



VA3

KF, ISO VACUUM COMPONENTS

Applications:

Tubes and butt weld fittings specially use with ISO-KF, ISO-K, ISO-F vacuum components

Material:

SS304L (seamless or welded depends on size)
SS316L (seamless or welded depends on size)

Dimensions:

According to ASTM A269/ A270/ A632

Size (Inch)	Outside Diameter (mm)	Wall Thickness (mm)
0.5"	12.7	1.65
0.75"	19.05	1.65
1"	25.4	1.65
1.5"	38.1	1.65
2"	50.8	1.65
2.5"	63.5	1.65
3"	76.2	1.65
4"	101.6	2.11
6"	152.4	2.77

** Larger size upon request

Surface Finish:

Bright annealed (BA) or mechanically polished (MP)

Surface Roughness (Ra max):

Internal $\leq 24\mu\text{-in}$ (0.6 μm)
External $\leq 32\mu\text{-in}$ (0.8 μm)

Butt Weld End:

Short fittings for TIG welding; also available long fittings for orbital welding

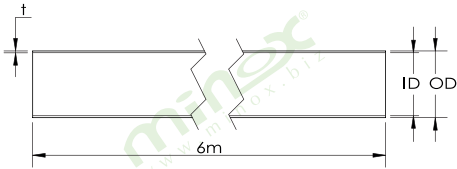
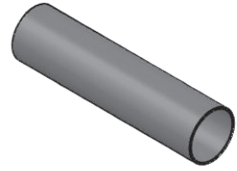
Documentation:

The material test and inspection certificate contains with the following information:

- Certificate serial number
- Delivery order number
- Customer's company name & PO number
- Product specification
- Surface roughness
- Chemical composition
- Mechanical features
- Heat number

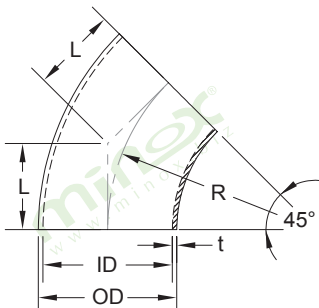
Marking & Traceability:

MINOX products engrave with brand name, material, size and traceable heat number. These information and customer's purchase are well record and track in our certificate system



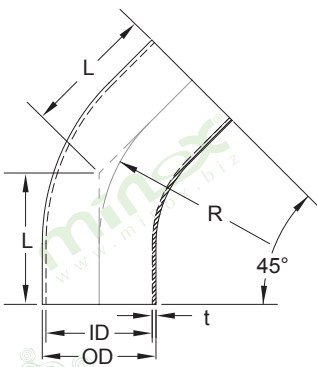
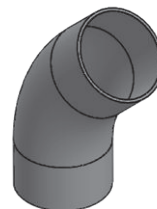
Tube Dimension (mm)			
Size (Inch)	OD	ID	t
0.50"	12.70	9.40	1.65
0.75"	19.05	15.75	1.65
1.0"	25.40	22.10	1.65
1.5"	38.10	34.80	1.65
2.0"	50.80	47.50	1.65
2.5"	63.50	60.20	1.65
3.0"	76.20	72.90	1.65
4.0"	101.60	97.38	2.11
6.0"	152.40	146.86	2.77





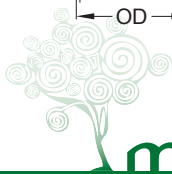
**45 Deg Elbow
Dimension (mm)**

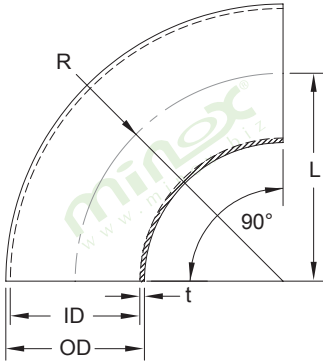
Size (Inch)	OD / ID x t	L	R
0.5"	12.7 / 9.4 x 1.65	7.1	19.05
0.75"	19.05 / 15.75 x 1.65	11.9	28.60
1.0"	25.4 / 22.1 x 1.65	15.9	38.10
1.5"	38.1 / 34.8 x 1.65	23.8	57.20
2.0"	50.8 / 47.5 x 1.65	31.8	76.20
2.5"	63.5 / 60.2 x 1.65	39.7	95.30
3.0"	76.2 / 72.9 x 1.65	47.6	114.30
4.0"	101.6 / 97.38 x 2.11	63.5	152.40
6.0"	152.4 / 146.86 x 2.77	95.3	228.60



