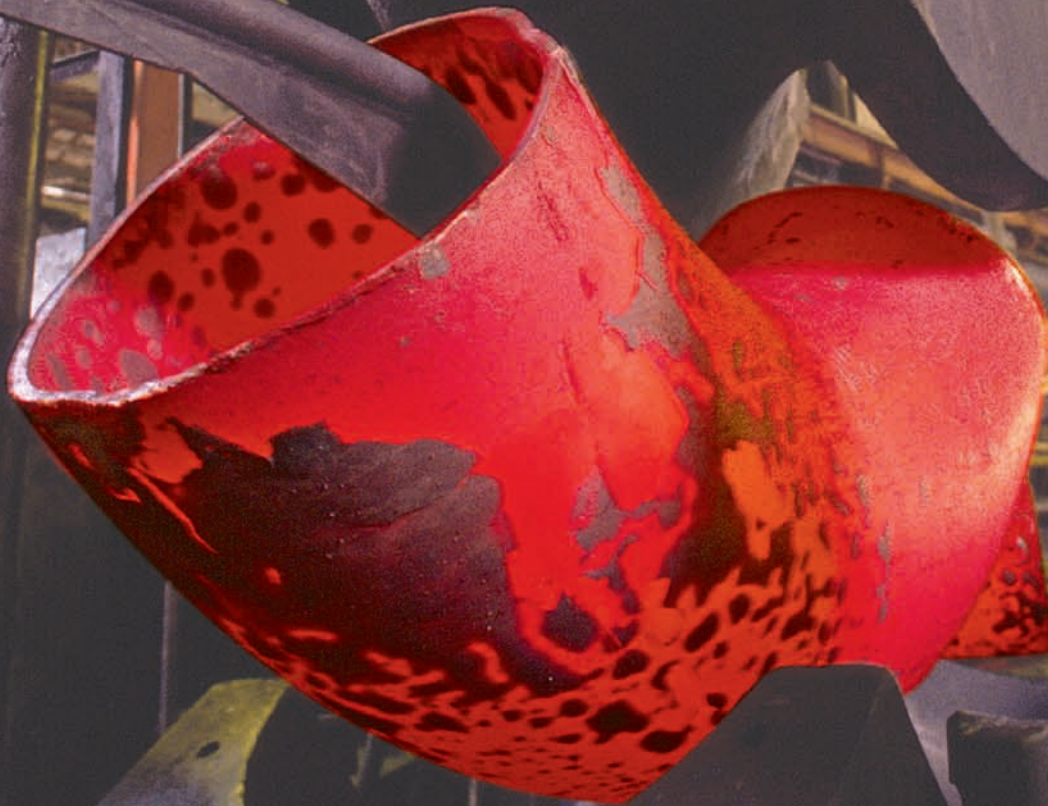


TUBE FORGINGS *of* AMERICA INC.



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MISSION STATEMENT

Tube Forgings of America, Inc. is dedicated to be the premier weld fitting manufacturer through the continual training of personnel and improvement of processes to ensure unquestioned dependability to its customers.

T

ube Forgings of America, Inc. (TFA) has been a manufacturer of welding fittings since 1955. We work primarily in carbon steel. But over the years, in order to meet customer

specifications, we have also manufactured weld fittings out of chrome alloys, stainless steels, copper-nickel and other exotic materials. Our product line is so varied because our customers are so varied—they range from oil refining to chemical and petro-chemical processing, from gas transmission to power generation (including nuclear), and from shipbuilding to a broad assortment of commercial construction applications. While our major market is here in the United States, you'll also find TFA fittings in service all around the world.

In early 1990, the management of TFA made a commitment to Continuous Process Improvement. We aggressively launched a program of progressive practices which we continue to vigorously support today. We continue to maintain our ISO Quality Systems certification which we first received in September of 1993 when TFA became the first U.S.-based manufacturer to receive ISO 9001 certification.

TFA is consumed with the desire to be our industry's absolute leader in customer service. Our mission at TFA is to make such quality and service the standard...and then raise the standard still higher. You can count on Tube Forgings' fittings to be manufactured to the highest quality and delivered with superior service by employees who take pride in their attention to detail and their absolute desire to be the best.



Jay N. Zidell,
President

The Quality Program at Tube Forgings of America is directed by the Quality Assurance Manual, Procedures Manual and all employees of our facility. We emphasize continuous improvement through investment in training and equipment to assure that the latest methods and technologies are in use. This provides a more cost effective, consistent end product from lot to lot and, ultimately, to our customers.

Quality begins with our suppliers which are audited regularly by Tube Forgings. Material is received, inspected and approved before use. All stages of production are checked using traditional methods of inspection such as first article, in process and final.

However, our continuous improvement and product quality is also monitored using our Statistical Process Control program. Real time information is provided for use to correct and improve processes during the lot production. This technique means a more consistent product with less and less variation from lot to lot. Key processes are monitored at each work center using SPC and the data is stored and available from our computer network.

Tube Forgings' Quality Program is designed and meets ASME SEC. III Subsection NCA 3800, MIL-Q-9858, and ISO 9001.

As proof of our commitment to quality, Tube Forgings is an ISO 9001 registered supplier.

Seamless Carbon Steel Welding Fittings

Manufacturing Standards

Tube Forgings of America, Inc. produces a wide range of welding fittings in carbon steel and in other materials. Each product manufactured conforms to one or more of the specifications established by leading authorities who govern manufacturing methods, design dimensions, pressure ratings, markings and quality control requirements. Catalog pages relating to specific types and sizes of welding fittings will note the individual standards.

**MATERIAL SPECIFICATIONS FOR CARBON STEEL BUTT WELDING FITTINGS
ASTM SPECIFICATIONS A234**

Grade Symbol	WPB (Grade B)	WPB (Grade C)
Type of Steel	Carbon	Carbon
Chemical Composition	C=.30 max.	C=.35 max.
Minimum Physical Requirements	psi TS-60,000-85,000 YS-35,000	psi TS-70,000-95,000 YS-40,000
Heat Treatment	Cooled Still Air	Per ASTM A960

Marking Standards

All Tube Forgings welding fittings are permanently and conspicuously identified. Identity includes TFA, nominal pipe size, wall thickness, material grade and heat code per MSS SP-25 standards.

MSS SP-25



Tube Forgings Materials

The seamless carbon steel pipe or tubing utilized by Tube Forgings of America, Inc. conforms to the requirements for melting process, chemical composition and is capable of conforming to the mechanical property requirements of the ASTM, MSS-SP-75, CSA or applicable specification for the particular grades referred to in the table above.

Weight Conversion: Pound to Kilograms (1 pound=0.453592 Kilogram)

Lb.	Kg.	Lb.	Kg.	Lb.	Kg.	Lb.	Kg.
0.1	0.05	4.0	1.81	70.0	31.75	1,000.0	453.59
0.2	0.09	5.0	2.27	80.0	36.29	2,000.0	907.18
0.3	0.14	6.0	2.72	90.0	40.82	3,000.0	1,360.78
0.4	0.18	7.0	3.18	100.0	45.36	4,000.0	1,814.37
0.5	0.23	8.0	3.63	200.0	90.72	5,000.0	2,267.96
0.6	0.27	9.0	4.08	300.0	136.08	6,000.0	2,721.55
0.7	0.32	10.0	4.54	400.0	181.44	7,000.0	3,175.14
0.8	0.36	20.0	9.07	500.0	226.80	8,000.0	3,628.74
0.9	0.41	30.0	13.61	600.0	272.16	9,000.0	4,082.33
1.0	0.45	40.0	18.14	700.0	317.51	10,000.0	4,535.92
2.0	0.91	50.0	22.68	800.0	362.87		
3.0	1.36	60.0	27.22	900.0	408.23		

TFA Materials Available—Normal Delivery

	ASTM Designation	Material Grade	Normal Composition
Carbon	A234	WPB	Carbon Steel
	A234	WPC	Carbon Steel
Low Temp/High Yield	A860	A860/WPHY	Fine Grain Carbon Steel, Low Sulphur
Low Temp. Steel	A420	WPL6	Fine Grain Carbon Steel
Low Temp/High Strength Steel	A858	A858	Fine Grain Carbon Steel, Low Sulphur
High Yield Steel	None	MSS-SP-75/WPHY CSA-Z-245.11	Carbon/Low Alloy Steel
Fittings for sour gas service NACE MR0175/ISO 15156-1, 2 and 3	None	Various	With restricted chemistry

Tube Forgings Welding Fittings available in a Wide Range of Schedules and Wall Thicknesses

90° Long Radius Elbows – Light wall gas distribution through double extra strong.

90° Long Radius Reducing Elbows – Standard and extra strong.

90°, 45° 3-R Elbows

90° Short Radius Elbows – Schedule 20 through extra strong.

45° Long Radius Elbows – Light wall gas distribution through double extra strong.

180° Short Radius Returns - Standard weight and extra strong.

180° Long Radius Returns – Light wall gas distribution through double extra strong.

Straight and Reducing Tees – Light wall gas distribution through double extra strong.

Straight and Reducing Crosses – Light wall gas distribution through double extra strong.

Concentric and Eccentric Reducers – Light wall gas distribution through double extra strong.

Caps – Standard and extra strong.

Above information denotes extreme range. Sizes and wall thicknesses available will vary from product to product.

Basic Specifications Covering TFA Products

ASME B16.9 Pressure ratings, dimensions, tolerances, marking and beveling of fittings 1" through 24".

ASTM/ASME A234/SA234 Materials, manufacturing, heat treating for material grades - carbon and alloy steels.

ASTM/ASME A420/SA420 Carbon and alloy grades for low temperature service.

MSS-SP-75 High yield, carbon and alloy steel for higher strength requirements.

CSA-Z-245.11 High yield, carbon and alloy steel for higher strength requirements.

Dimensional Tolerances

Tolerances shown below are those established by the American Standards ASME B16.9 for Steel Butt Welding Fittings. Included are all types and sizes through 48" covered by these standards.

Wall Thickness

The wall thickness shall not be less than 87 1/2% of nominal thickness at any point.

Outside Diameter

Outside diameter to the beginning of the bevel shall not vary from nominal more than:

Sizes up to and incl. 2 1/2" ± 1/16" - 1/32"
 Sizes 3" through 4" ± 1/16" - 1/16"
 Sizes 5" through 8" ± 3/32" - 1/16"
 Sizes 10" through 18" ± 5/32" - 1/8"
 Sizes 20" through 30" ± 1/4" - 3/16"

Inside Diameter

Inside diameter of welding ends shall not vary from nominal more than:

Sizes up to and incl. 2 1/2" ± 1/32"
 Sizes 3" through 8" ± 1/16"
 Sizes 10" through 18" ± 1/8"
 Sizes 20" through 30" ± 3/16"

Length of Caps

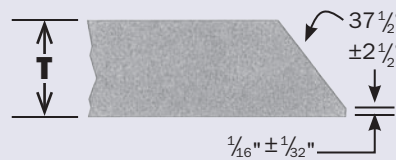
Sizes up to and incl. 4" ± 1/8"
 Sizes 5" through 24" ± 1/4"
 Sizes 26" through 30" ± 3/8"

Welding Bevels

Welding bevel dimensions shall not vary from nominal more than:

Standard Bevels

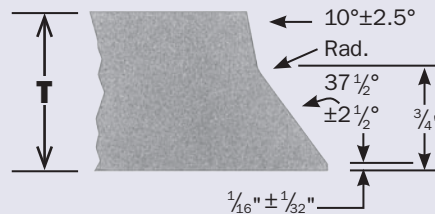
ASME B16.25



Plain Bevel

Bevel for wall thickness (T) at end of fitting, 7/8" or less.

* Max slope 1:3 for I.D. taper bore (30° max)



Compound Bevel

Bevel for wall thickness (T) at end of fitting, greater than 7/8".

* Max slope 1:3 for I.D. taper bore (30° max)

Center-to-End of 90° Elbows, 45° Elbows, Tees, Crosses

Center-to-end dimension shall not vary from nominal more than:

Sizes up to and incl. 8" ± 1/16"
 Sizes 10" through 24" ± 3/32"
 Sizes 26" through 30" ± 1/8"

Center-to-Center of 180° Returns

Center-to-center dimension shall not vary from nominal more than:

Sizes up to and incl. 8" ± 1/4"
 Sizes 10" and larger ± 3/8"

Back-to-Face of 180° Returns

Back-to-face shall not vary from nominal more than:

All sizes ± 1/4"

Alignment of Ends of 180° Returns

Sizes up to and incl. 8" ± 1/32"
 Sizes 10" through 24" ± 1/16"

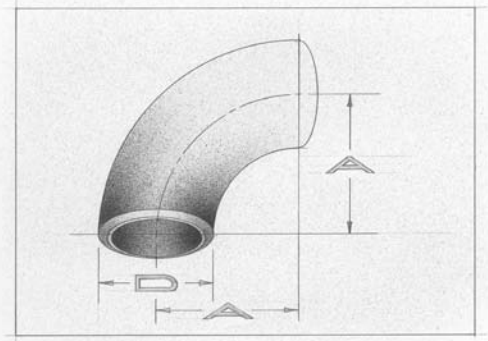
End-to-End of Reducers

End-to-end dimension shall not vary from nominal more than:

Sizes up to and incl. 8" ± 1/16"
 Sizes 10" through 24" ± 3/32"
 Sizes 26" through 30" ± 3/16"

* Special dimensional tolerances are maintained when specifications other than ASME B16.9 are required by the customer, eg. MSS-SP-75 or CSA-Z-245.11.

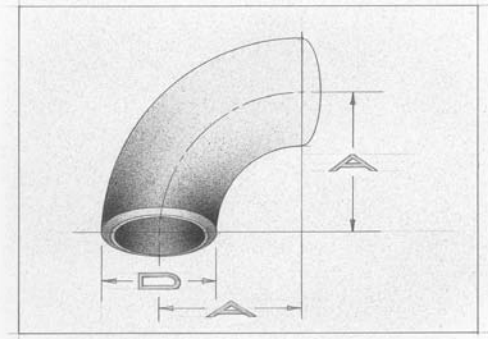
Long Radius 90° ELBOWS



Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
			Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"A" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
½"	.84	1.50	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294
			-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468
			-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252
			-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401
12.70	21.34	38.1	-	-	-	-	0.1	0.1	-	0.3	0.3	-	-	0.6	0.3	
¾"	1.05	1.50	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308
			-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823
			-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434
			-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024
19.05	26.67	38.1	-	-	-	-	0.2	0.2	-	0.3	0.3	-	-	0.6	0.3	
1"	1.32	1.50	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
			-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
			-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
			-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
25.40	33.40	38.10	-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	0.6	0.8	
1¼"	1.66	1.88	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
			-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
			-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
			-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
31.75	42.16	47.63	-	-	-	-	0.6	0.6	-	0.8	0.8	-	-	1.0	1.4	
1½"	1.90	2.25	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
			-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
			-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
			-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
38.10	48.26	57.15	-	-	-	-	0.8	0.8	-	1.0	1.0	-	-	1.8	2.0	
2"	2.38	3.00	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
			-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074
			-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
			-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
50.80	60.33	76.20	-	-	-	-	1.6	1.6	-	2.0	2.0	-	-	3.2	3.9	
2½"	2.88	3.75	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
			-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
			-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
			-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
63.50	73.03	95.25	-	-	-	-	2.9	2.9	-	4.0	4.0	-	-	6.0	6.8	
3"	3.50	4.50	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
			-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
			-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
			-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
76.20	88.90	114.30	-	-	-	-	4.6	4.6	-	6.3	6.3	-	-	10.0	11.3	
3½"	4.00	5.25	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*
			-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154
			-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728
			-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	69.291
88.90	101.60	133.35	-	-	-	-	6.3	6.3	-	8.5	8.5	-	-	-	16.2	
4"	4.50	6.00	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674
			4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120
			4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152
			104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-	87.325	80.061
101.60	114.30	152.40	7.8	-	-	-	8.7	8.7	-	12.2	12.2	-	15.0	-	23.0	
5"	5.56	7.50	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750
			-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050
			-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063
			-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-	109.550	103.200
127.00	141.30	190.50	-	-	-	-	14.4	14.4	-	19.8	19.8	-	27.5	-	38.0	

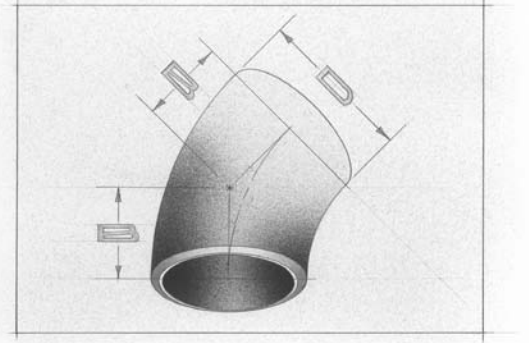
*Not given in ASME B36.10

Long Radius 90° ELBOWS



Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)														
			Schedule														
Nominal Pipe Size	"D" Outside Diameter at Bevel	"A" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
inches mm	inches mm	inches mm															
6"	6.63	9.00	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946	
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
			157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384	
152.40	168.40	228.60	19.5	-	-	-	23.7	23.7	-	33.5	33.5	-	44.0	-	62.0	69.0	
8"	8.63	12.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875	
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225	
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.437	7.187	7.001	6.813	6.875		
			203.20	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625	
203.20	219.20	304.80	207.949	-	38.3	41.8	45.8	45.8	58.0	70.0	70.0	85.5	103.0	116.0	122.0	120.0	
10"	10.75	15.00	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000	
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400	
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750	
			254.00	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250	
254.00	273.05	381.00	261.925	-	59.0	68.4	86.0	86.0	109.0	130.0	164.0	201.0	232.0	270.0	270.0	232.0	
12"	12.75	18.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000	
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400	
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750	
			304.80	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050	
304.80	323.85	457.20	311.150	-	96.0	105.0	129.0	120.0	180.0	210.0	269.0	315.0	365.0	460.0	315.0		
14"	14.00	21.00	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-	
			6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-	
			13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-	
			355.60	355.60	533.40	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100
355.60	355.60	533.40	98.0	98.0	126.0	-	170.0	156.0	270.0	191.0	310.0	371.0	415.0	490.0	563.0	-	
16"	16.00	24.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-	
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-	
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-	
			406.40	406.40	609.60	393.700	393.700	390.550	387.350	381.000	373.075	373.075	363.525	354.025	344.475	333.350	325.425
406.40	406.40	609.60	135.0	135.0	169.0	-	262.0	206.0	302.0	268.0	420.0	518.0	622.0	735.0	825.0	-	
18"	18.00	27.00	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-	
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-	
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	16.124	15.688	15.250	14.876	14.438	14.000	-	
			457.20	457.20	685.80	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850
457.20	457.20	685.80	165.0	165.0	215.0	287.0	369.0	256.0	512.0	318.0	620.0	747.0	872.0	1005.0	-	-	
20"	20.00	30.00	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-	
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-	
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	15.625	-
			508.00	508.00	762.00	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100
508.00	508.00	762.00	194.0	194.0	310.0	409.0	498.0	344.0	675.0	407.0	840.0	997.0	1178.0	-	-		
22"	22.00	33.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-	
			-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-	
			-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-	
			558.80	558.80	838.20	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850
558.80	558.80	838.20	-	394.0	520.0	-	474.0	-	474.0	-	-	-	-	-	-		
24"	24.00	36.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-	
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-	
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-	
			609.60	609.60	914.40	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850
609.60	609.60	914.40	304.0	304.0	-	691.0	844.0	483.3	1170.0	632.0	1465.0	1730.0	2050.0	2310.0	-	-	
30"	30.00	45.00	-	.312	.500	.625	-	.375	-	.500	-	-	-	-	-	-	
			-	7.925	12.700	15.875	-	9.525	-	12.700	-	-	-	-	-	-	-
			-	29.376	29.000	28.750	-	29.250	-	29.000	-	-	-	-	-	-	-
			762.00	762.00	1143.00	746.150	736.600	730.250	-	742.950	-	736.600	-	-	-	-	-
762.00	762.00	1143.00	-	620.0	-	1235.0	-	778.0	-	953.0	-	-	-	-	-		

