

Maximum Purity with Guaranteed Ra

**MaxPure**

# Bio-Pharm Fittings (ASME BPE)



**NEUMO**




**VNE**



**EGMO**

NEUMO Ehrenberg Group



## MaxPure - Maximum Purity with Guaranteed Ra

Where cleanability of fittings is the issue, every step in the production process must be carefully controlled. Our production methods insure that no mechanical damage or flaws occur during manufacturing. The cleaning procedures incorporate multi-process degreasing and washing steps provided to eliminate any residues of hydrocarbons and stains, using pure 18 MΩ deionized water. Our procedures and process capabilities result in the formation of a stabilized passive layer and increased corrosion resistance.

Our products proudly offer:

- **Maximum Cleanability**

MaxPure fittings are cleaned using a multiple step process to assure clean surface areas inside and out with repeatability every time.

- **Full Traceability**

We provide full traceability for each of our products by supplying all necessary production process data. Starting from certifications and incoming inspection of raw materials, through in-process quality control, final inspection, marking and packaging. The process is also completely documented with a unique job number for each BPE process component.

- **Every Fitting is Quality Inspected**

All around quality and meticulous inspection insures that every fitting will be of the highest quality and in total compliance with all ASME-BPE standards.

### The NEUMO Ehrenberg group

The NEUMO Ehrenberg Group, a diversified multi-national organization headquartered in Germany, was founded by Senator Henry Ehrenberg in 1947.

Over the last decade, the Group has become a leading manufacturer for worldwide Biopharmaceutical process fittings and components. With its three leading companies, NEUMO, VNE and EGMO, the group has developed a worldwide distribution network supporting major Biopharmaceutical multinational accounts. The NEUMO Ehrenberg Group's synergy and strategy toward the Biopharmaceutical sectors provide customers with innovation, all around quality and efficiency. Through our Group's volunteer participation in leading standards organizations, we are actively involved in shaping the future for a cleaner, safer and more productive workplace in the Biopharmaceutical Processing Industry.



**NEUMO**



**VNE**



**EGMO**

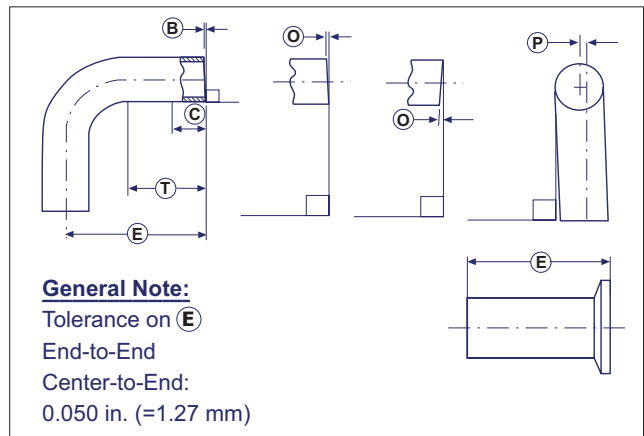
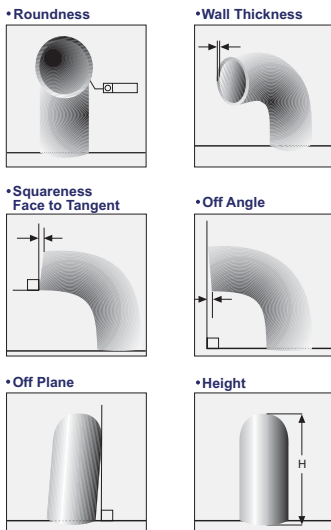
NEUMO Ehrenberg Group



# Fittings Specifications

- Product:**  
 Stainless Steel fittings comply with ASME BPE standards.  
 Gaskets are made from compounds which are FDA approved and USP24 Pharmaceutical Class VI certified.
- Sizes:**  
 Stainless Steel fittings are available in sizes ½" - 6" O.D. tube size.
- Material:**  
 Fittings are fabricated in AISI 316L Stainless Steel with sulfur content of 0.005-0.017% achieving superior repeatability for automatic orbital welding process.
- Dimensions & Tolerances:**  
 Dimensions as specified in ASME BPE Part DT.

Nominal OD Size	½"	¾"	1"	1½"	2"	2½"	3"	4"	6"
<b>O.D. Tolerance</b>	±.005	±.005	±.005	±.008	±.008	±.010	±.010	±.015	±.030
<b>Nominal Wall Thickness</b>	.065	.065	.065	.065	.065	.065	.065	.083	.109
<b>Wall Thickness Tolerance before EP</b>	+ .005 - .008	+ .005 - .008	+ .005 - .008	+ .005 - .008	+ .005 - .008	+ .005 - .008	+ .005 - .008	+ .008 - .010	+ .015 - .015
<b>Wall Thickness Tolerance after EP</b>	+ .005 - .010	+ .005 - .010	+ .005 - .010	+ .005 - .010	+ .005 - .010	+ .005 - .010	+ .005 - .010	+ .008 - .012	+ .015 - .017
<b>Control Length</b> (C)	.750	.750	.750	.750	.750	.750	.750	.750	.750
<b>Tangent Length</b> (T)	1.500	1.500	1.500	1.500	1.500	1.500	1.750	2.000	2.500
<b>Squareness Face to Tangent</b> (B)	.005	.005	.008	.008	.008	.010	.016	.016	.030
<b>Off Angle</b> (O)	.014	.018	.025	.034	.043	.054	.068	.086	.135
<b>Off Plane</b> (P)	±.030	±.030	±.030	±.050	±.050	±.050	±.050	±.060	±.060



## Fittings Specifications

### Surface Finish:

Reference: ASME BPE Part SF, table SF-4.

Surface Finish Code	ASME BPE Surface Designation	Inside Surface		Surface Treatment	Outside Surface Surface Treatment
		Ra Maximum			
		μ-in.	μm		
PC	SFF1	20	0.51	Mechanically Polished	Unpolished
PL	SFF1	20	0.51	Mechanically Polished	Mechanically polished to 32 Ra μ-in.
PF	SFF3	30	0.76	Mechanically Polished	Unpolished
PT	SFF3	30	0.76	Mechanically Polished	Mechanically polished to 32 Ra μ-in.
PD	SFF4	15	0.38	Mechanically Polished & Electropolished	Unpolished
PR		10	0.25	Mechanically Polished & Electropolished	Mechanically polished to 32 Ra μ-in.
PM	SFF4	15	0.38	Mechanically Polished & Electropolished	Mechanically polished to 32 Ra μ-in.
PO	SFF5	20	0.51	Mechanically Polished & Electropolished	Mechanically polished to 32 Ra μ-in.

- General Notes:**
- All Ra readings are taken across the lay, wherever possible.
  - Other customized finishes are available on request.

### Cleaning:

A seven step cleaning cycle is conducted to ensure that components are free of contaminants such as stains, oil, loose particles etc. In the final stage, the fittings are double-rinsed using hot DI water.

### Inspection Procedures:

All fittings produced by EGMO production are 100% visually inspected for any surface finish imperfections, as mentioned in Table SF-3 in the ASME BPE specification. All dimensional characteristics are inspected 100% for tolerances listed in Table DT-5 in the ASME BPE specification.

### Marking:

Each BPE fitting is marked with the following:

- Heat number
- Job number
- Material grade
- Standard
- Surface finish (SFF), as specified in ASME BPE, Part DT.
- Brand name

### Packaging:

Each fitting is capped, bagged and labeled in full compliance with the ASME BPE standard.

### Documentation:

Full Material Test Reports are supplied with the finished products and via an interactive internet website, using a special private code.



# Tube Specifications

## Standards:

- ASTM A-269/270
- ASME BPE

**Table SF-2 Ra Readings for Tubing in accordance with ASME Standards**

Surface Designation	As Drawn and/or Mechanically Polished		Surface Designation	Mechanically Polished & Electropolished	
	Ra Maximum			Ra Maximum	
	μ-in.	μm		μ-in.	μm
SFT1	20	0.5	SFT4	15	0.375
SFT2	25	0.625	SFT5	20	0.5
SFT3	30	0.75	SFT6	25	0.625

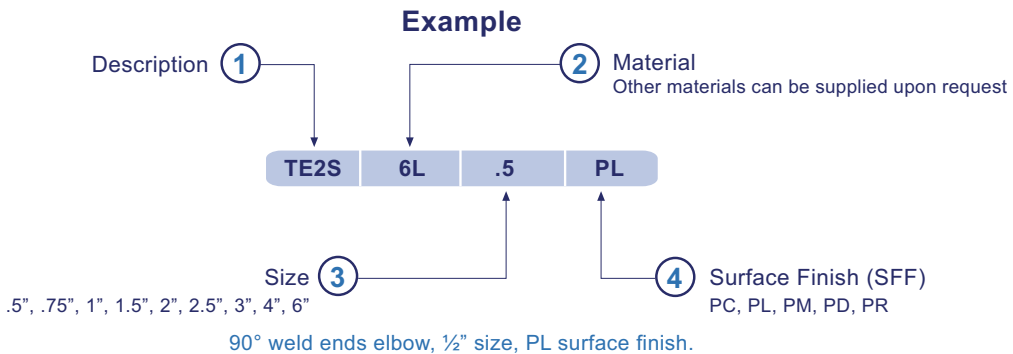
**General Note:** All Ra readings are taken across the lay, wherever possible.

## Tubing Dimensional Tolerances: [Tubing specifications, ASTM A-269/270](#)

Tubing Diameter	Gauge (wall- thickness)	OD dimensional specification	Length	Wall
		ASTM Spec.	ASTM Spec.	ASTM Spec.
1/2"	16g (.065" wall)	+ .002/- .008	-0+1/8	+/-10%
3/4"	16g (.065" wall)	+ .002/- .008	-0+1/8	+/-10%
1"	16g (.065" wall)	+ .002/- .008	-0+1/8	+/-10%
1 1/2"	16g (.065" wall)	+ .002/- .008	-0+1/8	+/-10%
2"	16g (.065" wall)	+ .002/- .011	-0+1/8	+/-10%
2 1/2"	16g (.065" wall)	+ .002/- .011	-0+1/8	+/-10%
3"	16g (.065" wall)	+ .002/- .012	-0+1/8	+/-10%
4"	14g (.083" wall)	+ .002/- .015	-0+1/8	+/-10%

## Ordering Information

To specify the part completely, start with the product description and select the additional options as shown below:



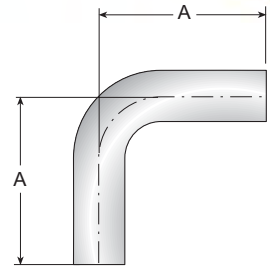
\* P.O.R. - Price On Request



## Elbows

### TE2S - 90° ELBOW

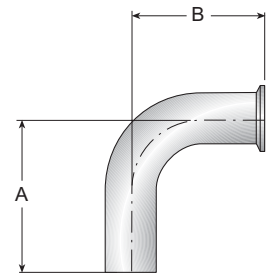
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1/2	3.00	76.2	TE2S6L.5-..
3/4	3.00	76.2	TE2S6L.75-..
1	3.00	76.2	TE2S6L1.0-..
1 1/2	3.75	95.3	TE2S6L1.5-..
2	4.75	120.7	TE2S6L2.0-..
2 1/2	5.50	139.7	TE2S6L2.5-..
3	6.25	158.8	TE2S6L3.0-..
4	8.00	203.2	TE2S6L4.0-..
6	11.50	292.1	TE2S6L6.0-..



BPE TABLE # DT-7

### TE2C - 90° ELBOW CLAMP ONE END

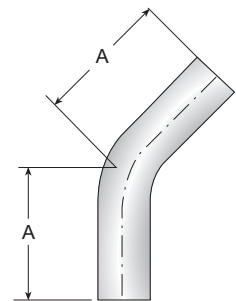
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2	3.00	76.2	1.625	41.3	TE2C6L.5-..
3/4	3.00	76.2	1.625	41.3	TE2C6L.75-..
1	3.00	76.2	2.000	50.8	TE2C6L1.0-..
1 1/2	3.75	95.3	2.750	69.9	TE2C6L1.5-..
2	4.75	120.7	3.500	88.9	TE2C6L2.0-..
2 1/2	5.50	139.7	4.250	108.0	TE2C6L2.5-..
3	6.25	158.8	5.000	127.0	TE2C6L3.0-..
4	8.00	203.2	6.625	168.3	TE2C6L4.0-..
6	11.50	292.1	10.500	266.7	TE2C6L6.0-..



BPE TABLE # DT-12

### TE2KS - 45° ELBOW

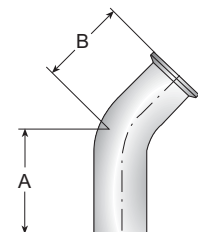
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1/2	2.250	57.2	TE2KS6L.5-..
3/4	2.250	57.2	TE2KS6L.75-..
1	2.250	57.2	TE2KS6L1.0-..
1 1/2	2.500	63.5	TE2KS6L1.5-..
2	3.000	76.2	TE2KS6L2.0-..
2 1/2	3.375	85.7	TE2KS6L2.5-..
3	3.625	92.1	TE2KS6L3.0-..
4	4.500	114.3	TE2KS6L4.0-..
6	6.250	158.8	TE2KS6L6.0-..