**45 Deg Elbow with Automatic Tube Weld End
Dimension (mm)**

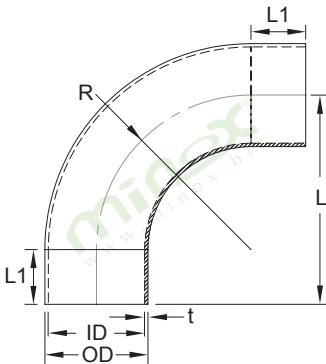
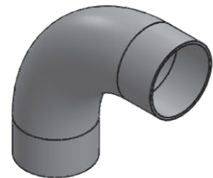
Size (Inch)	OD / ID x t	L	R
0.5"	12.7 / 9.4 x 1.65	57.2	28.6
0.75"	19.05 / 15.75 x 1.65	57.2	28.6
1.0"	25.4 / 22.1 x 1.65	57.2	38.1
1.5"	38.1 / 34.8 x 1.65	63.5	57.2
2.0"	50.8 / 47.5 x 1.65	76.2	76.2
2.5"	63.5 / 60.2 x 1.65	85.7	95.3
3.0"	76.2 / 72.9 x 1.65	92.1	114.3
4.0"	101.6 / 97.38 x 2.11	114.3	152.4
6.0"	152.4 / 146.86 x 2.77	158.8	228.6





**90 Deg Elbow
Dimension (mm)**

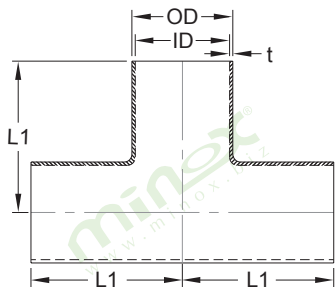
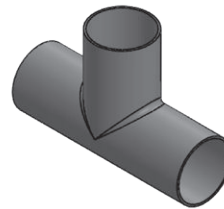
Size (Inch)	OD / ID x t	L	R
0.5"	12.7 / 9.4 x 1.65	19.05	19.05
0.75"	19.05 / 15.75 x 1.65	28.60	28.60
1.0"	25.4 / 22.1 x 1.65	38.10	38.10
1.5"	38.1 / 34.8 x 1.65	57.20	57.20
2.0"	50.8 / 47.5 x 1.65	76.20	76.20
2.5"	63.5 / 60.2 x 1.65	95.30	95.30
3.0"	76.2 / 72.9 x 1.65	114.30	114.30
4.0"	101.6 / 97.38 x 2.11	152.40	152.40
6.0"	152.4 / 146.86 x 2.77	228.60	228.60



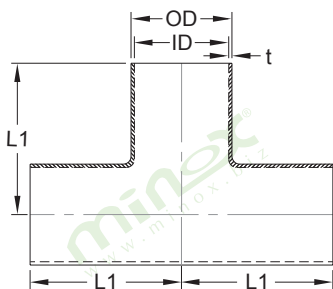
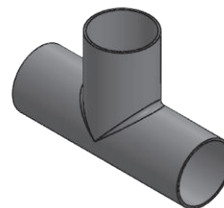
**90 Deg Elbow with Automatic Tube Weld End
Dimension (mm)**

