

WEIGHTS OF PIPING MATERIALS – INTRODUCTION

The tabulation of weights of standard piping materials presented on the following pages has been arranged for convenience of selection of data that formerly consumed considerable time to develop. For special materials, the three formulae listed below for weights of tubes, weights of contents of tubes, and weights of piping insulation will be helpful.

$$\text{Weight of tube} = F \times 10.68 \times T \times (D - T) \text{ lb/ft}$$

- T = wall thickness in inches
- D = outside diameter in inches
- F = relative weight factor

The weight of tube furnished in this piping data is based on low carbon steel weighing 0.2833 lb/in³.

RELATIVE WEIGHT FACTOR F

Aluminum.....	0.35
Brass	1.12
Cast Iron	0.91
Copper	1.14
Ferritic stainless steel	0.95
Austenitic stainless steel	1.02
Steel	1.00
Wrought iron	0.98

WEIGHT OF CONTENTS OF A TUBE

$$\text{Weight of Tube Contents} = G \times .3405 \times (D - 2T)^2 \text{ lb/ft}$$

- G = specific gravity of contents
- T = tube wall thickness in inches
- D = tube outside diameter in inches

WEIGHT TOLERANCES

The weight per foot of steel pipe is subject to the following tolerances:

SPECIFICATION	TOLERANCE	
ASTM A-120 & ASTM A-53		
STD WT	+5%	-5%
XS WT	+5%	-5%
XXS WT	+10%	-10%
ASTM A-106		
SCH 10-120	+6.5%	-3.5%
SCH 140-160	+10%	-3.5%
ASTM A-335		
12" and under	+6.5%	-3.5%
over 12"	+10%	-5%
ASTM A-312 & ASTM A-376		
12" and under	+6.5%	-3.5%
API 5L All sizes	+6.5%	-3.5%

The weight of welding tees and laterals are for full size fittings. The weights of reducing fittings are approximately the same as for full size fittings.

The weights of welding reducers are for one size reduction, and are approximately correct for other reductions.

Weights of valves of the same type may vary because of individual manufacturer's designs. Listed valve weights are approximate only. Specific valve weights should be used when available.

Where specific insulation thicknesses and densities differ from those shown, refer to "Weight of Piping Insulation" formula below.

WEIGHT OF PIPING INSULATION








$$\text{Pipe Insulation Weight} = I \times .0218 \times T \times (D+T) \text{ lb/ft}$$

I = insulation density in pounds per cubic foot














T = insulation thickness in inches

D = outside diameter of pipe in inches

TABLE III - LOAD CAPACITY OF THREADED HANGER RODS IN ACCORDANCE WITH MSS-SP58		
Nominal Rod Diam. Inch	Root Area of Coarse Thread Sq. In.	Max Recommended Load at Rod Temp 650° Lbs
3/8	0.068	730
1/2	0.126	1,350
5/8	0.202	2,160
3/4	0.302	3,230
7/8	0.419	4,480
1	0.551	5,900
1 1/4	0.890	9,500
1 1/2	1.29	13,800
1 3/4	1.74	18,600
2	2.30	24,600
2 1/4	3.02	32,300
2 1/2	3.72	39,800
2 3/4	4.62	49,400
3	5.62	60,100
3 1/4	6.72	71,900
3 1/2	7.92	84,700
3 3/4	9.21	98,500
4	10.6	114,000
4 1/4	12.1	129,000
4 1/2	13.7	146,000
4 3/4	15.4	165,000
5	17.2	184,000

PIPE						
Sch./Wall Designation -->	5S	10S	40/Std.	80/XS	160	XXS
Thickness -- In.	0.065	0.109	0.133	0.179	0.25	0.358
Pipe -- Lbs/Ft	0.868	1.404	1.68	2.17	2.84	3.66
Water -- Lbs/Ft	0.478	0.409	0.37	0.31	0.23	0.12
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR						
 L.R. 90° Elbow	0.2 0.3	0.4 0.3	0.4 0.3	0.4 0.3	0.6 0.3	1.0 0.3
 S.R. 90° Elbow			0.3 0.2			
 L.R. 45° Elbow	0.1 0.2	0.3 0.2	0.3 0.2	0.3 0.2	0.4 0.2	0.5 0.2
 Tee	0.4 0.4	0.6 0.4	0.8 0.4	0.9 0.4	1.1 0.4	1.3 0.4
 Lateral	0.7 1.1	1.2 1.1	1.7 1.1	2.5 1.1		
 Reducer	0.2 0.2	0.4 0.2	0.3 0.2	0.4 0.2	0.5 0.2	0.5 0.2
 Cap	0.1 0.3	0.1 0.3	0.3 0.3	0.3 0.3	0.4 0.3	0.5 0.3

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia Calcium Silicate	Nom. Thick., In.	1	1	1½	2	2						
	Lbs./Ft	0.72	0.72	1.23	1.94	1.94						
Combination	Nom. Thick., In.						2½	2½	2½	3	3	3
	Lbs./Ft						3.3	3.3	3.3	4.7	4.7	4.7

