

# FORGED FITTINGS

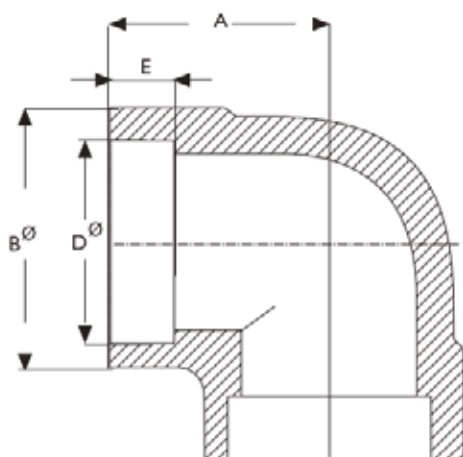


# ELBOW 90° SW

Elbow 90° SW	3000#, 6000# and 9000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105



3000LBS						6000LBS				
OD	A	B Ø	D Ø	E	Weight	A	B Ø	D Ø	E	Weight
1/4"	24.5	25.5	14.0	9.5	0.050					
3/8"	24.5	25.5	17.5	11.0	0.060					
1/2"	28.5	33.5	21.7	12.5	0.130	35.0	38.0	21.7	12.5	0.230
3/4"	33.5	38.0	27.1	14.5	0.190	38.0	44.5	27.1	14.5	0.320
1"	38.0	46.0	33.8	16.0	0.260	44.5	57.0	33.8	16.0	0.640
1.1/4"	44.5	55.5	42.6	17.5	0.480	47.5	63.5	42.6	17.5	0.720
1.1/2"	51.0	62.0	48.7	19.0	0.570	51.0	76.0	48.7	19.0	1.170
2"	60.5	75.5	61.1	22.0	0.920	63.5	92.0	61.1	22.0	2.080
2.1/2"	76.0	92.0	73.8	23.5	1.400	66.5	108.0	73.8	23.5	2.800
3"	86.0	110.0	89.8	25.5	1.800	70.0	127.0	89.8	25.5	3.230
4"	114.5	152.5	115.4	28.5	3.230	76.0	159.0	115.4	28.5	6.220

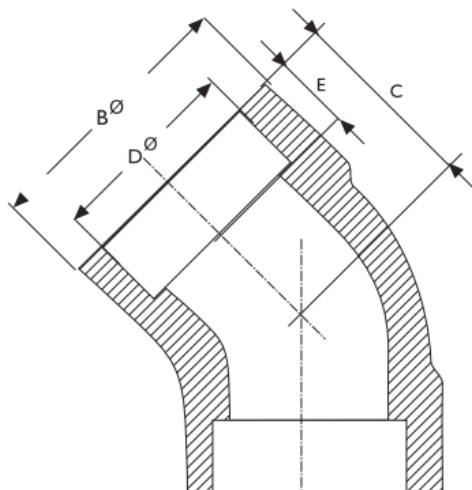


# ELBOW 45° SW



Elbow 45° SW	3000#, 6000# and 9000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

3000LBS						6000LBS				
OD	C	B Ø	D Ø	E	Weight	C	B Ø	D Ø	E	Weight
1/4"	25.5	19.0	14.0	9.5	0.10					
3/8"	25.5	19.0	17.5	11.0	0.10					
1/2"	38.0	25.5	21.7	11.0	0.26	38.0	25.5	21.7	12.5	0.31
3/4"	38.0	25.5	27.1	12.5	0.25	46.0	28.5	27.1	14.5	0.52
1"	46.0	28.5	33.8	14.5	0.38	55.5	33.5	33.8	16.0	0.92
1.1/4"	55.5	33.5	42.6	16.0	0.61	62.0	35.0	42.6	14.5	1.02
1.1/2"	62.0	35.0	48.7	16.0	0.71	75.5	43.0	48.7	17.5	1.92
2"	75.5	43.0	61.1	17.5	1.14	84.0	43.5	61.1	15.0	2.29
2.1/2"	101.5	52.5	73.8	24.0	3.36	101.5	52.5	73.8	20.5	4.04
3"	118.0	63.5	89.8	32.0	4.70	118.0	63.5	89.8	28.5	5.80
4"	146.0	79.5	115.4	38.0	9.00	146.0	79.5	115.4	38.0	10.65