BPE TABLE # DT-8

### TE2KC - 45° ELBOW CLAMP ONE END

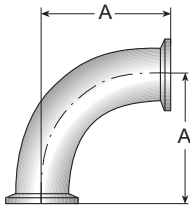
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2	2.250	57.2	1.000	25.4	TE2KC6L.5-..
3/4	2.250	57.2	1.000	25.4	TE2KC6L.75-..
1	2.250	57.2	1.125	28.6	TE2KC6L1.0-..
1 1/2	2.500	63.5	1.438	36.5	TE2KC6L1.5-..
2	3.000	76.2	1.750	44.5	TE2KC6L2.0-..
2 1/2	3.375	85.7	2.063	52.4	TE2KC6L2.5-..
3	3.625	92.1	2.380	60.3	TE2KC6L3.0-..
4	4.500	114.3	3.125	79.4	TE2KC6L4.0-..
6	6.250	158.8	5.250	133.4	TE2KC6L6.0-..



BPE TABLE # DT-13



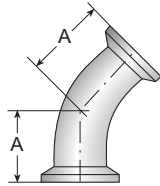
## Elbows



BPE TABLE # DT-16

### TEG2C - 90° ELBOW

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	1.625	41.3	TEG2C6L.5-..
¾	1.625	41.3	TEG2C6L.75-..
1	2.00	50.8	TEG2C6L1.0-..
1½	2.75	69.9	TEG2C6L1.5-..
2	3.50	88.9	TEG2C6L2.0-..
2½	4.25	108.0	TEG2C6L2.5-..
3	5.00	127.0	TEG2C6L3.0-..
4	6.625	168.3	TEG2C6L4.0-..
6	10.50	266.7	TEG2C6L6.0-..



BPE TABLE # DT-17

### TEG2K - 45° ELBOW

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	1.000	25.4	TEG2K6L.5-..
¾	1.000	25.4	TEG2K6L.75-..
1	1.125	28.6	TEG2K6L1.0-..
1½	1.483	37.67	TEG2K6L1.5-..
2	1.750	44.5	TEG2K6L2.0-..
2½	2.063	52.4	TEG2K6L2.5-..
3	2.375	60.3	TEG2K6L3.0-..
4	3.125	79.4	TEG2K6L4.0-..
6	5.250	133.4	TEG2K6L6.0-..

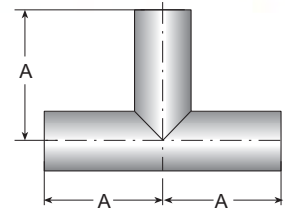




## Tees

### TE7WWW - TEE

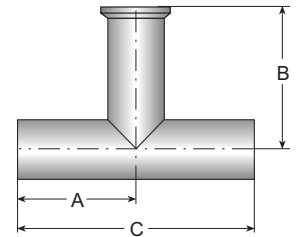
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1/2	1.875	47.6	TE7WWW6L.5-..
3/4	2.000	50.8	TE7WWW6L.75-..
1	2.125	54.0	TE7WWW6L.1.0-..
1 1/2	2.375	60.3	TE7WWW6L.1.5-..
2	2.875	73.0	TE7WWW6L.2.0-..
2 1/2	3.125	79.4	TE7WWW6L.2.5-..
3	3.375	85.7	TE7WWW6L.3.0-..
4	4.125	104.8	TE7WWW6L.4.0-..
6	5.625	142.9	TE7WWW6L.6.0-..



BPE TABLE # DT-9

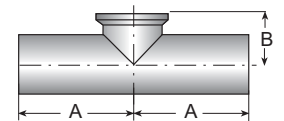
### TE7WWC - TEE

Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
1/2	1.875	47.6	2.250	57.2	3.75	95.2	TE7WWC6L.5-..
3/4	2.000	50.8	2.375	60.3	4.00	101.6	TE7WWC6L.75-..
1	2.125	54.0	2.625	66.68	4.25	108.0	TE7WWC6L.1.0-..
1 1/2	2.375	60.3	2.875	73.03	4.75	120.6	TE7WWC6L.1.5-..
2	2.875	73.0	3.375	85.70	5.75	146.0	TE7WWC6L.2.0-..
2 1/2	3.125	79.4	3.625	92.08	6.25	158.8	TE7WWC6L.2.5-..
3	3.375	85.7	3.875	98.43	6.75	171.4	TE7WWC6L.3.0-..
4	4.125	104.8	4.750	120.65	8.25	209.6	TE7WWC6L.4.0-..
6	5.625	142.9	7.125	181.0	11.25	285.8	TE7WWC6L.6.0-..



### TE7WWCS - SHORT OUTLET TEE

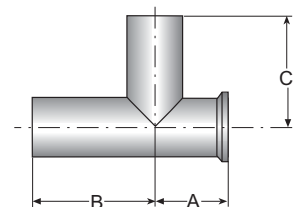
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2	1.875	47.6	1.000	25.4	TE7WWCS6L.5-..
3/4	2.000	50.8	1.125	28.6	TE7WWCS6L.75-..
1	2.125	54.0	1.125	28.6	TE7WWCS6L.1.0-..
1 1/2	2.375	60.3	1.375	34.9	TE7WWCS6L.1.5-..
2	2.875	73.0	1.625	41.3	TE7WWCS6L.2.0-..
2 1/2	3.125	79.4	1.875	47.6	TE7WWCS6L.2.5-..
3	3.375	85.7	2.125	54.0	TE7WWCS6L.3.0-..
4	4.125	104.8	2.750	69.9	TE7WWCS6L.4.0-..
6	5.625	142.9	4.625	117.5	TE7WWCS6L.6.0-..



BPE TABLE # DT-15

### TE7WCSW - SHORT OUTLET RUN TEE

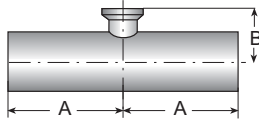
Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
1/2	0.875	22.2	1.879	47.7	1.875	47.6	TE7WCSW6L.5-..
3/4	1.00	25.4	2.00	50.8	2.00	50.8	TE7WCSW6L.75-..
1	1.125	28.6	2.125	54.0	2.125	54.0	TE7WCSW6L.1.0-..
1 1/2	1.375	34.9	2.375	60.3	2.375	60.3	TE7WCSW6L.1.5-..
2	1.625	41.5	2.875	73.0	2.875	73.0	TE7WCSW6L.2.0-..
2 1/2	1.875	47.6	3.125	79.4	3.125	79.4	TE7WCSW6L.2.5-..
3	2.125	54.0	3.375	85.7	3.375	85.7	TE7WCSW6L.3.0-..
4	2.75	69.9	4.125	104.8	4.125	104.8	TE7WCSW6L.4.0-..
6	4.625	117.5	5.625	142.9	5.625	142.9	TE7WCSW6L.6.0-..



BPE TABLE # DT-25



# Tees



BPE TABLE # DT-14

## TE7RWWCS - SHORT OUTLET REDUCING TEE

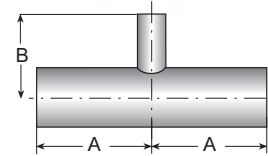
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
¾ × ½	2.000	50.8	1.000	25.4	TE7RWWCS6L.75x.5-..
1 × ½	2.125	54.0	1.125	28.6	TE7RWWCS6L1.0x.5-..
1 × ¾	2.125	54.0	1.125	28.6	TE7RWWCS6L1.0x.75-..
1½ × ½	2.375	60.3	1.375	34.9	TE7RWWCS6L1.5x.5-..
1½ × ¾	2.375	60.3	1.375	34.9	TE7RWWCS6L1.5x.75-..
1½ × 1	2.375	60.3	1.375	34.9	TE7RWWCS6L1.5x1.0-..
2 × ½	2.875	73.0	1.625	41.3	TE7RWWCS6L2.0x.5-..
2 × ¾	2.875	73.0	1.625	41.3	TE7RWWCS6L2.0x.75-..
2 × 1	2.875	73.0	1.625	41.3	TE7RWWCS6L2.0x1.0-..
2 × 1½	2.875	73.0	1.625	41.3	TE7RWWCS6L2.0x1.5-..
2½ × ½	3.125	79.4	1.875	47.6	TE7RWWCS6L2.5x.5-..
2½ × ¾	3.125	79.4	1.875	47.6	TE7RWWCS6L2.5x.75-..
2½ × 1	3.125	79.4	1.875	47.6	TE7RWWCS6L2.5x1.0-..
2½ × 1½	3.125	79.4	1.875	47.6	TE7RWWCS6L2.5x1.5-..
2½ × 2	3.125	79.4	1.875	47.6	TE7RWWCS6L2.5x2.0-..
3 × ½	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x.5-..
3 × ¾	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x.75-..
3 × 1	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x1.0-..
3 × 1½	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x1.5-..
3 × 2	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x2.0-..
3 × 2½	3.375	85.7	2.125	54.0	TE7RWWCS6L3.0x2.5-..
4 × ½	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x.5-..
4 × ¾	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x.75-..
4 × 1	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x1.0-..
4 × 1½	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x1.5-..
4 × 2	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x2.0-..
4 × 2½	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x2.5-..
4 × 3	4.125	104.8	2.625	66.7	TE7RWWCS6L4.0x3.0-..
6 × 4	5.625	142.9	3.750	95.3	TE7RWWCS6L6.0x4.0-..



## Tees

### TE7RWWW - REDUCING TEE

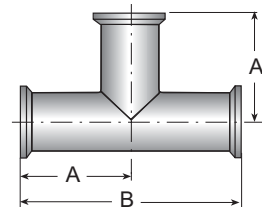
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
¾ × ½	2.000	50.8	2.000	50.8	TE7RWWW6L.75x.5-..
1 × ½	2.125	54.0	2.125	54.0	TE7RWWW6L1.0x.5-..
1 × ¾	2.125	54.0	2.125	54.0	TE7RWWW6L1.0x.75-..
1½ × ½	2.375	60.3	2.375	60.3	TE7RWWW6L1.5x.5-..
1½ × ¾	2.375	60.3	2.375	60.3	TE7RWWW6L1.5x.75-..
1½ × 1	2.375	60.3	2.375	60.3	TE7RWWW6L1.5x1.0-..
2 × ½	2.875	73.0	2.625	66.7	TE7RWWW6L2.0x.5-..
2 × ¾	2.875	73.0	2.625	66.7	TE7RWWW6L2.0x.75-..
2 × 1	2.875	73.0	2.625	66.7	TE7RWWW6L2.0x1.0-..
2 × 1½	2.875	73.0	2.625	66.7	TE7RWWW6L2.0x1.5-..
2½ × ½	3.125	79.4	2.875	73.0	TE7RWWW6L2.5x.5-..
2½ × ¾	3.125	79.4	2.875	73.0	TE7RWWW6L2.5x.75-..
2½ × 1	3.125	79.4	2.875	73.0	TE7RWWW6L2.5x1.0-..
2½ × 1½	3.125	79.4	2.875	73.0	TE7RWWW6L2.5x1.5-..
2½ × 2	3.125	79.4	2.875	73.0	TE7RWWW6L2.5x2.0-..
3 × ½	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x.5-..
3 × ¾	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x.75-..
3 × 1	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x1.0-..
3 × 1½	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x1.5-..
3 × 2	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x2.0-..
3 × 2½	3.375	85.7	3.125	79.4	TE7RWWW6L3.0x2.5-..
4 × ½	4.125	104.8	3.625	92.1	TE7RWWW6L4.0x.5-..
4 × ¾	4.125	104.8	3.625	92.1	TE7RWWW6L4.0x.75-..
4 × 1	4.125	104.8	3.625	92.1	TE7RWWW6L4.0x1.0-..
4 × 1½	4.125	104.8	3.625	92.1	TE7RWWW6L4.0x1.5-..
4 × 2	4.125	104.8	3.875	98.4	TE7RWWW6L4.0x2.0-..
4 × 2½	4.125	104.8	3.875	98.4	TE7RWWW6L4.0x2.5-..
4 × 3	4.125	104.8	3.875	98.4	TE7RWWW6L4.0x3.0-..
6 × 4	5.625	142.9	5.125	130.2	TE7RWWW6L6.0x4.0-..



BPE TABLE # DT-10

### TEG7 - TEE

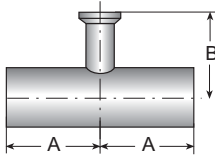
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
½	2.250	57.2	4.50	114.4	TEG7 6L.5-..
¾	2.375	60.3	4.75	120.6	TEG7 6L.75-..
1	2.625	66.7	5.25	133.4	TEG7 6L1.0-..
1½	2.875	73.0	5.75	146.0	TEG7 6L1.5-..
2	3.375	85.7	6.75	175.4	TEG7 6L2.0-..
2½	3.625	92.1	7.25	184.2	TEG7 6L2.5-..
3	3.875	98.4	7.75	196.8	TEG7 6L3.0-..
4	4.750	120.7	9.50	241.4	TEG7 6L4.0-..
6	7.125	181.0	14.25	362.0	TEG7 6L6.0-..



