DT-4.1.3-3 CLAMP ECCENTRIC REDUCER (DT-21)

SIZE	ØD	Ød	L	T	t	L2
3/4"×1/2"	19.05	12.7	50.8	1.65	1.65	79.38
1"×1/2"	25.4	12.7	63.5	1.65	1.65	88.9
1"×3/4"	25.4	19.05	50.8	1.65	1.65	79.38
1.5"×1/2"	38.1	12.7	88.9	1.65	1.65	101.6
1.5"×3/4"	38.1	19.05	76.2	1.65	1.65	101.6
1.5"×1"	38.1	25.4	76.2	1.65	1.65	88.9
2"×1/2"	50.8	12.7	139.7	1.65	1.65	111.13
2"×3/4"	50.8	19.05	127	1.65	1.65	111.13
2"×1"	50.8	25.4	127	1.65	1.65	111.13
2"×1.5"	50.8	38.1	76.2	1.65	1.65	88.9
2.5"×1/2"	63.5	12.7	190.5	1.65	1.65	—
2.5"×3/4"	63.5	19.05	177.8	1.65	1.65	—
2.5"×1"	63.5	25.4	177.8	1.65	1.65	111.13
2.5"×1.5"	63.5	38.1	127	1.65	1.65	111.13
2.5"×2"	63.5	50.8	76.2	1.65	1.65	88.9
3"×1"	76.2	25.4	288.6	1.65	1.65	133.35
3"×1.5"	76.2	38.1	117.8	1.65	1.65	133.35
3"×2"	76.2	50.8	127	1.65	1.65	111.13
3"×2.5"	76.2	63.5	76.2	1.65	1.65	92.08
4"×1"	101.6	25.4	333.4	2.11	1.65	—
4"×1.5"	101.6	38.1	282.6	2.11	1.65	—
4"×2"	101.6	50.8	231.8	2.11	1.65	158.75
4"×2.5"	101.6	63.5	181	2.11	1.65	136.53
4"×3"	101.6	76.2	130.2	2.11	2.11	127
6"×3"	152.4	76.2	—	2.77	1.65	215.9
6"×4"	152.4	101.6	193.7	2.77	2.11	177.8

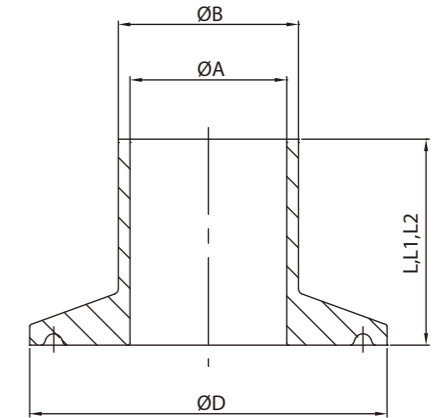
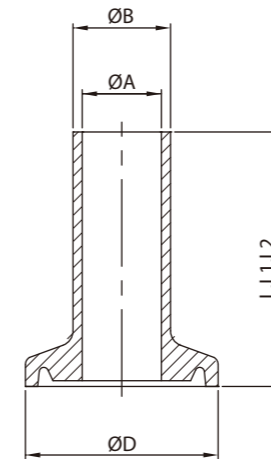
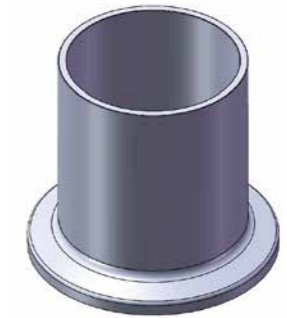


## BPE Fittings

(Type A)  
1/2"~1"



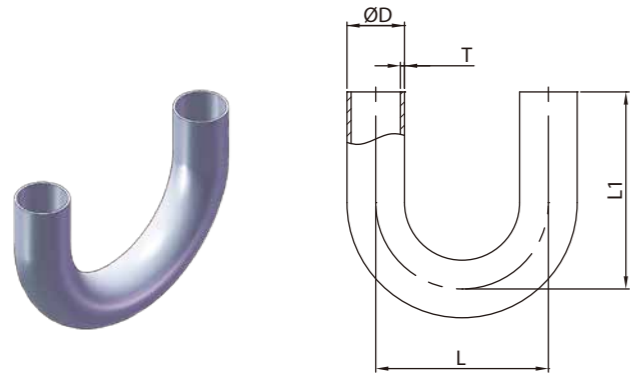
(Type B)  
1"~6"



### DT-4.1.4-1 WELD FERRULE (DT-22)

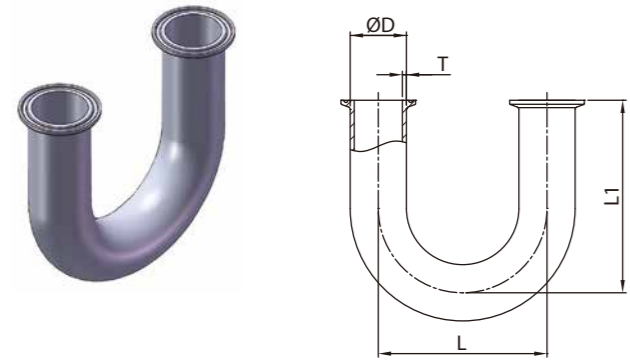
TYPE	SIZE	ØA	ØB	ØD	L	L1	L2
A	1/4"	4.57	6.35	25	12.7	28.58	44.45
	3/8"	7.75	9.53	25	12.7	28.58	44.45
	1/2"	9.4	12.7	25	12.7	28.58	44.45
	3/4"	15.75	19.05	25	12.7	28.58	44.45
	1.0"	22.1	25.4	34	12.7	28.58	44.45
B	1.0"	22.1	25.4	50.39	12.7	28.58	44.45
	1.5"	34.8	38.1	50.39	12.7	28.58	44.45
	2.0"	47.5	50.8	63.91	12.7	28.58	57.15
	2.5"	60.2	63.5	77.39	12.7	28.58	57.15
	3.0"	72.9	76.2	90.91	12.7	28.58	57.15
	4.0"	97.38	101.6	118.92	15.88	28.58	57.15
6.0"	146.86	152.4	166.88	19.05	38.1	76.2	

## BPE Fittings



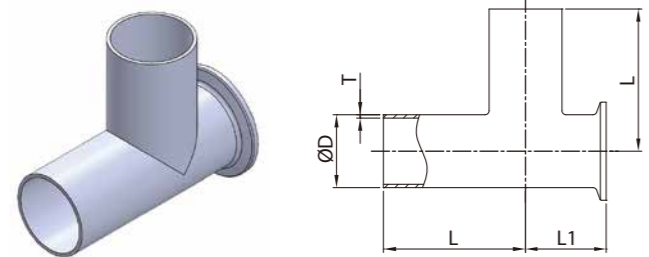
**DT-4.1.1-7 180° WELD ELBOW (DT-23)**

SIZE	ØD	L	L1	T
1/2"	12.7	114.3	76.2	1.65
3/4"	19.05	114.3	76.2	1.65
1"	25.4	76.2	76.2	1.65
1.5"	38.1	114.3	114.3	1.65
2"	50.8	152.4	127	1.65
2.5"	63.5	190.5	146.05	1.65
3"	76.2	228.6	165.1	1.65
4"	101.6	304.8	215.9	2.11
6"	152.4	457.2	292.1	2.77



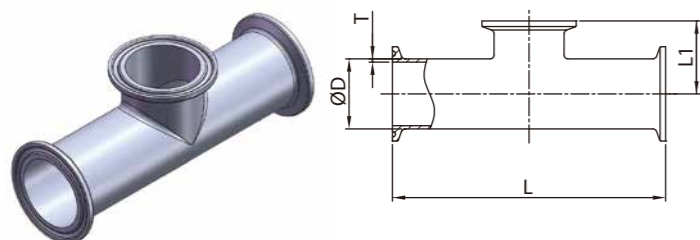
**DT-4.1.1-8 180° CLAMP ELBOW (DT-24)**

SIZE	ØD	L	L1	T
1/2"	12.7	114.3	88.9	1.65
3/4"	19.05	114.3	88.9	1.65
1"	25.4	76.2	88.9	1.65
1.5"	38.1	114.3	127	1.65
2"	50.8	152.4	139.7	1.65
2.5"	63.5	190.5	158.78	1.65
3"	76.2	228.6	177.8	1.65
4"	101.6	304.8	231.78	2.11
6"	152.4	457.2	330.2	2.77



**DT-4.1.2-3 SHORT OUTLET RUN WELD/CLAMP TEE (DT-25)**

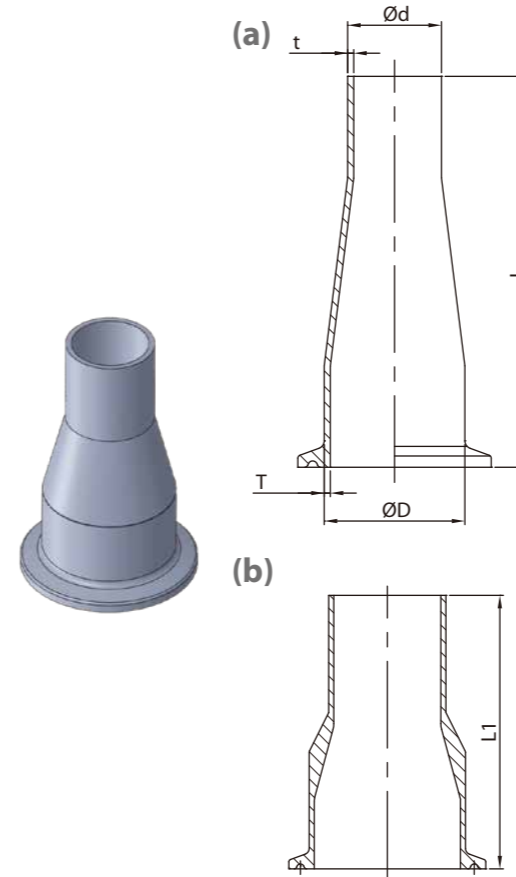
SIZE	ØD	L	L1	T
1/2"	12.7	47.63	22.23	1.65
3/4"	19.05	50.8	25.4	1.65
1"	25.4	53.98	28.58	1.65
1.5"	38.1	60.33	34.93	1.65
2"	50.8	73.03	41.28	1.65
2.5"	63.5	79.38	47.63	1.65
3"	76.2	85.73	53.98	1.65
4"	101.6	104.78	69.85	2.11
6"	152.4	142.88	117.48	2.77