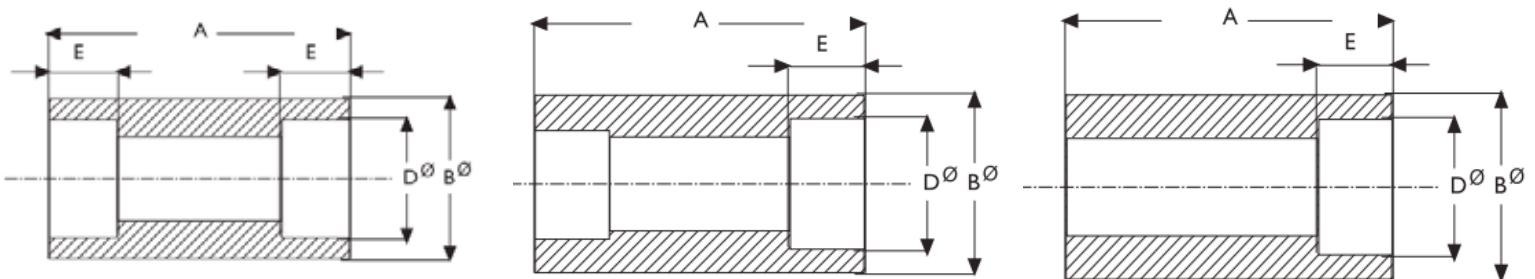


# COUPLING SW



<b>COUPLING SW</b>	<b>3000#, 6000# and 9000#</b>
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

	3000LBS					6000LBS				
OD	A	B Ø	D Ø	E	Weight	A	B Ø	D Ø	E	Weight
1/4"	25.5	22.0	14.0	9.5	0.050					
3/8"	28.5	25.5	17.5	11.0	0.060					
1/2"	35.0	31.5	21.7	12.5	0.130	35.0	38.0	21.7	12.5	0.23
3/4"	38.0	38.0	27.1	14.5	0.190	38.0	44.5	27.1	14.5	0.32
1"	44.5	44.5	33.8	16.0	0.260	44.5	57.0	33.8	16.0	0.64
1.1/4"	47.5	57.0	42.6	17.5	0.480	47.5	63.5	42.6	17.5	0.72
1.1/2"	51.0	63.5	48.7	19.0	0.570	51.0	76.0	48.7	19.0	1.17
2"	63.5	76.0	61.1	22.0	0.920	63.5	92.0	61.1	22.0	2.08
2.1/2"	66.5	92.0	73.8	23.5	1.400	66.5	108.0	73.8	23.5	2.80
3"	70.0	108.0	89.8	25.5	1.800	70.0	127.0	89.8	25.5	3.23
4"	76.0	140.0	115.4	28.5	3.230	76.0	159.0	115.4	28.5	6.22

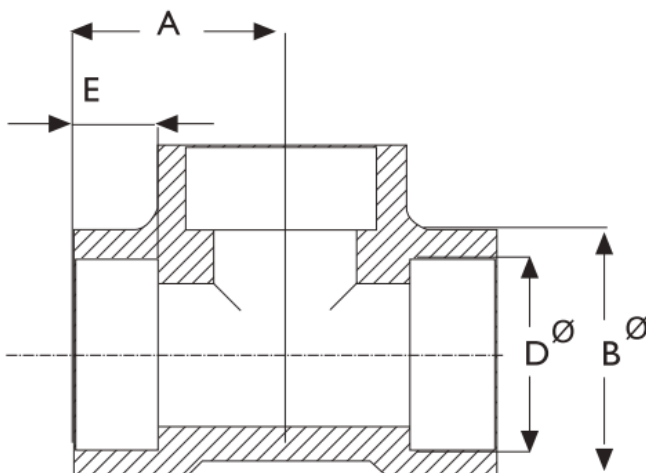


# TEE SW



TEE SW	3000#, 6000# and 9000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