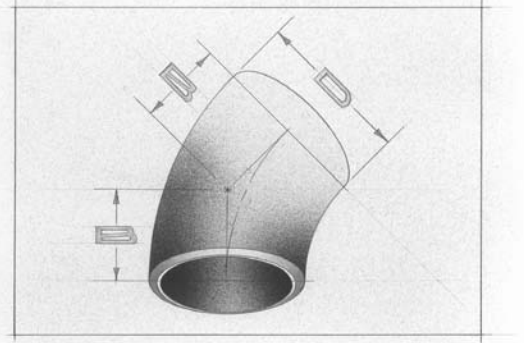
Long Radius 45° ELBOWS



Key			Nominal Wall Thickness: inches mm													
			Inside Diameter: inches mm													
			Approximate Weight: Pounds (see page 3 for Kg)													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"B" Center-to-End	Schedule													
			L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
½"	.84	.63	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294
			-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468
			-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252
			-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401
			-	-	-	-	0.1	0.1	-	0.2	-	-	-	-	0.2	0.2
¾"	1.05	.75	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308
			-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823
			-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434
			-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024
			-	-	-	-	0.1	0.1	-	0.2	0.2	-	-	-	0.3	0.2
1"	1.32	.88	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
			-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
			-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
			-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
			-	-	-	-	0.3	0.3	-	0.3	0.3	-	-	-	0.4	0.4
1¼"	1.66	1.00	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
			-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
			-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
			-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
			-	-	-	-	0.3	0.3	-	0.4	0.4	-	-	-	0.5	0.5
1½"	1.90	1.12	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
			-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
			-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
			-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
			-	-	-	-	0.5	0.5	-	0.6	0.6	-	-	-	1.0	1.2
2"	2.38	1.38	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
			-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	7.838	11.074
			-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
			-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
			-	-	-	-	0.8	0.8	-	1.0	1.1	-	-	-	1.8	2.0
2½"	2.88	1.75	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
			-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
			-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
			-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
			-	-	-	-	1.7	1.6	-	1.9	1.9	-	-	-	3.0	3.8
3"	3.50	2.00	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
			-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
			-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
			-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
			-	-	-	-	2.3	2.4	-	3.1	3.1	-	-	-	5.0	6.0
3½"	4.00	2.25	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*
			-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154
			-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728
			-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	69.291
			-	-	-	-	3.2	3.2	-	4.8	4.8	-	-	-	-	8.6
4"	4.50	2.50	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674
			4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120
			4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152
			104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-	87.325	80.061
			3.9	-	-	-	4.3	4.3	-	6.2	5.9	-	7.3	-	10.8	10.7
5"	5.56	3.13	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750
			-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050
			-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063
			-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-	109.550	103.200
			-	-	-	-	7.3	7.4	-	11.8	10.0	-	13.8	-	17.0	17.5

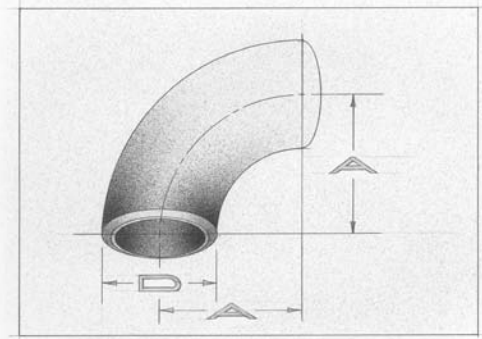
*Not given in ASME B36.10

Long Radius 45° ELBOWS



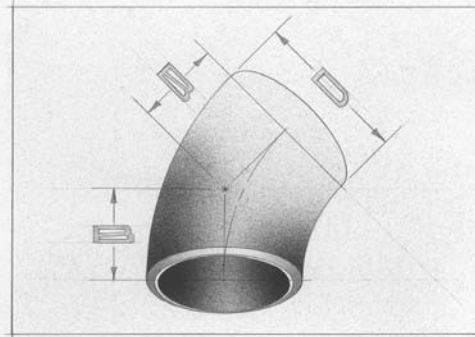
Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)														
			Schedule														
Nominal Pipe Size	"D" Outside Diameter at Bevel	"B" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
inches mm	inches mm	inches mm															
6"	6.63	3.75	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946	
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
			157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384	
			12.0	-	-	-	11.5	12.7	-	16.3	16.7	-	21.6	-	30.0	32.0	
8"	8.63	5.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875	
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225	
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.437	7.187	7.001	6.813	6.875		
			203.20	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625	
			19.8	-	19.8	20.5	22.5	23.3	30.6	34.0	34.0	43.5	52.7	58.5	75.0	60.0	
10"	10.75	6.25	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000	
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400	
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750	
			254.00	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250	
			20.5	-	21.6	28.5	39.0	53.0	53.0	68.0	78.0	97.0	122.0	135.0	-		
12"	12.75	7.50	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000	
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400	
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750	
			304.80	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050	
			39.7	-	39.7	52.1	64.5	60.0	89.0	78.0	106.0	134.0	167.0	189.0	230.0	-	
14"	14.00	8.75	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-	
			6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-	
			13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-	
			355.60	355.60	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175
			49.5	49.5	64.2	74.0	87.0	78.0	113.0	95.0	159.0	186.0	209.0	241.0	278.0	-	
16"	16.00	10.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-	
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-	
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-	
			406.40	406.40	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425
			68.5	68.5	84.3	101.0	131.0	100.0	169.0	131.0	228.0	269.0	318.0	362.0	415.0	-	
18"	18.00	11.25	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-	
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-	
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-	
			457.20	457.20	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725
			85.0	85.0	114.0	151.0	187.0	128.0	245.0	170.0	309.0	376.0	439.0	509.0	609.0	-	
20"	20.00	12.50	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-	
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-	
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-	
			508.00	508.00	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975
			105.0	105.0	155.0	205.0	245.0	155.0	330.0	205.0	424.0	502.0	597.0	684.0	-		
22"	22.00	13.50	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-	
			-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-	
			-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-	
			558.80	558.80	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
			-	-	-	-	-	197.0	-	-	-	-	-	-	-		
24"	24.00	15.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-	
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-	
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-	
			609.60	609.60	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525
			146.0	146.0	223.0	342.0	418.0	223.0	575.0	295.0	726.0	875.0	1032.0	1179.0	-		
30"	30.00	18.50	-	.312	.500	.625	-	.375	-	.500	-	-	-	-	-	-	
			-	7.925	12.700	15.875	-	9.525	-	12.700	-	-	-	-	-	-	-
			-	29.376	29.000	28.750	-	29.250	-	29.000	-	-	-	-	-	-	-
			762.00	762.00	746.150	736.600	730.250	-	742.950	-	736.600	-	-	-	-	-	-
			365.0	475.0	680.0	-	367.0	-	475.0	-	-	-	-	-	-		

3-R 90° ELBOWS



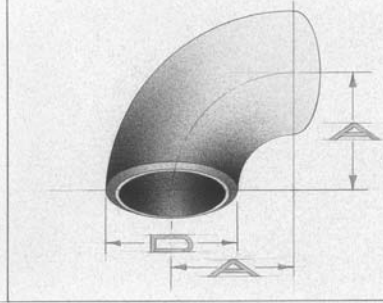
Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
			Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"B" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
6"	6.63	18.0	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897
152.40	168.28	457.2	157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384
			19.5	-	-	-	23.7	23.7	-	33.5	33.5	-	44.0	-	62.0	69.0
8"	8.63	24.0	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.437	7.187	7.001	6.813	6.875	
203.20	219.08	609.6	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
			30.3	-	38.3	41.8	45.8	45.8	58.0	70.0	70.0	85.5	103.0	116.0	122.0	120.0
10"	10.75	30.0	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
254.00	273.05	762.0	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
			-	-	59.0	68.4	86.0	86.0	107.0	109.0	130.0	164.0	201.0	232.0	270.0	232.0
12"	12.75	36.0	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
304.80	323.85	914.40	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
			-	-	96.0	105.0	129.0	120.0	180.0	160.0	210.0	269.0	315.0	365.0	460.0	315.0
16"	16.00	48.0	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
406.40	406.40	1219.2	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
			135.0	135.0	169.0	-	262.0	206.0	302.0	268.0	420.0	518.0	622.0	735.0	825.0	-
18"	18.00	154.0	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
457.20	457.20	1371.6	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
			165.0	165.0	215.0	287.0	369.0	256.0	512.0	318.0	620.0	747.0	872.0	1005.0	-	
20"	20.00	60.0	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
508.00	508.00	1524.0	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
			194.0	194.0	310.0	409.0	498.0	344.0	675.0	407.0	840.0	997.0	1178.0	1419.0	-	
24"	24.00	72.0	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
609.60	609.60	1828.8	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-
			304.0	304.0	-	691.0	844.0	483.3	1170.0	632.0	1465.0	1730.0	2050.0	2310.0	-	

3-R 45° ELBOWS



Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
			Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"B" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
6"	6.63	7.44	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897
			157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384
152.40	168.28	188.9	12.0	-	-	-	11.5	12.7	-	16.3	16.7	-	21.6	30.0	32.0	
8"	8.63	9.94	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
			203.20	219.08	252.5	207.949	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825
19.8	-	19.8	20.5	22.5	23.3	30.6	34.0	34.0	43.5	52.7	58.5	75.0	75.0	60.0	-	
10"	10.75	12.44	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	22.250
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
			254.00	273.05	316.0	261.925	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250
20.5	-	21.6	28.5	39.0	39.0	53.0	53.0	68.0	78.0	78.0	97.0	122.0	135.0	-	-	
12"	12.75	14.88	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
			304.80	323.85	378.0	311.150	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700
39.7	-	39.7	52.1	64.5	60.0	89.0	89.0	78.0	106.0	134.0	167.0	189.0	230.0	-	-	
16"	16.00	19.88	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
			406.40	406.40	504.5	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475
68.5	68.5	84.3	101.0	131.0	100.0	169.0	131.0	228.0	228.0	269.0	269.0	318.0	362.0	415.0	-	-
18"	18.00	22.38	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
			457.20	457.20	568.4	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350
85.0	85.0	114.0	151.0	187.0	128.0	245.0	170.0	309.0	376.0	439.0	509.0	509.0	609.0	-	-	
20"	20.00	24.88	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
			508.00	508.00	632.0	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800
105.0	105.0	155.0	205.0	245.0	155.0	330.0	205.0	424.0	502.0	597.0	684.0	792.1	-	-		
24"	24.00	29.81	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
			609.60	609.60	757.2	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550
146.0	146.0	223.0	342.0	418.0	223.0	575.0	295.0	726.0	875.0	1032.0	1179.0	-	-	-	-	

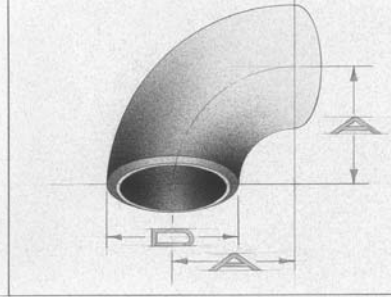
Short Radius 90° ELBOWS



Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
			Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"A" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
½"	.84	-	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294
			-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468
12.70	21.34	-	-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252
			-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401
¾"	1.05	-	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308
			-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823
19.05	26.67	-	-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434
			-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024
1"	1.32	1.00	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
			-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
25.40	33.53	25.40	-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
			-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
1½"	1.66	1.25	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
			-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
31.75	42.16	31.75	-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
			-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
1¾"	1.90	1.50	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
			-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
38.10	48.26	38.10	-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
			-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
2"	2.38	2.00	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
			-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074
50.80	60.45	50.80	-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
			-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
2½"	2.88	2.50	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
			-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
63.50	73.15	63.50	-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
			-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
3"	3.50	3.00	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
			-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
76.20	88.90	76.20	-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
			-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
3½"	4.00	3.50	-	-	-	-	.226	.226	-	.318	.318	-	-	-	.438	.600
			-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	11.125	15.240
88.90	101.60	88.90	-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	3.438	3.152
			-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	87.325	80.061
4"	4.50	4.00	-	-	-	-	.237	.237	-	.337	.337	-	-	-	.531	.674
			-	-	-	-	6.020	6.020	-	8.560	8.560	-	-	-	13.487	17.120
101.60	114.30	101.60	-	-	-	-	4.026	4.026	-	3.826	3.826	-	-	-	3.624	3.438
			-	-	-	-	102.260	102.260	-	97.180	97.180	-	-	-	92.050	87.325
5"	5.56	5.00	-	-	-	-	.258	.258	-	.375	.375	-	-	-	.625	.750
			-	-	-	-	6.553	6.553	-	9.525	9.525	-	-	-	15.875	19.050
127.00	141.22	127.00	-	-	-	-	5.047	5.047	-	4.813	4.813	-	-	-	4.313	4.063
			-	-	-	-	128.194	128.194	-	122.250	122.250	-	-	-	109.550	103.200
																26.0

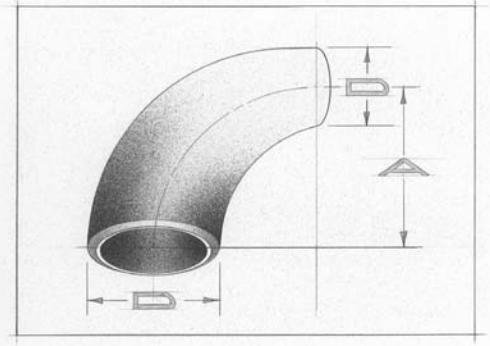
*Not given in ASME B36.10

Short Radius 90° ELBOWS



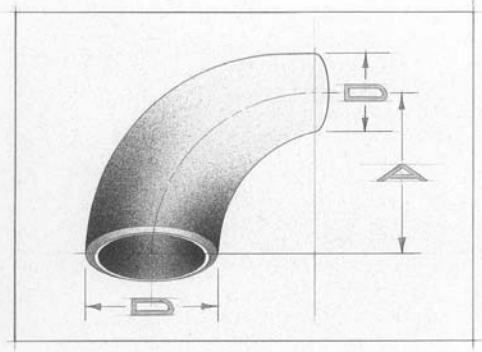
Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)																	
			Schedule																	
Nominal Pipe Size	"D" Outside Diameter at Bevel	"A" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS				
inches mm	inches mm	inches mm																		
6"	6.63	6.00	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864				
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946				
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897				
			152.40	168.40	152.40	157.150	-	-	-	154.051	154.051	-	146.329	-	139.725	-	131.750	124.384		
			-	-	-	-	-	-	-	15.5	15.5	-	22.5	22.5	-	29.6	-	-	57.0	
8"	8.63	8.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875				
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225				
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.437	7.187	7.001	6.813	6.875					
			203.20	219.20	203.20	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	188.900	182.550	177.825	173.050	174.625		
			-	-	-	-	-	23.5	27.5	31.0	31.0	41.0	46.0	46.0	57.5	68.7	77.0	127.0	80.0	
10"	10.75	10.00	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000				
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400				
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750				
			254.00	273.05	254.00	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250	
			-	-	-	-	-	36.4	45.2	55.0	55.0	71.0	71.0	86.0	109.0	126.0	151.0	-	-	
12"	12.75	12.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000				
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400				
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750				
			304.80	323.85	304.80	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050	
			-	-	-	-	-	53.5	71.5	86.0	78.0	118.0	100.0	145.0	179.0	210.0	235.0	-	-	
14"	14.00	14.00	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-				
			6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-				
			13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-				
			355.60	355.60	355.60	342.900	-	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-	
			-	-	-	-	-	84.5	104.0	113.0	104.0	159.0	132.0	210.0	247.0	295.0	-	-	-	
16"	16.00	16.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-				
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-				
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-				
			406.40	406.40	406.40	393.700	-	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-	
			-	-	-	-	-	112.0	118.0	160.0	118.0	225.0	160.0	312.0	325.0	431.0	431.0	-	-	
18"	18.00	18.00	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-				
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-				
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-				
			457.20	457.20	457.20	444.500	-	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
			-	-	-	-	-	120.0	184.0	227.0	148.0	310.0	194.0	397.0	507.0	610.0	-	-	-	
20"	20.00	20.00	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-				
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-				
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-				
			508.00	508.00	508.00	495.300	-	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-	
			-	-	-	-	-	210.0	280.0	332.0	210.0	449.0	280.0	575.0	672.0	795.0	-	-	-	
22"	22.00	22.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-				
			-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-				
			-	21.500	21.250	21.000	-	21.250	20.250	20.000	19.750	19.250	18.750	18.250	17.750	-				
			558.80	558.80	558.80	546.100	-	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-	
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
24"	24.00	24.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-				
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-				
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-				
			609.60	609.60	609.60	596.900	-	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-	
			-	-	-	-	-	288.0	453.0	558.0	288.0	775.0	370.0	961.0	1147.0	1465.0	-	-	-	