BPE TABLE # DT-18

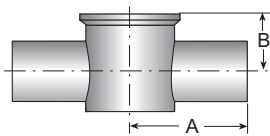


## Tees



### TE7RWWC - REDUCING TEE

Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
3/4 x 1/2	2.000	50.8	2.500	63.5	TE7RWWC6L.75x.5-..
1 x 1/2	2.125	53.9	2.625	66.7	TE7RWWC6L1.0x.5-..
1 x 3/4	2.125	53.9	2.625	66.7	TE7RWWC6L1.0x.75-..
1 1/2 x 1/2	2.375	60.3	2.875	73.0	TE7RWWC6L1.5x.5-..
1 1/2 x 3/4	2.375	60.3	2.875	73.0	TE7RWWC6L1.5x.75-..
1 1/2 x 1	2.375	60.3	2.875	73.0	TE7RWWC6L1.5x1.0-..
2 x 1/2	2.875	73.0	3.125	79.4	TE7RWWC6L2.0x.5-..
2 x 3/4	2.875	73.0	3.125	79.4	TE7RWWC6L2.0x.75-..
2 x 1	2.875	73.0	3.125	79.4	TE7RWWC6L2.0x1.0-..
2 x 1 1/2	2.875	73.0	3.125	79.4	TE7RWWC6L2.0x1.5-..
2 1/2 x 1/2	3.125	79.4	3.375	85.7	TE7RWWC6L2.5x.5-..
2 1/2 x 1 1/2	3.125	79.4	3.375	85.7	TE7RWWC6L2.5x1.5-..
2 1/2 x 2	3.125	79.4	3.375	85.7	TE7RWWC6L2.5x2.0-..
3 x 1	3.375	85.7	3.625	92.1	TE7RWWC6L3.0x1.0-..
3 x 1 1/2	3.375	85.7	3.625	92.1	TE7RWWC6L3.0x1.5-..
3 x 2	3.375	85.7	3.625	92.1	TE7RWWC6L3.0x2.0-..
3 x 2 1/2	3.375	85.7	3.625	92.1	TE7RWWC6L3.0x2.5-..
4 x 1	4.125	104.8	4.125	104.8	TE7RWWC6L4.0x1.0-..
4 x 1 1/2	4.125	104.8	4.125	104.8	TE7RWWC6L4.0x1.5-..
4 x 2	4.125	104.8	4.375	111.1	TE7RWWC6L4.0x2.0-..
4 x 2 1/2	4.125	104.8	4.375	111.1	TE7RWWC6L4.0x2.5-..
4 x 3	4.125	104.8	4.375	111.1	TE7RWWC6L4.0x3.0-..
6 x 4	5.625	142.9	5.750	146.1	TE7RWWC6L6.0x4.0-..



BPE TABLE # DT-28

### TE7IWWCS - INSTRUMENT TEE

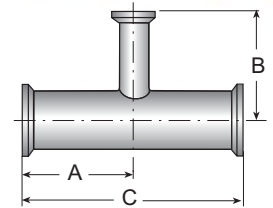
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2 x 1 1/2	2.500	63.5	0.875	22.2	TE7IWWCS6L.5x1.5-..
3/4 x 1 1/2	2.500	63.5	1.000	25.4	TE7IWWCS6L.75x1.5-..
1 x 1 1/2	2.500	63.5	1.125	28.6	TE7IWWCS6L1.0x1.5-..
1/2 x 2	2.750	69.9	1.000	25.4	TE7IWWCS6L.5x2.0-..
3/4 x 2	2.750	69.9	1.125	28.6	TE7IWWCS6L.75x2.0-..
1 x 2	2.750	69.9	1.250	31.8	TE7IWWCS6L1.0x2.0-..
1 1/2 x 2	2.750	69.9	1.500	38.1	TE7IWWCS6L1.5x2.0-..



## Tees

### TEG7R - REDUCING TEE

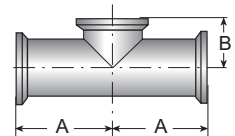
Nominal Size in.	Dimensions				Ref		Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
3/4 x 1/2	2.500	63.5	2.500	63.5	5.00	127.0	TEG7R6L.75x.5...
1 x 1/2	2.625	66.7	2.625	66.7	5.25	133.4	TEG7R6L1.0x.5...
1 x 3/4	2.625	66.7	2.625	66.7	5.25	133.4	TEG7R6L1.0x.75...
1 1/2 x 1/2	2.875	73.0	2.875	73.0	5.75	146.0	TEG7R6L1.5x.5...
1 1/2 x 3/4	2.875	73.0	2.875	73.0	5.75	146.0	TEG7R6L1.5x.75...
1 1/2 x 1	2.875	73.0	2.875	73.0	5.75	146.0	TEG7R6L1.5x1.0...
2 x 1/2	3.375	85.7	3.125	79.4	6.75	171.4	TEG7R6L2.0x.5...
2 x 3/4	3.375	85.7	3.125	79.4	6.75	171.4	TEG7R6L2.0x.75...
2 x 1	3.375	85.7	3.125	79.4	6.75	171.4	TEG7R6L2.0x1.0...
2 x 1 1/2	3.375	85.7	3.125	79.4	6.75	171.4	TEG7R6L2.0x1.5...
2 1/2 x 1/2	3.625	92.1	3.375	85.7	7.25	184.2	TEG7R6L2.5x.5...
2 1/2 x 3/4	3.625	92.1	3.375	85.7	7.25	184.2	TEG7R6L2.5x.75...
2 1/2 x 1	3.625	92.1	3.375	85.7	7.25	184.2	TEG7R6L2.5x1.0...
2 1/2 x 1 1/2	3.625	92.1	3.375	85.7	7.25	184.2	TEG7R6L2.5x1.5...
2 1/2 x 2	3.625	92.1	3.375	85.7	7.25	184.2	TEG7R6L2.5x2.0...
3 x 1/2	3.875	98.4	3.625	92.1	7.75	196.8	TEG7R6L3.0x.5...
3 x 3/4	3.875	98.4	3.625	92.1	7.75	196.8	TEG7R6L3.0x.75...
3 x 1	3.875	98.4	3.625	92.1	7.75	196.8	TEG7R6L3.0x1.0...
3 x 1 1/2	3.875	98.4	3.625	92.1	7.75	196.8	TEG7R6L3.0x1.5...
3 x 2	3.875	98.4	3.625	98.4	7.75	196.8	TEG7R6L3.0x2.0...
3 x 2 1/2	3.875	98.4	3.625	98.4	7.75	196.8	TEG7R6L3.0x2.5...
4 x 1/2	4.750	120.7	4.125	104.8	9.50	241.4	TEG7R6L4.0x.5...
4 x 3/4	4.750	120.7	4.125	104.8	9.50	241.4	TEG7R6L4.0x.75...
4 x 1	4.750	120.7	4.125	104.8	9.50	241.4	TEG7R6L4.0x1.0...
4 x 1 1/2	4.750	120.7	4.125	104.8	9.50	241.4	TEG7R6L4.0x1.5...
4 x 2	4.750	120.7	4.375	111.1	9.50	241.4	TEG7R6L4.0x2.0...
4 x 2 1/2	4.750	120.7	4.375	111.1	9.50	241.4	TEG7R6L4.0x2.5...
4 x 3	4.750	120.7	4.375	111.1	9.50	241.4	TEG7R6L4.0x3.0...
6 x 4	7.125	181.0	5.750	146.1	14.25	362.0	TEG7R6L6.0x4.0...



BPE TABLE # DT-19

### TEG7S - SHORT OUTLET TEE

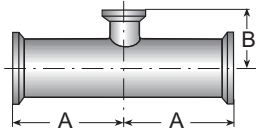
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2	2.250	57.2	1.000	25.4	TEG7S6L.5-..
3/4	2.375	60.3	1.125	28.6	TEG7S6L.75-..
1	2.625	66.7	1.125	28.6	TEG7S6L1.0-..
1 1/2	2.875	73.0	1.375	34.9	TEG7S6L1.5-..
2	3.375	85.7	1.625	41.3	TEG7S6L2.0-..
2 1/2	3.625	92.1	1.875	47.6	TEG7S6L2.5-..
3	3.875	98.4	2.125	54.0	TEG7S6L3.0-..
4	4.750	120.7	2.750	69.9	TEG7S6L4.0-..
6	7.125	181.0	4.625	117.5	TEG7S6L6.0-..



BPE TABLE # DT-27



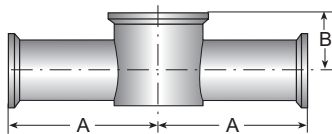
## Tees



BPE TABLE # DT-20

### TEG7RS - SHORT OUTLET REDUCING TEE

Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
3/4 x 1/2	2.500	63.5	1.000	25.4	TEG7RS6L.75x.5-..
1 x 1/2	2.625	66.7	1.125	28.6	TEG7RS6L1.0x.5-..
1 x 3/4	2.625	66.7	1.125	28.6	TEG7RS6L1.0x.75-..
1 1/2 x 1/2	2.875	73	1.375	34.9	TEG7RS6L1.5x.5-..
1 1/2 x 3/4	2.875	73	1.375	34.9	TEG7RS6L1.5x.75-..
1 1/2 x 1	2.875	73	1.375	34.9	TEG7RS6L1.5x1.0-..
2 x 1/2	3.375	85.7	1.625	41.3	TEG7RS6L2.0x.5-..
2 x 3/4	3.375	85.7	1.625	41.3	TEG7RS6L2.0x.75-..
2 x 1	3.375	85.7	1.625	41.3	TEG7RS6L2.0x1.0-..
2 x 1 1/2	3.375	85.7	1.625	41.3	TEG7RS6L2.0x1.5-..
2 1/2 x 1/2	3.625	92.1	1.875	47.6	TEG7RS6L2.5x.5-..
2 1/2 x 3/4	3.625	92.1	1.875	47.6	TEG7RS6L2.5x.75-..
2 1/2 x 1	3.625	92.1	1.875	47.6	TEG7RS6L2.5x1.0-..
2 1/2 x 1 1/2	3.625	92.1	1.875	47.6	TEG7RS6L2.5x1.5-..
2 1/2 x 2	3.625	92.1	1.875	47.6	TEG7RS6L2.5x2.0-..
3 x 1/2	3.875	98.4	2.125	54	TEG7RS6L3.0x.5-..
3 x 3/4	3.875	98.4	2.125	54	TEG7RS6L3.0x.75-..
3 x 1	3.875	98.4	2.125	54	TEG7RS6L3.0x1.0-..
3 x 1 1/2	3.875	98.4	2.125	54	TEG7RS6L3.0x1.5-..
3 x 2	3.875	98.4	2.125	54	TEG7RS6L3.0x2.0-..
3 x 2 1/2	3.875	98.4	2.125	54	TEG7RS6L3.0x2.5-..
4 x 1/2	4.75	120.7	2.625	66.7	TEG7RS6L4.0x.5-..
4 x 3/4	4.75	120.7	2.625	66.7	TEG7RS6L4.0x.75-..
4 x 1	4.75	120.7	2.625	66.7	TEG7RS6L4.0x1.0-..
4 x 1 1/2	4.75	120.7	2.625	66.7	TEG7RS6L4.0x1.5-..
4 x 2	4.75	120.7	2.625	66.7	TEG7RS6L4.0x2.0-..
4 x 2 1/2	4.75	120.7	2.625	66.7	TEG7RS6L4.0x2.5-..
4 x 3	4.75	120.7	2.625	66.7	TEG7RS6L4.0x3.0-..
6 x 4	7.13	181.0	3.750	95.3	TEG7RS6L6.0x4.0-..



BPE TABLE # DT-29

### TEG7IS - INSTRUMENT TEE

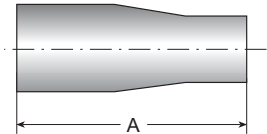
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1/2 x 1 1/2	3.000	76.2	0.875	22.2	TEG7IS6L.5x1.5-..
3/4 x 1 1/2	3.000	76.2	1.000	25.4	TEG7IS6L.75x1.5-..
1 x 1 1/2	3.000	76.2	1.125	28.6	TEG7IS6L1.0x1.5-..
1/2 x 2	3.250	82.6	1.000	25.4	TEG7IS6L.5x2.0-..
3/4 x 2	3.250	82.6	1.125	28.6	TEG7IS6L.75x2.0-..
1 x 2	3.250	82.6	1.250	31.8	TEG7IS6L1.0x2.0-..
1 1/2 x 2	3.250	82.6	1.500	38.1	TEG7IS6L1.5x2.0-..