OD	3000LBS					6000LBS				
	A	B Ø	D Ø	E	Weight	A	B Ø	D Ø	E	Weight
1/4"	24.5	25.5	14.0	13.5	0.150					
3/8"	24.5	25.5	17.5	11.0	0.140					
1/2"	28.5	33.5	21.7	12.5	0.300	33.5	38.0	21.7	14.5	0.530
3/4"	33.5	38.0	27.1	14.5	0.380	38.0	46.0	27.1	16.0	0.880
1"	38.0	46.0	33.8	16.0	0.610	44.5	55.5	33.8	17.5	1.440
1.1/4"	44.5	55.5	42.6	17.5	0.930	51.0	62.0	42.6	19.0	1.790
1.1/2"	51.0	62.0	48.7	19.0	1.240	60.5	75.5	48.7	22.0	3.240
2"	60.5	75.5	61.1	22.0	1.910	63.5	84.0	61.1	22.0	3.510
2.1/2"	76.0	92.0	73.8	34.5	3.700	86.0	110.0	73.8	30.0	8.800
3"	86.0	110.0	89.8	29.0	5.500	95.5	120.5	89.8	32.0	10.500
4"	114.5	152.5	115.4	48.0	19.000	114.5	152.5	115.4	35.0	22.200

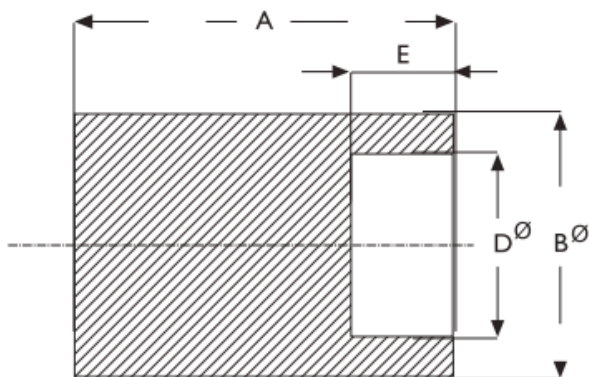


# CAP SW



<b>CAP SW</b>	<b>3000#, 6000# and 9000#</b>
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

	3000LBS					6000LBS				
OD	A	B Ø	D Ø	E	Weight	A	B Ø	D Ø	E	Weight
1/4"	24.5	25.5	14.0	13.5	0.150					
3/8"	24.5	25.5	17.5	11.0	0.140					
1/2"	28.5	33.5	21.7	12.5	0.300	33.5	38.0	21.7	14.5	0.530
3/4"	33.5	38.0	27.1	14.5	0.380	38.0	46.0	27.1	16.0	0.880
1"	38.0	46.0	33.8	16.0	0.610	44.5	55.5	33.8	17.5	1.440
1.1/4"	44.5	55.5	42.6	17.5	0.930	51.0	62.0	42.6	19.0	1.790
1.1/2"	51.0	62.0	48.7	19.0	1.240	60.5	75.5	48.7	22.0	3.240
2"	60.5	75.5	61.1	22.0	1.910	63.5	84.0	61.1	22.0	3.510
2.1/2"	76.0	92.0	73.8	34.5	3.700	86.0	110.0	73.8	30.0	8.800
3"	86.0	110.0	89.8	29.0	5.500	95.5	120.5	89.8	32.0	10.500
4"	114.5	152.5	115.4	48.0	19.000	114.5	152.5	115.4	35.0	22.200