Long Radius Reducing **ELBOWS**



Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"A" Center-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
-	-	1	25.40	-	-	-	-	-	-
-	-	1¼	31.75	-	-	-	-	-	-
-	-	1½	38.10	-	-	-	-	-	-
2 x 1½ 2 x 1¼ 2 x 1	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40	2	50.80	2.38 2.38 2.38	60.45 60.45 60.45	1.90 1.66 1.32	48.26 42.16 33.53	3.00 3.00 3.00	76.20 76.20 76.20
2½ x 2 2½ x 1½ 2½ x 1¼	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75	2½	63.50	2.88 2.88 2.88	73.15 73.15 73.15	2.38 1.90 1.66	60.45 48.26 42.16	3.75 3.75 3.75	95.25 95.25 95.25
3 x 2½ 3 x 2 3 x 1½	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10	3	76.20	3.50 3.50 3.50	88.90 88.90 88.90	2.88 2.38 1.90	73.15 60.45 48.26	4.50 4.50 4.50	114.30 114.30 114.30
3½ x 3 3½ x 2½ 3½ x 2	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80	3½	88.90	4.00 4.00 4.00	101.60 101.60 101.60	3.50 2.88 2.38	88.90 73.15 60.45	5.25 5.25 5.25	133.35 133.35 133.35
4 x 3½ 4 x 3 4 x 2½ 4 x 2	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80	4	101.60	4.50 4.50 4.50 4.50	114.30 114.30 114.30 114.30	4.00 3.50 2.88 2.38	101.60 88.90 73.15 60.45	6.00 6.00 6.00 6.00	152.40 152.40 152.40 152.40
5 x 4 5 x 3½ 5 x 3 5 x 2½	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50	5	127.00	5.56 5.56 5.56 5.56	141.22 141.22 141.22 141.22	4.50 4.00 3.50 2.88	114.30 101.60 88.90 73.15	7.50 7.50 7.50 7.50	190.50 190.50 190.50 190.50
6 x 5 6 x 4 6 x 3½ 6 x 3	152.40 x 127.00 152.40 x 101.60 152.40 x 88.90 152.40 x 76.20	6	152.40	6.63 6.63 6.63 6.63	168.40 168.40 168.40 168.40	5.56 4.50 4.00 3.50	141.22 114.30 101.60 88.90	9.00 9.00 9.00 9.00	228.60 228.60 228.60 228.60

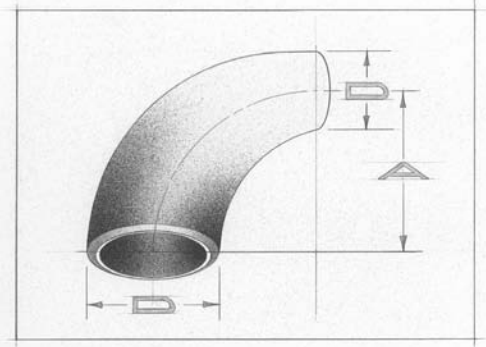
Long Radius Reducing ELBOWS



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
-	-	-	-	-	-	.133 3.378 1.049 26.645	.133 3.378 1.049 26.645	-	.179 4.547 .957 24.308	.179 4.547 .957 24.308	-	-	-	.250 6.350 .815 20.701	.358 9.093 .599 15.215
-	-	-	-	-	-	.140 3.556 1.380 35.052	.140 3.556 1.380 35.052	-	.191 4.851 1.278 32.461	.191 4.851 1.278 32.461	-	-	-	.250 6.350 1.160 29.464	.382 9.703 .896 22.758
-	-	-	-	-	-	.145 3.683 1.610 40.894	.145 3.683 1.610 40.894	-	.200 5.080 1.500 38.100	.200 5.080 1.500 38.100	-	-	-	.281 7.137 1.338 33.985	.400 10.160 1.100 27.940
2 x 1½ 2 x 1¼ 2 x 1	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40	-	-	-	-	.154 3.912 2.067 52.502	.154 3.912 2.067 52.502	-	.218 5.537 1.939 49.251	.218 5.537 1.939 49.251	-	-	-	.344 8.738 1.687 42.850	.436 11.074 1.503 38.176
2½ x 2 2½ x 1½ 2½ x 1¼	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75	-	-	-	-	.203 5.156 2.469 62.713	.203 5.156 2.469 62.713	-	.276 7.010 2.323 59.004	.276 7.010 2.323 59.004	-	-	-	.375 9.525 2.125 53.975	.552 14.021 1.771 44.983
3 x 2½ 3 x 2 3 x 1½	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10	-	-	-	-	.216 5.486 3.068 77.927	.216 5.486 3.068 77.927	-	.300 7.620 2.900 73.660	.300 7.620 2.900 73.660	-	-	-	.438 11.125 2.624 66.650	.600 15.240 2.300 58.420
3½ x 3 3½ x 2½ 3½ x 2	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80	-	-	-	-	.226 5.740 3.548 90.119	.226 5.740 3.548 90.119	-	.318 8.077 3.364 85.446	.318 8.077 3.364 85.446	-	-	-	-	.636* 16.154 2.728 69.291
4 x 3½ 4 x 3 4 x 2½ 4 x 2	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80	.188 4.775 4.124 104.749	-	-	-	.237 6.020 4.026 102.260	.237 6.020 4.026 102.260	-	.337 8.560 3.826 97.180	.337 8.560 3.826 97.180	-	.438 11.125 3.624 92.050	-	.531 13.487 3.438 87.325	.674 17.120 3.152 80.061
5 x 4 5 x 3½ 5 x 3 5 x 2½	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50	-	-	-	-	.258 6.553 5.047 128.194	.258 6.553 5.047 128.194	-	.375 9.525 4.813 122.250	.375 9.525 4.813 122.250	-	.500 12.700 4.563 115.900	-	.625 15.875 4.313 109.550	.750 19.050 4.063 103.200
6 x 5 6 x 4 6 x 3½ 6 x 3	152.40 x 127.00 152.40 x 101.60 152.40 x 88.90 152.40 x 76.20	.219 5.563 6.187 157.150	-	-	-	.280 7.112 6.065 154.051	.280 7.112 6.065 154.051	-	.432 10.973 5.761 146.329	.432 10.973 5.761 146.329	-	.562 14.275 5.501 139.725	-	.719 18.263 5.187 131.750	.864 21.946 4.897 124.384

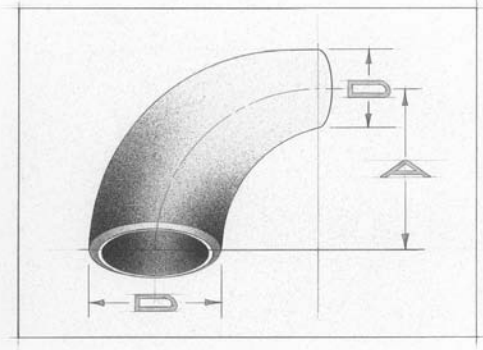
*Not given in ASME B36.10

Long Radius Reducing **ELBOWS**



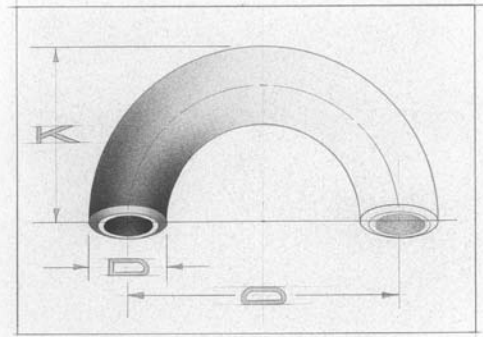
Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"A" Center-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
8 x 6 8 x 5 8 x 4	203.20 x 152.40 203.20 x 127.00 203.20 x 101.60	8	203.20	8.63 8.63 8.63	219.20 219.20 219.20	6.63 5.56 4.50	168.40 141.22 114.30	12.00 12.00 12.00	304.80 304.80 304.80
10 x 8 10 x 6 10 x 5	254.00 x 203.20 254.00 x 152.40 254.00 x 127.00	10	254.00	10.75 10.75 10.75	273.05 273.05 273.05	8.63 6.63 5.56	219.20 168.40 141.22	15.00 15.00 15.00	381.00 381.00 381.00
12 x 10 12 x 8 12 x 6	304.80 x 254.00 304.80 x 203.20 304.80 x 152.40	12	304.80	12.75 12.75 12.75	323.85 323.85 323.85	10.75 8.63 6.63	273.05 219.20 168.40	18.00 18.00 18.00	457.20 457.20 457.20
14 x 12 14 x 10 14 x 8	355.60 x 304.80 355.60 x 254.00 355.60 x 203.20	14	355.60	14.00 14.00 14.00	355.60 355.60 355.60	12.75 10.75 8.63	323.85 273.05 219.20	21.00 21.00 21.00	533.40 533.40 533.40
16 x 14 16 x 12 16 x 10	406.40 x 355.60 406.40 x 304.80 406.40 x 254.00	16	406.40	16.00 16.00 16.00	406.40 406.40 406.40	14.00 12.75 10.75	355.60 323.85 273.05	24.00 24.00 24.00	609.60 609.60 609.60
18 x 16 18 x 14 18 x 12 18 x 10	457.20 x 406.40 457.20 x 355.60 457.20 x 304.80 457.20 x 254.00	18	457.20	18.00 18.00 18.00 18.00	457.20 457.20 457.20 457.20	16.00 14.00 12.75 10.75	406.40 355.60 323.85 273.05	27.00 27.00 27.00 27.00	685.80 685.80 685.80 685.80
20 x 18 20 x 16 20 x 14 20 x 12 20 x 10	508.00 x 457.20 508.00 x 406.40 508.00 x 355.60 508.00 x 304.80 508.00 x 254.00	20	508.00	20.00 20.00 20.00 20.00 20.00	508.00 508.00 508.00 508.00 508.00	18.00 16.00 14.00 12.75 10.75	457.20 406.40 355.60 323.85 273.05	30.00 30.00 30.00 30.00 30.00	762.00 762.00 762.00 762.00 762.00
-	-	22	558.80	-	-	-	-	-	-
24 x 22 24 x 20 24 x 18 24 x 16 24 x 14 24 x 12	609.60 x 558.80 609.60 x 508.00 609.60 x 457.20 609.60 x 406.40 609.60 x 355.60 609.60 x 304.80	24	609.60	24.00 24.00 24.00 24.00 24.00 24.00	609.60 609.60 609.60 609.60 609.60 609.60	22.00 20.00 18.00 16.00 14.00 12.75	558.80 508.00 457.20 406.40 355.60 323.85	36.00 36.00 36.00 36.00 36.00 36.00	914.40 914.40 914.40 914.40 914.40 914.40

Long Radius Reducing ELBOWS



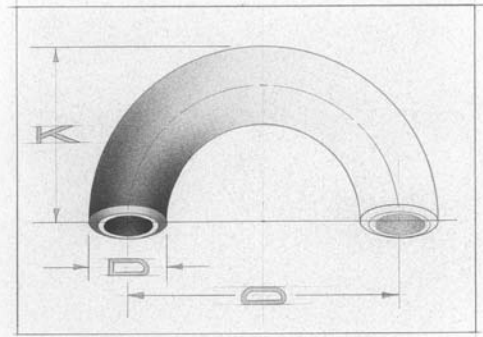
Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
8 x 6	203.20 x 152.40	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
8 x 5	203.20 x 127.00	5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
8 x 4	203.20 x 101.60	8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
		207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
10 x 8	254.00 x 203.20	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
10 x 6	254.00 x 152.40	5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
10 x 5	254.00 x 127.00	10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
		261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
12 x 10	304.80 x 254.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
12 x 8	304.80 x 203.20	6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
12 x 6	304.80 x 152.40	12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
		311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
14 x 12	355.60 x 304.80	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-
14 x 10	355.60 x 254.00	6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-
14 x 8	355.60 x 203.20	13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-
		342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-
16 x 14	406.40 x 355.60	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
16 x 12	406.40 x 304.80	6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
16 x 10	406.40 x 254.00	15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
		393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
18 x 16	457.20 x 406.40	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
18 x 14	457.20 x 355.60	6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
18 x 12	457.20 x 304.80	17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
18 x 10	457.20 x 254.00	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
20 x 18	508.00 x 457.20	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
20 x 16	508.00 x 406.40	6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
20 x 14	508.00 x 355.60	19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
20 x 12	508.00 x 304.80	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
20 x 10	508.00 x 254.00														-
-	-	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-
		-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-
		-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-
		-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
24 x 22	609.60 x 558.80	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
24 x 20	609.60 x 508.00	6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
24 x 18	609.60 x 457.20	23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
24 x 16	609.60 x 406.40	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-
24 x 14	609.60 x 355.60														-
24 x 12	609.60 x 304.80														-

Long Radius 180° ELBOWS



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
				Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"O" Center-to-Center	"K" Back-to-Face	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm	inches mm														
½"	.84	3.00	1.88	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294
				-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468
				-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252
				-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401
				-	-	-	-	0.3	0.3	-	0.5	0.5	-	-	-	-	-
¾"	1.05	3.00	2.00	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308
				-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823
				-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434
				-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024
				-	-	-	-	0.3	0.4	-	0.5	0.5	-	-	-	-	-
1"	1.32	3.00	2.19	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
				-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
				-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
				-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
				-	-	-	-	0.8	0.8	-	1.0	1.0	-	-	-	1.3	-
1½"	1.66	3.75	2.75	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
				-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
				-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
				-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
				-	-	-	-	1.0	1.0	-	1.5	1.5	-	-	-	2.0	-
1¾"	1.90	4.50	3.25	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
				-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
				-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
				-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
				-	-	-	-	1.5	1.5	-	2.0	2.0	-	-	-	3.5	-
2"	2.38	6.00	4.19	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
				-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074
				-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
				-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
				-	-	-	-	3.0	3.0	-	4.0	4.0	-	-	-	6.5	9.7
2½"	2.88	7.50	5.19	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
				-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
				-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
				-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
				-	-	-	-	6.0	6.0	-	7.5	7.5	-	-	-	12.0	13.4
3"	3.50	9.00	6.25	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
				-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
				-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
				-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
				-	-	-	-	9.0	9.0	-	12.0	12.0	-	-	-	18.0	22.5

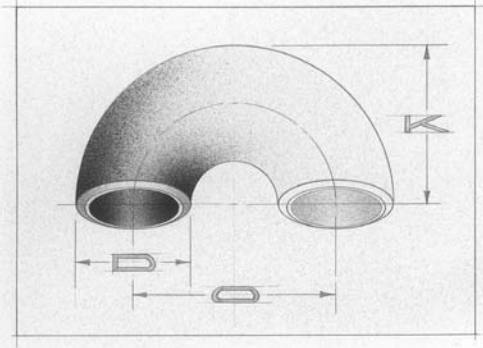
Long Radius 180° ELBOWS



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)														
				Schedule														
Nominal Pipe Size	"D" Outside Diameter at Bevel	"O" Center-to-Center	"K" Back-to-Face	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
inches mm	inches mm	inches mm	inches mm															
3½"	4.00	10.50	7.25	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*	
				-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154	
				-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	-	2.728
				88.90	101.60	266.70	184.15	-	-	-	-	90.119	90.119	-	85.446	85.446	-	-
								12.5	12.5	-	17.0	17.0	-	-	-	-	32.5	
4"	4.50	12.00	8.25	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674	
				4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120	
				4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152	
				101.60	114.30	304.80	209.55	104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050
								17.0	17.0	-	23.5	23.5	-	30.0	-	38.0	40.5	
5"	5.56	15.00	10.31	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750	
				-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050	
				-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063	
				127.00	141.22	381.00	261.87	-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900
								28.5	28.5	-	40.0	40.0	-	55.0	-	66.0	76.0	
6"	6.63	18.00	12.31	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
				5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946	
				6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
				152.40	168.40	457.20	312.67	157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725
								46.0	46.0	-	67.0	67.0	-	86.4	-	118.0	126.0	
8"	8.63	24.00	16.31	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875	
				5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225	
				8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875	
				203.20	219.20	609.60	414.27	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550
								90.0	90.0	115.0	138.0	138.0	175.0	212.0	226.0	254.0	240.0	
10"	10.75	30.00	20.38	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000	
				5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400	
				10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750	
				254.00	273.05	762.00	517.65	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175
								156.0	156.0	215.0	215.0	267.0	324.0	375.0	456.0	540.0	222.250	
12"	12.75	36.00	24.38	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000	
				6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400	
				12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750	
				304.80	323.85	914.40	619.25	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050
								248.0	236.0	349.0	300.0	397.0	490.0	610.0	740.0	920.0	-	

*Not given in ASME B36.10

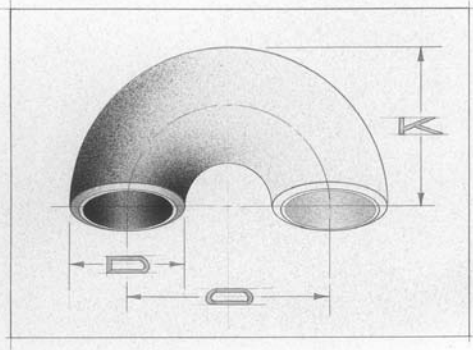
Short Radius 180° ELBOWS



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
				Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"O" Center-to-Center	"K" Back-to-Face	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm	inches mm														
1"	1.32	2.00	1.62	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
				-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
				-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
				-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
				-	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-
1 1/4"	1.66	2.50	2.06	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
				-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
				-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
				-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
				-	-	-	-	0.8	0.8	-	1.3	1.3	-	-	-	-	-
1 1/2"	1.90	3.00	2.44	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
				-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
				-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
				-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
				-	-	-	-	1.0	1.0	-	1.5	1.5	-	-	-	-	-
2"	2.38	4.00	3.19	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
				-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074
				-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
				-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
				-	-	-	-	1.8	1.8	-	3.0	3.0	-	-	-	2.4	6.0
2 1/2"	2.88	5.00	3.94	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
				-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
				-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
				-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
				-	-	-	-	3.5	3.5	-	4.5	4.5	-	-	-	-	-
3"	3.50	6.00	4.75	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
				-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
				-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
				-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
				-	-	-	-	6.0	6.0	-	7.5	7.5	-	-	-	5.6	14.5
3 1/2"	4.00	7.00	5.50	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*
				-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154
				-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728
				-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	69.291
				-	-	-	-	8.0	8.0	-	11.0	11.0	-	-	-	-	22.0