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
	Screwed or Slip-On	2.3 1.5	4 1.5	2.5 1.5	4 1.5	5 1.5	5 1.5	12 1.5	12 1.5	15 1.5
	Welding Neck			3 1.5	5 1.5	7 1.5	7 1.5	12 1.5	12 1.5	16 1.5
	Lap Joint			2.5 1.5	4 1.5	5 1.5	5 1.5	12 1.5	12 1.5	15 1.5
	Blind	2.5 1.5	5 1.5	2.5 1.5	5 1.5	5 1.5	5 1.5	12 1.5	12 1.5	15 1.5
	S.R. 90° Elbow						15 3.7		28 3.8	
	L.R. 90° Elbow									
	45° Elbow						14 3.4		26 3.6	
	Tee						20 5.6		39 5.7	
	Flanged Bonnet Gate				20 1.2		25 1.5		80 4.3	
	Flanged Bonnet - Globe or Angle								84 3.5	
	Flanged Bonnet - Check									
	Pressure Seal - Bonnet, Gate						31 1.7	31 1.7		
	Pressure Seal - Bonnet, Globe									

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

PIPE						
Sch./Wall Designation -->	5S	10S	40/Std.	80/XS	160	XXS
Thickness -- In.	0.065	0.109	0	0.191	0	0.382
Pipe -- Lbs/Ft	1.11	1.81	2.27	3.00	3.77	5.22
Water -- Lbs/Ft	0.8	0.71	0.65	0.56	0.46	0.27
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR						
L.R. 90° Elbow	0.3 0.3	0.5 0.3	0.6 0.3	0.8 0.3	1 0.3	1.3 0.3
S.R. 90° Elbow			0.4 0.2			
L.R. 45° Elbow	0.2 0.2	0.3 0.2	0.3 0.2	0.5 0.2	0.6 0.2	0.7 0.2
Tee	0.7 0.5	1.1 0.5	1.6 0.5	1.6 0.5	1.9 0.5	2.4 0.5
Lateral	1.1 1.2	1.9 1.2	2.4 1.2	3.8 1.2		
Reducer	0.3 0.2	0.4 0.2	0.5 0.2	0.6 0.2	0.7 0.2	0.8 0.2
Cap	0.1 0.3	0.1 0.3	0.4 0.3	0.4 0.3	0.6 0.3	0.6 0.3








PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2	2½	2½	2½	3	3	3
Calcium Silicate	Lbs./Ft	0.65	0.65	1.47	1.83	1.83	2.65	2.65	2.65	3.58	3.58	3.58
Combination	Nom. Thick., In.						2½	2½	2½	3	3	3
	Lbs/Ft						3.17	3.17	3.17	5.76	5.76	5.76

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		2.5 1.5	4.8 1.5	3.5 1.5	5 1.5	7 1.5	7 1.5	13 1.5	13 1.5	23 1.5
Welding Neck				3 1.5	7 1.5	8 1.5	8 1.5	13 1.5	13 1.5	25 1.5
Lap Joint				3.5 1.5	5 1.5	7 1.5	7 1.5	13 1.5	13 1.5	22 1.5
Blind		2.8 1.5	5.5 1.5	3.5 1.5	4 1.5	7 1.5	7 1.5	13 1.5	13 1.5	23 1.5
S.R. 90° Elbow				17 3.7		18 3.8		33 3.9		
L.R. 90° Elbow				18 3.9						
45° Elbow				15 3.4		16 3.5		31 3.7		
Tee				23 5.6		28 5.7		49 5.9		
Flanged Bonnet Gate				40 4		60 4.2		97 4.6		
Flanged Bonnet - Globe or Angle										
Flanged Bonnet - Check				21 4						
Pressure Seal - Bonnet, Gate							38 1.1	38 1.1		
Pressure Seal - Bonnet, Globe										














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE						
	5S	10S	40/Std.	80/XS	160	XXS	
Thickness -- In.	0.065	0.109	0.145	0.200	0.281	0.400	0.525
Pipe -- Lbs/Ft	1.27	2.09	2.72	3.63	4.86	6.41	7.71
Water -- Lbs/Ft	1.07	0.96	0.88	0.77	0.61	0.41	0.25

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR							
 L.R. 90° Elbow	0.4 0.4	0.8 0.4	0.9 0.4	1.2 0.4	1.5 0.4	2.0 0.4	
 S.R. 90° Elbow			0.6 0.3	0.8 0.3			
 L.R. 45° Elbow	0.3 0.2	0.5 0.2	0.5 0.2	0.7 0.2	0.8 0.2	1.0 0.2	
 Tee	0.9 0.6	1.5 0.6	2.0 0.6	2.4 0.6	3.0 0.6	3.7 0.6	
 Lateral	1.3 1.3	2.1 1.3	3.3 1.3	5.5 1.3			
 Reducer	0.3 0.2	0.6 0.2	0.6 0.2	0.8 0.2	1.0 0.2	1.2 0.2	
 Cap	0.1 0.3	0.2 0.3	0.4 0.3	0.5 0.3	0.7 0.3	0.8 0.3	

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2	2½	2½	2½	3	3	3
Calcium Silicate	Lbs./Ft	0.84	0.84	1.35	2.52	2.52	3.47	3.47	3.47	4.52	4.52	4.52
Combination	Nom. Thick., In.						2½	2½	2½	3	3	3
	Lbs./Ft						4.2	4.2	4.2	5.62	5.62	5.62