# Threaded 2000#, 3000# and 6000#

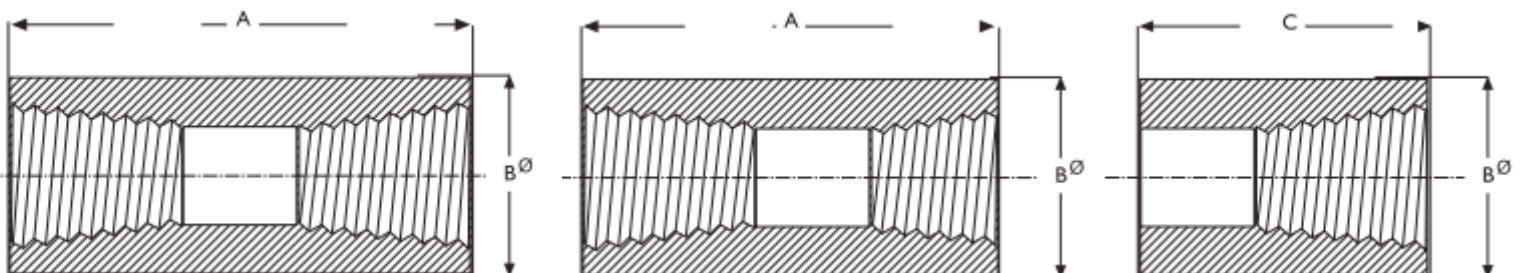


# THREADED COUPLING



<b>COUPLING</b>	<b>2000#, 3000# and 6000#</b>
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

	3000LBS				6000LBS			
OD	A	B Ø	C	Weight	A	B Ø	C	Weight
1/4"	35.0	19.0	17.5	0.050	35.0	25.5	17.5	0.060
3/8"	38.0	22.0	19.0	0.060	38.0	32.0	19.0	0.180
1/2"	47.5	29.0	24.0	0.130	47.5	38.0	24.0	0.310
3/4"	51.0	35.0	25.5	0.190	51.0	44.5	25.5	0.410
1"	60.5	44.5	30.0	0.390	60.5	57.0	30.0	0.850
1.1/4"	66.5	57.0	33.5	0.680	66.5	63.5	33.5	1.050
1.1/2"	79.5	63.5	39.5	1.000	79.5	76.0	39.5	1.810
2"	85.5	76.0	43.0	1.370	85.5	92.0	43.0	3.400
2.1/2"	92.0	92.0	46.0	2.070	92.0	108.0	46.0	4.190
3"	108.0	108.0	54.0	3.080	108.0	127.0	54.0	6.100
4"	120.5	140.0	60.0	5.440	120.5	159.0	60.0	10.300

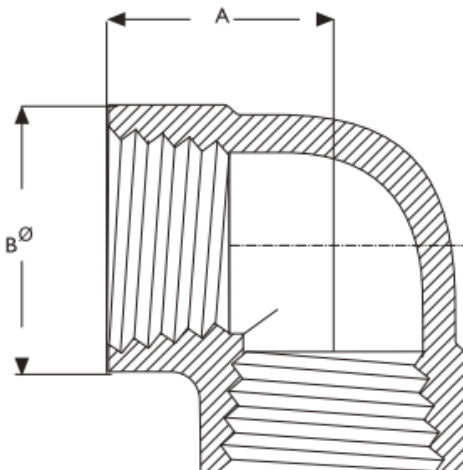


# THREADED ELBOW 90°



Elbow 90°	2000#, 3000# and 6000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

OD	3000LBS			6000LBS		
	A	B Ø	Weight	A	B Ø	Weight
1/4"	24.5	25.5	0.140	28.5	33.5	0.300
3/8"	28.5	33.5	0.270	33.5	38.0	0.460
1/2"	33.5	38.0	0.410	38.0	46.0	0.720
3/4"	38.0	46.0	0.650	44.5	55.5	1.160
1"	44.5	55.5	1.040	51.0	62.0	1.620
1.1/4"	51.0	62.0	1.310	60.5	75.5	2.670
1.1/2"	60.5	75.5	2.220	63.5	84.0	3.210
2"	63.5	84.0	2.470	86.0	110.0	7.940
2.1/2"	86.0	110.0	7.340	95.5	120.5	9.850
3"	95.5	120.5	7.780	114.5	152.5	18.000
4"	114.5	152.5	13.280			