Size (Inch)	OD / ID x t	L	L1	R
0.5"	12.7 / 9.4 x 1.65	76.2	38.1	28.6
0.75"	19.05 / 15.75 x 1.65	76.2	38.1	28.6
1.0"	25.4 / 22.1 x 1.65	76.2	38.1	38.1
1.5"	38.1 / 34.8 x 1.65	95.3	38.1	57.2
2.0"	50.8 / 47.5 x 1.65	120.7	44.5	76.2
2.5"	63.5 / 60.2 x 1.65	139.7	44.5	95.3
3.0"	76.2 / 72.9 x 1.65	158.8	44.5	114.3
4.0"	101.6 / 97.38 x 2.11	203.2	50.8	152.4
6.0"	152.4 / 146.86 x 2.77	292.1	63.5	228.6

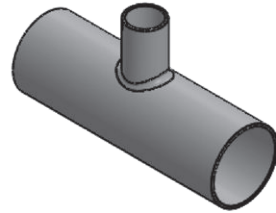
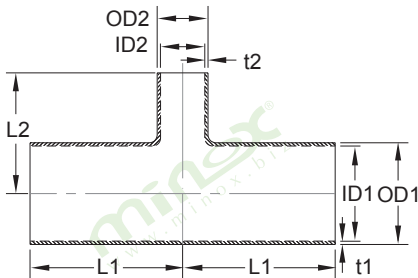




Equal Tee Dimension (mm)		
Size (Inch)	OD / ID x t	L1
0.5"	12.7 / 9.40 x 1.65	19.1
0.75"	19.05 / 15.75 x 1.65	28.6
1.0"	25.4 / 22.10 x 1.65	28.6
1.5"	38.1 / 34.80 x 1.65	42.1
2.0"	50.8 / 47.50 x 1.65	52.4
2.5"	63.5 / 60.20 x 1.65	59.5
3.0"	76.2 / 72.90 x 1.65	65.9
4.0"	101.6 / 97.38 x 2.11	87.3
6.0"	152.4 / 146.86 x 2.77	127.0



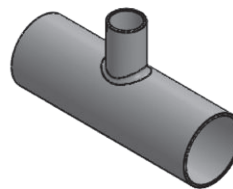
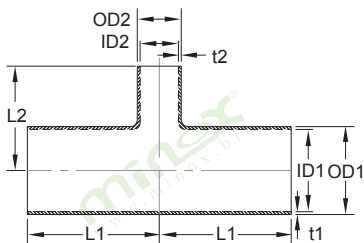
Equal Tee with Automatic Tube Weld End Dimension (mm)		
Size (Inch)	OD / ID x t	L1
0.5"	12.7 / 9.40 x 1.65	47.6
0.75"	19.05 / 15.75 x 1.65	50.8
1.0"	25.4 / 22.10 x 1.65	54.0
1.5"	38.1 / 34.80 x 1.65	60.3
2.0"	50.8 / 47.50 x 1.65	73.0
2.5"	63.5 / 60.20 x 1.65	79.4
3.0"	76.2 / 72.90 x 1.65	85.7
4.0"	101.6 / 97.38 x 2.11	104.8
6.0"	152.4 / 146.86 x 2.77	142.9



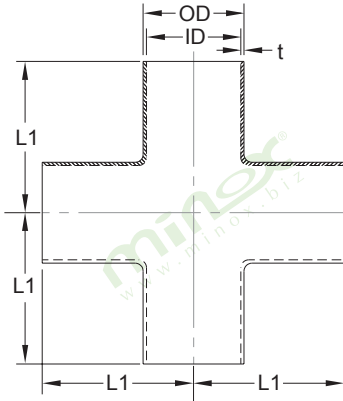
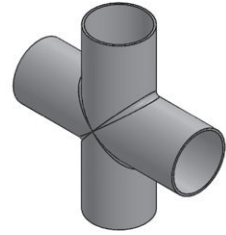
**Reducing Tee
Dimension (mm)**