**DT-4.1.2-5 SHORT OUTLET TEE CLAMP END (DT-27)**

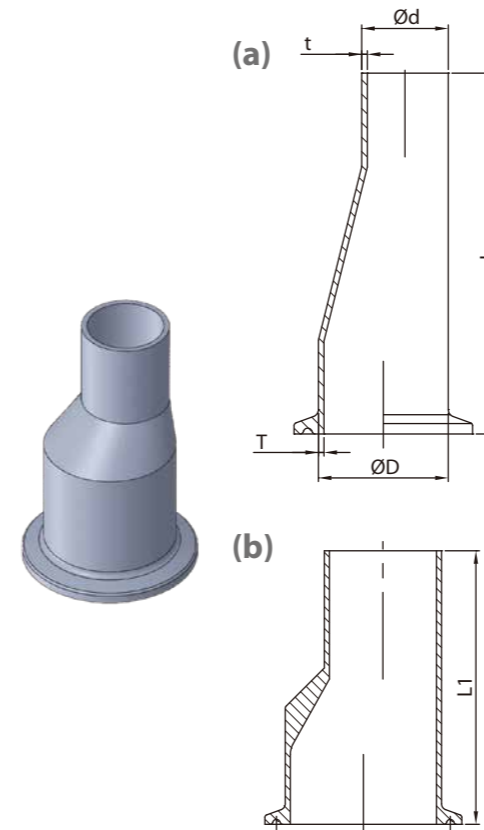
SIZE	ØD	L	L1	T
1/2"	12.7	114.3	25.4	1.65
3/4"	19.05	120.66	28.58	1.65
1"	25.4	133.36	28.58	1.65
1.5"	38.1	146.06	34.93	1.65
2"	50.8	171.46	41.28	1.65
2.5"	63.5	184.16	47.63	1.65
3"	76.2	196.86	53.98	1.65
4"	101.6	241.3	69.85	2.11
6"	152.4	361.96	117.48	2.77

## BPE Fittings



**DT-4.1.3-2AC CONCENTRIC REDUCER (DT-26)**

SIZE	ØD	Ød	T	t	L	L1
3/4"×1/2"	19.05	12.7	1.65	1.65	76.2	66.68
1"×1/2"	25.4	12.7	1.65	1.65	88.9	76.2
1"×3/4"	25.4	19.05	1.65	1.65	76.2	66.68
1.5"×1/2"	38.1	12.7	1.65	1.65	—	88.9
1.5"×3/4"	38.1	19.05	1.65	1.65	101.6	88.9
1.5"×1"	38.1	25.4	1.65	1.65	101.6	76.2
2"×1/2"	50.8	12.7	1.65	1.65	—	98.43
2"×3/4"	50.8	19.05	1.65	1.65	—	98.43
2"×1"	50.8	25.4	1.65	1.65	152.4	98.43
2"×1.5"	50.8	38.1	1.65	1.65	101.6	76.2
2.5"×1"	63.5	25.4	1.65	1.65	—	98.43
2.5"×1.5"	63.5	38.1	1.65	1.65	152.4	98.43
2.5"×2"	63.5	50.8	1.65	1.65	107.9	76.2
3"×1"	76.2	25.4	1.65	1.65	—	120.65
3"×1.5"	76.2	38.1	1.65	1.65	203.2	120.65
3"×2"	76.2	50.8	1.65	1.65	158.8	98.43
3"×2.5"	76.2	63.5	1.65	1.65	108	79.38
4"×2"	101.6	50.8	2.11	1.65	263.5	146.05
4"×2.5"	101.6	63.5	2.11	1.65	212.7	123.83
4"×3"	101.6	76.2	2.11	1.65	161.9	114.3
6"×3"	152.4	76.2	2.77	2.77	228.6	203.2
6"×4"	152.4	101.6	2.77	2.77	228.6	161.93

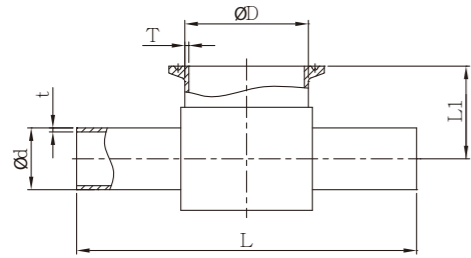
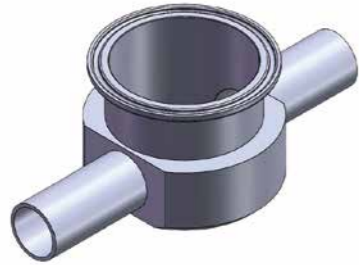


**DT-4.1.3-2AE ECCENTRIC REDUCER (DT-26)**

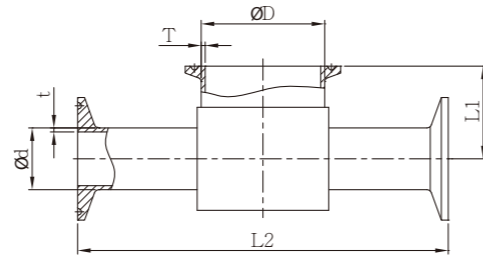
SIZE	ØD	Ød	T	t	L	L1
3/4"×1/2"	19.05	12.7	1.65	1.65	76.2	66.68
1"×1/2"	25.4	12.7	1.65	1.65	88.9	76.2
1"×3/4"	25.4	19.05	1.65	1.65	76.2	66.68
1.5"×1/2"	38.1	12.7	1.65	1.65	—	88.9
1.5"×3/4"	38.1	19.05	1.65	1.65	101.6	88.9
1.5"×1"	38.1	25.4	1.65	1.65	101.6	76.2
2"×1/2"	50.8	12.7	1.65	1.65	—	98.43
2"×3/4"	50.8	19.05	1.65	1.65	—	98.43
2"×1"	50.8	25.4	1.65	1.65	152.4	98.43
2"×1.5"	50.8	38.1	1.65	1.65	101.6	76.2
2.5"×1"	63.5	25.4	1.65	1.65	—	98.43
2.5"×1.5"	63.5	38.1	1.65	1.65	152.4	98.43
2.5"×2"	63.5	50.8	1.65	1.65	107.9	76.2
3"×1"	76.2	25.4	1.65	1.65	—	120.65
3"×1.5"	76.2	38.1	1.65	1.65	203.2	120.65
3"×2"	76.2	50.8	1.65	1.65	158.8	98.43
3"×2.5"	76.2	63.5	1.65	1.65	108	79.38
4"×2"	101.6	50.8	2.11	1.65	263.5	146.05
4"×2.5"	101.6	63.5	2.11	1.65	212.7	123.83
4"×3"	101.6	76.2	2.11	1.65	161.9	114.3
6"×3"	152.4	76.2	2.77	1.65	222.3	203.2
6"×4"	152.4	101.6	2.77	2.11	228.6	161.93

## BPE Fittings

DT-4.1.2-10 (DT-28)



DT-4.1.2-11 (DT-29)

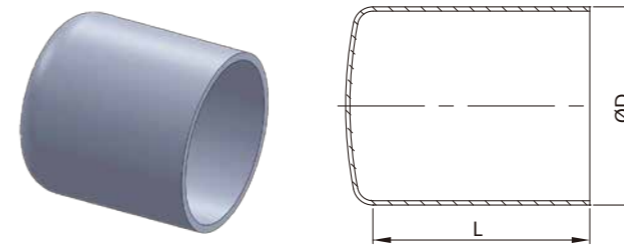


INSTRUMENT TEE WELD/CLAMP END

SIZE	ØD	Ød	L	L1	L2	T	t
1.5"×1/2"	38.1	12.7	127	22.23	152.4	1.65	1.65
1.5"×3/4"	38.1	19.05	127	25.4	152.4	1.65	1.65
1.5"×1"	38.1	25.4	127	28.58	152.4	1.65	1.65
2"×1/2"	50.8	12.7	139.7	25.4	165.1	1.65	1.65
2"×3/4"	50.8	19.05	139.7	28.58	165.1	1.65	1.65
2"×1"	50.8	25.4	139.7	31.75	165.1	1.65	1.65
2"×1.5"	50.8	38.1	139.7	38.1	165.1	1.65	1.65
2.5"×1/2"	63.5	12.7	170	35	195.4	1.65	1.65
2.5"×3/4"	63.5	19.05	170	38.1	195.4	1.65	1.65
2.5"×1"	63.5	25.4	170	41.3	195.4	1.65	1.65
2.5"×1.5"	63.5	38.1	170	44.5	195.4	1.65	1.65
2.5"×2"	63.5	50.8	170	48	195.4	1.65	1.65
3"×1/2"	76.2	12.7	180	38.1	205.4	1.65	1.65
3"×3/4"	76.2	19.05	180	41.3	205.4	1.65	1.65
3"×1"	76.2	25.4	180	44.5	205.4	1.65	1.65
3"×1.5"	76.2	38.1	180	48	205.4	1.65	1.65
3"×2"	76.2	50.8	180	50.8	205.4	1.65	1.65
3"×2.5"	76.2	63.5	180	54	205.4	1.65	1.65
4"×1/2"	101.6	12.7	220	79.4	245.4	1.65	1.65
4"×3/4"	101.6	19.05	220	82.6	245.4	1.65	1.65
4"×1"	101.6	25.4	220	85.7	245.4	2.11	1.65
4"×1.5"	101.6	38.1	220	88.9	245.4	2.11	1.65
4"×2"	101.6	50.8	220	95.2	245.4	2.11	1.65
4"×2.5"	101.6	63.5	220	98.4	245.4	2.11	1.65
4"×3"	101.6	76.2	220	101.6	245.4	2.11	1.65