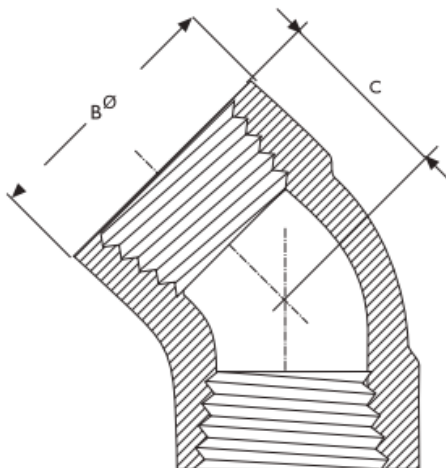


# THREADED ELBOW 45°



Elbow 45°	2000#, 3000# and 6000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

OD	3000LBS			6000LBS		
	B Ø	C	Weight	B Ø	C	Weight
1/4"	25.5	19.0	0.120	38.0	25.5	0.400
3/8"	38.0	25.5	0.370	38.0	25.5	0.380
1/2"	38.0	25.5	0.340	46.0	28.5	0.610
3/4"	46.0	28.5	0.530	55.5	33.5	1.020
1"	55.5	33.5	0.520	62.0	35.0	1.180
1.1/4"	62.0	35.0	0.960	75.5	43.0	2.070
1.1/2"	75.5	43.0	1.840	84.0	43.5	2.610
2"	84.0	43.5	1.930	101.5	52.5	4.370
2.1/2"	101.5	52.5	3.460	120.5	63.5	7.000
3"	120.5	63.5	5.450	152.5	79.5	14.160
4"	152.5	79.5	9.500			

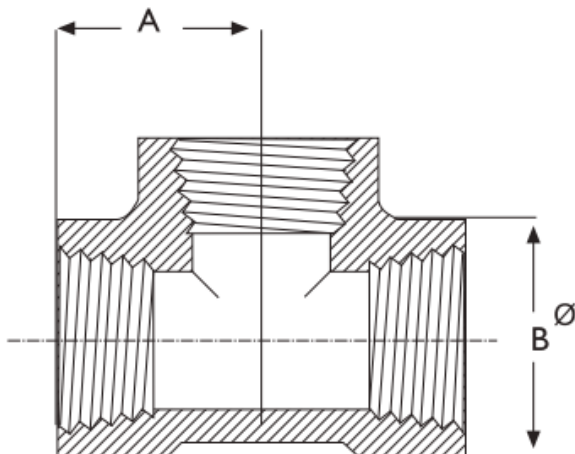


# THREADED TEE



TEE	2000#, 3000# and 6000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

OD	3000LBS			6000LBS		
	A	B Ø	Weight	A	B Ø	Weight
1/4"	24.5	25.5	0.200	28.5	33.5	0.410
3/8"	28.5	33.5	0.380	33.5	38.0	0.620
1/2"	33.5	38.0	0.560	38.0	46.0	0.980
3/4"	38.0	46.0	0.840	44.5	55.5	1.650
1"	44.5	55.5	1.360	51.0	62.0	2.190
1.1/4"	51.0	62.0	1.650	60.5	75.5	3.320
1.1/2"	60.5	75.5	3.100	63.5	84.0	4.430
2"	63.5	84.0	3.180	86.0	110.0	8.500
2.1/2"	86.0	110.0	8.800	95.5	120.5	13.100
3"	95.5	120.5	9.500	114.5	152.5	24.000
4"	114.5	152.5	17.200			