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
 Screwed or Slip-On	3 1.5	6 1.5	3.5 1.5	6 1.5	9 1.5	9 1.5	19 1.5	19 1.5	31 1.5	
 Welding Neck			4.5 1.5	8 1.5	12 1.5	12 1.5	19 1.5	19 1.5	34 1.5	
 Lap Joint			3.5 1.5	6 1.5	9 1.5	9 1.5	19 1.5	19 1.5	30 1.5	
 Blind	4 1.5	6 1.5	3.5 1.5	8 1.5	10 1.5	10 1.5	19 1.5	19 1.5	31 1.5	
 S.R. 90° Elbow	9 3.7		12 3.7	23 3.8		26 3.9		46 4		
 L.R. 90° Elbow	12 4		13 4	24 4						
 45° Elbow	8 3.4		11 3.4	21 3.5		23 3.5		39 3.7		
 Tee	15 5.6		20 5.6	30 5.7		37 5.8		70 6		
 Flanged Bonnet Gate	27 6.8			55 4.2		70 4.5		125 5		
 Flanged Bonnet - Globe or Angle				40 4.2		45 4.2		170 5		
 Flanged Bonnet - Check			30 4.1	35 4.1		40 4.2		110 4.5		
 Pressure Seal - Bonnet, Gate							42 1.9	42 1.2		
 Pressure Seal - Bonnet, Globe										

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE						
	5S	10S	40/Std.	80/XS	160	XXS	
Thickness -- In.	0.065	0.109	0.154	0.218	0.343	0.436	0.562
Pipe -- Lbs/Ft	1.60	2.64	3.65	5.02	7.44	9.03	10.88
Water -- Lbs/Ft	1.72	1.58	1.46	1.28	0.97	0.77	0.53

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR							
L.R. 90° Elbow	0.6 0.5	1.1 0.5	1.5 0.5	2.1 0.5	3.0 0.5	4.0 0.5	
S.R. 90° Elbow			1.0 0.3	1.4 0.3			
L.R. 45° Elbow	0.4 0.2	0.6 0.2	0.9 0.2	1.1 0.2	1.6 0.2	2.0 0.2	
Tee	1.1 0.6	1.8 0.6	2.9 0.6	3.7 0.6	4.9 0.6	5.7 0.6	
Lateral	1.9 1.4	3.2 1.4	5.0 1.4	7.7 1.4			
Reducer	0.4 0.3	0.9 0.3	0.9 0.3	1.2 0.3	1.6 0.3	1.9 0.3	
Cap	0.2 0.4	0.3 0.4	0.6 0.4	0.7 0.4	1.1 0.4	1.2 0.4	








Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2	2½	2½	3	3	3	3½
Calcium Silicate	Lbs./Ft	1.01	1.01	1.71	2.53	2.53	3.48	3.48	4.42	4.42	4.42	5.59
Combination	Nom. Thick., In.						2½	2½	3	3	3	3½
	Lbs./Ft						4.28	4.28	5.93	5.93	5.93	7.80

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
	Pressure Rating (PSI)	Steel								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		5 1.5	7 1.5	6 1.5	9 1.5	11 1.5	11 1.5	32 1.5	32 1.5	49 1.5
Welding Neck				7 1.5	11 1.5	14 1.5	14 1.5	32 1.5	32 1.5	53 1.5
Lap Joint				6 1.5	9 1.5	11 1.5	11 1.5	32 1.5	32 1.5	48 1.5
Blind		5 1.5	8 1.5	5 1.5	10 1.5	12 1.5	12 1.5	32 1.5	32 1.5	50 1.5
S.R. 90° Elbow		14 3.8	20 3.8	19 3.8	29 3.8		35 4		83 4.2	
L.R. 90° Elbow		16 4.1	27 4.1	22 4.1	31 4.1					
45° Elbow		12 3.4	18 3.5	16 3.4	24 3.5		33 3.7		73 3.9	
Tee		21 5.7	32 5.7	27 5.7	41 5.7		52 6		129 6.3	
Flanged Bonnet Gate		37 6.9	52 7.1	40 4	65 4.2		80 4.5		190 5	
Flanged Bonnet - Globe or Angle		30 7	64 7.3	30 3.8	45 4		85 4.5		235 5.5	
Flanged Bonnet - Check		26 7	51 7.3	35 3.8	40 4		60 4.2		300 5.8	
Pressure Seal - Bonnet, Gate									150 2.5	
Pressure Seal - Bonnet, Globe									165 3	














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE						
	5S	10S	40/Std.	80/XS	160	XXS	
Thickness -- In.	0.083	0.120	0.203	0.276	0.375	0.552	0.675
Pipe -- Lbs/Ft	2.48	3.53	5.79	7.66	10.01	13.70	15.86
Water -- Lbs/Ft	2.5	2.36	2.08	1.84	1.54	1.07	0.79

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR							
 L.R. 90° Elbow	1.2 0.6	1.8 0.6	3.0 0.6	3.8 0.6	5.0 0.6	7.0 0.6	
 S.R. 90° Elbow			2.2 0.4	2.5 0.4			
 L.R. 45° Elbow	0.7 0.3	1.0 0.3	1.6 0.3	2.1 0.3	3.0 0.3	3.5 0.3	
 Tee	2.1 0.8	3.0 0.8	5.2 0.8	6.4 0.8	7.8 0.8	9.8 0.8	
 Lateral	3.5 1.5	4.9 1.5	9.0 1.5	13 1.5			
 Reducer	0.6 0.3	1.2 0.3	1.6 0.3	2.0 0.3	2.7 0.3	3.3 0.3	
 Cap	0.3 0.4	0.4 0.4	0.9 4.0	1.0 0.4	1.9 0.4	2.0 0.4	