## Reducers

### TE31WW - CONCENTRIC REDUCER

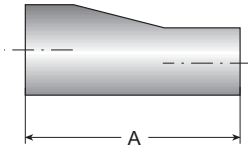
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
3/4 x 1/2	4.000	101.6	TE31WW6L.75x.5-..
1 x 1/2	4.500	114.3	TE31WW6L1.0x.5-..
1 x 3/4	4.000	101.6	TE31WW6L1.0x.75-..
1 1/2 x 1/2	5.500	139.7	TE31WW6L1.5x.5-..
1 1/2 x 3/4	5.000	127.0	TE31WW6L1.5x.75-..
1 1/2 x 1	5.000	127.0	TE31WW6L1.5x1.0-..
2 x 1/2	7.750	196.9	TE31WW6L2.0x.5-..
2 x 3/4	7.250	184.2	TE31WW6L2.0x.75-..
2 x 1	7.250	184.2	TE31WW6L2.0x1.0-..
2 x 1 1/2	5.250	133.4	TE31WW6L2.0x1.5-..
2 1/2 x 1/2	9.750	247.7	TE31WW6L2.5x.5-..
2 1/2 x 3/4	9.250	235.0	TE31WW6L2.5x.75-..
2 1/2 x 1	9.250	235.0	TE31WW6L2.5x1.0-..
2 1/2 x 1 1/2	7.250	184.2	TE31WW6L2.5x1.5-..
2 1/2 x 2	5.500	139.7	TE31WW6L2.5x2.0-..
3 x 1	11.250	285.8	TE31WW6L3.0x1.0-..
3 x 1 1/2	9.250	235.0	TE31WW6L3.0x1.5-..
3 x 2	7.500	190.5	TE31WW6L3.0x2.0-..
3 x 2 1/2	5.500	139.7	TE31WW6L3.0x2.5-..
4 x 1	15.500	393.7	TE31WW6L4.0x1.0-..
4 x 1 1/2	13.500	342.9	TE31WW6L4.0x1.5-..
4 x 2	11.750	298.5	TE31WW6L4.0x2.0-..
4 x 2 1/2	9.750	247.7	TE31WW6L4.0x2.5-..
4 x 3	7.750	196.9	TE31WW6L4.0x3.0-..
6 x 4	10.000	254.0	TE31WW6L6.0x4.0-..



BPE TABLE # DT-11



## Reducers

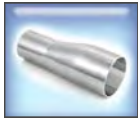


BPE TABLE # DT-11

### TE32WW - ECCENTRIC REDUCER

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
3/4 x 1/2	4.000	101.6	TE32WW6L.75x.5-..
1 x 1/2	4.500	114.3	TE32WW6L1.0x.5-..
1 x 3/4	4.000	101.6	TE32WW6L1.0x.75-..
1 1/2 x 1/2	5.500	139.7	TE32WW6L1.5x.5-..
1 1/2 x 3/4	5.000	127.0	TE32WW6L1.5x.75-..
1 1/2 x 1	5.000	127.0	TE32WW6L1.5x1.0-..
2 x 1/2	7.750	196.9	TE32WW6L2.0x.5-..
2 x 3/4	7.250	184.2	TE32WW6L2.0x.75-..
2 x 1	7.250	184.2	TE32WW6L2.0x1.0-..
2 x 1 1/2	5.250	133.4	TE32WW6L2.0x1.5-..
2 1/2 x 1/2	9.750	247.7	TE32WW6L2.5x.5-..
2 1/2 x 3/4	9.250	235.0	TE32WW6L2.5x.75-..
2 1/2 x 1	9.250	235.0	TE32WW6L2.5x1.0-..
2 1/2 x 1 1/2	7.250	184.2	TE32WW6L2.5x1.5-..
2 1/2 x 2	5.500	139.7	TE32WW6L2.5x2.0-..
3 x 1	11.250	285.8	TE32WW6L3.0x1.0-..
3 x 1 1/2	9.250	235.0	TE32WW6L3.0x1.5-..
3 x 2	7.500	190.5	TE32WW6L3.0x2.0-..
3 x 2 1/2	5.500	139.7	TE32WW6L3.0x2.5-..
4 x 1	15.500	393.7	TE32WW6L4.0x1.0-..
4 x 1 1/2	13.500	342.9	TE32WW6L4.0x1.5-..
4 x 2	11.750	298.5	TE32WW6L4.0x2.0-..
4 x 2 1/2	9.750	247.7	TE32WW6L4.0x2.5-..
4 x 3	7.750	196.9	TE32WW6L4.0x3.0-..
6 x 4	10.000	254.0	TE32WW6L6.0x4.0-..

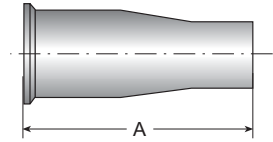




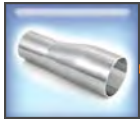
## Reducers

### TE31CW - CONCENTRIC REDUCER

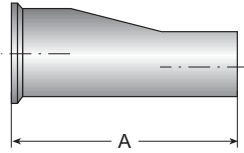
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
3/4 x 1/2	3.000	76.2	TE31CW6L.75x.5-..
1 x 1/2	3.500	88.9	TE31CW6L1.0x.5-..
1 x 3/4	3.000	76.2	TE31CW6L1.0x.75-..
1 1/2 x 1/2	4.500	114.3	TE31CW6L1.5x.5-..
1 1/2 x 3/4	4.000	101.6	TE31CW6L1.5x.75-..
1 1/2 x 1	4.000	101.6	TE31CW6L1.5x1.0-..
2 x 1/2	6.500	165.1	TE31CW6L2.0x.5-..
2 x 3/4	6.000	152.4	TE31CW6L2.0x.75-..
2 x 1	6.000	152.4	TE31CW6L2.0x1.0-..
2 x 1 1/2	4.000	101.6	TE31CW6L2.0x1.5-..
2 1/2 x 1/2	8.500	215.9	TE31CW6L2.5x.5-..
2 1/2 x 3/4	8.000	203.2	TE31CW6L2.5x.75-..
2 1/2 x 1	8.000	203.2	TE31CW6L2.5x1.0-..
2 1/2 x 1 1/2	6.000	152.4	TE31CW6L2.5x1.5-..
2 1/2 x 2	4.250	107.9	TE31CW6L2.5x2.0-..
3 x 1	10.000	254.0	TE31CW6L3.0x1.0-..
3 x 1 1/2	8.000	203.2	TE31CW6L3.0x1.5-..
3 x 2	6.250	158.8	TE31CW6L3.0x2.0-..
3 x 2 1/2	4.250	108.0	TE31CW6L3.0x2.5-..
4 x 1	14.125	358.8	TE31CW6L4.0x1.0-..
4 x 1 1/2	12.125	308.0	TE31CW6L4.0x1.5-..
4 x 2	10.375	263.5	TE31CW6L4.0x2.0-..
4 x 2 1/2	8.375	212.7	TE31CW6L4.0x2.5-..
4 x 3	6.375	161.9	TE31CW6L4.0x3.0-..
6 x 4	9.000	228.6	TE31CW6L6.0x4.0-..



BPE TABLE # DT-26



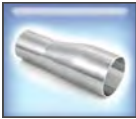
## Reducers



BPE TABLE # DT-26

### TE32CW - ECCENTRIC REDUCER

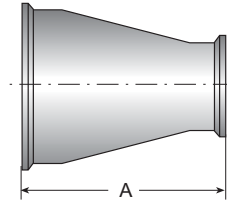
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
¾ × ½	3.000	76.2	TE32CW6L.75x.5-..
1 × ½	3.500	88.9	TE32CW6L1.0x.5-..
1 × ¾	3.000	76.2	TE32CW6L1.0x.75-..
1½ × ½	4.500	114.3	TE32CW6L1.5x.5-..
1½ × ¾	4.000	101.6	TE32CW6L1.5x.75-..
1½ × 1	4.000	101.6	TE32CW6L1.5x1.0-..
2 × ½	6.500	165.1	TE32CW6L2.0x.5-..
2 × ¾	6.000	152.4	TE32CW6L2.0x.75-..
2 × 1	6.000	152.4	TE32CW6L2.0x1.0-..
2 × 1½	4.000	101.6	TE32CW6L2.0x1.5-..
2½ × ½	8.500	215.9	TE32WW2.5x.5-..
2½ × ¾	8.000	203.2	TE32CW6L2.5x.75-..
2½ × 1	8.000	203.2	TE32CW6L2.5x1.0-..
2½ × 1½	6.000	152.4	TE32CW6L2.5x1.5-..
2½ × 2	4.250	108.0	TE32CW6L2.5x2.0-..
3 × 1	10.000	254.0	TE32CW6L3.0x1.0-..
3 × 1½	8.000	203.2	TE32CW6L3.0x1.5-..
3 × 2	6.250	158.8	TE32CW6L3.0x2.0-..
3 × 2½	4.250	108.0	TE32CW6L3.0x2.5-..
4 × 1	14.125	358.8	TE32CW6L4.0x1.0-..
4 × 1½	12.125	308.0	TE32CW6L4.0x1.5-..
4 × 2	10.375	263.5	TE32CW6L4.0x2.0-..
4 × 2½	8.375	212.7	TE32CW6L4.0x2.5-..
4 × 3	6.375	161.9	TE32CW6L4.0x3.0-..
6 × 4	9.000	228.6	TE32CW6L6.0x4.0-..



## Reducers

### TEG31CC - CONCENTRIC REDUCER

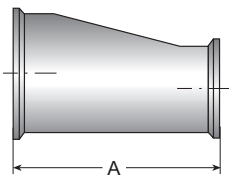
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
3/4 x 1/2	2.000	50.8	TEG31CC6L.75x.5-..
1 x 1/2	2.500	63.5	TEG31CC6L1.0x.5-..
1 x 3/4	2.000	50.8	TEG31CC6L1.0x.75-..
1 1/2 x 1/2	3.500	88.9	TEG31CC6L1.5x.5-..
1 1/2 x 3/4	3.000	76.2	TEG31CC6L1.5x.75-..
1 1/2 x 1	3.000	76.2	TEG31CC6L1.5x1.0-..
2 x 1/2	5.500	139.7	TEG31CC6L2.0x.5-..
2 x 3/4	5.000	127.0	TEG31CC6L2.0x.75-..
2 x 1	5.000	127.0	TEG31CC6L2.0x1.0-..
2 x 1 1/2	3.000	76.2	TEG31CC6L2.0x1.5-..
2 1/2 x 1/2	7.500	190.5	TEG31CC6L2.5x.5-..
2 1/2 x 3/4	7.000	177.8	TEG31CC6L2.5x.75-..
2 1/2 x 1	7.000	177.8	TEG31CC6L2.5x1.0-..
2 1/2 x 1 1/2	5.000	127.0	TEG31CC6L2.5x1.5-..
2 1/2 x 2	3.000	76.2	TEG31CC6L2.5x2.0-..
3 x 1	9.000	228.6	TEG31CC6L3.0x1.0-..
3 x 1 1/2	7.000	177.8	TEG31CC6L3.0x1.5-..
3 x 2	5.000	127.0	TEG31CC6L3.0x2.0-..
3 x 2 1/2	3.000	76.2	TEG31CC6L3.0x2.5-..
4 x 1	13.125	333.4	TEG31CC6L4.0x1.0-..
4 x 1 1/2	11.125	282.6	TEG31CC6L4.0x1.5-..
4 x 2	9.125	231.8	TEG31CC6L4.0x2.0-..
4 x 2 1/2	7.125	181.0	TEG31CC6L4.0x2.5-..
4 x 3	5.125	130.2	TEG31CC6L4.0x3.0-..
6 x 4	7.625	193.7	TEG31CC6L6.0x4.0-..



BPE TABLE # DT-21



## Reducers



BPE TABLE # DT-21

### TEG32CC - ECCENTRIC REDUCER

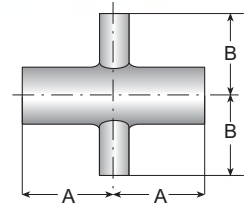
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
3/4 x 1/2	2.000	50.8	TEG32CC6L.75x.5-..
1 x 1/2	2.500	63.5	TEG32CC6L1.0x.5-..
1 x 3/4	2.000	50.8	TEG32CC6L1.0x.75-..
1 1/2 x 1/2	3.500	88.9	TEG32CC6L1.5x.5-..
1 1/2 x 3/4	3.000	76.2	TEG32CC6L1.5x.75-..
1 1/2 x 1	3.000	76.2	TEG32CC6L1.5x1.0-..
2 x 1/2	5.500	139.7	TEG32CC6L2.0x.5-..
2 x 3/4	5.000	127.0	TEG32CC6L2.0x.75-..
2 x 1	5.000	127.0	TEG32CC6L2.0x1.0-..
2 x 1 1/2	3.000	76.2	TEG32CC6L2.0x1.5-..
2 1/2 x 1/2	7.500	190.5	TEG32CC6L2.5x.5-..
2 1/2 x 3/4	7.000	177.8	TEG32CC6L2.5x.75-..
2 1/2 x 1	7.000	177.8	TEG32CC6L2.5x1.0-..
2 1/2 x 1 1/2	5.000	127.0	TEG32CC6L2.5x1.5-..
2 1/2 x 2	3.000	76.2	TEG32CC6L2.5x2.0-..
3 x 1	9.000	228.6	TEG32CC6L3.0x1.0-..
3 x 1 1/2	7.000	177.8	TEG32CC6L3.0x1.5-..
3 x 2	5.000	127.0	TEG32CC6L3.0x2.0-..
3 x 2 1/2	3.000	76.2	TEG32CC6L3.0x2.5-..
4 x 1	13.125	333.4	TEG32CC6L4.0x1.0-..
4 x 1 1/2	11.125	282.6	TEG32CC6L4.0x1.5-..
4 x 2	9.125	231.8	TEG32CC6L4.0x2.0-..
4 x 2 1/2	7.125	181	TEG32CC6L4.0x2.5-..
4 x 3	5.125	130.2	TEG32CC6L4.0x3.0-..
6 x 4	7.625	193.7	TEG32CC6L6.0x4.0-..