Size (Inch)	OD1 / ID1 x t1	OD2 / ID2 x t2	L1	L2
1.5" x 1.0"	38.1 / 34.8 x 1.65	25.4 / 22.1 x 1.65	42.1	34.9
2.0" x 0.5"	50.8 / 47.5 x 1.65	12.7 / 9.4 x 1.65	52.4	41.3
2.0" x 0.75"	50.8 / 47.5 x 1.65	19.05 / 15.75 x 1.65	52.4	41.3
2.0" x 1.0"	50.8 / 47.5 x 1.65	25.4 / 22.1 x 1.65	52.4	41.3
2.0" x 1.5"	50.8 / 47.5 x 1.65	38.1 / 34.8 x 1.65	52.4	48.4
2.5" x 0.5"	63.5 / 60.2 x 1.65	12.7 / 9.4 x 1.65	59.5	47.6
2.5" x 0.75"	63.5 / 60.2 x 1.65	19.05 / 15.75 x 1.65	59.5	47.6
2.5" x 1.0"	63.5 / 60.2 x 1.65	25.4 / 22.1 x 1.65	59.5	47.6
2.5" x 1.5"	63.5 / 60.2 x 1.65	38.1 / 34.8 x 1.65	59.5	54.8
2.5" x 2.0"	63.5 / 60.2 x 1.65	50.8 / 47.5 x 1.65	59.5	58.7
3.0" x 0.75"	76.2 / 72.9 x 1.65	19.05 / 15.75 x 1.65	65.9	54.0
3.0" x 1.0"	76.2 / 72.9 x 1.65	25.4 / 22.1 x 1.65	65.9	54.0
3.0" x 1.5"	76.2 / 72.9 x 1.65	38.1 / 34.8 x 1.65	65.9	61.1
3.0" x 2.0"	76.2 / 72.9 x 1.65	50.8 / 47.5 x 1.65	65.9	65.1
3.0" x 2.5"	76.2 / 72.9 x 1.65	63.5 / 60.2 x 1.65	65.9	65.9
4.0" x 1.0"	101.6 / 97.38 x 2.11	25.4 / 22.1 x 1.65	87.3	66.7
4.0" x 1.5"	101.6 / 97.38 x 2.11	38.1 / 34.8 x 1.65	87.3	73.8
4.0" x 2.0"	101.6 / 97.38 x 2.11	50.8 / 47.5 x 1.65	87.3	78.6
4.0" x 2.5"	101.6 / 97.38 x 2.11	63.5 / 60.2 x 1.65	87.3	78.6
4.0" x 3.0"	101.6 / 97.38 x 2.11	76.2 / 72.9 x 1.65	87.3	78.6
6.0" x 1.5"	152.4 / 146.86 x 2.77	38.1 / 34.8 x 1.65	127.0	120.7
6.0" x 2.0"	152.4 / 146.86 x 2.77	50.8 / 47.5 x 1.65	127.0	120.7
6.0" x 3.0"	152.4 / 146.86 x 2.77	76.2 / 72.9 x 1.65	127.0	120.7
6.0" x 4.0"	152.4 / 146.86 x 2.77	101.6 / 97.38 x 2.11	127.0	123.8



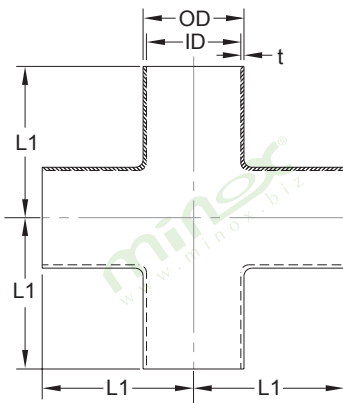
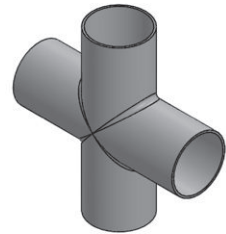

Reducing Tee with Automatic Tube Weld End
Dimension (mm)