*Not given in ASME B36.10

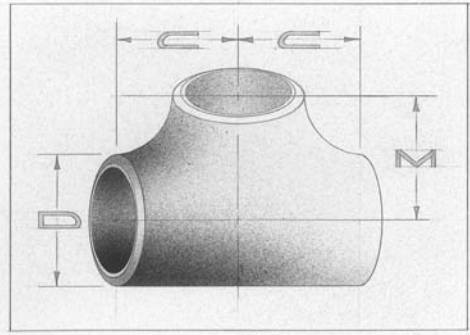
Short Radius 180° ELBOWS



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)																	
				Schedule																	
Nominal Pipe Size	"D" Outside Diameter at Bevel	"O" Center-to-Center	"K" Back-to-Face	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS				
inches mm	inches mm	inches mm	inches mm																		
4"	4.50	8.00	6.25	-	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674				
				-	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120				
				-	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152				
				101.60	114.30	203.20	158.75	-	-	-	-	102.260	102.260	-	97.180	-	92.050	-	87.325	80.061	
				-	-	-	-	-	-	-	-	12.0	12.0	-	15.5	-	18.9	-	-	28.9	
5"	5.56	10.00	7.75	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750				
				-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050				
				-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063				
				127.00	141.22	254.00	196.85	-	-	-	-	128.194	128.194	-	122.250	-	115.900	-	109.550	103.200	
				-	-	-	-	-	-	-	-	19.0	19.0	-	27.0	-	36.8	-	-	52.0	
6"	6.63	12.00	9.31	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864				
				5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946				
				6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	4.187	4.897				
				152.40	168.40	304.80	236.47	157.150	-	-	-	154.051	154.051	-	146.329	-	139.725	-	131.750	124.384	
				-	-	-	-	-	-	-	-	31.0	31.0	-	45.0	-	58.7	-	-	86.0	
8"	8.63	16.00	12.31	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875				
				5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225				
				8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875				
				203.20	219.20	406.40	312.67	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
				-	-	-	-	-	-	46.4	53.6	62.0	62.0	78.5	92.0	92.0	114.0	137.0	159.0	-	160.0
10"	10.75	20.00	15.38	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000				
				5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400				
				10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750				
				254.00	273.05	508.00	390.65	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
				-	-	-	-	-	-	74.6	92.8	110.0	110.0	142.0	142.0	183.0	218.0	261.0	299.0	-	299.0
12"	12.75	24.00	18.38	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000				
				6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400				
				12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750				
				304.80	323.85	609.60	466.85	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
				-	-	-	-	-	-	104.0	141.0	164.0	156.0	237.0	200.0	289.0	360.0	430.0	480.0	-	430.0

*Not given in ASME B36.10

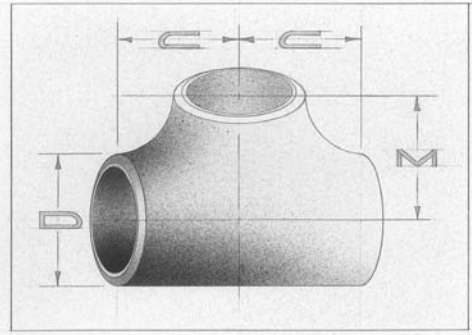
Straight TEES



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
				Center-to-End				Schedule									
Nominal Pipe Size	"D" Outside Diameter at Bevel	"C" Run	"M" Outlet	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm	inches mm														
½"	.84	1.00	1.00	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294
				-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468
				-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252
				-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401
				-	-	-	-	0.3	0.3	-	0.3	0.3	-	-	-	-	-
¾"	1.05	1.13	1.13	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308
				-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823
				-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434
				-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024
				-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	-	0.7	1.2
1"	1.32	1.50	1.50	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358
				-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093
				-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599
				-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215
				-	-	-	-	0.9	0.9	-	1.0	1.0	-	-	-	1.1	1.3
1½"	1.66	1.88	1.88	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382
				-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703
				-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896
				-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758
				-	-	-	-	1.6	1.6	-	2.0	2.0	-	-	-	2.1	2.3
1¾"	1.90	2.25	2.25	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400
				-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160
				-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100
				-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940
				-	-	-	-	2.1	2.1	-	2.8	2.8	-	-	-	3.0	3.4
2"	2.38	2.50	2.50	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436
				-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074
				-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503
				-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176
				-	-	-	-	3.3	3.3	-	3.9	3.9	-	-	-	4.5	5.2
2½"	2.88	3.00	3.00	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552
				-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021
				-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771
				-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983
				-	-	-	-	5.9	5.9	-	6.7	6.7	-	-	-	7.7	9.6
3"	3.50	3.38	3.38	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600
				-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240
				-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300
				-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420
				-	-	-	-	7.6	7.6	-	9.0	9.0	-	-	-	11.5	13.5
3½"	4.00	3.75	3.75	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*
				-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154
				-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728
				-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	69.291
				-	-	-	-	10.5	10.5	-	13.0	13.0	-	-	-	-	23.0
4"	4.50	4.13	4.13	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674
				4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120
				4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152
				104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-	87.325	80.061
				8.95	-	-	-	12.2	12.2	-	15.7	15.7	-	20.3	-	21.5	25.0
5"	5.56	4.88	4.88	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750
				-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050
				-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063
				-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-	109.550	103.200
				-	-	-	-	21.5	21.5	-	26.0	26.0	-	33.4	-	37.0	39.5

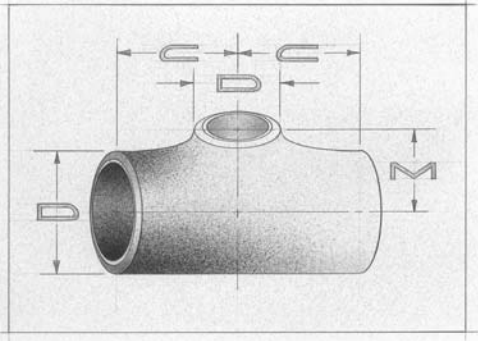
*Not given in ASME B36.10

Straight TEES



Key				Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)														
				Center-to-End				Schedule										
Nominal Pipe Size	"D" Outside Diameter at Bevel	"C" Run	"M" Outlet	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
inches mm	inches mm	inches mm	inches mm															
6"	6.63	5.63	5.63	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
				5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	22.946	
				6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
				157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384	
152.40	168.40	143.00	143.00	24.5	-	-	-	33.9	-	44.0	44.0	-	53.4	-	63.0	66.0		
8"	8.63	7.00	7.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875	
				5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225	
				8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875	
				207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625	
203.20	219.20	177.80	177.80	30.0	-	36.0	49.1	54.2	54.2	64.6	75.5	75.5	81.5	89.0	97.5	114.0	110.0	
10"	10.75	8.50	8.50	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000	
				5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400	
				10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750	
				261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	215.900	
254.00	273.05	215.90	215.90	55.5	-	64.5	76.2	87.5	87.5	110.0	110.0	163.0	187.0	218.0	246.0	265.0	222.250	-
12"	12.75	10.00	10.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000	
				6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400	
				12.250	-	12.250	11.938	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750	
				311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050	
304.80	323.85	254.00	254.00	99.5	-	99.5	118.0	139.0	126.0	187.0	165.0	210.0	318.0	361.0	412.0	412.0	389.0	-
14"	14.00	11.00	11.00	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-	
				6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-	
				13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-	
				342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-	
355.60	355.60	279.40	279.40	126.0	141.0	159.0	195.0	159.0	225.0	335.0	402.0	445.0	510.0	510.0	561.0	-	-	
16"	16.00	12.00	12.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-	
				6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-	
				15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-	
				393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-	
406.40	406.40	304.80	304.80	147.0	147.0	186.0	220.0	265.0	312.0	312.0	452.0	536.0	618.0	704.0	768.0	-	-	
18"	18.00	13.50	13.50	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-	
				6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-	
				17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-	
				444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-	
457.20	457.20	342.90	342.90	197.0	230.0	310.0	360.0	295.0	490.0	358.0	409.550	398.475	387.350	377.850	366.725	-	-	
20"	20.00	15.00	15.00	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-	
				6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-	
				19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-	
				495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-	
508.00	508.00	381.00	381.00	246.0	246.0	363.0	450.0	478.0	657.0	450.0	890.0	1005.0	1136.0	1310.0	1536.0	-	-	
22"	22.00	16.50	16.50	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-	
				-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-	
				-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	18.750	18.250	17.750	17.250	-	
				-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-	
558.80	558.80	419.10	419.10	-	-	-	-	-	449.0	-	540.0	-	-	-	-	-	-	
24"	24.00	17.00	17.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-	
				6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-	
				23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-	
				596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-	
609.60	609.60	431.80	431.80	392.0	392.0	515.0	740.0	1080.0	1390.0	625.0	1525.0	1627.0	1856.0	2149.0	2601.0	-	-	
30"	30.00	22.00	22.00	-	.312	.500	.625	-	.375	-	.500	-	-	-	-	-	-	
				-	7.925	12.700	15.875	-	9.525	-	12.700	-	-	-	-	-	-	-
				-	29.376	29.000	28.750	-	29.250	-	29.000	-	-	-	-	-	-	-
				-	746.150	736.600	730.250	-	742.950	-	736.600	-	-	-	-	-	-	-
762.00	762.00	558.80	558.80	-	930.0	1175.0	1490.0	-	1010.0	-	1175.0	-	-	-	-	-	-	

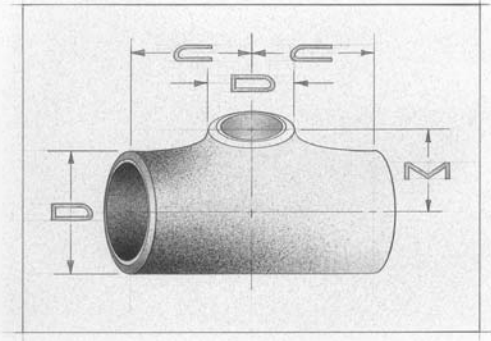
Reducing TEES



Key											
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				Center-to-End			
				Run		Outlet		"C" Run		"M" Outlet	
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
½ x ½ x ¼	12.70 x 12.70 x 6.35	½	12.70	0.84	21.34	0.54	13.72	1.00	25.40	1.00	25.40
¾ x ¾ x ½	19.05 x 19.05 x 12.70	¾	19.05	1.05	26.67	0.84	21.34	1.12	28.45	1.12	28.45
1 x 1 x ¾ 1 x 1 x ½	25.40 x 25.40 x 19.05 25.40 x 25.40 x 12.70	1	25.40	1.32 1.32	33.53 33.53	1.05 0.84	26.67 21.34	1.50 1.50	38.10 38.10	1.50 1.50	38.10 38.10
1¼ x 1¼ x 1 1¼ x 1¼ x ¾ 1¼ x 1¼ x ½	31.75 x 31.75 x 25.40 31.75 x 31.75 x 19.05 31.75 x 31.75 x 12.70	1¼	31.75	1.66 1.66 1.66	42.17 42.17 42.17	1.32 1.05 0.84	33.53 26.67 21.34	1.88 1.88 1.88	47.75 47.75 47.75	1.88 1.88 1.88	47.75 47.75 47.75
1½ x 1½ x 1¼ 1½ x 1½ x 1 1½ x 1½ x ¾ 1½ x 1½ x ½	38.10 x 38.10 x 31.75 38.10 x 38.10 x 25.40 38.10 x 38.10 x 19.05 38.10 x 38.10 x 12.70	1½	38.10	1.90 1.90 1.90 1.90	48.26 48.26 48.26 48.26	1.66 1.32 1.05 0.84	42.17 33.53 26.67 21.34	2.25 2.25 2.25 2.25	57.15 57.15 57.15 57.15	2.25 2.25 2.25 2.25	57.15 57.15 57.15 57.15
2 x 2 x 1½ 2 x 2 x 1¼ 2 x 2 x 1 2 x 2 x ¾	50.80 x 50.80 x 38.10 50.80 x 50.80 x 31.75 50.80 x 50.80 x 25.40 50.80 x 50.80 x 19.05	2	50.80	2.38 2.38 2.38 2.38	60.45 60.45 60.45 60.45	1.90 1.66 1.32 1.05	48.26 42.17 33.53 26.67	2.50 2.50 2.50 2.50	63.50 63.50 63.50 63.50	2.38 2.25 2.00 1.75	60.45 57.15 50.80 44.45
2½ x 2½ x 2 2½ x 2½ x 1½ 2½ x 2½ x 1¼ 2½ x 2½ x 1	63.50 x 63.50 x 50.80 63.50 x 63.50 x 38.10 63.50 x 63.50 x 31.75 63.50 x 63.50 x 25.40	2½	63.50	2.88 2.88 2.88 2.88	73.15 73.15 73.15 73.15	2.38 1.90 1.66 1.32	60.45 48.26 42.17 33.53	3.00 3.00 3.00 3.00	76.20 76.20 76.20 76.20	2.75 2.62 2.50 2.25	69.85 66.55 63.50 57.15
3 x 3 x 2½ 3 x 3 x 2 3 x 3 x 1½ 3 x 3 x 1¼	76.20 x 76.20 x 63.50 76.20 x 76.20 x 50.80 76.20 x 76.20 x 38.10 76.20 x 76.20 x 31.75	3	76.20	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90	2.88 2.38 1.90 1.66	73.15 60.45 48.26 42.17	3.38 3.38 3.38 3.38	85.85 85.85 85.85 85.85	3.25 3.00 2.88 2.75	82.55 76.20 73.15 69.85
3½ x 3½ x 3 3½ x 3½ x 2½ 3½ x 3½ x 2 3½ x 3½ x 1½	88.90 x 88.90 x 76.20 88.90 x 88.90 x 63.50 88.90 x 88.90 x 50.80 88.90 x 88.90 x 38.10	3½	88.90	4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60	3.50 2.88 2.38 1.90	88.90 73.15 60.45 48.26	3.75 3.75 3.75 3.75	95.25 95.25 95.25 95.25	3.62 3.50 3.25 3.12	91.95 88.90 82.55 79.25
4 x 4 x 3½ 4 x 4 x 3 4 x 4 x 2½ 4 x 4 x 2 4 x 4 x 1½	101.60 x 101.60 x 88.90 101.60 x 101.60 x 76.20 101.60 x 101.60 x 63.50 101.60 x 101.60 x 50.80 101.60 x 101.60 x 38.10	4	101.60	4.50 4.50 4.50 4.50 4.50	114.30 114.30 114.30 114.30 114.30	4.00 3.50 2.88 2.38 1.90	101.60 88.90 73.15 60.45 48.26	4.12 4.12 4.12 4.12 4.12	104.65 104.65 104.65 104.65 104.65	4.00 3.88 3.75 3.50 3.38	101.60 98.55 95.25 88.90 85.85
5 x 5 x 4 5 x 5 x 3½ 5 x 5 x 3 5 x 5 x 2½ 5 x 5 x 2	127.00 x 127.00 x 101.60 127.00 x 127.00 x 88.90 127.00 x 127.00 x 76.20 127.00 x 127.00 x 63.50 127.00 x 127.00 x 50.80	5	127.00	5.56 5.56 5.56 5.56 5.56	141.22 141.22 141.22 141.22 141.22	4.50 4.00 3.50 2.88 2.38	114.30 101.60 88.90 73.15 60.45	4.88 4.88 4.88 4.88 4.88	123.95 123.95 123.95 123.95 123.95	4.62 4.50 4.38 4.25 4.12	117.35 114.30 111.25 107.95 104.65
6 x 6 x 5 6 x 6 x 4 6 x 6 x 3½ 6 x 6 x 3 6 x 6 x 2½ 6 x 6 x 2	152.40 x 152.40 x 127.00 152.40 x 152.40 x 101.60 152.40 x 152.40 x 88.90 152.40 x 152.40 x 76.20 152.40 x 152.40 x 63.50 152.40 x 152.40 x 50.80	6	152.40	6.62 6.62 6.62 6.62 6.62 6.62	168.15 168.15 168.15 168.15 168.15 168.15	5.56 4.50 4.00 3.50 2.88 2.38	141.22 114.30 101.60 88.90 73.15 60.45	5.62 5.62 5.62 5.62 5.62 5.62	142.75 142.75 142.75 142.75 142.75 142.75	5.38 5.12 5.00 4.88 4.75 ***	136.65 130.05 127.00 123.95 120.65 ***