## Crosses

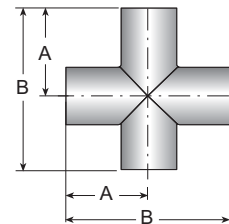
### TE9RWWWW - REDUCING CROSS

Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
¼ × ½	2.000	50.8	2.000	50.8	TE9RWWWWW6L.75x.5-..
1 × ½	2.125	54.0	2.125	54.0	TE9RWWWWW6L1.0x.5-..
1 × ¾	2.125	54.0	2.125	54.0	TE9RWWWWW6L1.0x.75-..
1½ × ½	2.375	60.3	2.375	60.3	TE9RWWWWW6L1.5x.5-..
1½ × ¾	2.375	60.3	2.375	60.3	TE9RWWWWW6L1.5x.75-..
1½ × 1	2.375	60.3	2.375	60.3	TE9RWWWWW6L1.5x1.0-..
2 × ½	2.875	73.0	2.625	66.7	TE9RWWWWW6L2.0x.5-..
2 × ¾	2.875	73.0	2.625	66.7	TE9RWWWWW6L2.0x.75-..
2 × 1	2.875	73.0	2.625	66.7	TE9RWWWWW6L2.0x1.0-..
2 × 1½	2.875	73.0	2.625	66.7	TE9RWWWWW6L2.0x1.5-..
2½ × 1	3.125	79.4	2.875	73.0	TE9RWWWWW6L2.5x1.0-..
2½ × 1½	3.125	79.4	2.875	73.0	TE9RWWWWW6L2.5x1.5-..
2½ × 2	3.125	79.4	2.875	73.0	TE9RWWWWW6L2.5x2.0-..
3 × 1	3.375	85.7	3.125	79.4	TE9RWWWWW6L3.0x1.0-..
3 × 1½	3.375	85.7	3.125	79.4	TE9RWWWWW6L3.0x1.5-..
3 × 2	3.375	85.7	3.125	79.4	TE9RWWWWW6L3.0x2.0-..
3 × 2½	3.375	85.7	3.125	79.4	TE9RWWWWW6L3.0x2.5-..
4 × 1	4.125	104.8	3.625	92.1	TE9RWWWWW6L4.0x1.0-..
4 × 1½	4.125	104.8	3.625	92.1	TE9RWWWWW6L4.0x1.5-..
4 × 2	4.125	104.8	3.875	98.4	TE9RWWWWW6L4.0x2.0-..
4 × 2½	4.125	104.8	3.875	98.4	TE9RWWWWW6L4.0x2.5-..
4 × 3	4.125	104.8	3.875	98.4	TE9RWWWWW6L4.0x3.0-..
6 × 4	5.625	142.9	5.125	130.2	TE9RWWWWW6L6.0x4.0-..



### TE9WWWW - CROSS

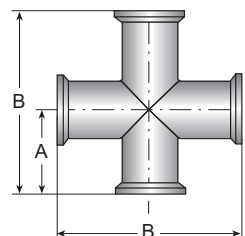
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
½	1.875	47.6	3.750	95.2	TE9WWWWW6L.5-..
¾	2.000	50.8	4.000	101.6	TE9WWWWW6L.75-..
1	2.125	54.0	4.250	108.0	TE9WWWWW6L1.0-..
1½	2.375	60.3	4.750	120.6	TE9WWWWW6L1.5-..
2	2.875	73.0	5.750	146.0	TE9WWWWW6L2.0-..
2½	3.125	79.4	6.250	158.8	TE9WWWWW6L2.5-..
3	3.375	85.7	6.750	171.4	TE9WWWWW6L3.0-..
4	4.125	104.8	8.250	209.6	TE9WWWWW6L4.0-..
6	5.625	142.9	11.250	285.8	TE9WWWWW6L6.0-..



BPE TABLE # DT-9

### TEG9 - CROSS

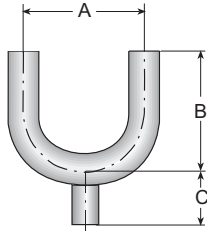
Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
½	2.250	57.2	4.50	114.4	TEG96L.5-..
¾	2.375	60.3	4.75	120.6	TEG96L.75-..
1	2.625	66.7	5.25	133.4	TEG96L1.0-..
1½	2.875	73.0	5.75	146.0	TEG96L1.5-..
2	3.375	85.7	6.75	171.4	TEG96L2.0-..
2½	3.625	92.1	7.25	184.2	TEG96L2.5-..
3	3.875	98.4	7.75	196.8	TEG96L3.0-..
4	4.750	120.7	9.50	241.4	TEG96L4.0-..
6	7.125	181.0	14.25	362.0	TEG96L6.0-..



BPE TABLE # DT-18



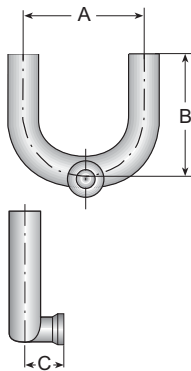
## Use Points



### TE2UBWWW - 180° BOTTOM OUTLET WELD USE POINT

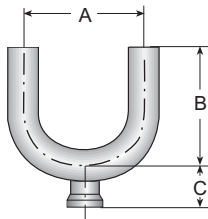
Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
3/4 x 1/2	4.500	114.3	3.750	95.3	1.875	47.6	TE2UBWWW6L.75x.5-..
3/4 x 3/4	4.500	114.3	3.750	95.3	1.875	47.6	TE2UBWWW6L.75x.75-..
1 x 1/2	3.000	76.2	3.000	76.2	2.062	52.4	TE2UBWWW6L1.0x.5-..
1 1/2 x 1/2	4.500	114.3	4.500	114.3	2.312	58.7	TE2UBWWW6L1.5x.5-..
2 x 1/2	6.000	152.4	5.000	127.0	2.562	65.1	TE2UBWWW6L2.0x.5-..
2 1/2 x 1/2	7.500	190.5	5.750	146.1	2.812	71.4	TE2UBWWW6L2.5x.5-..
3 x 1/2	9.000	228.6	6.500	165.1	3.062	77.8	TE2UBWWW6L3.0x.5-..
4 x 1/2	12.000	304.8	8.500	215.9	3.562	90.5	TE2UBWWW6L4.0x.5-..

### TE2USWWC - 180° SIDE OUTLET CLAMP USE POINT



Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
3/4 x 1/2	4.500	114.3	3.750	95.3	0.875	22.2	TE2USWWC6L.75x.5-..
3/4 x 3/4	4.500	114.3	3.750	95.3	0.875	22.2	TE2USWWC6L.75x.75-..
1 x 1/2	3.000	76.2	3.000	76.2	1.062	26.9	TE2USWWC6L1.0x.5-..
1 1/2 x 1/2	4.500	114.3	4.500	114.3	1.312	33.3	TE2USWWC6L1.5x.5-..
2 x 1/2	6.000	152.4	5.000	127.0	1.562	39.7	TE2USWWC6L2.0x.5-..
2 1/2 x 1/2	7.500	190.5	5.750	146.1	1.812	46.0	TE2USWWC6L2.5x.5-..
3 x 1/2	9.000	228.6	6.500	165.1	2.062	52.4	TE2USWWC6L3.0x.5-..
4 x 1/2	12.000	304.8	8.500	215.9	2.562	65.0	TE2USWWC6L4.0x.5-..

### TE2UBWWC - 180° BOTTOM OUTLET CLAMP USE POINT



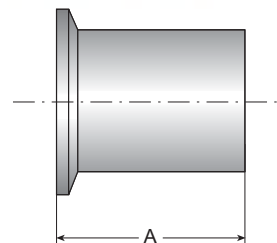
Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
3/4 x 1/2	4.500	114.3	3.750	95.3	0.875	22.2	TE2UBWWC6L.75x.5-..
3/4 x 3/4	4.500	114.3	3.750	95.3	0.875	22.2	TE2UBWWC6L.75x.75-..
1 x 1/2	3.000	76.2	3.000	76.2	1.062	27.0	TE2UBWWC6L1.0x.5-..
1 1/2 x 1/2	4.500	114.3	4.500	114.3	1.312	33.3	TE2UBWWC6L1.5x.5-..
2 x 1/2	6.000	152.4	5.000	127.0	1.562	39.7	TE2UBWWC6L2.0x.5-..
2 1/2 x 1/2	7.500	190.5	5.750	146.1	1.812	46.0	TE2UBWWC6L2.5x.5-..
3 x 1/2	9.000	228.6	6.500	165.1	2.062	52.4	TE2UBWWC6L3.0x.5-..
4 x 1/2	12.000	304.8	8.500	215.9	2.562	65.1	TE2UBWWC6L4.0x.5-..



## Ferrules & End Caps

### TEG14AM7 - CLAMP FERRULE

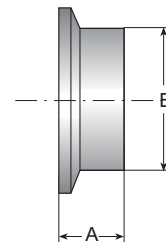
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	1.750	44.5	TEG14AM7 6L.5-..
¾	1.750	44.5	TEG14AM7 6L.75-..
1	1.750	44.5	TEG14AM7 6L1.0-..
1½	1.750	44.5	TEG14AM7 6L1.5-..
2	2.250	57.2	TEG14AM7 6L2.0-..
2½	2.250	57.2	TEG14AM7 6L2.5-..
3	2.250	57.2	TEG14AM7 6L3.0-..
4	2.250	57.2	TEG14AM7 6L4.0-..
6	3.000	76.2	TEG14AM7 6L6.0-..



BPE TABLE # DT-22

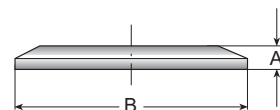
### TEG2CS - SHORT WELDING FERRULE

Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
1	.500	12.7	.870	22.1	TEG2CS6L1.0-..
1½	.500	12.7	1.370	34.8	TEG2CS6L1.5-..
2	.500	12.7	1.870	47.5	TEG2CS6L2.0-..
2½	.500	12.7	2.370	60.2	TEG2CS6L2.5-..
3	.500	12.7	2.870	72.9	TEG2CS6L3.0-..
4	.625	15.9	3.834	97.4	TEG2CS6L4.0-..
6	.875	22.2	5.78	146.58	TEG2CS6L6.0-..



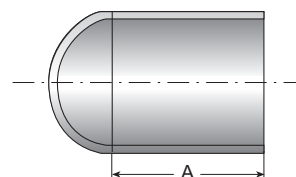
### TEG16A - SOLID END CAP

Nominal Size in.	Dimensions				Ordering Code
	A in.	A mm	B in.	B mm	
½ & ¾	0.19	4.8	1.00	25.4	TEG16A6L.5/75-..
1 & 1½	0.25	6.3	1.99	50.5	TEG16A6L1.0/1.5-..
2	0.25	6.3	2.52	64.0	TEG16A6L2.0-..
2½	0.25	6.3	3.05	77.5	TEG16A6L2.5-..
3	0.25	6.3	3.58	90.9	TEG16A6L3.0-..
4	0.31	7.9	4.69	119.0	TEG16A6L4.0-..
6	0.44	11.1	6.56	166.5	TEG16A6L6.0-..



### TE16W - CAP

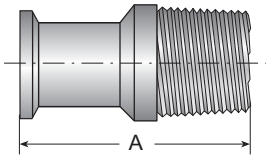
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	1.500	38.1	TE16W6L.5-..
¾	1.500	38.1	TE16W6L.75-..
1	1.500	38.1	TE16W6L1.0-..
1½	1.500	38.1	TE16W6L1.5-..
2	1.500	38.1	TE16W6L2.0-..
2½	1.500	38.1	TE16W6L2.5-..
3	1.750	44.5	TE16W6L3.0-..
4	2.000	50.8	TE16W6L4.0-..
6	2.500	63.5	TE16W6L6.0-..