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2	2½	2½	3	3	3½	3½
Calcium Silicate	Lbs./Ft	1.14	1.14	2.29	3.23	3.23	4.28	4.28	5.46	5.46	6.86	6.86
Combination	Nom. Thick., In.						2½	2½	3	3	3½	3½
	Lbs./Ft						5.2	5.2	7.36	7.36	9.58	9.58

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron			Steel					
		125	250	150	300	400	600	900	1500	2500
 Screwed or Slip-On	7 1.5	12.5 1.5	8 1.5	14 1.5	17 1.5	17 1.5	46 1.5	46 1.5	69 1.5	
 Welding Neck			11 1.5	16 1.5	22 1.5	22 1.5	46 1.5	46 1.5	66 1.5	
 Lap Joint			8 1.5	14 1.5	16 1.5	16 1.5	45 1.5	45 1.5	67 1.5	
 Blind	7.8 1.5	10 1.5	8 1.5	16 1.5	19 1.5	19 1.5	45 1.5	45 1.5	70 1.5	
 S.R. 90° Elbow	20 3.8	33 3.9	27 3.8	42 3.9		50 4.1		114 4.4		
 L.R. 90° Elbow	24 4.2		30 4.2	47 4.2						
 45° Elbow	18 3.5	31 3.6	22 3.5	35 3.6		46 3.8		99 3.9		
 Tee	31 5.7	49 5.8	42 5.7	61 5.9		77 6.2		169 6.6		
 Flanged Bonnet Gate	50 7	82 7.1	60 4	100 4.2		105 4.6		275 5.2		
 Flanged Bonnet - Globe or Angle	43 7.1	87 7.4	50 4	70 4.1		120 4.6		325 5.5		
 Flanged Bonnet - Check	36 7.1	71 7.4	40 4	50 4		105 4.6		320 5.5		
 Pressure Seal - Bonnet, Gate								215 2.5		
 Pressure Seal - Bonnet, Globe								230 2.8		

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE						
	5S	10S	40/Std.	80/XS	160	XXS	
Thickness -- In.	0.083	0.120	0.216	0.300	0.438	0.600	0.725
Pipe -- Lbs/Ft	3.03	4.33	7.58	10.25	14.32	18.58	21.49
Water -- Lbs/Ft	3.78	3.61	3.20	2.86	2.35	1.80	1.43








WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR							
L.R. 90° Elbow	1.7 0.8	2.5 0.8	4.7 0.8	6.0 0.8	8.5 0.8	11.0 0.8	
S.R. 90° Elbow			3.3 0.5	4.1 0.5			
L.R. 45° Elbow	0.9 0.3	1.3 0.3	2.5 0.3	3.3 0.3	4.5 0.3	5.5 0.3	
Tee	2.7 0.8	3.9 0.8	7.0 0.8	10.0 0.8	12.2 0.8	14.8 0.8	
Lateral	4.5 1.8	6.4 1.8	12.5 1.8	18.0 1.8			
Reducer	0.8 0.3	1.5 0.3	2.1 0.3	2.8 0.3	3.7 0.3	4.6 0.3	
Cap	0.5 0.5	0.7 0.5	1.4 0.5	1.8 0.5	3.5 0.5	3.6 0.5	

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2	2½	3	3	3	3½	3½
Calcium Silicate	Lbs./Ft	1.25	1.25	2.08	3.01	3.01	4.07	5.24	5.24	5.24	6.65	6.65
Combination	Nom. Thick., In.						2½	3	3	3	3½	3½
	Lbs/Ft						5.07	6.94	6.94	6.94	9.17	9.17














CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
	Pressure Rating (PSI)	Cast Iron								
		Cast Iron				Steel				
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		8.6 1.5	15.8 1.5	9 1.5	17 1.5	20 1.5	20 1.5	37 1.5	61 1.5	102 1.5
Welding Neck				12 1.5	19 1.5	27 1.5	27 1.5	38 1.5	61 1.5	113 1.5
Lap Joint				9 1.5	17 1.5	19 1.5	19 1.5	36 1.5	60 1.5	99 1.5
Blind		9 1.5	17.5 1.5	10 1.5	20 1.5	24 1.5	24 1.5	38 1.5	61 1.5	105 1.5
S.R. 90° Elbow		25 3.9	44 4	32 3.9	53 4		67 4.1	98 4.3	150 4.6	
L.R. 90° Elbow		29 4.3		40 4.3	63 4.3					
45° Elbow		21 3.5	39 3.6	28 3.5	46 3.6		60 3.8	93 3.9	135 4	
Tee		38 5.9	62 6	52 5.9	81 6		102 6.2	151 6.5	238 6.9	
Flanged Bonnet Gate		66 7	112 7.4	70 4	125 4.4		155 4.8	260 5	410 5.5	
Flanged Bonnet - Globe or Angle		56 7.2	87 7.6	60 4.3	95 4.5		155 4.8	225 5	495 5.5	
Flanged Bonnet - Check		46 7.2	100 7.6	60 4.3	70 4.4		120 4.8	150 4.9	440 5.8	
Pressure Seal - Bonnet, Gate								208 3	235 3.2	
Pressure Seal - Bonnet, Globe								135 2.5	180 3	