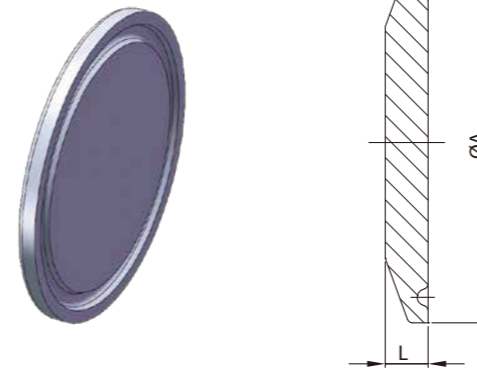
## BPE Fittings

DT-4.1.5-1 AUTOMATIC TUBE WELD CAP(DT-30)



SIZE	ØD	L
1/2"	12.7	38.1
3/4"	19.05	38.1
1.0"	25.4	38.1
1.5"	38.1	38.1
2.0"	50.8	38.1
2.5"	63.5	38.1
3.0"	76.2	44.45
4.0"	101.6	50.8
6.0"	152.4	63.5

DT-4.1.5-2 SOLID END CAP HYGINIC CLAMP JOINE(DT-31)



SIZE	ØD	L
1/4"	25	4.75
3/8"	25	4.75
1/2"	25	4.75
3/4"	25	4.75
1.0"	34/50.39	6.35
1.5"	50.39	6.35
2.0"	63.91	6.35
2.5"	77.39	6.35
3.0"	90.91	6.35
4.0"	118.92	7.92
6.0"	166.88	11.1

## BPE Fittings

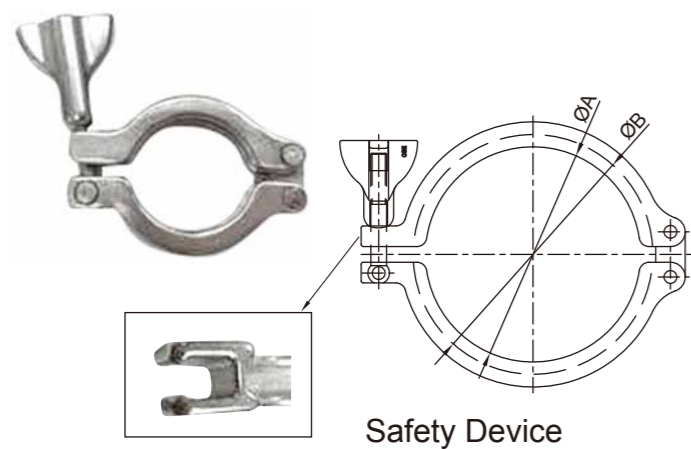
CSE 13SC Safety Clamp is an improved clamp for operator safety in various application including pharmaceutical and food industrial lines as hazardous areas and high temperature sections.

- Material: 304 / 316L (request is available by min. order)
- Application: Normal / Heavy Duty
- Safety Feature: Safety Gate & Eye-Bolt

The "gate" style section combined with the stepped eyebolt ensures that the clamps bolting mechanism cannot swing open whilst the clamping union is partly or fully assembled. Releasing the clamp is only possible when the wing nut has been significantly loosened to enable the smaller diameter of the eyebolt to swing open and pass through the sectioned gate; this ensures the clamp cannot be knocked or accidentally opened.

Complete wing /or hex nut removal is not necessary to open the clamp but the design guarantees that the eyebolt cannot swing open whilst the union is subjected to either clamping forces or internal pressure.

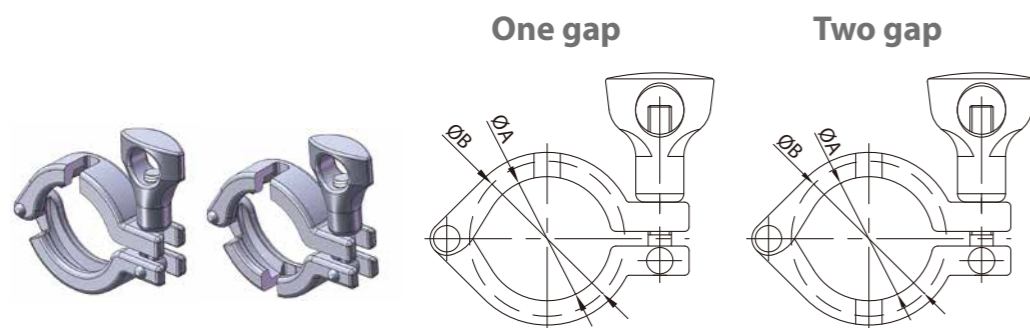
It is not possible to open the clamp by accident. Thus this clamp fulfils the safety requirements of numerous end-users in the pharmaceutical and food industry.



### 13SC SAFETY CLAMPS

Imperial	ØA	ØB	DN	ØA	ØB
1/2"~3/4"	20.58	28.34	DN10-DN20	27.2	37
1.0"~1.5"	41.02	53.52	DN25-DN40	44.5	54.5
2.0"	54.54	67.04	DN50	57	68
2.5"	68.02	80.52	DN65	84	95
3.0"	81.52	94.02	DN80	99	110
4.0"	109.54	122.04	DN100	112	123
6.0"	157.6	175.1	DN115	123	134
8.0"	207.4	225.9	DN125	144	159
			DN150	172	187
			DN200	222.5	237.5
			DN250	257	272
			DN300	308	323

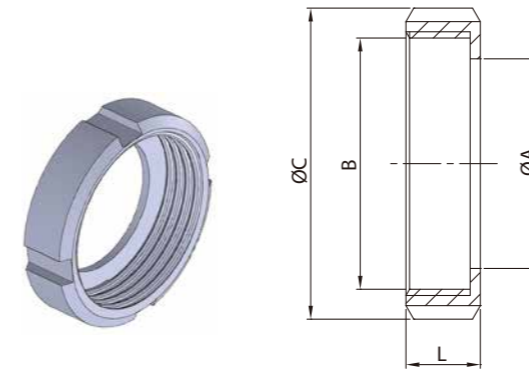
Measuring temperature or bio-activity is necessary for validation processes. CSE's gap clamp with single slot or double slots has proven its value when validating sterility in a high-purity pharmaceutical system.



### HEAVY DUTY SINGLE PIN CLAMP

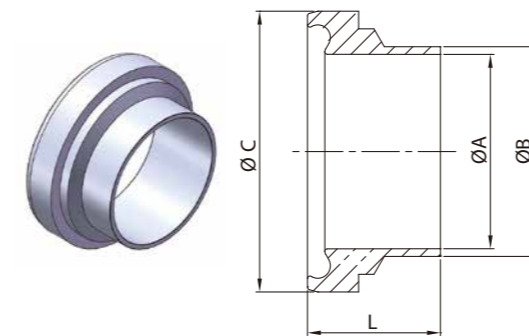
SIZE	ØA	ØB
1/2"~3/4"	21.2	28.2
1.0"~1.5"	42	53.6
2.0"	55.4	67
2.5"	69	80.6
3.0"	82.6	94.2
3.5"	97.6	109.2
4.0"	110.6	122.2

## DIN 11853-1 Unions Form A



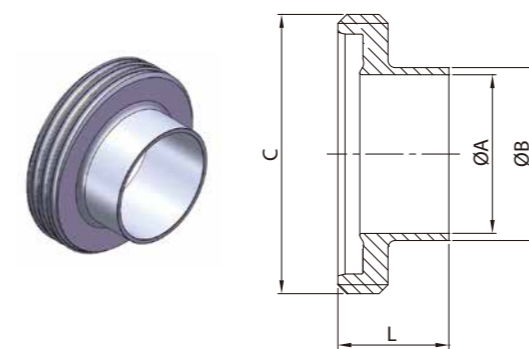
### DIN-13R ROUND NUT

SIZE	ØA	B	ØC	L	SLOTS
10	19	RD 28*1/8	38	18	4
15	25	RD 34*1/8	44	18	4
20	31	RD 44*1/6	54	20	4
25	36	RD 52*1/6	63	21	4
32	42	RD 58*1/6	70	21	4
40	49	RD 65*1/6	78	21	4
50	62	RD 78*1/6	92	22	4
60	70	RD 85*1/6	99	22	4
65	80	RD 95*1/6	112	25	6
80	94	RD110*1/4	127	29	6
90	104	RD120*1/4	138	30	6
100	115	RD130*1/4	148	31	6
125	138	RD160*1/4	178	35	6
150	164	RD190*1/4	210	40	6