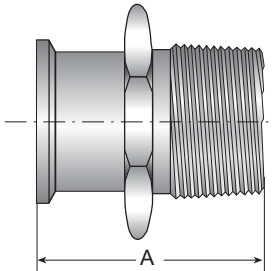
BPE TABLE # DT-30



## Adapters & Stub Ends



FRACTIONAL SIZES

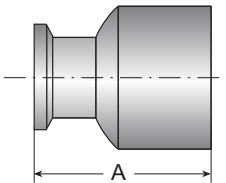


1" THROUGH 4"

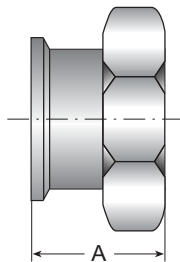
### TEG21 - MALE ADAPTER

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1/2 x 1/8	2.00	50.8	TEG216L.5x.125-..
1/2 x 1/4	2.00	50.8	TEG216L.5x.25-..
1/2 x 3/8	2.00	50.8	TEG216L.5x.375-..
1/2 x 1/2	2.00	50.8	TEG216L.5-..
1/2 x 3/4	2.00	50.8	TEG216L.5x.75-..
3/4 x 1/8	2.00	50.8	TEG216L.75x.125-..
3/4 x 1/4	2.00	50.8	TEG216L.75x.25-..
3/4 x 3/8	2.00	50.8	TEG216L.75x.375-..
3/4 x 1/2	2.00	50.8	TEG216L.75x.5-..
3/4 x 3/4	2.00	50.8	TEG216L.75-..
1	2.25	57.1	TEG216L1.0-..
1 1/2	2.44	61.9	TEG216L1.5-..
2	2.66	67.5	TEG216L2.0-..
2 1/2	3.28	83.3	TEG216L2.5-..
3	3.50	88.9	TEG216L3.0-..
4	3.81	96.7	TEG216L4.0-..

### TEG22 - FEMALE ADAPTER



FRACTIONAL SIZES



1" THROUGH 4"

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1/2 x 1/8	1.25	31.7	TEG226L.5x.125-..
1/2 x 1/4	1.50	38.1	TEG226L.5x.25-..
1/2 x 3/8	1.50	38.1	TEG226L.5x.375-..
1/2 x 1/2	1.50	38.1	TEG226L.5-..
1/2 x 3/4	1.62	41.1	TEG226L.5x.75-..
3/4 x 1/8	1.25	31.7	TEG226L.75x.125-..
3/4 x 1/4	1.50	38.1	TEG226L.75x.25-..
3/4 x 3/8	1.50	38.1	TEG226L.75x.375-..
3/4 x 1/2	1.50	38.1	TEG226L.75x.5-..
3/4 x 3/4	1.62	41.1	TEG226L.75-..
1	1.62	41.1	TEG226L1.0-..
1 1/2	2.25	57.1	TEG226L1.5-..
2	2.34	59.4	TEG226L2.0-..
2 1/2	2.09	53.08	TEG226L2.5-..
3	2.19	55.6	TEG226L3.0-..
4	2.66	67.5	TEG226L4.0-..

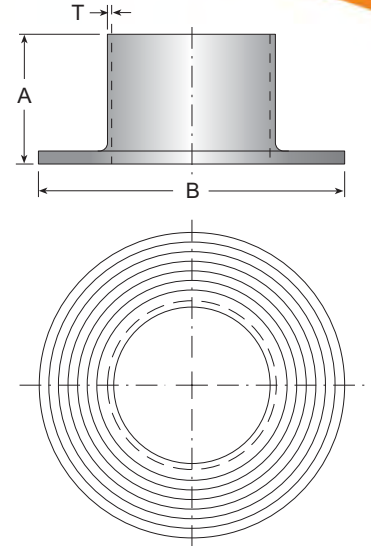




## Adapters & Stub Ends

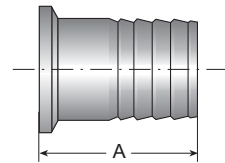
### TE14WA - TYPE A STUB END WITH GROOVES

Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	T in.	T mm	
½	2.000	50.8	1.625	41.3	.065	1.65	TE14WA6L.5-..
¾	2.000	50.8	1.687	42.9	.065	1.65	TE14WA6L.75-..
1	2.000	50.8	2.000	50.8	.065	1.65	TE14WA6L1.0-..
1¼	2.000	50.8	2.500	63.5	.065	1.65	TE14WA6L1¼-..
1½	2.000	50.8	2.875	73.0	.065	1.65	TE14WA6L1.5-..
2	2.500	63.5	3.265	92.1	.065	1.65	TE14WA6L2.0-..
2½	2.500	63.5	4.125	104.8	.065	1.65	TE14WA6L2.5-..
3	2.500	63.5	5.000	127.0	.065	1.65	TE14WA6L3.0-..
4	2.500	63.5	6.187	157.2	.083	2.11	TE14WA6L4.0-..
6	3.000	76.2	8.500	215.9	.109	2.77	TE14WA6L6.0-..



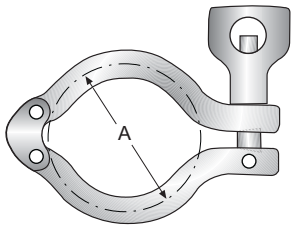
### TEG14RT - HOSE ADAPTER

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½ × ¼	1.50	38.1	TEG14RT6L.5x.25-..
½ × ⅜	1.50	38.1	TEG14RT6L.5x.38-..
½ × ½	1.50	38.1	TEG14RT6L.5x.5-..
¾ × ¼	1.50	38.1	TEG14RT6L.75x.25-..
¾ × ⅜	1.50	38.1	TEG14RT6L.75x.38-..
¾ × ½	1.50	38.1	TEG14RT6L.75x.5-..
¾ × ¾	1.50	38.1	TEG14RT6L.75x.75-..
1 × 1	1.69	42.9	TEG14RT6L1.0x1.0-..
1½ × 1½	1.69	42.9	TEG14RT6L1.5x1.5-..
2 × 2	2.31	58.7	TEG14RT6L2.0x2.0-..
2½ × 2½	2.34	59.5	TEG14RT6L2.5x2.5-..
3 × 3	3.09	78.6	TEG14RT6L3.0x3.0-..
4 × 4	3.41	86.5	TEG14RT6L4.0x3.0-..



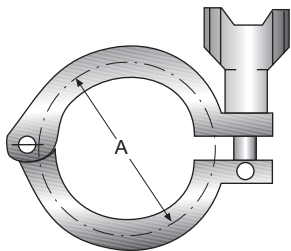


# Clamps



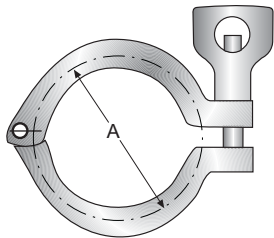
## 13MHHMD - DOUBLE HINGED HEAVY DUTY CLAMP

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1 ½	2.122	53.9	13MHHMD1.5
2	2.654	67.4	13MHHMD2.0
2 ½	3.185	80.8	13MHHMD2.5
3	3.717	94.4	13MHHMD3.0
4	4.820	108.7	13MHHMD4.0



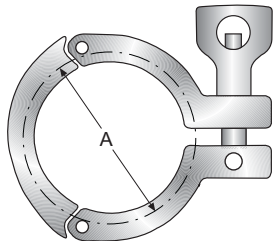
## 13MHHM - HEAVY DUTY CLAMP

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½ & ¾	1.125	28.5	13MHHM.75
1 & 1 ½	2.122	53.9	13MHHM1.5
2	2.654	64.5	13MHHM2.0
2 ½	3.185	80.8	13MHHM2.5
3	3.717	94.4	13MHHM3.0
4	4.820	122.42	13MHHM4.0
6	6.695	170.05	13MHHM6.0



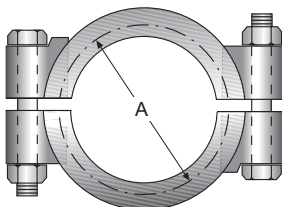
## 13MHHM-H - HEAVY DUTY CLAMP (Wing Nut With Hole)

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½ & ¾	1.125	28.9	13MHHM.75-H
1 & 1 ½	2.122	53.9	13MHHM1.5-H
2	2.654	67.4	13MHHM2.0-H
2 ½	3.185	80.8	13MHHM2.5-H
3	3.717	94.4	13MHHM3.0-H
4	4.820	122.4	13MHHM4.0-H
6	6.695	170.05	13MHHM6.0-H



## 13MHHS - THREE PIECE HEAVY DUTY CLAMP

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
1 ½	2.122	53.9	13MHHS1.5
2	2.654	67.4	13MHHS2.0
2 ½	3.185	80.8	13MHHS2.5
3	3.717	94.4	13MHHS3.0
4	4.820	108.7	13MHHS4.0



## 13MHP - HIGH PRESSURE CLAMP

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½ & ¾	1.062	26.97	13MHP.75
1 ½	2.046	51.97	13MHP1.5
2	2.578	65.48	13MHP2.0
2 ½	3.110	78.99	13MHP2.5
3	3.640	92.46	13MHP3.0
4	4.744	120.50	13MHP4.0
6	6.632	168.45	13MHP6.0



## Gaskets & Pipe Hangers

### TEG40 - GASKET

Nominal Size in.	Dimensions								Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	W in.	W mm	
½	1.00	25.40	0.3701	9.40	-	-	0.22	5.50	TEG40.5*
¾	1.00	25.40	0.6181	15.70	-	-	0.22	5.50	TEG40.75*
1	1.99	50.50	0.8661	22.00	0.18	4.50	-	-	TEG401.0*
1½	1.99	50.50	1.3701	34.80	0.18	4.50	-	-	TEG401.5*
2	2.52	64.00	1.8701	47.50	0.18	4.50	-	-	TEG402.0*
2 ½	3.05	77.50	2.3701	60.20	0.18	4.50	-	-	TEG402.5*
3	3.58	91.00	2.874	73.00	0.18	4.50	-	-	TEG403.0*
4	4.69	119.00	3.8346	97.40	0.18	4.50	-	-	TEG404.0*

\* Please specify the gasket material.

**Note:** Gaskets are type USP Class VI Pharmaceutical Grade.

#### GASKET MATERIALS:

PTFE®

VITON®

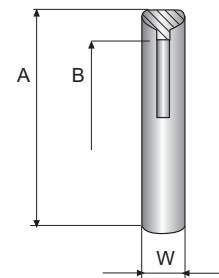
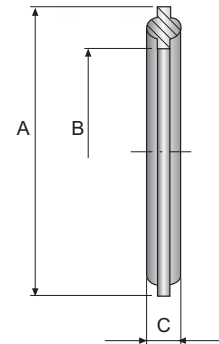
Envelope type - TEFLON with EPDM Filler

TEFLON with VITON Filler

SILICON.

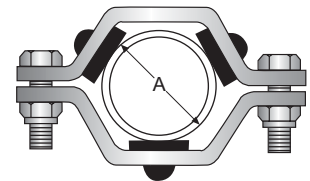
BUNA

EPDM and TEF-STEEL®



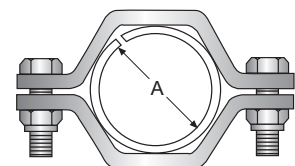
### E24 - PIPE HANGER

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	.500	12.7	E24 .5
¾	.750	19.05	E24 .75
1	1.00	25.4	E24 1.0
1½	1.50	38.1	E24 1.5
2	2.00	50.8	E24 2.0
2 ½	2.50	63.5	E24 2.5
3	3.00	76.2	E24 3.0
4	4.00	101.6	E24 4.0



### E24PVC - HANGER

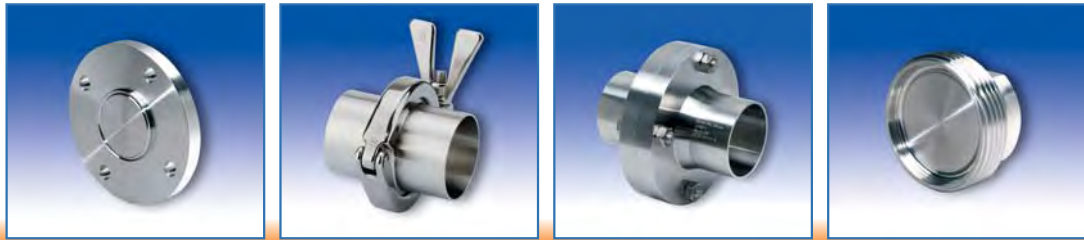
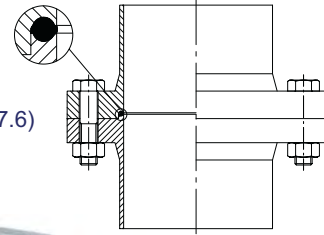
Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	.500	12.7	E24PVC.5
¾	.750	19.05	E24PVC.75
1	1.00	25.4	E24PVC1.0
1½	1.50	38.1	E24PVC1.5
2	2.00	50.8	E24PVC2.0
2 ½	2.50	63.5	E24PVC2.5
3	3.00	76.2	E24PVC3.0
4	4.00	101.6	E24PVC4.0



## Complementary Products

### BioConnect®

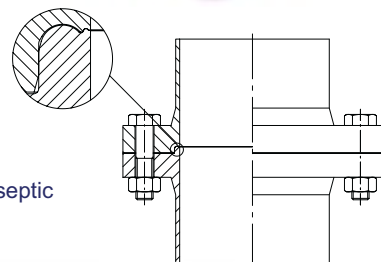
- Optimized recess contour (patent approved)
- Highest press-on power at the transitions to wetted areas prevents dirt and germs getting into the sealing space (see ASME-BPE, Ch. SD-3.7.2 and 3.7.6)
- Defined expansion pockets excludes dangerous "escalator effect" between wetted area and elastomer seat (see ASME-BPE, Ch. SD-3.7.2)
- Self-draining even after expansion of seal due to high temperature (see ASME-BPE, Ch. SD-3.7.7)
- Metal-to-metal-stop avoids stress or overcompression of gaskets (O-ring) (see ASME-BPE, Ch. SD-3.7.8)
- Nominal pressure PN16 (D6 - DN100, ½" - 4")



### Connect S® - a unique solution without elastomer gasket

- Optimal recess contour and design of the sealing metallic surface (patent approved)
- Excellent cleanability
- Tested by Fraunhofer-Institut for Grenzflächen-und Bioverfahrenstechnik
- Hermetic tightness even under repeated temperature changes
- Defined pre-stressing on the metallic sealing surface
- No gasket - no elevator effect
- Protection of the sealing contour against damage
- Axial positioning by metal-to-metal-stop
- Exact positioning by central guidance
- Material grade 1.4435/316 L; other grades on request
- Wetted areas with roughness  $Ra < 0,8\mu m$  ( $Ra < 0,5\mu m$  on demand)
- Dimensions acc. ASME-BPE, DIN11866, DIN 11850, ISO 1127
- Material Test Report according EN 10204-3.1 (on request ADW 2)
- Approval for pressure application: issued by TÜV Germany (Süddeutschland)

- a) Nominal Pressure:    PN 16 (DN 6 until DN 50)  
                                   PN 10 (DN 65 until DN 100)  
                                   PN 100 (DN 6 until DN 40, high pressure-aseptic connection)



## BioControl®

BioControl® is a fully aseptic modular system with TÜV-approval for pressure application. BioControl® provides the user with a fully hygienic port for connecting control instruments, gauges, sight glasses etc., allowing cleaning and sterilizing in place.