Size (Inch)	OD1 / ID1 x t1	OD2 / ID2 x t2	L1	L2
0.5" x 0.25"	12.7 / 9.4 x 1.65	6.35 / 4.57 x 0.89	47.6	47.6
0.5" x 0.375"	12.7 / 9.4 x 1.65	9.53 / 7.75 x 0.89	47.6	47.6
0.75" x 0.25"	19.05 / 15.75 x 1.65	6.35 / 4.57 x 0.89	50.8	50.8
0.75" x 0.375"	19.05 / 15.75 x 1.65	9.53 / 7.75 x 0.89	50.8	50.8
0.75" x 0.5"	19.05 / 15.75 x 1.65	12.7 / 9.4 x 1.65	50.8	50.8
1" x 0.25"	25.4 / 22.1 x 1.65	6.35 / 4.57 x 0.89	54.0	54.0
1" x 0.375"	25.4 / 22.1 x 1.65	9.53 / 7.75 x 0.89	54.0	54.0
1" x 0.5"	25.4 / 22.1 x 1.65	12.7 / 9.4 x 1.65	54.0	54.0
1" x 0.75"	25.4 / 22.1 x 1.65	19.05 / 15.75 x 1.65	54.0	54.0
1.5" x 0.5"	38.1 / 34.8 x 1.65	12.7 / 9.4 x 1.65	60.3	60.3
1.5" x 0.75"	38.1 / 34.8 x 1.65	19.05 / 15.75 x 1.65	60.3	60.3
1.5" x 1.0"	38.1 / 34.8 x 1.65	25.4 / 22.1 x 1.65	60.3	60.3
2.0" x 0.5"	50.8 / 47.5 x 1.65	12.7 / 9.4 x 1.65	73.0	66.7
2.0" x 0.75"	50.8 / 47.5 x 1.65	19.05 / 15.75 x 1.65	73.0	66.7
2.0" x 1.0"	50.8 / 47.5 x 1.65	25.4 / 22.1 x 1.65	73.0	66.7
2.0" x 1.5"	50.8 / 47.5 x 1.65	38.1 / 34.8 x 1.65	73.0	66.7
2.5" x 0.5"	63.5 / 60.2 x 1.65	12.7 / 9.4 x 1.65	73.0	66.7
2.5" x 0.75"	63.5 / 60.2 x 1.65	19.05 / 15.75 x 1.65	73.0	66.7
2.5" x 1.0"	63.5 / 60.2 x 1.65	25.4 / 22.1 x 1.65	79.4	73.0
2.5" x 1.5"	63.5 / 60.2 x 1.65	38.1 / 34.8 x 1.65	79.4	73.0
2.5" x 2.0"	63.5 / 60.2 x 1.65	50.8 / 47.5 x 1.65	79.4	73.0
3.0" x 0.5"	76.2 / 72.9 x 1.65	12.7 / 9.4 x 1.65	85.7	79.4
3.0" x 0.75"	76.2 / 72.9 x 1.65	19.05 / 15.75 x 1.65	85.7	79.4
3.0" x 1.0"	76.2 / 72.9 x 1.65	25.4 / 22.1 x 1.65	85.7	79.4
3.0" x 1.5"	76.2 / 72.9 x 1.65	38.1 / 34.8 x 1.65	85.7	79.4
3.0" x 2.0"	76.2 / 72.9 x 1.65	50.8 / 47.5 x 1.65	85.7	79.4
3.0" x 2.5"	76.2 / 72.9 x 1.65	63.5 / 60.2 x 1.65	85.7	79.4
4.0" x 0.5"	101.6 / 97.38 x 2.11	12.7 / 9.4 x 1.65	104.8	92.1
4.0" x 0.75"	101.6 / 97.38 x 2.11	19.05 / 15.75 x 1.65	104.8	92.1
4.0" x 1.0"	101.6 / 97.38 x 2.11	25.4 / 22.1 x 1.65	104.8	92.1
4.0" x 1.5"	101.6 / 97.38 x 2.11	38.1 / 34.8 x 1.65	104.8	92.1
4.0" x 2.0"	101.6 / 97.38 x 2.11	50.8 / 47.5 x 1.65	104.8	92.1
4.0" x 2.5"	101.6 / 97.38 x 2.11	63.5 / 60.2 x 1.65	104.8	92.1
4.0" x 3.0"	101.6 / 97.38 x 2.11	76.2 / 72.9 x 1.65	104.8	92.1
6.0" x 0.5"	152.4 / 146.86 x 2.77	12.7 / 9.4 x 1.65	142.9	117.5
6.0" x 0.75"	152.4 / 146.86 x 2.77	19.05 / 15.75 x 1.65	142.9	117.5
6.0" x 1.0"	152.4 / 146.86 x 2.77	25.4 / 22.1 x 1.65	142.9	117.5
6.0" x 1.5"	152.4 / 146.86 x 2.77	38.1 / 34.8 x 1.65	142.9	117.5
6.0" x 2.0"	152.4 / 146.86 x 2.77	50.8 / 47.5 x 1.65	142.9	123.8
6.0" x 2.5"	152.4 / 146.86 x 2.77	63.5 / 60.2 x 1.65	142.9	123.8
6.0" x 3.0"	152.4 / 146.86 x 2.77	76.2 / 72.9 x 1.65	142.9	123.8
6.0" x 4.0"	152.4 / 146.86 x 2.77	101.6 / 97.38 x 2.11	142.9	130.2