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

PIPE					
Sch./Wall Designation -->	5S	10S	40/Std.	80/XS	160
Thickness -- In.	0.083	0.120	0.226	0.318	0.636
Pipe -- Lbs/Ft	3.47	4.97	9.11	12.51	22.85
Water -- Lbs/Ft	5.01	4.81	4.28	3.85	2.53
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR					
 L.R. 90° Elbow	2.4 0.9	3.4 0.9	6.7 0.9	8.7 0.9	15.0 0.9
 S.R. 90° Elbow			4.2 0.6	5.7 0.6	
 L.R. 45° Elbow	1.2 4.0	1.7 0.4	3.3 0.4	4.4 0.4	8.0 0.4
 Tee	3.4 0.9	4.9 0.9	10.3 0.9	13.8 0.9	20.2 0.9
 Lateral	6.2 1.8	8.9 1.8	17.2 1.8	25.0 1.8	
 Reducer	1.2 0.3	2.1 0.3	3.0 0.3	4.0 0.3	6.8 0.3
 Cap	0.6 0.6	0.8 0.6	2.1 0.6	2.8 0.6	5.5 0.6

		PIPE INSULATION										
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2½	2½	3	3	3½	3½	3½
Calcium Silicate	Lbs./Ft	1.83	1.83	2.77	3.71	4.88	4.88	6.39	6.39	7.80	7.80	7.80
Combination	Nom. Thick., In.						2½	3	3	3½	3½	3½
	Lbs/Ft						6.49	8.71	8.71	10.8	10.8	10.8

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
		Pressure Rating (PSI)										
		Cast Iron		Steel								
		125	250	150	300	400	600	900	1500	2500		
	Screwed or Slip-On	11 1.5	20 1.5	13 1.5	21 1.5	27 1.5	27 1.5					
	Welding Neck			14 1.5	22 1.5	32 1.5	32 1.5					
	Lap Joint			13 1.5	21 1.5	26 1.5	26 1.5					
	Blind	13 1.5	23 1.5	15 1.5	25 1.5	35 1.5	35 1.5					
	S.R. 90° Elbow	33 4		49 4			82 4.3					
	L.R. 90° Elbow			54 4.4								
	45° Elbow	29 3.6		39 3.6			75 3.6					
	Tee	51 6	103 6.2	70 6			133 6.4					
	Flanged Bonnet Gate	82 7.1	143 7.5	90 4.1	155 4.5		180 4.8	360 5	510 5.5			
	Flanged Bonnet - Globe or Angle	74 7.3	137 7.7				160 4.7					
	Flanged Bonnet - Check	71 7.3	125 7.7				125 4.7					
	Pressure Seal - Bonnet, Gate						140 2.5	295 2.8	380 3			
	Pressure Seal - Bonnet, Globe											

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE										
	5S	10S		40/STD.	80/XS	120		160	XXS		
Thickness -- In.	0.083	0.12	0.188	0.237	0.337	0.438	0.500	0.531	0.674	0.800	0.925
Pipe -- Lbs/Ft	3.92	5.61	8.56	10.79	14.98	18.96	21.36	22.51	27.54	31.61	35.32
Water -- Lbs/Ft	6.40	6.17	5.80	5.51	4.98	4.48	4.16	4.02	3.38	2.86	2.39

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR											
L.R. 90° Elbow	3.0 1.0	4.3 1.0		8.7 1.0	12.0 1.0			18.0 1.0	20.5 1.0		
S.R. 90° Elbow				6.7 0.7	8.3 0.7						
L.R. 45° Elbow	1.5 0.4	2.2 0.4		4.3 0.4	5.9 0.4			8.5 0.4	10.0 4.0		
Tee	3.9 1.0	5.7 1.0		13.5 1.0	16.4 1.0			22.8 1.0	26.6 1.0		
Lateral	6.6 2.1	10.0 2.1		20.5 2.1	32.0 2.1						
Reducer	1.2 0.3	2.4 0.3		3.6 0.3	4.8 0.3			6.6 0.3	8.2 0.3		
Cap	0.8 0.3	1.2 0.3		2.5 0.5	3.4 0.5			6.5 6.5	6.6 6.6		








Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1	1½	2	2½	2½	3	3	3½	3½	4
Calcium Silicate	Lbs./Ft	1.62	1.62	2.55	3.61	4.66	4.66	6.07	6.07	7.48	7.48	9.10
Combination	Nom. Thick., In.						2½	3	3	3½	3½	3½
	Lbs./Ft						6.07	8.3	8.3	10.6	10.6	10.6