**Call factory for Nominal Wall Thickness and Inside Diameter measurements on ¼"
***Call factory for dimensions.

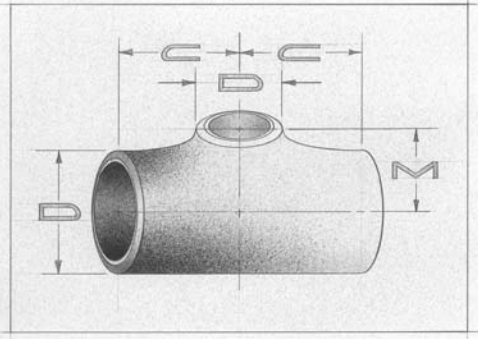
Reducing TEES



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights														
		Reducing Sizes		Schedule												
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
½ x ½ x ¾	12.70 x 12.70 x 6.35	-	-	-	-	.109	.109	-	.147	.147	-	-	-	.188	.294	
		-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	4.775	7.468	
		-	-	-	-	.622	.622	-	.546	.546	-	-	-	.464	.252	
		-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	11.786	6.401	
¾ x ¾ x 1½	19.05 x 19.05 x 12.70	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308	
		-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	5.563	7.823	
		-	-	-	-	.824	.824	-	.742	.742	-	-	-	.612	.434	
		-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	15.545	11.024	
1 x 1 x ¾ 1 x 1 x ½	25.40 x 25.40 x 19.05 25.40 x 25.40 x 12.70	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358	
		-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	6.350	9.093	
		-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	.815	.599	
		-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	20.701	15.215	
1¼ x 1¼ x 1 1¼ x 1¼ x ¾ 1¼ x 1¼ x ½	31.75 x 31.75 x 25.40 31.75 x 31.75 x 19.05 31.75 x 31.75 x 12.70	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382	
		-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703	
		-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896	
		-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	29.464	22.758	
1½ x 1½ x 1¼ 1½ x 1½ x 1 1½ x 1½ x ¾ 1½ x 1½ x ½	38.10 x 38.10 x 31.75 38.10 x 38.10 x 25.40 38.10 x 38.10 x 19.05 38.10 x 38.10 x 12.70	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400	
		-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160	
		-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100	
		-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	33.985	27.940	
2 x 2 x 1½ 2 x 2 x 1¼ 2 x 2 x 1 2 x 2 x ¾	50.80 x 50.80 x 38.10 50.80 x 50.80 x 31.75 50.80 x 50.80 x 25.40 50.80 x 50.80 x 19.05	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436	
		-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074	
		-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503	
		-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	42.850	38.176	
2½ x 2½ x 2 2½ x 2½ x 1½ 2½ x 2½ x 1¼ 2½ x 2½ x 1	63.50 x 63.50 x 50.80 63.50 x 63.50 x 38.10 63.50 x 63.50 x 31.75 63.50 x 63.50 x 25.40	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552	
		-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021	
		-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771	
		-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	53.975	44.983	
3 x 3 x 2½ 3 x 3 x 2 3 x 3 x 1½ 3 x 3 x 1¼	76.20 x 76.20 x 63.50 76.20 x 76.20 x 50.80 76.20 x 76.20 x 38.10 76.20 x 76.20 x 31.75	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600	
		-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240	
		-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300	
		-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	66.650	58.420	
3½ x 3½ x 3 3½ x 3½ x 2½ 3½ x 3½ x 2 3½ x 3½ x 1½	88.90 x 88.90 x 76.20 88.90 x 88.90 x 63.50 88.90 x 88.90 x 50.80 88.90 x 88.90 x 38.10	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*	
		-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	16.154	
		-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	2.728	
		-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	69.291	
4 x 4 x 3½ 4 x 4 x 3 4 x 4 x 2½ 4 x 4 x 2 4 x 4 x 1½	101.60 x 101.60 x 88.90 101.60 x 101.60 x 76.20 101.60 x 101.60 x 63.50 101.60 x 101.60 x 50.80 101.60 x 101.60 x 38.10	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674	
		4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120	
		4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152	
		104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-	87.325	80.061	
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 x 5 x 4 5 x 5 x 3½ 5 x 5 x 3 5 x 5 x 2½ 5 x 5 x 2	127.00 x 127.00 x 101.60 127.00 x 127.00 x 88.90 127.00 x 127.00 x 76.20 127.00 x 127.00 x 63.50 127.00 x 127.00 x 50.80	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750	
		-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050	
		-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063	
		-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-	109.550	103.200	
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 x 6 x 5 6 x 6 x 4 6 x 6 x 3½ 6 x 6 x 3 6 x 6 x 2½ 6 x 6 x 2	152.40 x 152.40 x 127.00 152.40 x 152.40 x 101.60 152.40 x 152.40 x 88.90 152.40 x 152.40 x 76.20 152.40 x 152.40 x 63.50 152.40 x 152.40 x 50.80	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
		5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946	
		6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
		157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384	
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Not given in ASME B36.10

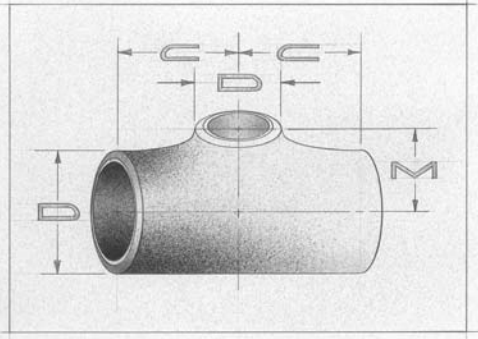
Reducing TEES



Key											
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				Center-to-End			
				Run		Outlet		"C" Run		"M" Outlet	
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
8 x 8 x 6	203.20 x 203.20 x 152.40	8	203.20	8.62	218.95	6.62	168.15	7.00	177.80	6.62	168.15
8 x 8 x 5	203.20 x 203.20 x 127.00			8.62	218.95	5.56	141.22	7.00	177.80	6.38	162.05
8 x 8 x 4	203.20 x 203.20 x 101.60			8.62	218.95	4.50	114.30	7.00	177.80	6.12	155.45
8 x 8 x 3½	203.20 x 203.20 x 88.90			8.62	218.95	4.00	101.60	7.00	177.80	6.00	152.40
8 x 8 x 3	203.20 x 203.20 x 76.20			8.62	218.95	3.50	88.90	7.00	177.80	***	***
10 x 10 x 8	254.00 x 254.00 x 203.20	10	254.00	10.75	273.05	8.62	218.95	8.50	215.90	8.00	203.20
10 x 10 x 6	254.00 x 254.00 x 152.40			10.75	273.05	6.62	168.15	8.50	215.90	7.62	193.55
10 x 10 x 5	254.00 x 254.00 x 127.00			10.75	273.05	5.56	141.22	8.50	215.90	7.50	190.50
10 x 10 x 4	254.00 x 254.00 x 101.60			10.75	273.05	4.50	114.30	8.50	215.90	7.25	184.15
12 x 12 x 10	304.80 x 304.80 x 254.00	12	304.80	12.75	323.85	10.75	273.05	10.00	254.00	9.50	241.30
12 x 12 x 8	304.80 x 304.80 x 203.20			12.75	323.85	8.62	218.95	10.00	254.00	9.00	228.60
12 x 12 x 6	304.80 x 304.80 x 152.40			12.75	323.85	6.62	168.15	10.00	254.00	8.62	218.95
12 x 12 x 5	304.80 x 304.80 x 127.00			12.75	323.85	5.56	141.22	10.00	254.00	8.50	215.90
12 x 12 x 4	304.80 x 304.80 x 101.60			***	***	***	***	***	***	***	***
14 x 14 x 12	355.60 x 355.60 x 304.80	14	355.60	14.00	355.60	12.75	323.85	11.00	279.40	10.62	269.75
14 x 14 x 10	355.60 x 355.60 x 254.00			14.00	355.60	10.75	273.05	11.00	279.40	10.12	257.05
14 x 14 x 8	355.60 x 355.60 x 203.20			14.00	355.60	8.62	218.95	11.00	279.40	9.75	247.65
14 x 14 x 6	355.60 x 355.60 x 152.40			14.00	355.60	6.62	168.15	11.00	279.40	9.38	238.25
16 x 16 x 14	406.40 x 406.40 x 355.60	16	406.40	16.00	406.40	14.00	355.60	12.00	304.80	12.00	304.80
16 x 16 x 12	406.40 x 406.40 x 304.80			16.00	406.40	12.75	323.85	12.00	304.80	11.62	295.15
16 x 16 x 10	406.40 x 406.40 x 254.00			16.00	406.40	10.75	273.05	12.00	304.80	11.12	282.45
16 x 16 x 8	406.40 x 406.40 x 203.20			16.00	406.40	8.62	218.95	12.00	304.80	10.75	273.05
16 x 16 x 6	406.40 x 406.40 x 152.40			16.00	406.40	6.62	168.15	12.00	304.80	10.38	263.65
18 x 18 x 16	457.20 x 457.20 x 406.40	18	457.20	18.00	457.20	16.00	406.40	13.50	342.90	13.00	330.20
18 x 18 x 14	457.20 x 457.20 x 355.60			18.00	457.20	14.00	355.60	13.50	342.90	13.00	330.20
18 x 18 x 12	457.20 x 457.20 x 304.80			18.00	457.20	12.75	323.85	13.50	342.90	12.62	320.55
18 x 18 x 10	457.20 x 457.20 x 254.00			18.00	457.20	10.75	273.05	13.50	342.90	12.12	307.85
18 x 18 x 8	457.20 x 457.20 x 203.20			18.00	457.20	8.62	218.95	13.50	342.90	11.75	298.45
20 x 20 x 18	508.00 x 508.00 x 457.20	20	508.00	20.00	508.00	18.00	457.20	15.00	381.00	14.50	368.30
20 x 20 x 16	508.00 x 508.00 x 406.40			20.00	508.00	16.00	406.40	15.00	381.00	14.00	355.60
20 x 20 x 14	508.00 x 508.00 x 355.60			20.00	508.00	14.00	355.60	15.00	381.00	14.00	355.60
20 x 20 x 12	508.00 x 508.00 x 304.80			20.00	508.00	12.75	323.85	15.00	381.00	13.62	345.95
20 x 20 x 10	508.00 x 508.00 x 254.00			20.00	508.00	10.75	273.05	15.00	381.00	13.12	333.25
20 x 20 x 8	508.00 x 508.00 x 203.20			20.00	508.00	8.62	218.95	15.00	381.00	12.75	323.85
22 x 22 x 20	558.80 x 558.80 x 508.00			22	558.80	22.00	558.80	20.00	508.00	16.50	419.10
22 x 22 x 18	558.80 x 558.80 x 457.20	22.00	558.80			18.00	457.20	16.50	419.10	15.50	393.70
22 x 22 x 16	558.80 x 558.80 x 406.40	22.00	558.80			16.00	406.40	16.50	419.10	15.00	381.00
22 x 22 x 14	558.80 x 558.80 x 355.60	22.00	558.80			14.00	355.60	16.50	419.10	15.00	381.00
22 x 22 x 12	558.80 x 558.80 x 304.80	22.00	558.80			12.75	323.85	16.50	419.10	14.62	371.35
22 x 22 x 10	558.80 x 558.80 x 254.00	22.00	558.80			10.75	273.05	16.50	419.10	14.12	358.65
24 x 24 x 22	609.60 x 609.60 x 558.80	24	609.60			24.00	609.60	22.00	558.80	17.00	431.80
24 x 24 x 20	609.60 x 609.60 x 508.00			24.00	609.60	20.00	508.00	17.00	431.80	17.00	431.80
24 x 24 x 18	609.60 x 609.60 x 457.20			24.00	609.60	18.00	457.20	17.00	431.80	16.50	419.10
24 x 24 x 16	609.60 x 609.60 x 406.40			24.00	609.60	16.00	406.40	17.00	431.80	16.00	406.40
24 x 24 x 14	609.60 x 609.60 x 355.60			24.00	609.60	14.00	355.60	17.00	431.80	16.00	406.40
24 x 24 x 12	609.60 x 609.60 x 304.80			24.00	609.60	12.75	323.85	17.00	431.80	15.62	396.75
24 x 24 x 10	609.60 x 609.60 x 254.00			24.00	609.60	10.75	273.05	17.00	431.80	15.12	384.05
30 x 30 x 24	762.00 x 762.00 x 609.60			30	762.00	30.00	762.00	24.00	609.60	22.00	558.80
30 x 30 x 20	762.00 x 762.00 x 508.00	30.00	762.00			20.00	508.00	22.00	558.80	20.00	508.00
30 x 30 x 18	762.00 x 762.00 x 457.20	30.00	762.00			18.00	457.20	22.00	558.80	19.50	493.30
30 x 30 x 16	762.00 x 762.00 x 406.40	30.00	762.00			16.00	406.40	22.00	558.80	19.00	482.60

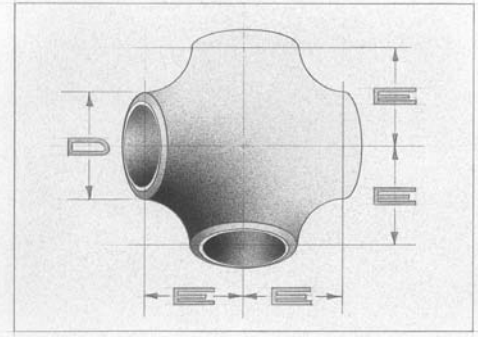
***Call factory for dimensions.

Reducing TEES



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
8 x 8 x 6	203.20 x 203.20 x 152.40	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
8 x 8 x 5	203.20 x 203.20 x 127.00	5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
8 x 8 x 4	203.20 x 203.20 x 101.60	8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
8 x 8 x 3½	203.20 x 203.20 x 88.90	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
8 x 8 x 3	203.20 x 203.20 x 76.20														
10 x 10 x 8	254.00 x 254.00 x 203.20	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
10 x 10 x 6	254.00 x 254.00 x 152.40	5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
10 x 10 x 5	254.00 x 254.00 x 127.00	10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
10 x 10 x 4	254.00 x 254.00 x 101.60	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
12 x 12 x 10	304.80 x 304.80 x 254.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
12 x 12 x 8	304.80 x 304.80 x 203.20	6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
12 x 12 x 6	304.80 x 304.80 x 152.40	12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
12 x 12 x 5	304.80 x 304.80 x 127.00	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
12 x 12 x 4	304.80 x 304.80 x 101.60														
14 x 14 x 12	355.60 x 355.60 x 304.80	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-
14 x 14 x 10	355.60 x 355.60 x 254.00	6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-
14 x 14 x 8	355.60 x 355.60 x 203.20	13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-
14 x 14 x 6	355.60 x 355.60 x 152.40	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-
16 x 16 x 14	406.40 x 406.40 x 355.60	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
16 x 16 x 12	406.40 x 406.40 x 304.80	6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
16 x 16 x 10	406.40 x 406.40 x 254.00	15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
16 x 16 x 8	406.40 x 406.40 x 203.20	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
16 x 16 x 6	406.40 x 406.40 x 152.40														
18 x 18 x 16	457.20 x 457.20 x 406.40	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
18 x 18 x 14	457.20 x 457.20 x 355.60	6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
18 x 18 x 12	457.20 x 457.20 x 304.80	17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
18 x 18 x 10	457.20 x 457.20 x 254.00	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
18 x 18 x 8	457.20 x 457.20 x 203.20														
20 x 20 x 18	508.00 x 508.00 x 457.20	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
20 x 20 x 16	508.00 x 508.00 x 406.40	6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
20 x 20 x 14	508.00 x 508.00 x 355.60	19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
20 x 20 x 12	508.00 x 508.00 x 304.80	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
20 x 20 x 10	508.00 x 508.00 x 254.00														
20 x 20 x 8	508.00 x 508.00 x 203.20														
22 x 22 x 20	558.80 x 558.80 x 508.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-
22 x 22 x 18	558.80 x 558.80 x 457.20	-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-
22 x 22 x 16	558.80 x 558.80 x 406.40	-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-
22 x 22 x 14	558.80 x 558.80 x 355.60	-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
22 x 22 x 12	558.80 x 558.80 x 304.80														
22 x 22 x 10	558.80 x 558.80 x 254.00														
24 x 24 x 22	609.60 x 609.60 x 558.80	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
24 x 24 x 20	609.60 x 609.60 x 508.00	6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
24 x 24 x 18	609.60 x 609.60 x 457.20	23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
24 x 24 x 16	609.60 x 609.60 x 406.40	596.900	596.900	590.500	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-
24 x 24 x 14	609.60 x 609.60 x 355.60														
24 x 24 x 12	609.60 x 609.60 x 304.80														
24 x 24 x 10	609.60 x 609.60 x 254.00														
30 x 30 x 24	762.00 x 762.00 x 609.60	-	.312	.500	.625	-	.375	-	.500	-	-	-	-	-	-
30 x 30 x 20	762.00 x 762.00 x 508.00	-	7.925	12.700	15.875	-	9.525	-	12.700	-	-	-	-	-	-
30 x 30 x 18	762.00 x 762.00 x 457.20	-	29.376	29.000	28.750	-	29.250	-	29.000	-	-	-	-	-	-
30 x 30 x 16	762.00 x 762.00 x 406.40	-	746.150	736.600	730.250	-	742.950	-	736.600	-	-	-	-	-	-

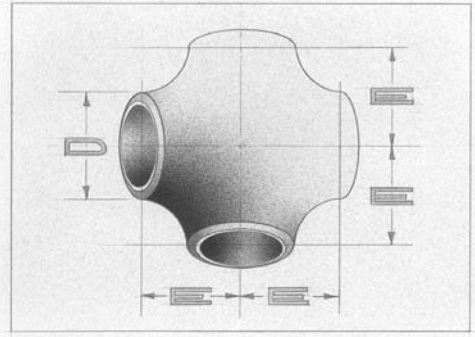
CROSSES



Key			Nominal Wall Thickness: inches mm														
			Inside Diameter: inches mm														
			Approximate Weight: Pounds (see page 3 for Kg)														
Nominal Pipe Size	"D" Outside Diameter at Bevel	"E" Center-to-End	Schedule														
			L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS	
inches mm	inches mm	inches mm															
1 1/4"	1.66	1.88	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382	
			-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	6.350	9.703	
			-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	1.160	.896	
			31.75	42.16	47.75	-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-
			-	-	-	-	1.5	1.5	-	1.9	1.9	-	-	-	-	-	
1 1/2"	1.90	2.25	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400	
			-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	7.137	10.160	
			-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	1.338	1.100	
			38.10	48.26	57.15	-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-
			-	-	-	-	2.3	2.3	-	2.8	2.8	-	-	-	-	-	
2"	2.38	2.50	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436	
			-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	8.738	11.074	
			-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	1.687	1.503	
			50.80	60.45	63.50	-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-
			-	-	-	-	3.4	3.4	-	4.2	4.2	-	-	-	-	-	
2 1/2"	2.88	3.00	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552	
			-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	9.525	14.021	
			-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	2.125	1.771	
			63.50	73.15	76.20	-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-
			-	-	-	-	5.9	5.9	-	7.2	7.2	-	-	-	-	-	
3"	3.50	3.38	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600	
			-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	11.125	15.240	
			-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	2.624	2.300	
			76.20	88.90	85.85	-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-
			-	-	-	-	8.3	8.3	-	10.3	10.3	-	-	-	14.4	23.6	
3 1/2"	4.00	3.75	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*	
			-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	-	16.154
			-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	-	2.728
			88.90	101.60	95.25	-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-
			-	-	-	-	10.8	10.8	-	13.8	13.8	-	-	-	-	-	
4"	4.50	4.13	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674	
			4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120	
			4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.624	-	3.438	3.152	
			101.60	114.30	104.90	104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-
			-	-	-	-	13.9	13.9	-	17.8	17.8	-	24.0	-	26.8	28.8	
5"	5.56	4.88	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750	
			-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050	
			-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063	
			127.00	141.22	123.95	-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-
			-	-	-	-	21.6	21.6	-	28.2	28.2	-	-	-	-	-	
6"	6.63	5.63	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864	
			5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946	
			6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897	
			152.40	168.40	143.00	157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-
			-	-	-	-	31.5	31.5	-	43.4	43.4	-	66.7	-	-	-	