**Cross Tee
Dimension (mm)**

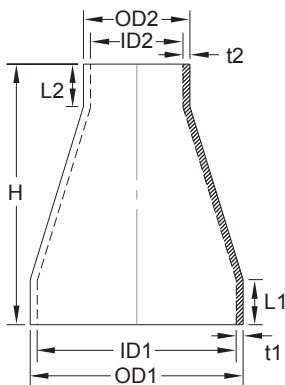
Size (Inch)	OD / ID x t	L1
0.5"	12.7 / 9.40 x 1.65	19.1
0.75"	19.05 / 15.75 x 1.65	28.6
1.0"	25.4 / 22.10 x 1.65	28.6
1.5"	38.1 / 34.80 x 1.65	42.1
2.0"	50.8 / 47.50 x 1.65	52.4
2.5"	63.5 / 60.20 x 1.65	59.5
3.0"	76.2 / 72.90 x 1.65	65.9
4.0"	101.6 / 97.38 x 2.11	87.3
6.0"	152.4 / 146.86 x 2.77	127.0



**Cross Tee with Automatic Tube Weld End
Dimension (mm)**

Size (Inch)	OD / ID x t	L1
0.5"	12.7 / 9.40 x 1.65	47.60
0.75"	19.05 / 15.75 x 1.65	50.8
1.0"	25.4 / 22.10 x 1.65	54.0
1.5"	38.1 / 34.80 x 1.65	60.3
2.0"	50.8 / 47.50 x 1.65	73.0
2.5"	63.5 / 60.20 x 1.65	79.4
3.0"	76.2 / 72.90 x 1.65	85.7
4.0"	101.6 / 97.38 x 2.11	104.8
6.0"	152.4 / 146.86 x 2.77	142.9

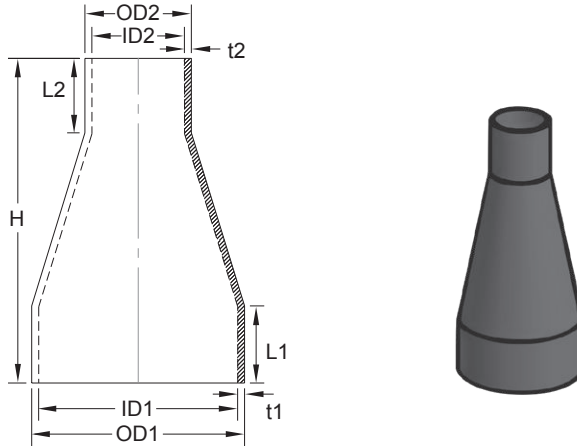




Concentric Reducer Dimension (mm)