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR																												
	Pressure Rating (PSI)	Cast Iron									Steel																	
		125			250			150			300			400			600			900			1500			2500		
		125	250	150	300	400	600	900	1500	2500	125	250	150	300	400	600	900	1500	2500	125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		14 1.5	24 1.5	15 1.5	26 1.5	32 1.5	43 1.5	66 1.5	90 1.5	158 1.5																		
Welding Neck				17 1.5	29 1.5	41 1.5	48 1.5	64 1.5	90 1.5	177 1.5																		
Lap Joint				15 1.5	26 1.5	31 1.5	42 1.5	64 1.5	92 1.5	153 1.5																		
Blind		16 1.5	27 1.5	19 1.5	31 1.5	39 1.5	47 1.5	67 1.5	90 1.5	164 1.5																		
S.R. 90° Elbow		43 4.1	69 4.2	59 4.1	85 4.2	99 4.3	128 4.4	185 4.5	254 4.8																			
L.R. 90° Elbow		50 4.5		72 4.5	98 4.5																							
45° Elbow		38 3.7	62 3.8	51 3.7	78 3.8	82 3.9	119 4	170 4.1	214 4.2																			
Tee		66 6.1	103 6.3	86 6.1	121 6.3	153 6.4	187 6.6	262 6.8	386 7.2																			
Flanged Bonnet Gate		109 7.2	188 7.5	100 4.2	175 4.5	195 5	255 5.1	455 5.4	735 6																			
Flanged Bonnet - Globe or Angle		97 7.4	177 7.8	95 4.3	145 4.8	215 5	230 5.1	415 5.5	800 6																			
Flanged Bonnet - Check		80 7.4	146 7.8	80 4.3	105 4.5	160 4.8	195 5	320 5.6	780 6																			
Pressure Seal - Bonnet, Gate							215 2.8	380 3	520 4																			
Pressure Seal - Bonnet, Globe								240 2.7	290 3																			














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE								
	5S	10S	40/Std	80/XS	120	160	XXS		
Thickness -- In.	0.109	0.134	0.258	0.375	0.500	0.625	0.750	0.875	1.000
Pipe -- Lbs/Ft	6.35	7.77	14.62	20.78	27.04	32.96	38.55	43.81	47.73
Water -- Lbs/Ft	9.73	9.53	8.66	7.89	7.09	6.33	5.62	4.95	4.23

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR		5S		10S		40/Std		80/XS		120		160		XXS	
	L.R. 90° Elbow	6.0	7.4	16.0	21.4					33.0	34.0				
		1.3	1.3	1.3	1.3					1.3	1.3				
	S.R. 90° Elbow	4.2	5.2	10.4	14.5										
		0.8	0.8	0.8	0.8										
	L.R. 45° Elbow	3.1	3.8	8.3	10.5					14.0	18.0				
		0.5	0.5	0.5	0.5					0.5	0.5				
	Tee	9.8	12.0	19.8	26.9					38.5	43.4				
		1.2	1.2	1.2	1.2					1.2	1.2				
	Lateral	15.3	18.4	31.0	49.0										
		2.5	2.5	2.5	2.5										
	Reducer	2.5	4.3	5.9	8.3					12.4	14.2				
		0.4	0.4	0.4	0.4					0.4	0.4				
	Cap	1.3	1.6	4.2	5.7					11.0	11.0				
		0.7	0.7	0.7	0.7					0.7	0.7				

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1½	1½	2	2½	2½	3	3½	3½	4	4
Calcium Silicate	Lbs./Ft	1.86	2.92	2.92	4.08	5.38	5.38	6.9	8.41	8.41	10.4	10.4
Combination	Nom. Thick., In.						2½	3	3½	3½	4	4
	Lbs./Ft						7.01	9.3	11.8	11.8	14.9	14.9

		CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR									
		Pressure Rating (PSI)									
		Cast Iron		Steel							
		125	250	150	300	400	600	900	1500	2500	
	Screwed or Slip-On	17	28	18	32	37	73	100	162	259	
		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	Welding Neck			22	36	49	78	103	162	293	
				1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	Lap Joint			18	32	35	71	98	168	253	
				1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	Blind	21	35	23	39	50	78	104	172	272	
		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
	S.R. 90° Elbow	55	91	80	113	123	205	268	435		
		4.3	4.3	4.3	4.3	4.5	4.7	4.8	5.2		
	L.R. 90° Elbow	65		91	128						
		4.7		4.7	4.7						
	45° Elbow	48	80	66	98	123	180	239	350		
		3.8	3.8	3.8	3.8	4	4.2	4.3	4.5		
	Tee	84	139	119	172	179	304	415	665		
		6.4	6.5	6.4	6.4	6.8	7	7.2	7.8		
	Flanged Bonnet Gate	138	264	150	265	310	455	615	1340		
		7.3	7.9	4.3	4.9	5.3	5.5	6	7		
	Flanged Bonnet - Globe or Angle	138	247	155	215	355	515	555	950		
		7.6	8	4.3	5	5.2	5.8	5.8	6		
	Flanged Bonnet - Check	118	210	110	165	185	350	560	1150		
		7.6	8	4.3	5	5	5.8	6	7		
	Pressure Seal - Bonnet, Gate						350	520	865		
							3.1	3.8	4.5		
	Pressure Seal - Bonnet, Globe							280	450		
								4	4.5		