### LINER PARTS

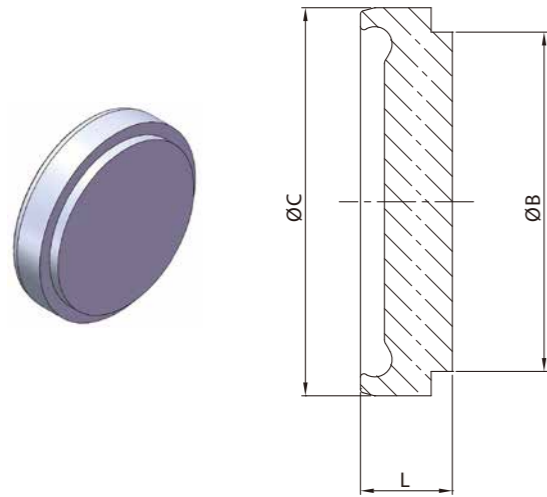
DIN	ØA	ØB	ISO	ØA	ØB	INCH	ØA	ØB	ØC	L
DN10	10	13	DN8	10.3	13.5	1/2"	9.4	12.7	21.9	17
DN15	16	19	DN10	14	17.2	3/4"	15.75	19.5	27.9	17
DN20	20	23	DN15	18.1	21.3	—	—	—	35.9	18
DN25	26	29	DN20	23.7	26.9	1"	22.1	25.4	42.9	22
DN32	32	35	DN25	29.7	33.7	—	—	—	48.9	25
DN40	38	41	DN32	38.4	42.4	1.5"	34.8	38.1	54.9	26
DN50	50	53	DN40	44.3	48.3	2"	47.5	50.8	66.9	30
DN65	66	70	DN50	56.3	60.3	2.5"	60.2	63.5	84.9	34
DN80	81	85	DN65	72.1	76.1	3"	72.9	76.2	98.9	38
DN100	100	104	DN80	84.3	88.9	4"	97.38	101.6	118.9	46



### MALE PARTS

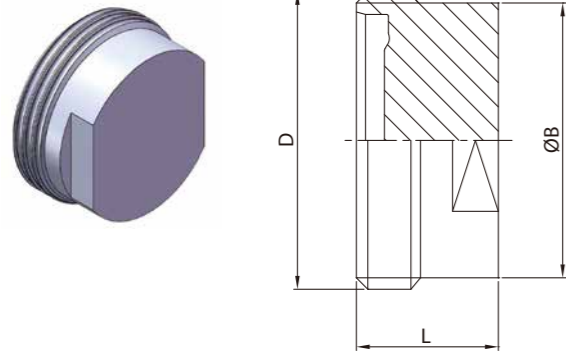
DIN	ØA	ØB	ISO	ØA	ØB	INCH	ØA	ØB	C	L
DN10	10	13	DN8	10.3	13.5	1/2"	9.4	12.7	RD28*1/8	19
DN15	16	19	DN10	14	17.2	3/4"	15.75	19.5	RD34*1/8	19
DN20	20	23	DN15	18.1	21.3	—	—	—	RD44*1/6	21
DN25	26	29	DN20	23.7	26.9	1"	22.1	25.4	RD52*1/6	26
DN32	32	35	DN25	29.7	33.7	—	—	—	RD58*1/6	30
DN40	38	41	DN32	38.4	42.4	1.5"	34.8	38.1	RD65*1/6	31
DN50	50	53	DN40	44.3	48.3	2"	47.5	50.8	RD78*1/6	31
DN65	66	70	DN50	56.3	60.3	2.5"	60.2	63.5	RD95*1/6	36
DN80	81	85	DN65	72.1	76.1	3"	72.9	76.2	RD110*1/4	42
DN100	100	104	DN80	84.3	88.9	4"	97.38	101.6	RD130*1/4	50

## DIN 11853-1 & 11864-1 Unions Form A



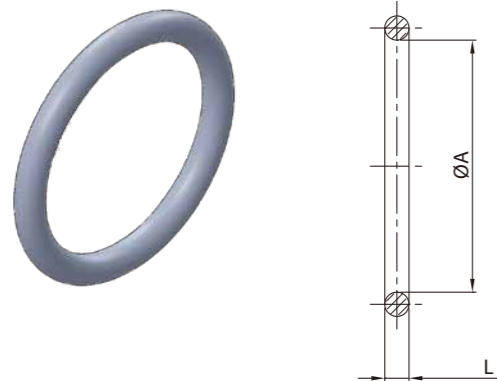
**DIN/ISO/IMPERIAL- LINER BLANK CAP**

SIZE	ØB	ØC	L
DN10 1/2"	18	21.9	9
DN15 3/4"	24	27.9	9
DN20	30	35.9	10
DN25 1"	35	42.9	12
DN32	41	48.9	13
DN40 1.5"	48	54.9	13
DN50 2"	61	66.9	14
DN65 2.5"	79	84.9	16
DN80 3"	93	98.9	16
DN100 4"	114	118.9	20



**DIN/ISO/IMPERIAL- MALE BLANK CAP**

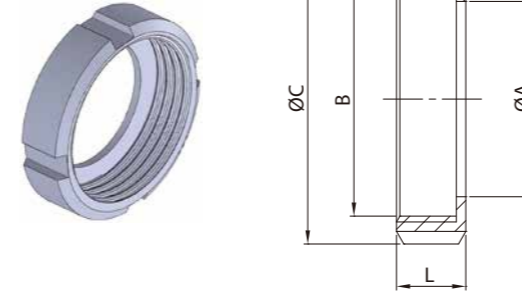
DIN/ISO	L	Imperial	L	ØB	D
DN10	19	1/2"	24	23	RD28*1/8
DN15	19	3/4"	24	28	RD34*1/8
DN20	21	—	—	34	RD44*1/6
DN25	26	1"	24	44	RD52*1/6
DN32	30	—	—	53	RD58*1/6
DN40	31	1.5"	24	60	RD65*1/6
DN50	31	2"	24	72	RD78*1/6
DN65	36	2.5"	28	87	RD95*1/6
DN80	42	3"	28	100	RD110*1/4
DN100	50	4"	30	120	RD130*1/4



**SEAL**

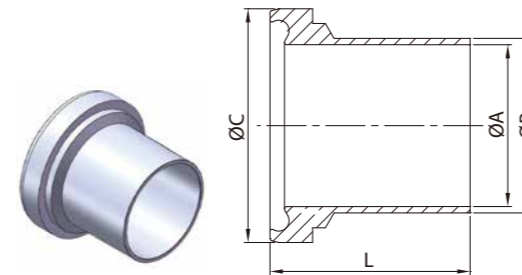
DIN	ØA	ISO	ØA	INCH	ØA	L
DN10	12	DN8	12	1/2"	12	3.5
DN15	18	DN10	16	3/4"	18	3.5
DN20	22	DN15	20	—	—	3.5
DN25	28	DN20	26	1"	24	3.5
DN32	34	DN25	32	—	—	5
DN40	40	DN32	40.5	1.5"	37	5
DN50	52	DN40	46.5	2"	50	5
DN65	68	DN50	58.5	2.5"	62	5
DN80	83	DN65	73.5	3"	75	5
DN100	102	DN80	86.5	4"	100	5

## DIN 11864-1 Unions Form A



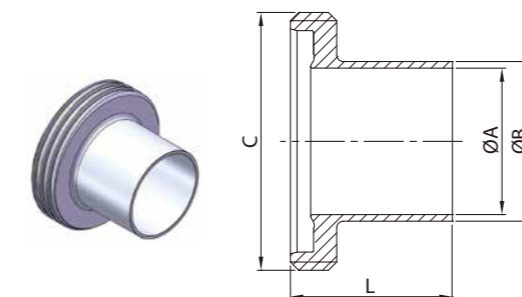
**DIN-13R ROUND NUT**

SIZE	ØA	B	ØC	L	SLOTS
10	19	RD 28*1/8	38	18	4
15	25	RD 34*1/8	44	18	4
20	31	RD 44*1/6	54	20	4
25	36	RD 52*1/6	63	21	4
32	42	RD 58*1/6	70	21	4
40	49	RD 65*1/6	78	21	4
50	62	RD 78*1/6	92	22	4
60	70	RD 85*1/6	99	22	4
65	80	RD 95*1/6	112	25	6
80	94	RD110*1/4	127	29	6
90	104	RD120*1/4	138	30	6
100	115	RD130*1/4	148	31	6
125	138	RD160*1/4	178	35	6
150	164	RD190*1/4	210	40	6



**LINER PARTS**

DIN	ØA	ØB	L	ISO	ØA	ØB	L	INCH	ØA	ØB	L	ØC
DN10	10	13	39	DN8	10.3	13.5	39	1/2"	9.4	12.7	39	21.9
DN15	16	19	39	DN10	14	17.2	39	3/4"	15.75	19.5	39	27.9
DN20	20	23	38	DN15	18.1	21.3	40	—	—	—	—	35.9
DN25	26	29	40	DN20	23.7	26.9	41	1"	22.1	25.4	40	42.9
DN32	32	35	47	DN25	29.7	33.7	47	—	—	—	—	48.9
DN40	38	41	47	DN32	38.4	42.4	47	1.5"	34.8	38.1	46.5	54.9
DN50	50	53	48	DN40	44.3	48.3	48	2"	47.5	50.8	47.5	66.9
DN65	66	70	61	DN50	56.3	60.3	62	2.5"	60.2	63.5	63	84.9
DN80	81	85	61	DN65	72.1	76.1	61	3"	72.9	76.2	61	98.9
DN100	100	104	66	DN80	84.3	88.9	68	4"	97.38	101.6	65	118.9