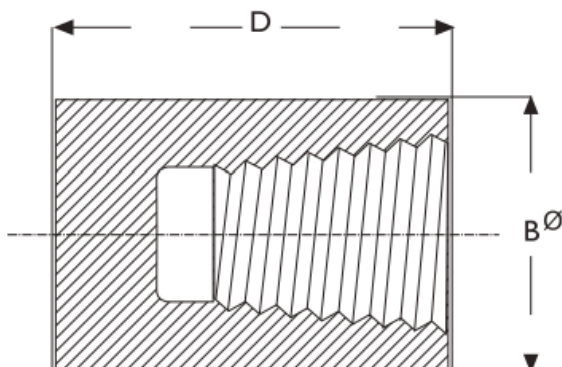


# THREADED CAP

<b>CAP</b>	<b>2000#, 3000# and 6000#</b>
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105



	3000LBS			6000LBS		
OD	D	B Ø	Weight	D	B Ø	Weight
1/4"	25.5	19.0	0.040	25.5	25.5	0.060
3/8"	25.5	22.0	0.050	30.0	32.0	0.090
1/2"	32.0	29.0	0.110	35.0	38.0	0.140
3/4"	36.5	35.0	0.180	38.0	44.5	0.200
1"	41.5	44.5	0.330	46.0	57.0	0.340
1.1/4"	44.5	57.0	0.600	47.5	63.5	0.600
1.1/2"	44.5	63.5	0.700	47.5	76.0	0.770
2"	47.5	76.0	1.060	51.0	92.0	1.470
2.1/2"	60.5	92.0	1.840	63.5	108.0	2.100
3"	65.0	108.0	1.650	68.0	127.0	2.000
4"	68.0	140.0	4.570	74.5	159.0	6.300

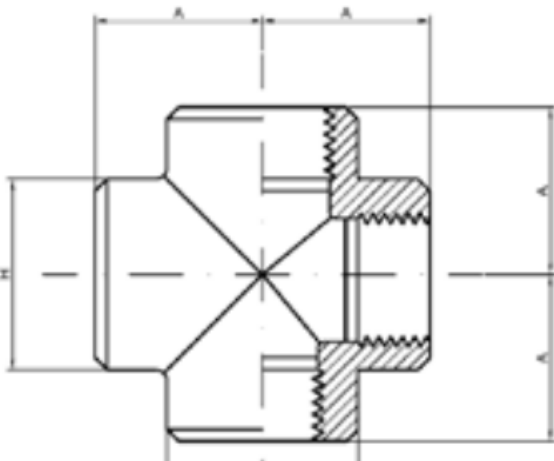


# THREADED CROSS



<b>CROSS</b>	<b>2000#, 3000# and 6000#</b>
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105

	3000LBS				6000LBS			
OD	A	H	Q	Weight	A	H	Q	Weight
1/4"	24.64	25.40	3.30	0.22	28.45	33.27	6.60	0.47
3/8"	28.45	33.27	3.51	0.40	33.27	38.10	6.98	0.67
1/2"	33.27	38.10	4.09	0.63	38.10	45.97	8.15	1.12
3/4"	38.10	45.97	4.32	0.93	44.45	55.63	8.53	1.90
1"	44.45	55.63	4.98	1.47	50.80	61.98	9.93	2.90
1.1/4"	50.80	61.98	5.28	1.77	60.45	75.44	10.59	4.20
1.1/2"	60.45	75.44	5.56	3.42	63.50	84.07	11.07	6.35
2"	63.50	84.07	7.14	5.00	82.55	101.60	12.09	9.80
2.1/2"	82.55	101.60	7.64	7.32	95.25	120.65	15.29	16.00
3"	95.25	120.65	8.84	11.20	106.43	146.05	16.64	22.60
4"	114.30	152.40	11.18	19.00	114.30	152.40	18.67	28.10