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE									
	5S	10		40/Std.	80/XS	120	160	XXS		
Thickness -- In.	0.109	0.134	0.219	0.280	0.432	0.562	0.718	0.864	1.000	1.125
Pipe -- Lbs/Ft	5.37	9.29	15.02	18.97	28.57	36.39	45.30	53.20	60.01	66.08
Water -- Lbs/Ft	13.98	13.74	13.10	12.51	11.29	10.30	9.20	8.20	7.28	6.52








WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
L.R. 90° Elbow	8.9 1.5	11.0 1.5		22.8 1.5	32.2 1.5	43.0 1.5	55.0 1.6	62.0 1.5		
S.R. 90° Elbow	6.1 1.0	7.5 1.0		16.6 1.0	22.9 1.0	30.0 1.0				
L.R. 45° Elbow	4.5 0.6	5.5 0.6		11.3 0.6	16.4 0.6	21.0 0.6	26.0 0.6	30.0 0.6		
Tee	13.8 1.4	17.0 1.4		31.3 1.4	39.5 1.4		59.0 1.4	68.0 1.4		
Lateral	16.7 2.9	20.5 2.9		42 2.9	78 2.9					
Reducer	3.3 0.5	5.8 0.5		8.6 0.6	12.6 0.5		18.8 0.5	21.4 0.5		
Cap	1.6 0.9	1.9 0.9		6.4 0.9	9.2 0.9	13.3 0.9	17.5 0.9	17.5 0.9		

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1	1½	2	2	2½	3	3	3½	3½	4	4
Calcium Silicate	Lbs./Ft	2.11	3.28	4.57	4.57	6.09	7.60	7.60	9.82	9.82	11.5	11.4
Combination	Nom. Thick., In.						3	3	3½	3½	4	4
	Lbs./Ft						10.3	10.3	13.4	13.4	16.6	16.6














CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		20 1.5	38 1.5	22 1.5	45 1.5	54 1.5	95 1.5	128 1.5	202 1.5	396 1.5
Welding Neck				27 1.5	48 1.5	67 1.5	96 1.5	130 1.5	202 1.5	451 1.5
Lap Joint				22 1.5	45 1.5	52 1.5	93 1.5	125 1.5	208 1.5	387 1.5
Blind		26 1.5	48 1.5	29 1.5	56 1.5	71 1.5	101 1.5	133 1.5	197 1.5	418 1.5
S.R. 90° Elbow		71 4.3	121 4.4	90 4.3	147 4.4	184 4.6	275 4.8	375 5	566 5.3	
L.R. 90° Elbow		88 4.9		126 4.9	182 4.9					
45° Elbow		63 3.8	111 3.9	82 3.8	132 3.9	149 4.1	240 4.3	320 4.3	476 4.6	
Tee		108 6.5	186 6.6	149 6.5	218 6.6	279 6.9	400 7.2	565 7.5	839 8	
Flanged Bonnet Gate		172 7.3	359 8	190 4.3	360 5	435 5.5	620 5.8	835 6	1595 7	
Flanged Bonnet - Globe or Angle		184 7.8	345 8.2	185 4.4	275 5	415 5.3	645 5.8	765 6	1800 7	
Flanged Bonnet - Check		154 7.8	286 8.2	150 4.8	200 5	360 5.4	445 6	800 6.4	1630 7	
Pressure Seal - Bonnet, Gate							580 3.5	750 4	1215 5	
Pressure Seal - Bonnet, Globe								730 4	780 5	

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

PIPE												
Sch./Wall Designation -->	5S	10S	20	30	40/STD	60	80/XS	100	120	140	160	
Thickness -- In.	0.109	0.148	0.219	0.250	0.277	0.322	0.406	0.500	0.593	0.718	0.812	0.906
Pipe -- Lbs/Ft	9.91	13.40	19.64	22.36	24.70	28.55	35.64	43.4	50.9	60.6	67.8	74.7
Water -- Lbs/Ft	24.07	23.59	22.9	22.48	22.18	21.69	20.79	19.8	18.8	17.6	16.7	15.8
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
 L.R. 90° Elbow	15.4 2.0	21 2.0				44.9 2.0		70.3 2.0				120.0 2.0
 S.R. 90° Elbow	6.6 1.3	14.3 1.3				34.5 1.3		50.2 1.3				
 L.R. 45° Elbow	8.1 0.8	11.0 0.8				22.8 0.8		32.8 0.8				56.0 0.8
 Tee	18.4 1.8	25.0 1.8				60.2 1.8		78.0 1.8				120.0 1.8
 Lateral	25.3 3.8	41.1 3.8				76.0 3.8		140.0 3.8				
 Reducer	4.5 0.5	7.8 0.5				13.9 0.5		20.4 0.5				32.1 0.5
 Cap	2.1 1.0	2.8 1.0				11.3 1.0		16.3 1.0				32.0 1.0

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2	2½	3	3½	3½	4	4	4½
Calcium Silicate	Lbs./Ft	4.13	4.13	5.64	5.64	7.85	9.48	11.5	11.5	13.8	13.8	16
Combination	Nom. Thick., In.						3	3½	3½	4	4	4½
	Lbs./Ft						12.9	16.2	16.2	20.4	20.4	23.8