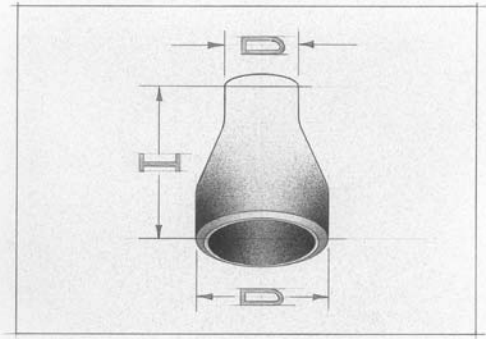
*Not given in ASME B36.10

CROSSES



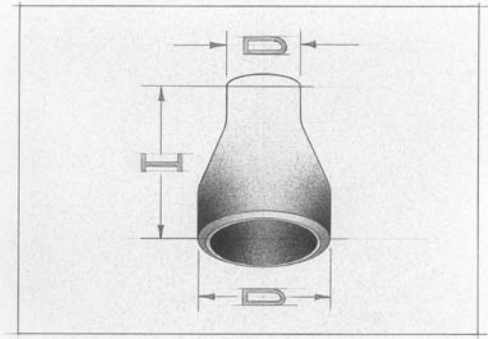
Key			Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)													
			Schedule													
Nominal Pipe Size	"D" Outside Diameter at Bevel	"E" Center-to-End	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
inches mm	inches mm	inches mm														
8"	8.63	7.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
			5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
			8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
203.20	219.20	177.80	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	188.900	182.550	177.825	173.050	174.625	-
10"	10.75	8.50	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
			5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
			10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
254.00	273.05	215.90	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
12"	12.75	10.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
			6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
			12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
304.80	323.85	254.00	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
14"	14.00	11.00	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-
			6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-
			13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-
355.60	355.60	279.40	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-
16"	16.00	12.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
			6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
			15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
406.40	406.40	304.80	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
18"	18.00	13.50	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
			6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
			17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
457.20	457.20	342.90	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
20"	20.00	15.00	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
			6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
			19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
508.00	508.00	381.00	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
22"	22.00	16.50	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-
			-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-
			-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-
558.80	558.80	419.10	-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
24"	24.00	17.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
			6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
			23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
609.60	609.60	431.80	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-

Concentric REDUCERS



Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"H" End-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
-	-	½	12.70	-	-	-	-	-	-
¾ x ½	19.05 x 12.70	¾	19.05	1.05	26.67	0.84	21.34	1.50	38.10
1 x ¾ 1 x ½	25.40 x 19.05 25.40 x 12.70	1	25.40	1.32 1.32	33.53 33.53	1.05 0.84	26.67 21.34	2.00 2.00	50.80 50.80
1¼ x 1 1¼ x ¾ 1¼ x ½	31.75 x 25.40 31.75 x 19.05 31.75 x 12.70	1¼	31.75	1.66 1.66 1.66	42.16 42.16 42.16	1.32 1.05 0.84	33.53 26.67 21.34	2.00 2.00 2.00	50.80 50.80 50.80
1½ x 1¼ 1½ x 1 1½ x ¾ 1½ x ½	38.10 x 31.75 38.10 x 25.40 38.10 x 19.05 38.10 x 12.70	1½	38.10	1.90 1.90 1.90 1.90	48.26 48.26 48.26 48.26	1.66 1.32 1.05 0.84	42.16 33.53 26.67 21.34	2.50 2.50 2.50 2.50	63.50 63.50 63.50 63.50
2 x 1½ 2 x 1¼ 2 x 1 2 x ¾	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40 50.80 x 19.05	2	50.80	2.38 2.38 2.38 2.38	60.45 60.45 60.45 60.45	1.90 1.66 1.32 1.05	48.26 42.16 33.53 26.67	3.00 3.00 3.00 3.00	76.20 76.20 76.20 76.20
2½ x 2 2½ x 1½ 2½ x 1¼ 2½ x 1	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75 63.50 x 25.40	2½	63.50	2.88 2.88 2.88 2.88	73.15 73.15 73.15 73.15	2.38 1.90 1.66 1.32	60.45 48.26 42.16 33.53	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90
3 x 2½ 3 x 2 3 x 1½ 3 x 1¼	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10 76.20 x 31.75	3	76.20	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90	2.88 2.38 1.90 1.66	73.15 60.45 48.26 42.16	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90
3½ x 3 3½ x 2½ 3½ x 2 3½ x 1½ 3½ x 1¼	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80 88.90 x 38.10 88.90 x 31.75	3½	88.90	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60	3.50 2.88 2.38 1.90 1.66	88.90 73.15 60.45 48.26 42.16	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60
4 x 3½ 4 x 3 4 x 2½ 4 x 2 4 x 1½	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80 101.60 x 38.10	4	101.60	4.50 4.50 4.50 4.50 4.50	114.30 114.30 114.30 114.30 114.30	4.00 3.50 2.88 2.38 1.90	101.60 88.90 73.15 60.45 48.26	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60
5 x 4 5 x 3½ 5 x 3 5 x 2½ 5 x 2	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50 127.00 x 50.80	5	127.00	5.56 5.56 5.56 5.56 5.56	141.22 141.22 141.22 141.22 141.22	4.50 4.00 3.50 2.88 2.38	114.30 101.60 88.90 73.15 60.45	5.00 5.00 5.00 5.00 5.00	127.00 127.00 127.00 127.00 127.00

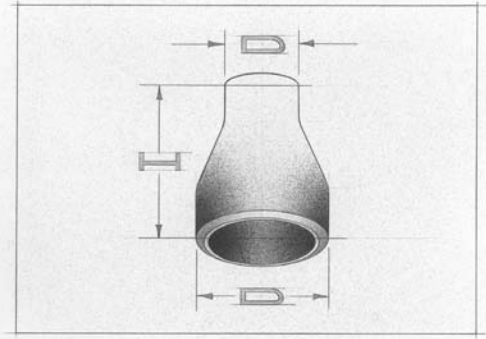
Concentric REDUCERS



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
-	-	-	-	-	-	.109 2.769 .622 15.799	.109 2.769 .622 15.799	-	.147 3.734 .546 13.868	.147 3.734 .546 13.868	-	-	-	.188 4.775 .464 11.786	.294 7.468 .252 6.401
¾ x ½	19.05 x 12.70	-	-	-	-	.113 2.870 .824 20.930	.113 2.870 .824 20.930	-	.154 3.912 .742 18.847	.154 3.912 .742 18.847	-	-	-	.219 5.563 .612 15.545	.308 7.823 .434 11.024
1 x ¾ 1 x ½	25.40 x 19.05 25.40 x 12.70	-	-	-	-	.133 3.378 1.049 26.645	.133 3.378 1.049 26.645	-	.179 4.547 .957 24.308	.179 4.547 .957 24.308	-	-	-	.250 6.350 .815 20.701	.358 9.093 .599 15.215
1¼ x 1 1¼ x ¾ 1¼ x ½	31.75 x 25.40 31.75 x 19.05 31.75 x 12.70	-	-	-	-	.140 3.556 1.380 35.052	.140 3.556 1.380 35.052	-	.191 4.851 1.278 32.461	.191 4.851 1.278 32.461	-	-	-	.250 6.350 1.160 29.464	.382 9.703 .896 22.758
1½ x 1¼ 1½ x 1 1½ x ¾ 1½ x ½	38.10 x 31.75 38.10 x 25.40 38.10 x 19.05 38.10 x 12.70	-	-	-	-	.145 3.683 1.610 40.894	.145 3.683 1.610 40.894	-	.200 5.080 1.500 38.100	.200 5.080 1.500 38.100	-	-	-	.281 7.137 1.338 33.985	.400 10.160 1.100 27.940
2 x 1½ 2 x 1¼ 2 x 1 2 x ¾	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40 50.80 x 19.05	-	-	-	-	.154 3.912 2.067 52.502	.154 3.912 2.067 52.502	-	.218 5.537 1.939 49.251	.218 5.537 1.939 49.251	-	-	-	.344 8.738 1.687 42.850	.436 11.074 1.503 38.176
2½ x 2 2½ x 1½ 2½ x 1¼ 2½ x 1	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75 63.50 x 25.40	-	-	-	-	.203 5.156 2.469 62.713	.203 5.156 2.469 62.713	-	.276 7.010 2.323 59.004	.276 7.010 2.323 59.004	-	-	-	.375 9.525 2.125 53.975	.552 14.021 1.771 44.983
3 x 2½ 3 x 2 3 x 1½ 3 x 1¼	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10 76.20 x 31.75	-	-	-	-	.216 5.486 3.068 77.927	.216 5.486 3.068 77.927	-	.300 7.620 2.900 73.660	.300 7.620 2.900 73.660	-	-	-	.438 11.125 2.624 66.650	.600 15.240 2.300 58.420
3½ x 3 3½ x 2½ 3½ x 2 3½ x 1½ 3½ x 1¼	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80 88.90 x 38.10 88.90 x 31.75	-	-	-	-	.226 5.740 3.548 90.119	.226 5.740 3.548 90.119	-	.318 8.077 3.364 85.446	.318 8.077 3.364 85.446	-	-	-	-	.636* 16.154 2.728 69.291
4 x 3½ 4 x 3 4 x 2½ 4 x 2 4 x 1½	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80 101.60 x 38.10	.188 4.775 4.124 104.749	-	-	-	.237 6.020 4.026 102.260	.237 6.020 4.026 102.260	-	.337 8.560 3.826 97.180	.337 8.560 3.826 97.180	-	.438 11.125 3.624 92.050	-	.531 13.487 3.438 87.325	.674 17.120 3.152 80.061
5 x 4 5 x 3½ 5 x 3 5 x 2½ 5 x 2	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50 127.00 x 50.80	-	-	-	-	.258 6.553 5.047 128.194	.258 6.553 5.047 128.194	-	.375 9.525 4.813 122.250	.375 9.525 4.813 122.250	-	.500 12.700 4.563 115.900	-	.625 15.875 4.313 109.550	.750 19.050 4.063 103.200

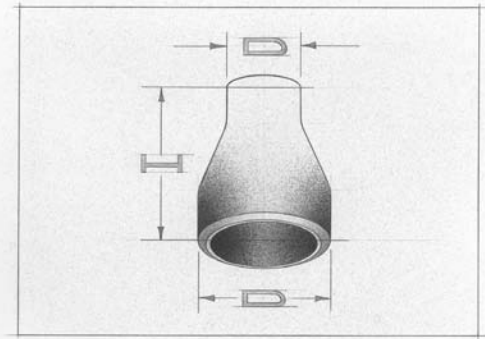
*Not given in ASME B36.10

Concentric REDUCERS



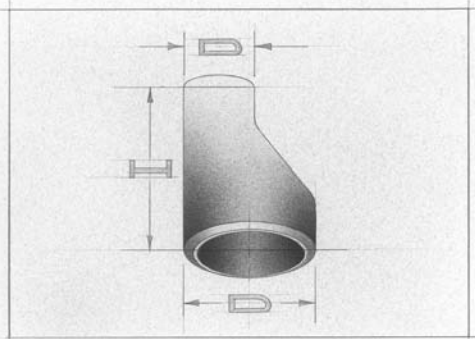
Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"H" End-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
6 x 5	152.40 x 127.00	6	152.40	6.62	168.15	5.56	141.22	5.50	139.70
6 x 4	152.40 x 101.60			6.62	168.15	4.50	114.30	5.50	139.70
6 x 3½	152.40 x 88.90			6.62	168.15	4.00	101.60	5.50	139.70
6 x 3	152.40 x 76.20			6.62	168.15	3.50	88.90	5.50	139.70
6 x 2½	152.40 x 63.50			6.62	168.15	2.88	73.15	5.50	139.70
6 x 2	152.40 x 50.80			6.62	168.15	-	-	5.50	139.70
8 x 6	203.20 x 152.40	8	203.20	8.63	219.20	6.63	168.40	6.00	152.40
8 x 5	203.20 x 127.00			8.63	219.20	5.56	141.22	6.00	152.40
8 x 4	203.20 x 101.60			8.63	219.20	4.50	114.30	6.00	152.40
8 x 3½	203.20 x 88.90			8.63	219.20	4.00	101.60	6.00	152.40
8 x 3	203.20 x 76.20			8.63	219.20	-	-	6.00	152.40
10 x 8	254.00 x 203.20	10	254.00	10.75	273.05	8.63	219.20	7.00	177.80
10 x 6	254.00 x 152.40			10.75	273.05	6.63	168.40	7.00	177.80
10 x 5	254.00 x 127.00			10.75	273.05	5.56	141.22	7.00	177.80
10 x 4	254.00 x 101.60			10.75	273.05	4.50	114.30	7.00	177.80
12 x 10	304.80 x 254.00	12	304.80	12.75	323.85	10.75	273.05	8.00	203.20
12 x 8	304.80 x 203.20			12.75	323.85	8.63	219.20	8.00	203.20
12 x 6	304.80 x 152.40			12.75	323.85	6.63	168.40	8.00	203.20
12 x 5	304.80 x 127.00			12.75	323.85	5.56	141.22	8.00	203.20
14 x 12	355.60 x 304.80	14	355.60	14.00	355.60	12.75	323.85	13.00	330.20
14 x 10	355.60 x 254.00			14.00	355.60	10.75	273.05	13.00	330.20
14 x 8	355.60 x 203.20			14.00	355.60	8.63	219.20	13.00	330.20
14 x 6	355.60 x 152.40			14.00	355.60	6.63	168.40	13.00	330.20
16 x 14	406.40 x 355.60	16	406.40	16.00	406.40	14.00	355.60	14.00	355.60
16 x 12	406.40 x 304.80			16.00	406.40	12.75	323.85	14.00	355.60
16 x 10	406.40 x 254.00			16.00	406.40	10.75	273.05	14.00	355.60
16 x 8	406.40 x 203.20			16.00	406.40	8.63	219.20	14.00	355.60
18 x 16	457.20 x 406.40	18	457.20	18.00	457.20	16.00	406.40	15.00	381.00
18 x 14	457.20 x 355.60			18.00	457.20	14.00	355.60	15.00	381.00
18 x 12	457.20 x 304.80			18.00	457.20	12.75	323.85	15.00	381.00
18 x 10	457.20 x 254.00			18.00	457.20	10.75	273.05	15.00	381.00
20 x 18	508.00 x 457.20	20	508.00	20.00	508.00	18.00	457.20	20.00	508.00
20 x 16	508.00 x 406.40			20.00	508.00	16.00	406.40	20.00	508.00
20 x 14	508.00 x 355.60			20.00	508.00	14.00	355.60	20.00	508.00
20 x 12	508.00 x 304.80			20.00	508.00	12.75	323.85	20.00	508.00
22 x 20	558.80 x 508.00	22	558.80	22.00	558.80	20.00	508.00	20.00	508.00
22 x 18	558.80 x 457.20			22.00	558.80	18.00	457.20	20.00	508.00
22 x 16	558.80 x 406.40			22.00	558.80	16.00	406.40	20.00	508.00
22 x 14	558.80 x 355.60			22.00	558.80	14.00	355.60	20.00	508.00
24 x 22	609.60 x 558.80	24	609.60	24.00	609.60	22.00	558.80	20.00	508.00
24 x 20	609.60 x 508.00			24.00	609.60	20.00	508.00	20.00	508.00
24 x 18	609.60 x 457.20			24.00	609.60	18.00	457.20	20.00	508.00
24 x 16	609.60 x 406.40			24.00	609.60	16.00	406.40	20.00	508.00

Concentric REDUCERS



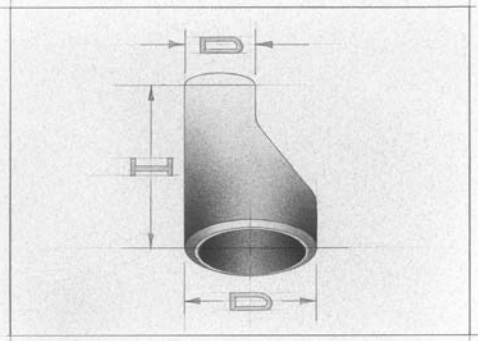
Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
6 x 5	152.40 x 127.00	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864
6 x 4	152.40 x 101.60	5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946
6 x 3½	152.40 x 88.90	6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897
6 x 3	152.40 x 76.20	157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384
6 x 2½	152.40 x 63.50														
6 x 2	152.40 x 50.80														
8 x 6	203.20 x 152.40	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
8 x 5	203.20 x 127.00	5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
8 x 4	203.20 x 101.60	8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
8 x 3½	203.20 x 88.90	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
8 x 3	203.20 x 76.20														
10 x 8	254.00 x 203.20	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
10 x 6	254.00 x 152.40	5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
10 x 5	254.00 x 127.00	10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
10 x 4	254.00 x 101.60	261.925	-	260.350	257.454	254.508	254.508	247.650	242.650	242.875	236.525	230.175	222.250	215.900	222.250
12 x 10	304.80 x 254.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
12 x 8	304.80 x 203.20	6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
12 x 6	304.80 x 152.40	12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
12 x 5	304.80 x 127.00	311.150	-	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200	273.050
14 x 12	355.60 x 304.80	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-
14 x 10	355.60 x 254.00	6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-
14 x 8	355.60 x 203.20	13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-
14 x 6	355.60 x 152.40	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-
16 x 14	406.40 x 355.60	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
16 x 12	406.40 x 304.80	6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
16 x 10	406.40 x 254.00	15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
16 x 8	406.40 x 203.20	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
18 x 16	457.20 x 406.40	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
18 x 14	457.20 x 355.60	6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
18 x 12	457.20 x 304.80	17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
18 x 10	457.20 x 254.00	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
20 x 18	508.00 x 457.20	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
20 x 16	508.00 x 406.40	6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
20 x 14	508.00 x 355.60	19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
20 x 12	508.00 x 304.80	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
22 x 20	558.80 x 508.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-
22 x 18	558.80 x 457.20	-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-
22 x 16	558.80 x 406.40	-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-
22 x 14	558.80 x 355.60	-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
24 x 22	609.60 x 558.80	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
24 x 20	609.60 x 508.00	6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
24 x 18	609.60 x 457.20	23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
24 x 16	609.60 x 406.40	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-