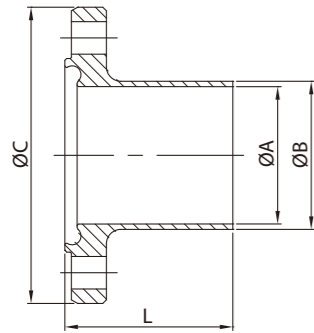


**MALE PARTS**

DIN	ØA	ØB	L	ISO	ØA	ØB	L	INCH	ØA	ØB	L	C
DN10	10	13	41	DN8	10.3	13.5	41	1/2"	9.4	12.7	41	RD28*1/8
DN15	16	19	41	DN10	14	17.2	41	3/4"	15.75	19.5	41	RD34*1/8
DN20	20	23	43	DN15	18.1	21.3	43	—	—	—	—	RD44*1/6
DN25	26	29	43	DN20	23.7	26.9	43	1"	22.1	25.4	43	RD52*1/6
DN32	32	35	48	DN25	29.7	33.7	48	—	—	—	—	RD58*1/6
DN40	38	41	48	DN32	38.4	42.4	48	1.5"	34.8	38.1	48.5	RD65*1/6
DN50	50	53	48	DN40	44.3	48.3	49	2"	47.5	50.8	48.5	RD78*1/6
DN65	66	70	60	DN50	56.3	60.3	60	2.5"	60.2	63.5	60	RD95*1/6
DN80	81	85	64	DN65	72.1	76.1	64	3"	72.9	76.2	64	RD110*1/4
DN100	100	104	64	DN80	84.3	88.9	64	4"	97.38	101.6	64	RD130*1/4



## DIN 11864-2 Unions Form A

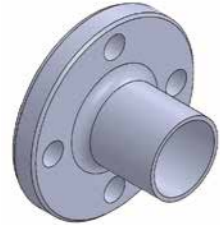


### DIN Nutflansch (NF)

SIZE	ØA	ØB	ØC	L
DN10	10	13	54	41.5
DN15	16	19	59	41.5
DN20	20	23	64	41.5
DN25	26	29	70	41.5
DN32	32	35	76	46.5
DN40	38	41	82	46.5
DN50	50	53	94	46.5
DN65	66	70	113	55.5
DN80	81	85	133	59.5
DN100	100	104	159	59.5
DN125	125	129	183	61.5
DN150	150	154	213	61.5

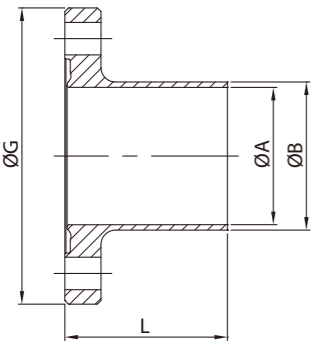
### ISO Nutflansch (NF)

SIZE	ØA	ØB	ØC	L
13.5	10.3	13.5	54	41.5
17.2	14	17.2	59	41.5
21.3	18.1	21.3	62	41.5
26.9	23.7	26.9	69	41.5
33.7	29.7	33.7	74	46.5
42.4	38.4	42.4	82	46.5
48.3	44.3	48.3	88	46.5
60.3	56.3	60.3	103	55.5
76.1	72.1	76.1	125	57.5
88.9	84.3	88.9	137	59.5
114.3	109.7	114.3	168	59.5



### IMPERIAL Nutflansch (NF)

SIZE	ØA	ØB	ØC	L
1/2"	9.4	12.7	54	41.5
3/4"	15.75	19.05	59	41.5
1"	22.1	25.4	66	41.5
1.5"	34.8	38.1	79	46.5
2"	47.5	50.8	92	46.5
2.5"	60.2	63.5	107	55.5
3"	72.9	76.2	125	57.5
4"	97.38	101.6	157	59.5

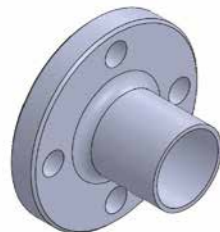


### DIN Bundflansch (BF)

SIZE	ØA	ØB	ØC	L
DN10	10	13	54	40
DN15	16	19	59	40
DN20	20	23	64	40
DN25	26	29	70	40
DN32	32	35	76	45
DN40	38	41	82	45
DN50	50	53	94	45
DN65	66	70	113	54
DN80	81	85	133	58
DN100	100	104	159	58
DN125	125	129	183	60
DN150	150	154	213	60

### ISO Bundflansch (BF)

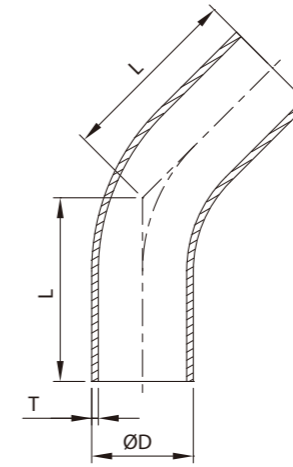
SIZE	ØA	ØB	ØC	L
13.5	10.3	13.5	54	40
17.2	14	17.2	59	40
21.3	18.1	21.3	62	40
26.9	23.7	26.9	69	40
33.7	29.7	33.7	74	45
42.4	38.4	42.4	82	45
48.3	44.3	48.3	88	45
60.3	56.3	60.3	103	54
76.1	72.1	76.1	125	56
88.9	84.3	88.9	137	58
114.3	109.7	114.3	168	58



### IMPERIAL Bundflansch (BF)

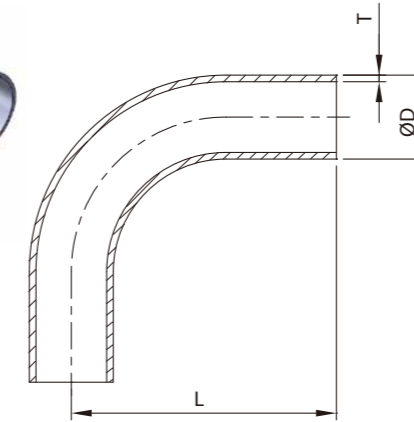
SIZE	ØA	ØB	ØC	L
1/2"	9.4	12.7	54	40
3/4"	15.75	19.05	59	40
1"	22.1	25.4	66	40
1.5"	34.8	38.1	79	45
2"	47.5	50.8	92	45
2.5"	60.2	63.5	107	54
3"	72.9	76.2	125	56
4"	97.38	101.6	157	58

## DIN Tubular items (DIN11865)



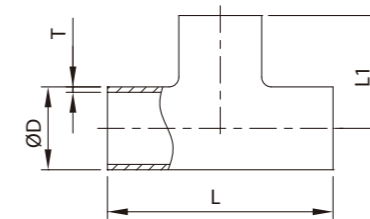
### 45° LONG ELBOW

SIZE	ØD	L	T
DN6	8	33.3	1.5
DN8	10	35.4	1.5
DN10	13	35.8	1.5
DN15	19	39.5	1.5
DN20	23	41.6	1.5
DN25	29	60.7	1.5
DN32	35	62.8	1.5
DN40	41	64.9	1.5
DN50	53	69	1.5
DN65	70	73.1	2
DN80	85	92.3	2
DN100	104	96.4	2
DN125	129	160.2	2
DN150	154	193.2	2
DN200	204	224.3	2



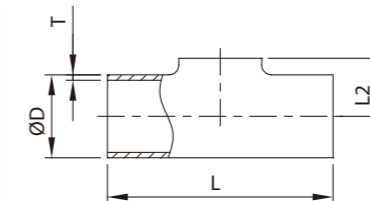
### 90° LONG ELBOW

SIZE	ØD	L	T
DN6	8	45	1.5
DN8	10	50	1.5
DN10	13	51	1.5
DN15	19	60	1.5
DN20	23	65	1.5
DN25	29	90	1.5
DN32	35	95	1.5
DN40	41	100	1.5
DN50	53	110	1.5
DN65	70	120	2
DN80	85	145	2
DN100	104	155	2
DN125	129	270	2
DN150	154	325	2
DN200	204	400	2



### TEE & PULL TEE

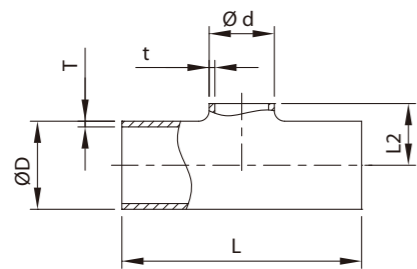
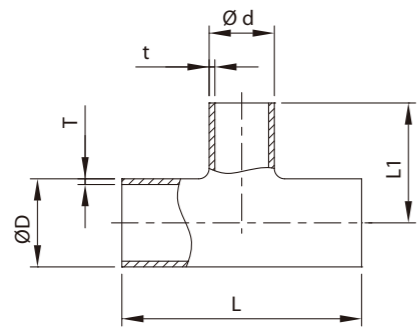
SIZE	ØD	L	L1	L2	T
DN6	8	60	30	—	1
DN8	10	60	30	—	1
DN10	13	70	35	—	1.5
DN15	19	70	35	11	1.5
DN20	23	80	40	13	1.5
DN25	29	100	50	16	1.5
DN32	35	110	55	19.5	1.5
DN40	41	120	60	23	1.5
DN50	53	160	80	30	1.5
DN65	70	210	105	40	2
DN80	85	260	130	47.5	2
DN100	104	310	155	58	2
DN125	129	375	187.5	74	2
DN150	154	450	225	90	2
DN200	204	600	300	115	2