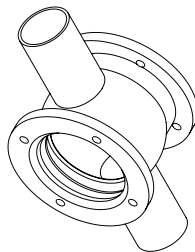
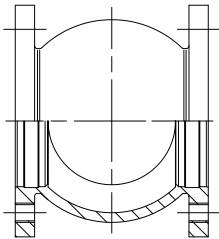
BioControl® system is supported by the following manufacturers of instruments and special equipment:

- Endress + Hauser
- WIKA
- LABOM
- Fisher Rosemount (EMERSON)
- Papenmeier
- Others

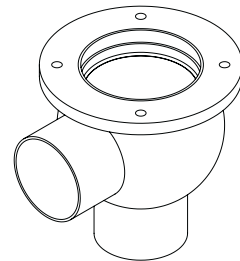
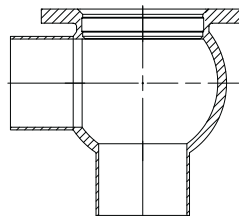
BioControl® allows 100% Cleaning-In-Place where typical instrument tees stay with uncleaned dead pockets.



Example: Inline - Housing



Example: Angle - Housing





## 88° & 92° Elbows

### TE2S - 88° ELBOW

Nominal Size in.	Dimensions					Ordering Code
	T inch (mm)	$\alpha=88^\circ$				
	A in.	A mm	B in.	B mm		
½	.065 (1.65)	3.06	77.72	2.96	75.18	TE2S886L.5-..
¾	.065 (1.65)	3.06	77.72	2.96	75.18	TE2S886L.75-..
1	.065 (1.65)	3.43	87.12	2.95	74.93	TE2S886L1.0-..
1½	.065 (1.65)	3.8	96.52	3.67	93.22	TE2S886L1.5-..
2	.065 (1.65)	4.81	122.17	4.64	117.86	TE2S886L2.0-..
2½	.065 (1.65)	5.56	141.22	5.37	139.40	TE2S886L2.5-..
3	.065 (1.65)	6.31	160.27	6.09	154.69	TE2S886L3.0-..
4	.083 (2.115)	8.07	204.98	7.79	197.87	TE2S886L4.0-..

### TE2S - 92° ELBOW

Dimensions				Ordering Code
$\alpha=92^\circ$				
A in.	A mm	B in.	B mm	
2.94	74.68	3.04	77.22	TE2S926L.5-..
2.95	74.93	3.04	77.22	TE2S926L.75-..
2.95	74.93	3.05	77.22	TE2S926L1.0-..
3.74	95.00	3.83	97.28	TE2S926L1.5-..
4.73	120.14	4.85	123.19	TE2S926L2.0-..
5.44	138.18	5.63	143.00	TE2S926L2.5-..
6.19	157.23	6.41	162.81	TE2S926L3.0-..
7.93	201.42	8.21	208.53	TE2S926L4.0-..

### TEG2C - 88° ELBOW

Nominal Size in.	Dimensions					Ordering Code
	T inch (mm)	$\alpha=88^\circ$				
	A in.	A mm	B in.	B mm		
½	.065 (1.65)	1.64	41.66	1.59	40.39	TEG2C886L.5-..
¾	.065 (1.65)	1.64	41.66	1.59	40.39	TEG2C886L.75-..
1	.065 (1.65)	2.02	51.31	1.95	49.53	TEG2C886L1.0-..
1½	.065 (1.65)	2.77	70.36	2.67	67.82	TEG2C886L1.5-..
2	.065 (1.65)	3.52	89.41	3.4	86.36	TEG2C886L2.0-..
2½	.065 (1.65)	4.26	108.20	4.12	104.65	TEG2C886L2.5-..
3	.065 (1.65)	5.02	127.51	4.84	122.94	TEG2C886L3.0-..
4	.083 (2.115)	6.64	168.66	6.42	163.07	TEG2C886L4.0-..

### TEG2C - 92° ELBOW

Dimensions				Ordering Code
$\alpha=92^\circ$				
A in.	A mm	B in.	B mm	
1.63	41.40	1.66	42.16	TEG2C926L .5-..
1.63	41.40	1.66	42.16	TEG2C926L .75-..
2	50.80	2.05	52.07	TEG2C926L 1.0-..
2.75	69.85	2.83	71.88	TEG2C926L 1.5-..
3.5	88.90	3.6	91.44	TEG2C926L 2.0-..
4.25	107.95	4.38	122.68	TEG2C926L 2.5-..
5	127.00	5.16	131.06	TEG2C926L 3.0-..
6.62	168.15	6.83	173.48	TEG2C926L 4.0-..

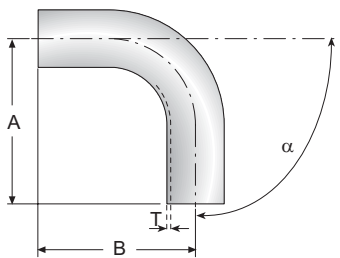
### TE2C - 88° ELBOW

Nominal Size in.	Dimensions					Ordering Code
	T inch (mm)	$\alpha=88^\circ$				
	A in.	A mm	B in.	B mm		
½	.065 (1.65)	3.02	76.71	1.59	40.39	TE2C886L.5-..
¾	.065 (1.65)	3.02	76.71	1.59	40.39	TE2C886L.75-..
1	.065 (1.65)	3.02	76.71	1.95	40.39	TE2C886L1.0-..
1½	.065 (1.65)	3.77	95.76	2.67	67.82	TE2C886L1.5-..
2	.065 (1.65)	4.77	121.16	3.4	86.36	TE2C886L2.0-..
2½	.065 (1.65)	5.52	140.21	4.12	104.65	TE2C886L2.5-..
3	.065 (1.65)	6.27	159.26	4.84	122.94	TE2C886L3.0-..
4	.083 (2.115)	8.02	203.71	6.42	163.07	TE2C886L4.0-..

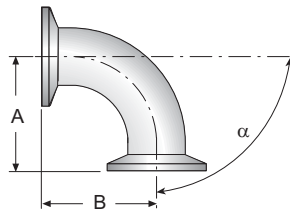
### TE2C - 92° ELBOW

Dimensions				Ordering Code
$\alpha=92^\circ$				
A in.	A mm	B in.	B mm	
2.98	75.69	1.66	42.16	TE2C926L .5-..
2.98	75.69	1.66	42.16	TE2C926L .75-..
2.98	75.69	2.05	52.07	TE2C926L 1.0-..
3.73	94.74	2.83	71.88	TE2C926L 1.5-..
4.73	120.14	3.6	91.44	TE2C926L 2.0-..
5.48	139.19	4.38	122.68	TE2C926L 2.5-..
6.25	158.75	5.16	131.06	TE2C926L 3.0-..
7.98	202.69	6.83	173.48	TE2C926L 4.0-..

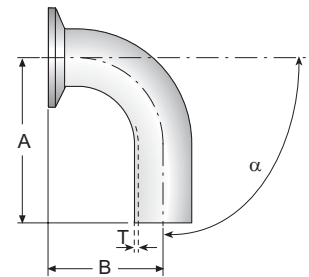
Note: 89 & 91 degree elbows are available upon request.



TE2S - 88°/92° ELBOW



TEG2C - 88°/92° ELBOW



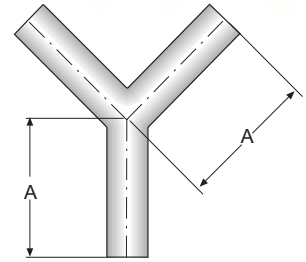
TE2C - 88°/92° ELBOW



## True Y

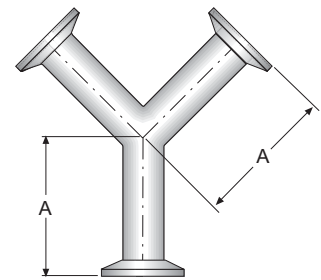
### TE28WB - TRUE Y

Nominal Size in.	Dimensions			Ordering Code
	A in.	A mm	Nom. Wall	
½	2.00	50.8	.065	TE28WB6L ½-..
¾	2.00	50.8	.065	TE28WB6L ¾-..
1	3.00	76.2	.065	TE28WB6L1.0-..
1½	3.00	76.2	.065	TE28WB6L1.5-..
2	4.00	101.6	.065	TE28WB6L2.0-..
2 ½	5.00	127.0	.065	TE28WB6L2.5-..
3	6.00	152.4	.065	TE28WB6L3.0-..
4	8.00	302.2	.083	TE28WB6L4.0-..
6	8.00	302.2	.109	TE28WB6L6.0-..



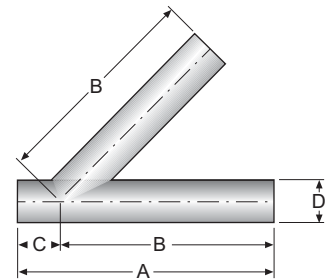
### TEG28B - CLAMP TRUE Y

Nominal Size in.	Dimensions		Ordering Code
	A in.	A mm	
½	2.50	63.5	TEG28B6L.5-..
¾	2.50	63.5	TEG28B6L.75-..
1	3.50	88.9	TEG28B6L1.0-..
1½	3.50	88.9	TEG28B6L1.5-..
2	4.50	114.9	TEG28B6L2.0-..
2 ½	5.50	139.7	TEG28B6L2.5-..
3	6.50	165.1	TEG28B6L3.0-..
4	8.625	219.1	TEG28B6L4.0-..
6	8.875	225.4	TEG28B6L6.0-..



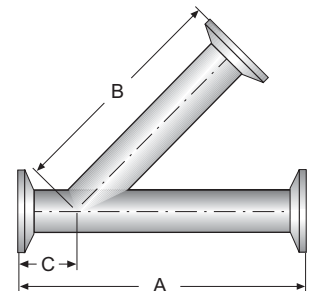
### TE28WA - 45° LATERAL

Nominal Size in.	Dimensions								Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	D in.	D mm	
½	6.00	152.4	5.00	127.0	1.00	25.4	0.50	12.7	TE28WA6L.5-..
¾	6.00	152.4	5.00	127.0	1.00	25.4	0.75	19.1	TE28WA6L.75-..
1	6.00	152.4	5.00	127.0	1.00	25.4	1.00	25.4	TE28WA6L1.0-..
1½	7.38	187.45	6.19	157.2	1.19	30.2	1.50	38.1	TE28WA6L1.5-..
2	8.75	222.3	7.12	181.0	1.63	41.4	2.00	50.8	TE28WA6L2.0-..
2 ½	10.00	254.0	8.50	215.9	1.50	38.1	2.50	63.50	TE28WA6L2.5-..
3	10.75	270.1	8.87	225.4	1.87	47.5	3.00	76.2	TE28WA6L3.0-..
4	12.81	325.4	10.75	273.1	2.06	52.4	4.00	101.6	TE28WA6L4.0-..
6	16.50	419.1	12.50	317.5	4.00	101.6	6.00	152.4	TE28WA6L6.0-..