Eccentric REDUCERS



Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"H" End-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
-	-	½	12.70	-	-	-	-	-	-
¾ x ½	19.05 x 12.70	¾	19.05	1.05	26.67	0.84	21.34	1.50	38.10
1 x ¾ 1 x ½	25.40 x 19.05 25.40 x 12.70	1	25.40	1.32 1.32	33.53 33.53	1.05 0.84	26.67 21.34	2.00 2.00	50.80 50.80
1¼ x 1 1¼ x ¾ 1¼ x ½	31.75 x 25.40 31.75 x 19.05 31.75 x 12.70	1¼	31.75	1.66 1.66 1.66	42.16 42.16 42.16	1.32 1.05 0.84	33.53 26.67 21.34	2.00 2.00 2.00	50.80 50.80 50.80
1½ x 1¼ 1½ x 1 1½ x ¾ 1½ x ½	38.10 x 31.75 38.10 x 25.40 38.10 x 19.05 38.10 x 12.70	1½	38.10	1.90 1.90 1.90 1.90	48.26 48.26 48.26 48.26	1.66 1.32 1.05 0.84	42.16 33.53 26.67 21.34	2.50 2.50 2.50 2.50	63.50 63.50 63.50 63.50
2 x 1½ 2 x 1¼ 2 x 1 2 x ¾	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40 50.80 x 19.05	2	50.80	2.38 2.38 2.38 2.38	60.45 60.45 60.45 60.45	1.90 1.66 1.32 1.05	48.26 42.16 33.53 26.67	3.00 3.00 3.00 3.00	76.20 76.20 76.20 76.20
2½ x 2 2½ x 1½ 2½ x 1¼ 2½ x 1	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75 63.50 x 25.40	2½	63.50	2.88 2.88 2.88 2.88	73.15 73.15 73.15 73.15	2.38 1.90 1.66 1.32	60.45 48.26 42.16 33.53	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90
3 x 2½ 3 x 2 3 x 1½ 3 x 1¼	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10 76.20 x 31.75	3	76.20	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90	2.88 2.38 1.90 1.66	73.15 60.45 48.26 42.16	3.50 3.50 3.50 3.50	88.90 88.90 88.90 88.90
3½ x 3 3½ x 2½ 3½ x 2 3½ x 1½ 3½ x 1¼	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80 88.90 x 38.10 88.90 x 31.75	3½	88.90	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60	3.50 2.88 2.38 1.90 1.66	88.90 73.15 60.45 48.26 42.16	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60
4 x 3½ 4 x 3 4 x 2½ 4 x 2 4 x 1½	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80 101.60 x 38.10	4	101.60	4.50 4.50 4.50 4.50 4.50	114.30 114.30 114.30 114.30 114.30	4.00 3.50 2.88 2.38 1.90	101.60 88.90 73.15 60.45 48.26	4.00 4.00 4.00 4.00 4.00	101.60 101.60 101.60 101.60 101.60
5 x 4 5 x 3½ 5 x 3 5 x 2½ 5 x 2	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50 127.00 x 50.80	5	127.00	5.56 5.56 5.56 5.56 5.56	141.22 141.22 141.22 141.22 141.22	4.50 4.00 3.50 2.88 2.38	114.30 101.60 88.90 73.15 60.45	5.00 5.00 5.00 5.00 5.00	127.00 127.00 127.00 127.00 127.00

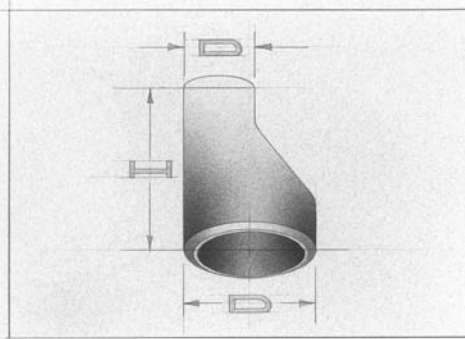
Eccentric REDUCERS



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
-	-	-	-	-	-	.109 2.769 .622 15.799	.109 2.769 .622 15.799	-	.147 3.734 .546 13.868	.147 3.734 .546 13.868	-	-	-	.188 4.775 .464 11.786	.294 7.468 .252 6.401
¾ x ½	19.05 x 12.70	-	-	-	-	.113 2.870 .824 20.930	.113 2.870 .824 20.930	-	.154 3.912 .742 18.847	.154 3.912 .742 18.847	-	-	-	.219 5.563 .612 15.545	.308 7.823 .434 11.024
1 x ¾ 1 x ½	25.40 x 19.05 25.40 x 12.70	-	-	-	-	.133 3.378 1.049 26.645	.133 3.378 1.049 26.645	-	.179 4.547 .957 24.308	.179 4.547 .957 24.308	-	-	-	.250 6.350 .815 20.701	.358 9.093 .599 15.215
1¼ x 1 1¼ x ¾ 1¼ x ½	31.75 x 25.40 31.75 x 19.05 31.75 x 12.70	-	-	-	-	.140 3.556 1.380 35.052	.140 3.556 1.380 35.052	-	.191 4.851 1.278 32.461	.191 4.851 1.278 32.461	-	-	-	.250 6.350 1.160 29.464	.382 9.703 .896 22.758
1½ x 1¼ 1½ x 1 1½ x ¾ 1½ x ½	38.10 x 31.75 38.10 x 25.40 38.10 x 19.05 38.10 x 12.70	-	-	-	-	.145 3.683 1.610 40.894	.145 3.683 1.610 40.894	-	.200 5.080 1.500 38.100	.200 5.080 1.500 38.100	-	-	-	.281 7.137 1.338 33.985	.400 10.160 1.100 27.940
2 x 1½ 2 x 1¼ 2 x 1 2 x ¾	50.80 x 38.10 50.80 x 31.75 50.80 x 25.40 50.80 x 19.05	-	-	-	-	.154 3.912 2.067 52.502	.154 3.912 2.067 52.502	-	.218 5.537 1.939 49.251	.218 5.537 1.939 49.251	-	-	-	.344 8.738 1.687 42.850	.436 11.074 1.503 38.176
2½ x 2 2½ x 1½ 2½ x 1¼ 2½ x 1	63.50 x 50.80 63.50 x 38.10 63.50 x 31.75 63.50 x 25.40	-	-	-	-	.203 5.156 2.469 62.713	.203 5.156 2.469 62.713	-	.276 7.010 2.323 59.004	.276 7.010 2.323 59.004	-	-	-	.375 9.525 2.125 53.975	.552 14.021 1.771 44.983
3 x 2½ 3 x 2 3 x 1½ 3 x 1¼	76.20 x 63.50 76.20 x 50.80 76.20 x 38.10 76.20 x 31.75	-	-	-	-	.216 5.486 3.068 77.927	.216 5.486 3.068 77.927	-	.300 7.620 2.900 73.660	.300 7.620 2.900 73.660	-	-	-	.438 11.125 2.624 66.650	.600 15.240 2.300 58.420
3½ x 3 3½ x 2½ 3½ x 2 3½ x 1½ 3½ x 1¼	88.90 x 76.20 88.90 x 63.50 88.90 x 50.80 88.90 x 38.10 88.90 x 31.75	-	-	-	-	.226 5.740 3.548 90.119	.226 5.740 3.548 90.119	-	.318 8.077 3.364 85.446	.318 8.077 3.364 85.446	-	-	-	-	.636* 16.154 2.728 69.291
4 x 3½ 4 x 3 4 x 2½ 4 x 2 4 x 1½	101.60 x 88.90 101.60 x 76.20 101.60 x 63.50 101.60 x 50.80 101.60 x 38.10	.188 4.775 4.124 104.749	-	-	-	.237 6.020 4.026 102.260	.237 6.020 4.026 102.260	-	.337 8.560 3.826 97.180	.337 8.560 3.826 97.180	-	.438 11.125 3.624 92.050	-	.531 13.487 4.338 87.325	.674 17.120 3.152 80.061
5 x 4 5 x 3½ 5 x 3 5 x 2½ 5 x 2	127.00 x 101.60 127.00 x 88.90 127.00 x 76.20 127.00 x 63.50 127.00 x 50.80	-	-	-	-	.258 6.553 5.047 128.194	.258 6.553 5.047 128.194	-	.375 9.525 4.813 122.250	.375 9.525 4.813 122.250	-	.500 12.700 4.563 115.900	-	.625 15.875 4.313 109.550	.750 19.050 4.063 103.200

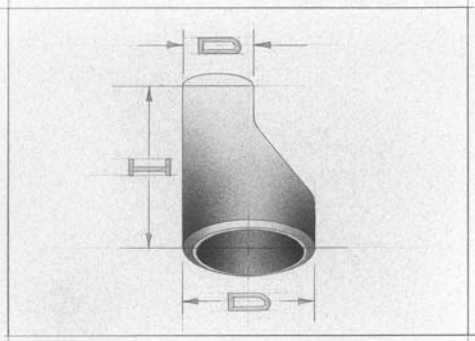
*Not given in ASME B36.10

Eccentric REDUCERS



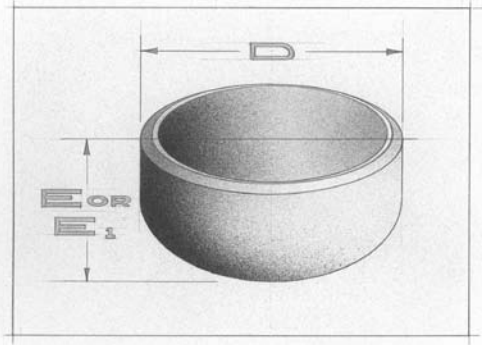
Key									
Reducing Sizes		Nominal Pipe Size		"D" Outside Diameter at Bevel				"H" End-to-End	
				Large End		Small End			
inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
6 x 5	152.40 x 127.00	6	152.40	6.62	168.15	5.56	141.22	5.50	139.70
6 x 4	152.40 x 101.60			6.62	168.15	4.50	114.30	5.50	139.70
6 x 3½	152.40 x 88.90			6.62	168.15	4.00	101.60	5.50	139.70
6 x 3	152.40 x 76.20			6.62	168.15	3.50	88.90	5.50	139.70
6 x 2½	152.40 x 63.50			6.62	168.15	2.88	73.15	5.50	139.70
6 x 2	152.40 x 50.80			6.62	168.15	-	-	5.50	139.70
8 x 6	203.20 x 152.40	8	203.20	8.63	219.20	6.63	168.40	6.00	152.40
8 x 5	203.20 x 127.00			8.63	219.20	5.56	141.22	6.00	152.40
8 x 4	203.20 x 101.60			8.63	219.20	4.50	114.30	6.00	152.40
8 x 3½	203.20 x 88.90			8.63	219.20	4.00	101.60	6.00	152.40
8 x 3	203.20 x 76.20			8.63	219.20	-	-	6.00	152.40
10 x 8	254.00 x 203.20	10	254.00	10.75	273.05	8.63	219.20	7.00	177.80
10 x 6	254.00 x 152.40			10.75	273.05	6.63	168.40	7.00	177.80
10 x 5	254.00 x 127.00			10.75	273.05	5.56	141.22	7.00	177.80
10 x 4	254.00 x 101.60			10.75	273.05	4.50	114.30	7.00	177.80
12 x 10	304.80 x 254.00	12	304.80	12.75	323.85	10.75	273.05	8.00	203.20
12 x 8	304.80 x 203.20			12.75	323.85	8.63	219.20	8.00	203.20
12 x 6	304.80 x 152.40			12.75	323.85	6.63	168.40	8.00	203.20
12 x 5	304.80 x 127.00			12.75	323.85	5.56	141.22	8.00	203.20
14 x 12	355.60 x 304.80	14	355.60	14.00	355.60	12.75	323.85	13.00	330.20
14 x 10	355.60 x 254.00			14.00	355.60	10.75	273.05	13.00	330.20
14 x 8	355.60 x 203.20			14.00	355.60	8.63	219.20	13.00	330.20
14 x 6	355.60 x 152.40			14.00	355.60	6.63	168.40	13.00	330.20
16 x 14	406.40 x 355.60	16	406.40	16.00	406.40	14.00	355.60	14.00	355.60
16 x 12	406.40 x 304.80			16.00	406.40	12.75	323.85	14.00	355.60
16 x 10	406.40 x 254.00			16.00	406.40	10.75	273.05	14.00	355.60
16 x 8	406.40 x 203.20			16.00	406.40	8.63	219.20	14.00	355.60
18 x 16	457.20 x 406.40	18	457.20	18.00	457.20	16.00	406.40	15.00	381.00
18 x 14	457.20 x 355.60			18.00	457.20	14.00	355.60	15.00	381.00
18 x 12	457.20 x 304.80			18.00	457.20	12.75	323.85	15.00	381.00
18 x 10	457.20 x 254.00			18.00	457.20	10.75	273.05	15.00	381.00
20 x 18	508.00 x 457.20	20	508.00	20.00	508.00	18.00	457.20	20.00	508.00
20 x 16	508.00 x 406.40			20.00	508.00	16.00	406.40	20.00	508.00
20 x 14	508.00 x 355.60			20.00	508.00	14.00	355.60	20.00	508.00
20 x 12	508.00 x 304.80			20.00	508.00	12.75	323.85	20.00	508.00
22 x 20	558.80 x 508.00	22	558.80	22.00	558.80	20.00	508.00	20.00	508.00
22 x 18	558.80 x 457.20			22.00	558.80	18.00	457.20	20.00	508.00
22 x 16	558.80 x 406.40			22.00	558.80	16.00	406.40	20.00	508.00
22 x 14	558.80 x 355.60			22.00	558.80	14.00	355.60	20.00	508.00
24 x 22	609.60 x 558.80	24	609.60	24.00	609.60	22.00	558.80	20.00	508.00
24 x 20	609.60 x 508.00			24.00	609.60	20.00	508.00	20.00	508.00
24 x 18	609.60 x 457.20			24.00	609.60	18.00	457.20	20.00	508.00
24 x 16	609.60 x 406.40			24.00	609.60	16.00	406.40	20.00	508.00

Eccentric REDUCERS



Key		Nominal Wall Thickness: inches mm Inside Diameter: inches mm Weight: Call factory for weights													
		Reducing Sizes		Schedule											
inches	mm	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS
6 x 5	152.40 x 127.00	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864
6 x 4	152.40 x 101.60	5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946
6 x 3½	152.40 x 88.90	6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897
6 x 3	152.40 x 76.20	157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384
6 x 2½	152.40 x 63.50														
6 x 2	152.40 x 50.80														
8 x 6	203.20 x 152.40	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875
8 x 5	203.20 x 127.00	5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225
8 x 4	203.20 x 101.60	8.187	-	8.125	8.071	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875
8 x 3½	203.20 x 88.90	207.949	-	206.375	205.003	202.717	202.717	198.450	193.675	193.675	188.900	182.550	177.825	173.050	174.625
8 x 3	203.20 x 76.20														
10 x 8	254.00 x 203.20	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000
10 x 6	254.00 x 152.40	5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400
10 x 5	254.00 x 127.00	10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750
10 x 4	254.00 x 101.60	261.925	-	260.350	257.454	254.508	254.508	247.650	247.650	242.875	236.525	230.175	222.250	215.900	222.250
12 x 10	304.80 x 254.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000
12 x 8	304.80 x 203.20	6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400
12 x 6	304.80 x 152.40	12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750
12 x 5	304.80 x 127.00	311.150	-	311.150	307.086	303.225	304.800	295.300	295.300	288.900	280.975	273.050	266.700	257.200	273.050
14 x 12	355.60 x 304.80	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-
14 x 10	355.60 x 254.00	6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-
14 x 8	355.60 x 203.20	13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-
14 x 6	355.60 x 152.40	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100	284.175	-
16 x 14	406.40 x 355.60	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-
16 x 12	406.40 x 304.80	6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-
16 x 10	406.40 x 254.00	15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-
16 x 8	406.40 x 203.20	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350	325.425	-
18 x 16	457.20 x 406.40	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-
18 x 14	457.20 x 355.60	6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-
18 x 12	457.20 x 304.80	17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-
18 x 10	457.20 x 254.00	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850	366.725	-
20 x 18	508.00 x 457.20	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-
20 x 16	508.00 x 406.40	6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-
20 x 14	508.00 x 355.60	19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-
20 x 12	508.00 x 304.80	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100	407.975	-
22 x 20	558.80 x 508.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-
22 x 18	558.80 x 457.20	-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-
22 x 16	558.80 x 406.40	-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-
22 x 14	558.80 x 355.60	-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550	450.850	-
24 x 22	609.60 x 558.80	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-
24 x 20	609.60 x 508.00	6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-
24 x 18	609.60 x 457.20	23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-
24 x 16	609.60 x 406.40	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850	490.525	-