Size (Inch)	OD1 / ID1 x t1	OD2 / ID2 x t2	H	L1	L2
0.75" x 0.5"	19.05 / 15.75 x 1.65	12.7 / 9.4 x 1.65	25.4	9.5	9.5
1.0" x 0.5"	25.40 / 22.1 x 1.65	12.7 / 9.4 x 1.65	60.3	9.5	9.5
1.0" x 0.75"	25.40 / 22.1 x 1.65	19.05 / 15.75 x 1.65	60.3	9.5	9.5
1.5" x 0.5"	38.1 / 34.8 x 1.65	12.7 / 9.4 x 1.65	69.9	9.5	9.5
1.5" x 0.75"	38.1 / 34.8 x 1.65	19.05 / 15.75 x 1.65	60.3	9.5	9.5
1.5" x 1.0"	38.1 / 34.8 x 1.65	25.4 / 22.1 x 1.65	60.3	9.5	9.5
2.0" x 0.5"	50.8 / 47.5 x 1.65	12.7 / 9.4 x 1.65	111.1	9.5	9.5
2.0" x 0.75"	50.8 / 47.5 x 1.65	19.05 / 15.75 x 1.65	101.6	9.5	9.5
2.0" x 1.0"	50.8 / 47.5 x 1.65	25.4 / 22.1 x 1.65	60.3	9.5	9.5
2.0" x 1.5"	50.8 / 47.5 x 1.65	38.1 / 34.8 x 1.65	60.3	9.5	9.5
2.5" x 1.0"	63.5 / 60.2 x 1.65	25.4 / 22.1 x 1.65	101.6	9.5	9.5
2.5" x 1.5"	63.5 / 60.2 x 1.65	38.1 / 34.8 x 1.65	60.3	9.5	9.5
2.5" x 2.0"	63.5 / 60.2 x 1.65	50.8 / 47.5 x 1.65	60.3	9.5	9.5
3.0" x 1.0"	76.2 / 72.9 x 1.65	25.4 / 22.1 x 1.65	133.4	9.5	9.5
3.0" x 1.5"	76.2 / 72.9 x 1.65	38.1 / 34.8 x 1.65	92.0	9.5	9.5
3.0" x 2.0"	76.2 / 72.9 x 1.65	50.8 / 47.5 x 1.65	92.0	9.5	9.5
3.0" x 2.5"	76.2 / 72.9 x 1.65	63.5 / 60.2 x 1.65	92.0	9.5	9.5
4.0" x 1.5"	101.6 / 97.38 x 2.11	38.1 / 34.8 x 1.65	92.0	9.5	9.5
4.0" x 2.0"	101.6 / 97.38 x 2.11	50.8 / 47.5 x 1.65	92.0	9.5	9.5
4.0" x 2.5"	101.6 / 97.38 x 2.11	63.5 / 60.2 x 1.65	92.0	9.5	9.5
4.0" x 3.0"	101.6 / 97.38 x 2.11	76.2 / 72.9 x 1.65	92.0	9.5	9.5
6.0" x 3.0"	152.4 / 146.86 x 2.77	76.2 / 72.9 x 1.65	228.6	9.5	9.5
6.0" x 4.0"	152.4 / 146.86 x 2.77	101.6 / 97.38 x 2.11	228.6	9.5	9.5

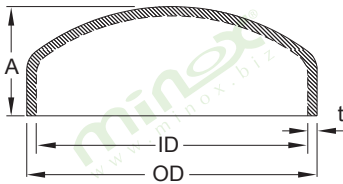
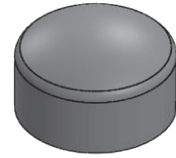