## DIN Tubular items (DIN11865)

### REDUCING TEE & REDUCING PULL TEE

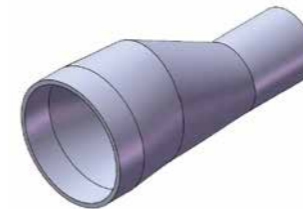
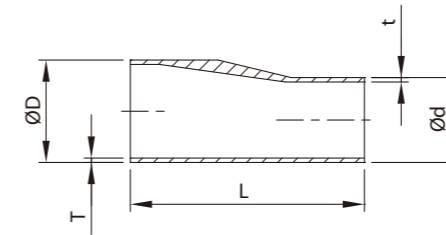
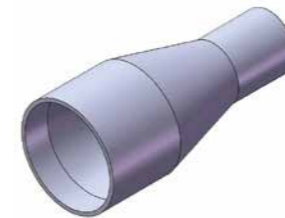
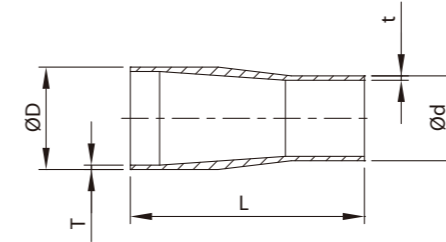
SIZE	ØD	Ød	L	L1	L2	T	t
8*6	10	8	60	30	—	1	1
10*6	13	8	60	30	—	1.5	1
10*8	13	10	60	30	—	1.5	1
15*8	19	10	70	35	11	1.5	1
15*10	19	13	70	35	11	1.5	1.5
20*10	23	13	80	40	13	1.5	1.5
20*15	23	19	80	40	13	1.5	1.5
25*15	29	19	100	50	16	1.5	1.5
25*20	29	23	100	50	16	1.5	1.5
32*15	35	19	110	55	19	1.5	1.5
32*20	35	23	110	55	19	1.5	1.5
32*25	35	29	110	55	19	1.5	1.5
40*20	41	23	120	60	22	1.5	1.5
40*25	41	29	120	60	22	1.5	1.5
40*32	41	35	120	60	22.5	1.5	1.5
50*25	53	29	160	80	28	1.5	1.5
50*32	53	35	160	80	28.5	1.5	1.5
50*40	53	41	160	80	29	1.5	1.5
65*32	70	35	210	80	37	2	1.5
65*40	70	41	210	80	37.5	2	1.5
65*50	70	53	210	80	38	2	1.5
80*40	85	41	260	105	45	2	1.5
80*50	85	53	260	105	46	2	1.5
80*65	85	70	260	105	47.5	2	2
100*50	104	53	310	130	55.5	2	1.5
100*65	104	70	310	130	57	2	2
100*80	104	85	310	130	57	2	2
125*65	129	70	375	155	69.5	2	2
125*80	129	85	375	155	69.5	2	2
125*100	129	104	375	155	70.5	2	2
150*80	154	85	450	187.5	82	2	2
150*100	154	104	450	187.5	83	2	2
150*125	154	129	450	187.5	86.5	2	2
200*100	204	104	600	225	108	2	2
200*125	204	129	600	225	111.5	2	2
200*150	204	154	600	225	115	2	2



## DIN Tubular items (DIN11865)

### CONCENTRIC REDUCER/ECCENTRIC REDUCER

SIZE	ØD	Ød	L	T	t
8*6	10	8	38	1	1
10*6	13	8	38	1.5	1
10*8	13	10	38	1.5	1
15*8	19	10	60	1.5	1
15*10	19	13	60	1.5	1.5
20*10	23	13	60	1.5	1.5
20*15	23	19	60	1.5	1.5
25*15	29	19	70	1.5	1.5
25*20	29	23	70	1.5	1.5
32*20	35	23	80	1.5	1.5
32*25	35	29	80	1.5	1.5
40*20	41	23	90	1.5	1.5
40*25	41	29	90	1.5	1.5
40*32	41	35	90	1.5	1.5
50*25	53	29	90	1.5	1.5
50*32	53	35	90	1.5	1.5
50*40	53	41	90	1.5	1.5
65*40	70	41	110	2	1.5
65*50	70	53	110	2	1.5
80*50	85	53	110	2	1.5
80*65	85	70	110	2	2
100*65	104	70	135	2	2
100*80	104	85	135	2	2
125*80	129	85	150	2	2
125*100	129	104	150	2	2
150*100	154	104	170	2	2
150*125	154	129	170	2	2
200*125	204	129	230	2	2
200*150	204	154	230	2	2



# Semi-conductor Fitty Tube



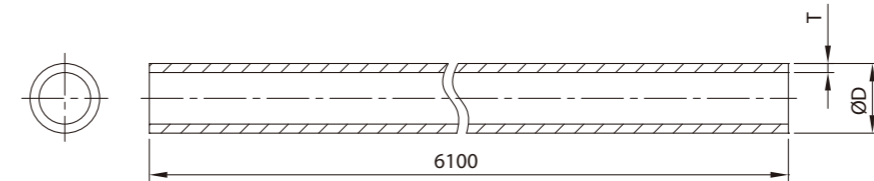
## CSE SEMI-CONDUCTOR/MICRO-ELECTRONICS

CSE developed our semiconductor, vacuum pipe fitting and components step by step by means of good produce techniques experience of sanitary pipe fitting and valve.

Our Vacuum and semiconductor fitting include:  
 Clamp-Aluminum and Stainless steel and claw clamp are available. Flange-KF, ISO specification.  
 Reducer-Blank flange and all of Elbow, Tee, Reducer.  $Ra \leq 0.4\mu m$  by machine and polished can be provided on requested.  
 We also can offer Electro-polished and blasted surfaces.  
 So far our products have been successful promoted to Germany, U.K, Japan and local building projects base on our flexible produce ability and strict control.

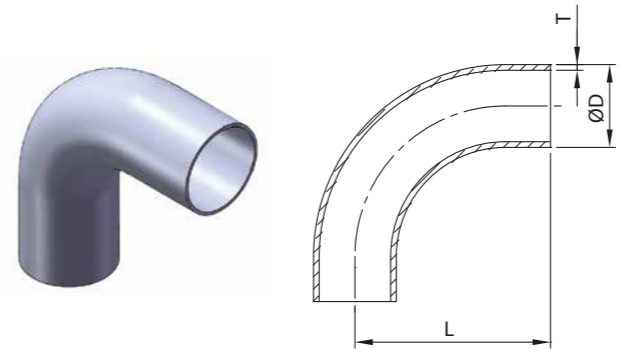


### Vacuum Components (A size)



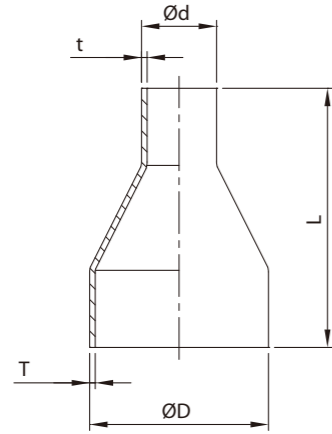
SIZE	ØD	T
6A	1/8"	10.5
8A	1/4"	13.8
10A	3/8"	17.3
15A	1/2"	21.7
20A	3/4"	27.2
25A	1.0"	34
32A	1.25"	42.7
40A	1.5"	48.6
50A	2.0"	60.5
65A	2.5"	76.3
80A	3.0"	89.1
90A	3.5"	101.6
100A	4.0"	114.3

### SCF 90° ELBOW



SIZE	ØD	L	T
10A	17.3	60	1.2
15A	21.7	65	1.65
20A	27.2	70	1.65
25A	34	75	1.65
32A	42.7	90	1.65
40A	48.6	104	1.65
50A	60.5	123	1.65
65A	76.3	115	2.1
80A	89.1	128	2.1
100A	114.3	153	2.1

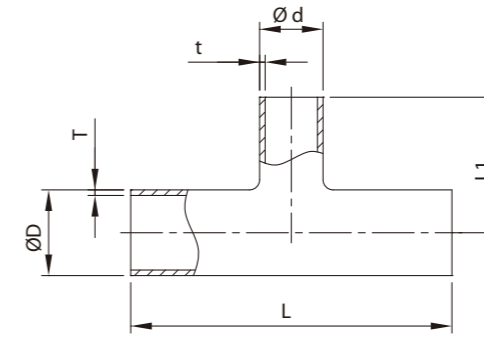
## Vacuum Components (A size)



### SCF CONCENTRIC REDUCER

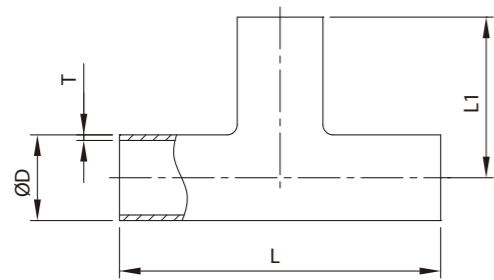
SIZE	ØD	Ød	L	T	t
20A*15A	27.2	21.7	120	1.65	1.65
25A*15A	34	21.7	125	1.65	1.65
25A*20A	34	27.2	125	1.65	1.65
32A*15A	42.7	21.7	139	1.65	1.65
32A*20A	42.7	27.2	139	1.65	1.65
32A*25A	42.7	34	139	1.65	1.65
40A*20A	48.6	27.2	152	1.65	1.65
40A*25A	48.6	34	152	1.65	1.65
40A*32A	48.6	42.7	162	1.65	1.65
50A*20A	60.5	27.2	164	1.65	1.65
50A*25A	60.5	34	164	1.65	1.65
50A*32A	60.5	42.7	174	1.65	1.65
50A*40A	60.5	48.6	174	1.65	1.65
65A*32A	76.3	42.7	192	2.1	1.65
65A*40A	76.3	48.6	192	2.1	1.65
65A*50A	76.3	60.5	192	2.1	1.65
80A*32A	89.1	42.7	192	2.1	1.65
80A*40A	89.1	48.6	192	2.1	1.65
80A*50A	89.1	60.5	192	2.1	1.65
80A*65A	89.1	76.3	197	2.1	2.1
100A*40A	114.3	48.6	205	2.1	1.65
100A*50A	114.3	60.5	205	2.1	1.65
100A*65A	114.3	76.3	210	2.1	2.1
100A*80A	114.3	89.1	210	2.1	2.1