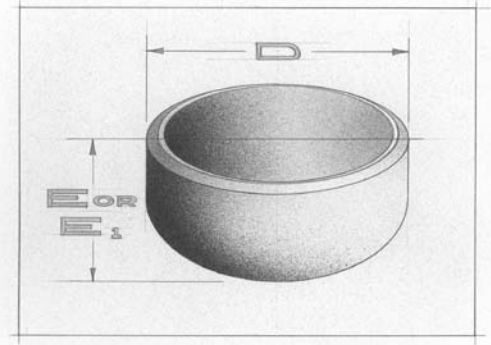
CAPS



Key					Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)															
Nominal Pipe Size	"D" Outside Diameter at Bevel	"E" Length (1)	Limiting Wall Thickness for Length E	"E" Length (2)	Schedule															
					L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS		
inches mm	inches mm	inches mm	inches mm	inches mm																
½"	.84	1.00	0.18	1.00	-	-	-	-	.109	.109	-	.147	.147	-	-	-	-	.188	.294	
					-	-	-	-	2.769	2.769	-	3.734	3.734	-	-	-	-	4.775	7.468	
					-	-	-	-	.622	.622	-	.546	.546	-	-	-	-	.464	.252	
					-	-	-	-	15.799	15.799	-	13.868	13.868	-	-	-	-	11.786	6.401	
12.70	21.34	25.40	4.57	25.40	-	-	-	-	0.1	0.1	-	0.1	0.1	-	-	-	-	0.5		
					-	-	-	-	0.1	0.1	-	0.1	0.1	-	-	-	-	-	-	
					-	-	-	-	0.1	0.1	-	0.1	0.1	-	-	-	-	-	-	-
					-	-	-	-	0.1	0.1	-	0.1	0.1	-	-	-	-	-	-	-
¾"	1.05	1.00	0.15	1.00	-	-	-	-	.113	.113	-	.154	.154	-	-	-	.219	.308		
					-	-	-	-	2.870	2.870	-	3.912	3.912	-	-	-	-	5.563	7.823	
					-	-	-	-	.824	.824	-	.742	.742	-	-	-	-	.612	.434	
					-	-	-	-	20.930	20.930	-	18.847	18.847	-	-	-	-	15.545	11.024	
19.05	26.67	25.40	3.81	25.40	-	-	-	-	0.1	0.1	-	0.2	0.2	-	-	-	-	-		
					-	-	-	-	0.1	0.1	-	0.2	0.2	-	-	-	-	-	-	
					-	-	-	-	0.1	0.1	-	0.2	0.2	-	-	-	-	-	-	-
					-	-	-	-	0.1	0.1	-	0.2	0.2	-	-	-	-	-	-	-
1"	1.32	1.50	0.18	1.50	-	-	-	-	.133	.133	-	.179	.179	-	-	-	.250	.358		
					-	-	-	-	3.378	3.378	-	4.547	4.547	-	-	-	-	6.350	9.093	
					-	-	-	-	1.049	1.049	-	.957	.957	-	-	-	-	.815	.599	
					-	-	-	-	26.645	26.645	-	24.308	24.308	-	-	-	-	20.701	15.215	
25.40	33.53	38.10	4.57	38.10	-	-	-	-	0.2	0.2	-	0.3	0.3	-	-	-	0.4	1.0		
					-	-	-	-	0.2	0.2	-	0.3	0.3	-	-	-	-	0.4	1.0	
					-	-	-	-	0.2	0.2	-	0.3	0.3	-	-	-	-	0.4	1.0	
					-	-	-	-	0.2	0.2	-	0.3	0.3	-	-	-	-	0.4	1.0	
1¼"	1.66	1.50	0.19	1.50	-	-	-	-	.140	.140	-	.191	.191	-	-	-	.250	.382		
					-	-	-	-	3.556	3.556	-	4.851	4.851	-	-	-	-	6.350	9.703	
					-	-	-	-	1.380	1.380	-	1.278	1.278	-	-	-	-	1.160	.896	
					-	-	-	-	35.052	35.052	-	32.461	32.461	-	-	-	-	29.464	22.758	
31.75	42.16	38.10	4.83	38.10	-	-	-	-	0.3	0.3	-	0.4	0.4	-	-	-	0.5	1.5		
					-	-	-	-	0.3	0.3	-	0.4	0.4	-	-	-	-	0.5	1.5	
					-	-	-	-	0.3	0.3	-	0.4	0.4	-	-	-	-	0.5	1.5	
					-	-	-	-	0.3	0.3	-	0.4	0.4	-	-	-	-	0.5	1.5	
1½"	1.90	1.50	0.20	1.50	-	-	-	-	.145	.145	-	.200	.200	-	-	-	.281	.400		
					-	-	-	-	3.683	3.683	-	5.080	5.080	-	-	-	-	7.137	10.160	
					-	-	-	-	1.610	1.610	-	1.500	1.500	-	-	-	-	1.338	1.100	
					-	-	-	-	40.894	40.894	-	38.100	38.100	-	-	-	-	33.985	27.940	
38.10	48.26	38.10	5.08	38.10	-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	-	0.6	2.5		
					-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	-	-	0.6	2.5	
					-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	-	-	0.6	2.5	
					-	-	-	-	0.4	0.4	-	0.5	0.5	-	-	-	-	0.6	2.5	
2"	2.38	1.50	0.22	1.75	-	-	-	-	.154	.154	-	.218	.218	-	-	-	.344	.436		
					-	-	-	-	3.912	3.912	-	5.537	5.537	-	-	-	-	8.738	11.074	
					-	-	-	-	2.067	2.067	-	1.939	1.939	-	-	-	-	1.687	1.503	
					-	-	-	-	52.502	52.502	-	49.251	49.251	-	-	-	-	42.850	38.176	
50.80	60.45	38.10	5.59	44.45	-	-	-	-	0.6	0.6	-	0.8	0.8	-	-	-	1.3	3.0		
					-	-	-	-	0.6	0.6	-	0.8	0.8	-	-	-	-	1.3	3.0	
					-	-	-	-	0.6	0.6	-	0.8	0.8	-	-	-	-	1.3	3.0	
					-	-	-	-	0.6	0.6	-	0.8	0.8	-	-	-	-	1.3	3.0	
2½"	2.88	1.50	0.28	2.00	-	-	-	-	.203	.203	-	.276	.276	-	-	-	.375	.552		
					-	-	-	-	5.156	5.156	-	7.010	7.010	-	-	-	-	9.525	14.021	
					-	-	-	-	2.469	2.469	-	2.323	2.323	-	-	-	-	2.125	1.771	
					-	-	-	-	62.713	62.713	-	59.004	59.004	-	-	-	-	53.975	44.983	
63.50	73.15	38.10	7.11	50.80	-	-	-	-	0.9	0.9	-	1.0	1.0	-	-	-	1.8	4.0		
					-	-	-	-	0.9	0.9	-	1.0	1.0	-	-	-	-	1.8	4.0	
					-	-	-	-	0.9	0.9	-	1.0	1.0	-	-	-	-	1.8	4.0	
					-	-	-	-	0.9	0.9	-	1.0	1.0	-	-	-	-	1.8	4.0	
3"	3.50	2.00	0.30	2.50	-	-	-	-	.216	.216	-	.300	.300	-	-	-	.438	.600		
					-	-	-	-	5.486	5.486	-	7.620	7.620	-	-	-	-	11.125	15.240	
					-	-	-	-	3.068	3.068	-	2.900	2.900	-	-	-	-	2.624	2.300	
					-	-	-	-	77.927	77.927	-	73.660	73.660	-	-	-	-	66.650	58.420	
76.20	88.90	50.80	7.62	63.50	-	-	-	-	1.5	1.5	-	1.8	1.8	-	-	-	2.9	6.0		
					-	-	-	-	1.5	1.5	-	1.8	1.8	-	-	-	-	2.9	6.0	
					-	-	-	-	1.5	1.5	-	1.8	1.8	-	-	-	-	2.9	6.0	
					-	-	-	-	1.5	1.5	-	1.8	1.8	-	-	-	-	2.9	6.0	
3½"	4.00	2.50	0.32	3.00	-	-	-	-	.226	.226	-	.318	.318	-	-	-	-	.636*		
					-	-	-	-	5.740	5.740	-	8.077	8.077	-	-	-	-	-	16.154	
					-	-	-	-	3.548	3.548	-	3.364	3.364	-	-	-	-	-	2.728	
					-	-	-	-	90.119	90.119	-	85.446	85.446	-	-	-	-	-	69.291	
88.90	101.60	63.50	8.13	76.20	-	-	-	-	1.9	1.9	-	2.8	2.8	-	-	-	-	7.5		
					-	-	-	-	1.9	1.9	-	2.8	2.8	-	-	-	-	7.5		
					-	-	-	-	1.9	1.9	-	2.8	2.8	-	-	-	-	7.5		
					-	-	-	-	1.9	1.9	-	2.8	2.8	-	-	-	-	7.5		
4"	4.50	2.50	0.34	3.00	.188	-	-	-	.237	.237	-	.337	.337	-	.438	-	.531	.674		
					4.775	-	-	-	6.020	6.020	-	8.560	8.560	-	11.125	-	13.487	17.120		
					4.124	-	-	-	4.026	4.026	-	3.826	3.826	-	3.438	-	3.438	3.152		
					104.749	-	-	-	102.260	102.260	-	97.180	97.180	-	92.050	-	87.325	80.061		
101.60	114.30	63.50	8.64	76.20	-	-	-	-	2.5	2.5	-	3.3	3.3	-	5.0	-	5.9	9.0		
					-	-	-	-	2.5	2.5	-	3.3	3.3	-	5.0	-	5.9	9.0		
					-	-	-	-	2.5	2.5	-	3.3	3.3	-	5.0	-	5.9	9.0		
					-	-	-	-	2.5	2.5	-	3.3	3.3	-	5.0	-	5.9	9.0		
5"	5.56	3.00	0.38	3.50	-	-	-	-	.258	.258	-	.375	.375	-	.500	-	.625	.750		
					-	-	-	-	6.553	6.553	-	9.525	9.525	-	12.700	-	15.875	19.050		
					-	-	-	-	5.047	5.047	-	4.813	4.813	-	4.563	-	4.313	4.063		
					-	-	-	-	128.194	128.194	-	122.250	122.250	-	115.900	-	109.550	103.200		
127.00	141.22	76.20	9.65	88.90	-	-	-	-	4.7	4.7	-	5.5	5.5	-	8.9	-	10.0	13.5		
					-	-	-	-	4.7	4.7	-	5.5	5.5	-	8.9	-	10.0	13.5		
					-	-	-	-	4.7	4.7	-	5.5	5.5	-	8.9	-	10.0	13.5		
					-	-	-	-	4.7	4.7	-	5.5	5.5	-	8.9	-	10.0	13.5		

GENERAL NOTES: The shape of these caps shall be ellipsoidal and shall conform to the shape requirements as given in the ASME Boiler and Pressure Vessel Code.
 NOTES: (1) Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E."
 (2) Length E₁ applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 and smaller. For NPS 26 and larger, length E₁ shall be by agreement between manufacturer and purchaser.

CAPS



Key					Nominal Wall Thickness: inches mm Inside Diameter: inches mm Approximate Weight: Pounds (see page 3 for Kg)																
					Schedule																
Nominal Pipe Size	"D" Outside Diameter at Bevel	"E" Length (1)	Limiting Wall Thickness for Length E	"E" Length (2)	L.W.G.	10	20	30	40	STD WT	60	XS	80	100	120	140	160	XXS			
inches mm	inches mm	inches mm	inches mm	inches mm																	
6"	6.63	3.50	0.43	4.00	.219	-	-	-	.280	.280	-	.432	.432	-	.562	-	.719	.864			
					5.563	-	-	-	7.112	7.112	-	10.973	10.973	-	14.275	-	18.263	21.946			
					6.187	-	-	-	6.065	6.065	-	5.761	5.761	-	5.501	-	5.187	4.897			
					157.150	-	-	-	154.051	154.051	-	146.329	146.329	-	139.725	-	131.750	124.384			
					5.3	-	-	-	6.5	6.5	-	9.3	9.3	-	12.9	-	15.0	18.0			
8"	8.63	4.00	0.50	5.00	.219	-	.250	.277	.322	.322	.406	.500	.500	.594	.719	.812	.906	.875			
					5.563	-	6.350	7.036	8.179	8.179	10.312	12.700	12.700	15.088	18.263	20.625	23.012	22.225			
					8.187	-	8.125	7.981	7.981	7.981	7.813	7.625	7.625	7.437	7.187	7.001	6.813	6.875			
					203.20	219.20	101.60	127.70	127.00	207.949	206.375	205.003	202.717	202.717	198.450	193.675	188.900	182.550	177.825	173.050	174.625
					6.9	-	7.3	9.5	11.8	11.8	14.2	16.7	16.7	18.9	23.7	25.4	31.0	31.0			
10"	10.75	5.00	0.50	6.00	.219	-	.250	.307	.365	.365	.500	.500	.594	.719	.844	1.000	1.125	1.000			
					5.563	-	6.350	7.798	9.271	9.271	12.700	12.700	15.088	18.263	21.438	25.400	28.575	25.400			
					10.312	-	10.250	10.136	10.020	10.020	9.750	9.750	9.562	9.312	9.062	8.750	8.500	8.750			
					254.00	273.05	127.00	127.70	152.40	261.925	260.350	257.454	254.508	254.508	247.650	242.875	236.525	230.175	222.250	215.900	215.900
					13.2	-	14.1	17.9	22.0	22.0	26.7	26.7	29.4	33.8	46.0	52.5	57.0	-			
12"	12.75	6.00	0.50	7.00	.250	-	.250	.330	.406	.375	.562	.500	.688	.844	1.000	1.125	1.312	1.000			
					6.350	-	6.350	8.382	10.312	9.525	14.275	12.700	17.475	21.438	25.400	28.575	33.325	25.400			
					12.250	-	12.250	12.090	11.938	12.000	11.626	11.750	11.374	11.062	10.750	10.500	10.126	10.750			
					304.80	323.85	152.40	127.70	177.80	311.150	311.150	307.086	303.225	304.800	295.300	298.450	288.900	280.975	273.050	266.700	257.200
					18.5	-	18.5	24.8	35.5	30.6	44.0	38.0	61.5	74.0	82.0	90.0	95.0	-			
14"	14.00	6.50	0.50	7.50	.250	.250	.312	.375	.438	.375	.594	.500	.750	.938	1.094	1.250	1.406	-			
					6.350	6.350	7.925	9.525	11.125	9.525	15.088	12.700	19.050	23.825	27.788	31.750	35.712	-			
					13.500	13.500	13.376	13.250	13.124	13.250	12.812	13.000	12.500	12.124	11.812	11.500	11.188	-			
					355.60	355.60	165.10	127.70	190.50	342.900	342.900	339.750	336.550	333.350	336.550	325.425	330.200	317.500	307.950	300.025	292.100
					26.0	26.0	29.8	36.8	43.5	36.8	54.7	47.0	74.6	102.0	146.0	179.0	200.0	-			
16"	16.00	7.00	0.50	8.00	.250	.250	.312	.375	.500	.375	.656	.500	.844	1.031	1.219	1.438	1.594	-			
					6.350	6.350	7.925	9.525	12.700	9.525	16.662	12.700	21.438	26.187	30.963	36.525	40.488	-			
					15.500	15.500	15.376	15.250	15.000	15.250	14.688	15.000	14.312	13.938	13.562	13.124	12.812	-			
					406.40	406.40	177.80	127.70	203.20	393.700	393.700	390.550	387.350	381.000	387.350	373.075	381.000	363.525	354.025	344.475	333.350
					32.1	32.1	33.5	40.0	53.5	40.0	74.5	53.5	85.9	133.0	187.0	229.0	297.0	-			
18"	18.00	8.00	0.50	9.00	.250	.250	.312	.438	.562	.375	.750	.500	.938	1.156	1.375	1.562	1.781	-			
					6.350	6.350	7.925	11.125	14.275	9.525	19.050	12.700	23.825	29.362	34.925	39.675	45.237	-			
					17.500	17.500	17.376	17.124	16.876	17.250	16.500	17.000	16.124	15.688	15.250	14.876	14.438	-			
					457.20	457.20	203.20	127.70	228.60	444.500	444.500	441.350	434.950	428.650	438.150	419.100	431.800	409.550	398.475	387.350	377.850
					42.6	42.6	43.5	64.8	117.0	54.0	154.0	72.0	190.0	254.0	317.0	423.0	-	-			
20"	20.00	9.00	0.50	10.00	.250	.250	.375	.500	.594	.375	.812	.500	1.031	1.281	1.500	1.750	1.969	-			
					6.350	6.350	9.525	12.700	15.088	9.525	20.625	12.700	26.187	32.537	38.100	44.450	50.013	-			
					19.500	19.500	19.250	19.000	18.812	19.250	18.376	19.000	17.938	17.438	17.000	16.500	16.062	-			
					508.00	508.00	228.60	127.70	254.00	495.300	495.300	488.950	482.600	477.825	488.950	466.750	482.600	455.625	442.925	431.800	419.100
					64.3	64.3	77.0	86.0	129.0	77.0	182.0	86.0	210.0	247.0	339.0	395.0	-	-			
22"	22.00	10.00	0.50	10.00	-	.250	.375	.500	-	.375	.875	.500	1.125	1.375	1.625	1.875	2.125	-			
					-	6.350	9.525	12.700	-	9.525	22.225	12.700	28.575	34.925	41.275	47.625	53.975	-			
					-	21.500	21.250	21.000	-	21.250	20.250	21.000	19.750	19.250	18.750	18.250	17.750	-			
					558.80	558.80	254.00	127.70	254.00	-	546.100	539.750	533.400	-	539.750	514.350	533.400	501.650	488.950	476.250	463.550
					-	-	86.0	112.0	-	86.0	-	112.0	-	-	-	-	-	-			
24"	24.00	10.50	0.50	12.00	.250	.250	.375	.562	.688	.375	.969	.500	1.219	1.531	1.812	2.062	2.344	-			
					6.350	6.350	9.525	14.275	17.475	9.525	24.613	12.700	30.963	38.887	46.025	52.375	59.538	-			
					23.500	23.500	23.250	22.876	22.624	23.250	22.062	23.000	21.562	20.938	20.376	19.876	19.312	-			
					609.60	609.60	266.70	127.70	304.80	596.900	596.900	590.550	581.050	574.650	590.550	560.375	584.200	547.675	531.825	517.550	504.850
					88.5	88.5	92.0	148.0	208.0	96.0	284.0	129.0	337.0	485.0	562.0	697.0	-	-			
30"	30.00	10.50	-	-	-	.312	.500	.625	-	.375	-	.500	-	-	-	-	-	-			
					-	7.925	12.700	15.875	-	9.525	-	12.700	-	-	-	-	-	-	-	-	
					-	29.376	29.000	28.750	-	29.250	-	29.000	-	-	-	-	-	-	-	-	-
					762.00	762.00	266.70	-	-	746.150	736.600	730.250	-	742.950	-	736.600	-	-	-	-	-
					-	-	175.0	221.0	-	125.0	-	175.0	-	-	-	-	-	-			

GENERAL NOTES: The shape of these caps shall be ellipsoidal and shall conform to the shape requirements as given in the ASME Boiler and Pressure Vessel Code.
 NOTES: (1) Length E applies for thickness not exceeding that given in column "Limiting Wall Thickness for Length E."
 (2) Length E₁ applies for thickness greater than that given in column "Limiting Wall Thickness" for NPS 24 and smaller. For NPS 26 and larger, length E₁ shall be by agreement between manufacturer and purchaser.



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