**Concentric Reducer with Automatic Tube Weld End
Dimension (mm)**

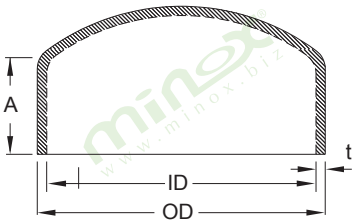
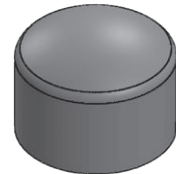
Size (Inch)	OD1 / ID1 x t1	OD2 / ID2 x t2	H	L1	L2
0.75" x 0.5"	19.05 / 15.75 x 1.65	12.7 / 9.4 x 1.65	101.6	38.10	38.10
1.0" x 0.5"	25.40 / 22.1 x 1.65	12.7 / 9.4 x 1.65	114.3	38.10	38.10
1.0" x 0.75"	25.40 / 22.1 x 1.65	19.05 / 15.75 x 1.65	101.6	38.10	38.10
1.5" x 0.5"	38.1 / 34.8 x 1.65	12.7 / 9.4 x 1.65	139.7	38.10	38.10
1.5" x 0.75"	38.1 / 34.8 x 1.65	19.05 / 15.75 x 1.65	127.0	38.10	38.10
1.5" x 1.0"	38.1 / 34.8 x 1.65	25.4 / 22.1 x 1.65	127.0	38.10	38.10
2.0" x 0.5"	50.8 / 47.5 x 1.65	12.7 / 9.4 x 1.65	196.9	38.10	38.10
2.0" x 0.75"	50.8 / 47.5 x 1.65	19.05 / 15.75 x 1.65	184.2	38.10	38.10
2.0" x 1.0"	50.8 / 47.5 x 1.65	25.4 / 22.1 x 1.65	184.2	38.10	38.10
2.0" x 1.5"	50.8 / 47.5 x 1.65	38.1 / 34.8 x 1.65	133.4	38.10	38.10
2.5" x 1.5"	63.5 / 60.2 x 1.65	38.1 / 34.8 x 1.65	184.2	38.10	38.10
2.5" x 2.0"	63.5 / 60.2 x 1.65	50.8 / 47.5 x 1.65	139.7	38.10	38.10
3.0" x 1.5"	76.2 / 72.9 x 1.65	38.1 / 34.8 x 1.65	235.0	44.45	38.10
3.0" x 2.0"	76.2 / 72.9 x 1.65	50.8 / 47.5 x 1.65	190.5	44.45	38.10
3.0" x 2.5"	76.2 / 72.9 x 1.65	63.5 / 60.2 x 1.65	139.7	44.45	38.10
4.0" x 1.5"	101.6 / 97.38 x 2.11	38.1 / 34.8 x 1.65	342.9	50.80	38.10
4.0" x 2.0"	101.6 / 97.38 x 2.11	50.8 / 47.5 x 1.65	298.5	50.80	38.10
4.0" x 2.5"	101.6 / 97.38 x 2.11	63.5 / 60.2 x 1.65	247.7	50.80	38.10
4.0" x 3.0"	101.6 / 97.38 x 2.11	76.2 / 72.9 x 1.65	196.9	50.80	44.45
6.0" x 3.0"	152.4 / 146.86 x 2.77	76.2 / 72.9 x 1.65	254.0	63.50	44.45
6.0" x 4.0"	152.4 / 146.86 x 2.77	101.6 / 97.38 x 2.11	254.0	63.50	50.80





Tube End Cap Dimension (mm)

Size (Inch)	OD / ID x t	A
0.5"	12.7 / 9.40 x 1.65	6.4
0.75"	19.05 / 15.75 x 1.65	7.9
1.0"	25.4 / 22.10 x 1.65	9.5
1.5"	38.1 / 34.80 x 1.65	14.3
2.0"	50.8 / 47.50 x 1.65	19.1
2.5"	63.5 / 60.20 x 1.65	25.4
3.0"	76.2 / 72.90 x 1.65	31.8
4.0"	101.6 / 97.38 x 2.11	38.1
6.0"	152.4 / 146.86 x 2.77	57.2



Tube End Cap with Automatic Tube Weld End Dimension (mm)

Size (Inch)	OD / ID x t	A
0.5"	12.7 / 9.40 x 1.65	38.1
0.75"	19.05 / 15.75 x 1.65	38.1
1.0"	25.4 / 22.10 x 1.65	38.1
1.5"	38.1 / 34.80 x 1.65	38.1
2.0"	50.8 / 47.50 x 1.65	38.1
2.5"	63.5 / 60.20 x 1.65	38.1
3.0"	76.2 / 72.90 x 1.65	44.5
4.0"	101.6 / 97.38 x 2.11	50.8
6.0"	152.4 / 146.86 x 2.77	63.5