### TEG28A - 45° CLAMP LATERAL

Nominal Size in.	Dimensions						Ordering Code
	A in.	A mm	B in.	B mm	C in.	C mm	
½	7.000	177.8	5.500	139.7	1.500	38.1	TEG28A6L ½-..
¾	7.000	177.8	5.500	139.7	1.500	38.1	TEG28A6L ¾-..
1	7.000	177.8	5.500	139.7	1.500	38.1	TEG28A6L1.0-..
1½	8.375	212.7	6.687	169.9	1.687	42.9	TEG28A6L1.5-..
2	9.750	247.7	7.625	193.7	2.125	54.0	TEG28A6L2.0-..
2 ½	11.000	279.4	9.000	228.6	2.000	50.8	TEG28A6L2.5-..
3	11.750	298.5	9.375	238.1	2.375	60.3	TEG28A6L3.0-..
4	14.062	357.2	11.375	288.9	2.687	68.3	TEG28A6L4.0-..
6	18.250	479.4	15.375	390.5	4.875	111.1	TEG28A6L6.0-..



## Customized Components

EGMO, VNE and NEUMO specialize in manufacturing customized stainless steel components and sub-assemblies from customer specifications, sketches or drawings.





## Technical Information

### Pressure service ratings for sanitary stainless steel clamps

Size Tube OD	13MHHM(-H)				13MHHS				13MHP			
	@70°F / 21°C		@250°F / 121°C		@70°F / 21°C		@250°F / 121°C		@70°F / 21°C		@250°F / 121°C	
	PSI	bar	PSI	bar	PSI	bar	PSI	bar	PSI	bar	PSI	bar
½" & ¾"	1500	103	1200	83					1500	103	1200	83
1 & 1½"	500	34	250	17	600	41	300	21	1500	103	1200	83
2"	450	31	250	17	550	38	275	19	1000	69	800	55
2½"	400	28	200	14	450	31	225	16	1000	69	800	55
3"	350	24	150	10	350	24	160	11	1000	69	800	55
4"	200	14	125	9	250	17	150	10	1000	69	800	55
5"	175	12	100	7								
6"	150	10	75	5								
8"	100	7	50	3								
10"	40	3	30	2								
12"	30	2	25	2								

### Gasket Material Properties

Property	PTFE®	VITON®	SILICON	EPDM
<b>Temperature Range</b>	-40 to 450° F -40 to 232° C	-20 to 400° F -29 to 204° C	-80 to 450° F -62 to 232° C	-55 to 275° F -48 to 135° C
<b>Acid Resistance</b>	Excellent	Good	Good	Good - excellent
<b>Alkali Resistance</b>	Excellent	Poor - good	Poor - fair	Good - excellent
<b>Abrasion Resistance</b>	Excellent	Good	Good - excellent	Good - excellent
<b>Compression Set</b>	Cold flows	Good - excellent	Good - excellent	Fair

### Conversion Table Of Surface Finishes

Mechanical Finish		
μ-in.	μm	Grit
32 Ra	0.8 Ra	150
24 Ra	0.6 Ra	180
20 Ra	0.5 Ra	240
12 Ra	0.3 Ra	320

## Industry Terms Glossary

Term	Acronym	Definition
<b>A</b>		
Alloy	----	A material composed of two or more metals which are mixed and united - usually when they are in a molten state. Alloys are created to improve properties such as the appearance, strength and durability of metals. Common alloys include cast iron, stainless steel, brass, bronze, sterling silver and alpha cellulose, that part of a material made of cellulose that is insoluble in a 17.5% solution of sodium hydroxide at 20°C under specified conditions. While alpha cellulose consists principally of cellulose, it does include other components that are insoluble under the test conditions.
American Society of Mechanical Engineers	<b>ASME</b>	Creates consensus standards for Mechanical Engineering.
American Society for the Testing & Materials	<b>ASTM</b>	Creates consensus standards for material quality and material quality testing methods
Aseptic	----	Free of pathogenic (disease causing) micro-organisms.
ASTM-A 269	<b>ASTM-A 269</b>	Specification titled "Seamless and Welded Austenitic Stainless Steel Tubing for General Service". This specification covers a variety of grades of austenitic stainless steel tubing.
ASTM-A 270	<b>ASTM-A 270</b>	Specification titled "Welded Austenitic Stainless Steel Tubing" for use in the pharmaceutical industries and need to withstand secondary cold forming operations. This specification covers a variety of grades of austenitic stainless steel tubing.
<b>B</b>		
Bio Processing Equipment	<b>BPE</b>	ASME Standard is intended for the design, materials, construction, inspection and testing of vessels, piping and related process components used in the biopharmaceutical industry and other aseptic applications.
Bio Processing Equipment Committee	<b>BPEC</b>	A sub-committee of the ASME BPE Main committee working to develop the ASME BPE standard while meeting three times per year.
B31.3 ASME Process Piping	<b>B31.3</b>	American National Standard that covers piping typically found in pharmaceutical, semiconductor, and cryogenic plants, and related processing plants and terminals. It must be noted that B31.3 does not address hygienic tubing and/or piping; it applies mostly to inspection, examination, and testing of systems.

## Industry Terms Glossary

Term	Acronym	Definition
<b>C</b> Chemical reaction	----	The process by which chemicals combine with each other to form products, which differ from, or alter, the original substances.
Clean in Place	<b>CIP</b>	The technique of cleaning process line components without the need for disassembly.
Conductivity	----	Measurement of a substance's ability to conduct an electric current.
current Good Manufacturing Practice	<b>cGMP</b>	Written and enforced by the FDA. Consists of some specific, but mostly "umbrella" regulations covering personnel, records, and equipment, leaving much to the interpretation of the Inspector and the court system. cGMP's are evolutionary, reflecting the least common denominator of practices in the industry at present (hence the term "current").
<b>D</b> Dead Leg	----	A section of pipe in a closed recirculation loop that does not have a continuous flow through it.
Deutsches Institut für Normung (German Institute for Standardization)	<b>DIN</b>	Creates engineering standards for Germany Contributing body to CEN and ISO. Other countries and companies give adopted DIN standards.
<b>E</b> Electron Spectroscopy for Chemical Analysis	<b>ESCA</b>	A procedure that uses electron beams to characterize the extreme outer surface of a metal. Typically used to determine levels of chromium oxide on the surface of austenitic stainless steel.
Electro-Polish	<b>EP or E/P</b>	Polishing process for metal components where the part is placed in an acid bath (typically sulfuric or phosphoric) containing a cathode. As current is passed through the cathode, metal ions are removed from the surface of the metal.
Epidemiology	----	Study of the distribution and determinants of diseases in populations.
European Hygienic Equipment Design Group	<b>EHEDG</b>	Comprised of representatives from research institutes, equipment manufacturers, the food and bio-pharm industry and legislative bodies. The group's objective is to provide standardization organizations (CEN and ISO) with specialist views on hygienic and aseptic design by publishing requirements and test methods.

## Industry Terms Glossary

Term	Acronym	Definition
<b>F</b> Fermentation	----	The biochemical synthesis of organic compounds by microorganisms or cultivated cells.
Food and Drug Administration (USA)	<b>FDA</b>	Enforcement agency of the U.S. government for food, drug and cosmetics manufacturing. Author of the U.S. cGMP's. Responsible for new product approvals, plant inspections and product recalls.
<b>G</b> Gas Tungsten Arc Welding	<b>GTAW</b>	(a.k.a. TIG) A welding process where the welding arc is maintained between a non-consumable tungsten electrode and the base metal to be welded. The arc is shielded with an inert gas, typically argon.
Good Manufacturing Practices	<b>GMP</b>	Refers specifically to FDA cGMP's (see cGMP) or to the standards of manufacturing in a particular country and industry (e.g.:EU GMP). Generally refers to standards that are written and enforced.
<b>H</b> Heat Tracing	----	Permanent identification used to trace a part back to the mill heat (batch) from which the part was manufactured. Each heat number traces back to an MTR (see MTR).
<b>I</b> International Standards Organization	<b>ISO</b>	Creates consensus standards for engineering and quality systems.
International Society for Pharmaceutical Engineering	<b>ISPE</b>	A global not-for-profit membership organization that provides education, training and technical publications to pharmaceutical manufacturing professionals.
<b>J</b> Joining Techniques	----	Connections between tube and tube or tube and fitting, and even tube/fitting to equipment during system fabrication and/or construction can be accomplished by diverse means.

## Industry Terms Glossary

Term	Acronym	Definition
<b>M</b> Mill Test Report or Material Test Report	<b>MTR</b>	(a.k.a. "Mill Certs"). A document certifying the composition of a metal from a particular heat batch.
<b>O</b> Orbital Welding	----	An automated TIG (or GTAW) welding process that is designed to produce repeatable fusion welds for tubular components. A system consists of a programmable power supply and weld head. The power supply controls the weld parameters of current and electrode speed. The weld head holds the two parts, purges the weld and moves the electrode using an electric motor.
Ovality	----	A quantitative measurement of how 'round' a tube is by comparing width to height. Limits are specified on the appropriate ASTM specification of a product.
<b>P</b> Parenteral Drug Association	<b>PDA</b>	Association for manufacturers of injectable drug products. Publishes technical reports and other publications of interest to the industry.
Passivation	----	The process of rinsing stainless steel with acid (typically nitric) to form a corrosion resistant chromium-oxide layer on the surface.
Pharma- coepidemiology	----	The study of the utilization and effects of drugs in large numbers of people. To accomplish this study, pharmacoepidemiology borrows from both pharmacology and epidemiology.
Point of Use	<b>POU</b>	A valved branch in a recirculating utility system (typically a water system).
Process Qualification/ Process Validation	<b>PQ/PV</b>	The demonstration and documentation that the various units and procedures of a process operate as they should. This logically establishes that the product is of the quality the system is purported to yield. Performed after the IQ/OQ has been executed and approved. Typically, the acceptance criteria is the same as the product acceptance criteria, and the product run is considered product-for-sale. Executed by the manufacturing personnel of the operating company according to the SOP.

## Industry Terms Glossary

Term	Acronym	Definition
<b>R</b> Roughness Average (Ra)	<b>Ra</b>	An expression of measured surface roughness or texture, typically, of a polished or machined metal surface. The arithmetic average value of the departure (peaks and valleys) of a surface profile from the centerline throughout the sampling length, generally expressed in micro-inch( $\mu$ in) or micrometer( $\mu$ m) units and measured with profilometers and/or orescopes.
<b>S</b> Seamless Pipe	----	Pipe produced from a solid billet that is heated and rotated under pressure. This rotating pressure creates a hole in the middle of the billet, which is then formed into a pipe by a mandrel.
Solvent Cleaning	----	The removal of contaminants such as oil, grease, dirt, salts, etc. by cleaning with a solvent, steam, vapor, alkali, or emulsion.
Standard Operating Procedure	<b>SOP</b>	(a.k.a. EOP, OP) A controlled document that outlines the procedure for operating equipment/ systems. An operator's adherence to a written SOP is an integral part of the validation process. It is the connecting link between the initial validation process and the daily manufacturing operation.
Steam in Place	<b>SIP</b>	Sanitization of process line components by the use of steam without the need for disassembly.
Sterile	----	Free of living organisms.
Sulfur	----	A non-metallic element that exists in several forms-the ordinary one being a yellow, rhombic, crystalline solid-and which burns with a blue flame and a suffocating smell. Some sulfur compounds, particularly sulphides and oxides, can cause severe chemical deterioration in objects.
Surface Finish	<b>SFF</b>	Surface finishes are all interior surface finishes accessible and inaccessible, that directly or indirectly come in contact with the designated product in bioprocessing equipment and distribution system components. Surface roughness specification and measurement standard shall be determined by Ra values rather than by polishing methods.

## Industry Terms Glossary

Term	Acronym	Definition
<b>T</b> Tubing Dimensions	----	O.D. - outside diameter I.D. - inside diameter Wall thickness or gauge. All tube dimensions are specific; pipe dimensions are nominal. Specific – actual measurements in inches. Nominal – theoretical or stated value of a dimension.
Tungsten Inert Gas	<b>TIG</b>	(a.k.a. GTAW) A welding process where the welding arc is maintained between a non-consumable tungsten electrode and the base metal to be welded. The arc is shielded with an inert gas, typically argon.

<b>U</b> Ultra Filter or Ultra-Filtration	<b>UF</b>	Filters formed from polymer membranes. UFs have the ability to retain larger molecules while permitting the passage of smaller ones. Often used for the separation of proteins.
Ultraviolet Light or Ultraviolet Radiation	<b>UV</b>	Radiation in the ultraviolet portion of the spectrum (200 to 400 nm) is used to destroy micro-organisms. Also used to neutralize ozone.
US Pharmaceutical Class VI-XXII	<b>USP</b>	An official public standards-setting authority for healthcare products manufactured and sold in the United States. USP sets standards for the quality of these products which are also recognized and used outside the United States.

<b>W</b> Water For Injection	<b>WFI</b>	Water for use as a solvent for the preparation of parenteral products conforming to USPXXIII (EP and JP) guidelines. Obtained most commonly by distillation. However, other processes are allowed depending on particular pharmacopoeia.
Welded Tubing	----	Tubular products, which are rolled, formed and then joined continuously along a longitudinal seam by a material fusion process. The process employed at Gibson Tube is, Gas Tungsten Arc Welding (GTAW). See Gas Tungsten Arc Welding’.

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