## Vacuum Components (A size)



### SCF REDUCING TEE

SIZE	ØD	Ød	L	L1	T	t
20A*15A	27.2	21.7	110	55	1.65	1.65
25A*15A	34	21.7	120	60	1.65	1.65
25A*20A	34	27.2	120	60	1.65	1.65
32A*15A	42.7	21.7	140	70	1.65	1.65
32A*20A	42.7	27.2	140	70	1.65	1.65
32A*25A	42.7	34	140	70	1.65	1.65
40A*15A	48.6	21.7	140	70	1.65	1.65
40A*20A	48.6	27.2	140	70	1.65	1.65
40A*25A	48.6	34	140	70	1.65	1.65
40A*32A	48.6	42.7	160	80	1.65	1.65
50A*15A	60.5	21.7	140	75	1.65	1.65
50A*20A	60.5	27.2	140	75	1.65	1.65
50A*25A	60.5	34	140	75	1.65	1.65
50A*32A	60.5	42.7	160	85	1.65	1.65
50A*40A	60.5	48.6	160	85	1.65	1.65
65A*15A	76.3	21.7	150	85	2.1	1.65
65A*20A	76.3	27.2	150	85	2.1	1.65
65A*25A	76.3	34	150	85	2.1	1.65
65A*32A	76.3	42.7	180	95	2.1	1.65
65A*40A	76.3	48.6	180	95	2.1	1.65
65A*50A	76.3	60.5	180	95	2.1	1.65
80A*15A	89.1	21.7	150	90	2.1	1.65
80A*20A	89.1	27.2	150	90	2.1	1.65
80A*25A	89.1	34	150	90	2.1	1.65
80A*32A	89.1	42.7	180	100	2.1	1.65
80A*40A	89.1	48.6	180	100	2.1	1.65
80A*50A	89.1	60.5	180	100	2.1	1.65
80A*65A	89.1	76.3	200	105	2.1	2.1
100A*15A	114.3	21.7	150	100	2.1	1.65
100A*20A	114.3	27.2	150	100	2.1	1.65
100A*25A	114.3	34	150	100	2.1	1.65
100A*32A	114.3	42.7	180	110	2.1	1.65
100A*40A	114.3	48.6	180	110	2.1	1.65
100A*50A	114.3	60.5	180	110	2.1	1.65
100A*65A	114.3	76.3	210	120	2.1	2.1
100A*80A	114.3	89.1	210	120	2.1	2.1



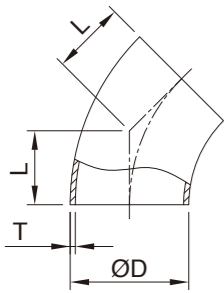
### SCF EQUAL WELD TEE

SIZE	ØD	L	L1	T
10A	17.3	100	50	1.2
15A	21.7	110	55	1.65
20A	27.2	110	55	1.65
25A	34	120	60	1.65
32A	42.7	150	75	1.65
40A	48.6	160	80	1.65
50A	60.5	170	85	1.65
65A	76.3	200	100	2.1
80A	89.1	210	105	2.1
100A	114.3	240	120	2.1



## Vacuum Components (USA type)

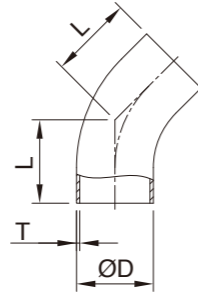
45° Short Elbow



45° Elbow

SIZE	ØD	L	T
1.0"	25.4	15.8	1.65
1.5"	38.1	23.8	1.65
2.0"	50.8	31.75	1.65
2.5"	63.5	39.6	1.65
3.0"	76.2	47.6	1.65
4.0"	101.6	63.5	2.1

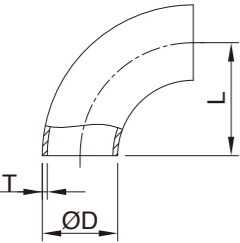
45° Long Elbow



45° Elbow

SIZE	ØD	L	T
1.0"	25.4	30.2	1.65
1.5"	38.1	41.3	1.65
2.0"	50.8	58.7	1.65
2.5"	63.5	76.2	1.65
3.0"	76.2	93.7	1.65
4.0"	101.6	122.2	2.1

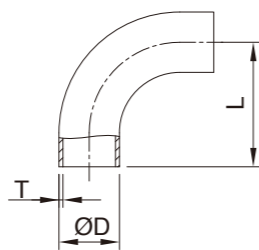
90° Short Elbow



90° Bend

SIZE	ØD	L	T
1.0"	25.4	38.1	1.65
1.5"	38.1	57.2	1.65
2.0"	50.8	76.2	1.65
2.5"	63.5	95.25	1.65
3.0"	76.2	114.3	1.65
4.0"	101.6	152.4	2.1

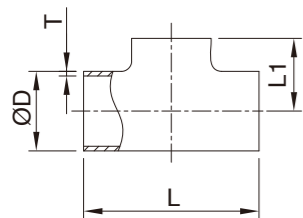
90° Long Elbow



90° Bend

SIZE	ØD	L	T
1.0"	25.4	52.4	1.65
1.5"	38.1	74.6	1.65
2.0"	50.8	103.2	1.65
2.5"	63.5	131.8	1.65
3.0"	76.2	160.3	1.65
4.0"	101.6	211.1	2.1

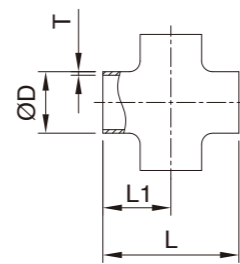
Welding Tee



Tee

SIZE	ØD	L	L1	T
1.0"	25.4	95.2	47.6	1.65
1.5"	38.1	114.4	57.2	1.65
2.0"	50.8	152.4	76.2	1.65
2.5"	63.5	152.4	76.2	1.65
3.0"	76.2	165.2	82.6	1.65
4.0"	101.6	196.8	98.4	2.1

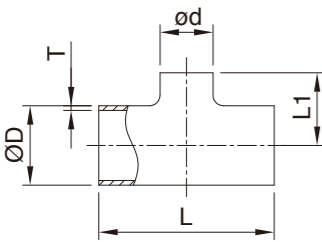
Cross



Cross

SIZE	ØD	L	L1	T
1.0"	25.4	95.2	47.6	1.65
1.5"	38.1	114.4	57.2	1.65
2.0"	50.8	152.4	76.2	1.65
2.5"	63.5	152.4	76.2	1.65
3.0"	76.2	165.2	82.6	1.65
4.0"	101.6	196.8	98.4	2.1

Reducing Tee

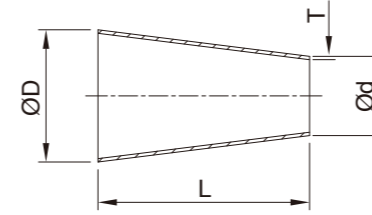


Reducing Tee

SIZE	ØD	Ød	L	L1	T
1.5"x1.0"	38.1	25.4	114.3	53.98	1.65
2.0"x1.0"	50.8	25.4	152.4	60.3	1.65
2.0"x1.5"	50.8	38.1	152.4	63.5	1.65
2.5"x1.5"	63.5	38.1	152.4	69.85	1.65
2.5"x2.0"	63.5	50.8	152.4	82.55	1.65
3.0"x1.5"	76.2	38.1	165.1	76.2	1.65
3.0"x2.0"	76.2	50.8	165.1	88.90	1.65
3.0"x2.5"	76.2	63.5	165.1	82.55	1.65
4.0"x2.0"	101.6	50.8	196.8	101.6	2.1
4.0"x2.5"	101.6	63.5	196.8	95.25	2.1
4.0"x3.0"	101.6	76.2	196.8	95.25	2.1

## Vacuum Components (USA type)

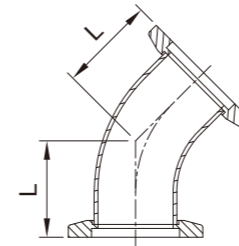
Concentric Reducer



Concentric Reducer

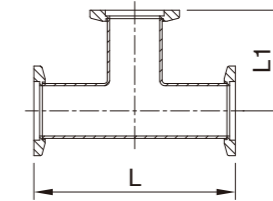
SIZE	ØD	Ød	L	T
1.5"x1.0"	38.1	25.4	50.8	1.65
2.0"x1.5"	50.8	38.1	50.8	1.65
2.5"x1.5"	63.5	38.1	101.6	1.65
2.5"x2.0"	63.5	50.8	50.8	1.65
3.0"x1.5"	76.2	38.1	152.4	1.65
3.0"x2.0"	76.2	50.8	101.6	1.65
3.0"x2.5"	76.2	63.5	50.8	1.65
4.0"x1.5"	101.6	38.1	254	2.1
4.0"x2.0"	101.6	50.8	203.2	2.1
4.0"x2.5"	101.6	63.5	152.4	2.1
4.0"x3.0"	101.6	76.2	101.6	2.1