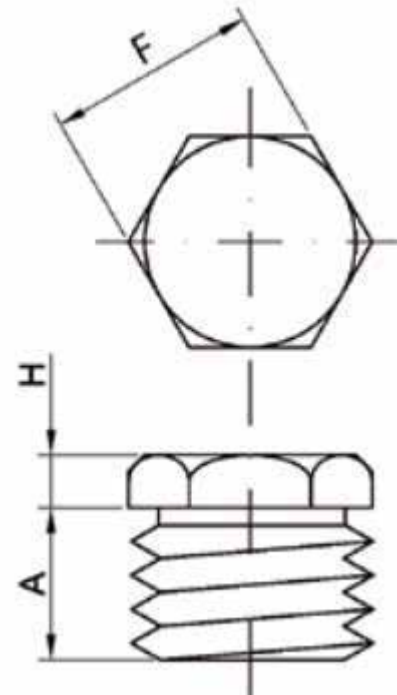


# THREADED HEX PLUG

HEX PLUG	2000#, 3000# and 6000#
<b>Specifications</b>	
<b>Material</b>	Stainless steel ASTM A182
	Carbon steel ASTM A105



	3000LBS/6000LBS			
OD	A	F	H	Weight
1/4"	11.18	15.75	6.35	0.03
3/8"	12.70	17.53	7.87	0.04
1/2"	14.22	22.35	7.87	0.07
3/4"	15.75	26.92	9.65	0.14
1"	19.05	35.05	9.65	0.21
1.1/4"	20.57	44.45	14.22	0.42
1.1/2"	20.57	50.80	15.75	0.58
2"	22.35	63.50	17.53	1.00
2.1/2"	26.92	76.20	19.05	1.85
3"	28.45	88.90	20.57	3.00
4"	31.75	117.35	25.40	6.00



## Conversion Tables

Weight Conversion Table					
	Kilogram	Ton	Ounce	Pound	Slug
Kilogram	1	0.001	35.27	2.2	0.0685
Ton	1000	1	35274	2204.62	68.58
Ounce	0.028349	0.000028	1	0.0625	0.00194
Pound	0.45359	0.000454	16	1	0.03111
Slug	14.59	0.01459	514.82	32.136	1

Length Conversion Table					
	Meter	Kilometer	Inch	Foot	Mile
Meter	1	0.001	39.37	3.28084	0.000621
Kilometer	1000	1	39370.1	3280.84	0.62137
Inch	0.0254	0.0000254	1	0.08333	0.000015
Foot	0.3048	0.000348	12	1	0.000189
Mile	1609.34	1.609	63.346	5280	1

## Formulas

Linear weight formula for smooth end pipe	
<b>P</b>	$(D - e) * e * 0.02466$

Where:

<b>P</b>	Weight in Kg/m
<b>D</b>	Exterior Diameter in mm
<b>e</b>	Wall Thickness in mm

Hydrostatic Formula (Barlow's Formula)	
<b>P(Psi)</b>	$(2Se)/D$

Where:

<b>P</b>	Pressure in Psi
<b>D</b>	Exterior Diameter in inch
<b>e</b>	Wall Thickness in inch
<b>S</b>	Yield strength (Ys) in Psi

Hydrostatic Formula (Barlow's Formula)	
<b>P(MPa)</b>	$(2Se)/D$

Where:

<b>P</b>	Pressure in MPa
<b>D</b>	Exterior Diameter in mm
<b>e</b>	Wall Thickness in mm
<b>S</b>	Yield strength (Ys) in MPa

Conventional Terms	
<b>API</b>	American Petroleum Institute
<b>ANSI</b>	American National Standards Institute
<b>ASME</b>	American Society of Mechanical Engineers
<b>ASTM</b>	American Society of Testing Materials
<b>NACE</b>	National Association of Corrosion Engineers
<b>AWWA</b>	American Water Works Association
<b>SSAW</b>	Spiral / helical Seam Submerged Arc Welded pipe
<b>DSAW</b>	Double seam Submerged Arc Welded pipe
<b>LSAW</b>	Longitudinal seam Submerged Arc Welded pipe (one seam)
<b>ERW-HFI</b>	Electric Resistance Welded High Frequency Induced
<b>EFW</b>	Electric Fusion Welded Tube
<b>SRL</b>	Single Random Lengths: minimum average Lengths 17'6" - shortest length permissible is 9".
<b>DRL</b>	Double Random Lengths: minimum average Lengths 35" - shortest length permissible is 14".

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