45° Elbow Flange



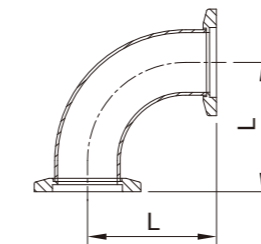
SIZE	O.D	L
KF25	1.0"	28.44
KF40	1.5"	42.67
KF50	2.0"	50.54

Tee Flange



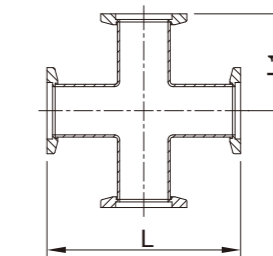
SIZE	O.D	L	L1
KF25	1.0"	100.07	50.03
KF40	1.5"	130.04	65.02
KF50	2.0"	139.95	70.01

90° Elbow Flange



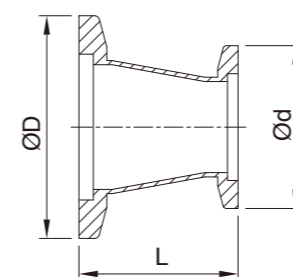
SIZE	O.D	L
KF25	1.0"	51.6
KF40	1.5"	61.0
KF50	2.0"	80.0

4-Way Cross Flange



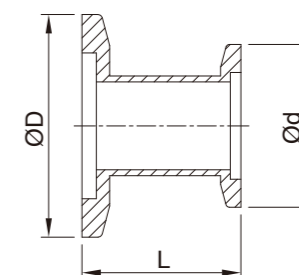
SIZE	O.D	L	L1
KF25	1.0"	103.2	51.6
KF40	1.5"	122.0	61.0
KF50	2.0"	160.0	80.0

Conical Reducer



ØD	Ød	L
KF25	KF16	39.9
KF40	KF16	39.9
KF40	KF25	39.9
KF50	KF16	39.9
KF50	KF25	39.9
KF50	KF40	39.9

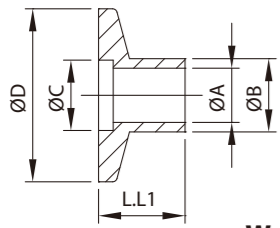
Straight Reducer



ØD	Ød	L
KF25	KF16	39.9
KF40	KF16	39.9
KF40	KF25	39.9
KF50	KF16	39.9
KF50	KF25	39.9
KF50	KF40	39.9

## Vacuum Components (USA type)

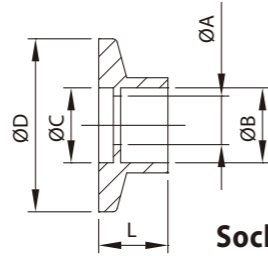
### Weld Flange



#### Weld Flange

SIZE	ØA	ØB	ØC	ØD	L	L1
KF-10	9.4	12.7	12.19	29.97	12.7	40.01
KF-16	15.75	19.05	17.27	29.97	12.7	40.01
KF-25	22.1	25.4	26.19	40.01	12.7	40.01
KF-40	34.8	38.1	41.15	54.86	19.05	40.01
KF-50	47.5	50.8	52.32	74.93	19.05	40.01

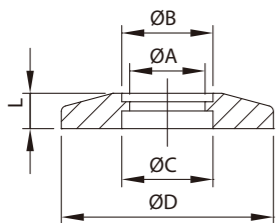
### Socket Weld Flange



#### Socket Weld Flange

SIZE	ØA	ØB	ØC	ØD	L
KF-10	12.19	13.0	12.19	29.97	12.7
KF-16	17.27	19.3	17.27	29.97	12.7
KF-25	22.86	25.65	26.19	40.01	12.7
KF-40	35.56	38.35	41.15	54.86	12.7
KF-50	48.26	51.05	52.32	74.93	12.7

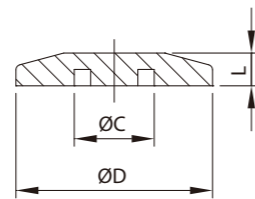
### Bored Flange



#### Bored Flange

SIZE	ØA	ØB	ØC	ØD	L
KF-25	22.86	25.91	26.16	40.01	5.08
KF-40	35.56	38.61	41.15	54.86	5.08
KF-50	48.26	51.31	52.32	74.93	5.08

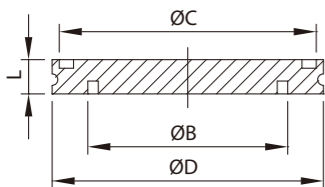
### Blank Flange



#### Blank Flange

SIZE	ØC	ØD	L
KF-10	12.19	29.97	5.08
KF-16	17.27	29.97	5.08
KF-25	26.19	40.01	5.08
KF-40	41.15	54.86	5.08
KF-50	52.32	74.93	5.08

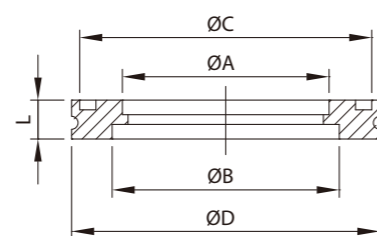
### ISO-Blank Flange



#### Blank Flange

SIZE	ØB	ØC	ØD	L
ISO-63	70	90.02	95	11.94
ISO-80	80.01	105.03	110.01	11.94
ISO-100	102.01	125.02	130	11.94
ISO-160	153.01	175.03	180.01	11.94
ISO-200	203.71	235.02	240	11.94

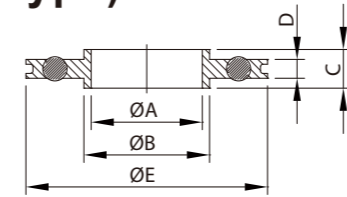
### ISO-Bored Flange



#### Weld Flange

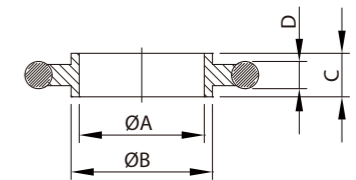
SIZE	ØA	ØB	ØC	ØD	L
ISO-63	64.01	70	90.02	95	11.94
ISO-80	76.71	83.01	105.03	110.01	11.94
ISO-100	102.11	102.01	125.02	130	11.94
ISO-160	152.91	153.01	175.03	180.01	11.94
ISO-200	203.71	203.71	235.02	240	11.94

## Centreing Ring (SS304 & Alu Material) with O-Ring (VITON (FKM)) (USA type)



#### ISO-Type

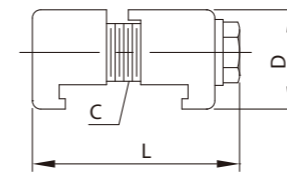
SIZE	ØA	ØB	C	D	ØE
ISO-63-V-U	66.8	69.6	8	3.81	91
ISO-80-V-U	79.75	82.6	8	3.81	104
ISO-100-V-U	98.8	101.6	8	3.81	123
ISO-160-V-U	149.86	152.6	8	3.81	170
ISO-200-V-U	207.8	212.6	8	3.81	234
ISO-250-V-U	257.5	260.4	8	3.81	285
ISO-320-V-U	312	317.3	12	5.58	340
ISO-400-V-U	394	399.2	12	5.58	416
ISO-500-V-U	494	500.2	12	5.6	555



#### KF-Type

SIZE	ØA	ØB	C	D
KF-10	10	12	8	3.9
KF-16	16	17	8	3.9
KF-25	25	26	8	3.9
KF-40	40	41	8	3.9
KF-50	50	52	8	3.9

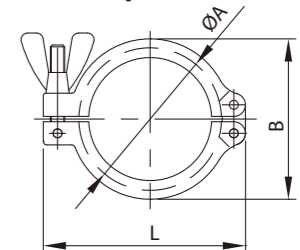
### ISO-Double Claw Clamp



#### Double Claw Clamp

SIZE	C	D	L
ISO-63	M8	24.1	50.3
ISO-80	M8	24.1	50.3
ISO-100	M8	24.1	50.3
ISO-160	M10	27.9	50

### KF-Clamps



#### KF-Clamps

SIZE	ØA	ØB	L
10/16	35	45	62
20/25	45	55	73
32/40	60	70	86.1
50	80	96	123

### NW FLEXIBLE HOSES

SIZE	ØA	B	SIZE	ØA	ØB
KF-16-250	30	250	KF-40-250	55	250
KF-16-500	30	500	KF-40-500	55	500
KF-16-750	30	750	KF-40-750	55	750
KF-16-1000	30	1000	KF-40-1000	55	1000
KF-25-250	40	250	KF-50-250	75	250
KF-25-500	40	500	KF-50-500	75	500
KF-25-750	40	750	KF-50-750	75	750
KF-25-1000	40	1000	KF-50-1000	75	1000

### ISO FLEXIBLE HOSES

SIZE	ØA	ØB	SIZE	ØA	ØB
ISO-63-250	95	250	ISO-80-750	110	750
ISO-63-500	95	500	ISO-80-1000	110	1000
ISO-63-750	95	750	ISO-100-250	130	250
ISO-63-1000	95	1000	ISO-100-500	130	500
ISO-80-250	110	250	ISO-100-750	130	750
ISO-80-500	110	500	ISO-100-1000	130	1000