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron			Steel					
		125	250	150	300	400	600	900	1500	2500
	Screwed or Slip-On	29 1.5	60 1.5	33 1.5	67 1.5	82 1.5	135 1.5	207 1.5	319 1.5	601 1.5
	Welding Neck			42 1.5	76 1.5	104 1.5	137 1.5	222 1.5	334 1.5	692 1.5
	Lap Joint			33 1.5	67 1.5	79 1.5	132 1.5	223 1.5	347 1.5	587 1.5
	Blind	43 1.5	79 1.5	48 1.5	90 1.5	115 1.5	159 1.5	232 1.5	363 1.5	649 1.5
	S.R. 90° Elbow	113 4.5	194 4.7	157 4.5	238 4.7	310 5	435 5.2	639 5.4	995 5.7	
	L.R. 90° Elbow	148 5.3		202 5.3	283 5.3					
	45° Elbow	97 3.9	164 4	127 3.9	203 4	215 4.1	360 4.4	507 4.5	870 4.8	
	Tee	168 6.8	289 7.1	230 6.8	337 7.1	445 7.5	610 7.8	978 8.1	1465 8.6	
	Flanged Bonnet Gate	251 7.5	583 8.1	305 4.5	505 5.1	730 6	960 6.3	1180 6.6	2740 7	
	Flanged Bonnet - Globe or Angle	317 8.4	554 8.6	475 5.4	505 5.5	610 5.9	1130 6.3	1160 6.3	2865 7	
	Flanged Bonnet - Check	302 8.4	454 8.6	235 5.2	310 5.3	475 5.6	725 6	1140 6.4	2075 7	
	Pressure Seal - Bonnet, Gate						925 4.5	1185 4.7	2345 5.5	
	Pressure Seal - Bonnet, Globe							1550 4	1680 5	

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.








Sch./Wall Designation -->	PIPE											
	5S	10S		20	30	40/STD	60/XS	80	100	120	140	160
Thickness -- In.	0.134	0.165	0.219	0.250	0.307	0.365	0.500	0.593	0.718	0.843	1.000	1.125
Pipe -- Lbs/Ft	15.15	18.70	24.63	28.04	34.24	40.5	54.7	64.3	76.9	89.2	104.1	115.7
Water -- Lbs/Ft	37.4	36.9	36.2	35.77	34.98	34.1	32.3	31.1	29.5	28.0	26.1	24.6
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
L.R. 90° Elbow	29.2 2.5	36.0 2.5				84.0 2.5	112.0 2.5					230.0 2.5
S.R. 90° Elbow	20.3 1.7	24.9 1.7				62.2 1.7	74.0 1.7					
L.R. 45° Elbow	14.6 1.0	18.0 1.0				42.4 1.0	53.8 1.0					109.0 1.0
Tee	30.0 2.1	37.0 2.1				104.0 2.1	132.0 2.1					222.0 2.1
Lateral	47.5 4.4	70.0 4.4				124.0 4.4	200.0 4.4					
Reducer	8.1 0.6	14.0 0.6				23.2 0.6	31.4 0.6					58.0 0.6
Cap	3.8 1.3	4.7 1.3				20.0 1.3	26.3 1.3					59.0 1.3

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	2½	3	3½	3½	4	4	4½
Calcium Silicate	Lbs./Ft	5.2	5.2	7.07	8.93	8.93	11	13.2	13.2	15.5	15.5	18.1
Combination	Nom. Thick., In.						3	3½	3½	4	4	4½
	Lbs/Ft						15.4	19.3	19.3	23	23	27.2














CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
	Pressure Rating (PSI)	Steel								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		45 1.5	93 1.5	50 1.5	100 1.5	117 1.5	213 1.5	293 1.5	528 1.5	1148 1.5
Welding Neck				59 1.5	110 1.5	152 1.5	225 1.5	316 1.5	546 1.5	1291 1.5
Lap Joint				50 1.5	110 1.5	138 1.5	231 1.5	325 1.5	577 1.5	1120 1.5
Blind		66 1.5	120 1.5	77 1.5	146 1.5	181 1.5	267 1.5	338 1.5	599 1.5	1248 1.5
S.R. 90° Elbow		182 4.8	306 4.9	240 4.8	343 4.9	462 5.2	747 5.6	995 5.8		
L.R. 90° Elbow		237 5.8		290 5.8	438 5.8					
45° Elbow		152 4.1	256 4.2	185 4.1	288 4.2	332 4.3	572 4.6	732 4.7		
Tee		277 7.2	446 7.4	353 7.2	527 7.4	578 7.8	1007 8.4	1417 8.7		
Flanged Bonnet Gate		471 7.7	899 8.3	455 4.5	750 5	1035 6	1575 6.9	2140 7.1	3690 8	
Flanged Bonnet - Globe or Angle		541 9.1	943 9.1	485 4.5	855 5.5	1070 6	1500 6.3	2500 6.8	4160 8	
Flanged Bonnet - Check		453 9.1	751 9.1	370 6	485 6.1	605 6.3	1030 6.8	1350 7	2280 7.5	
Pressure Seal - Bonnet, Gate							1450 4.9	1860 5.5	3150 6	
Pressure Seal - Bonnet, Globe								1800 5	1910 6	

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE											
	5S	10S	20	30	Std.	40	XS	60	80	120	140	160
Thickness -- In.	0.156	0.180	0.250	0.330	0.375	0.406	0.500	0.562	0.687	1.000	1.125	1.312
Pipe -- Lbs/Ft	20.99	24.20	33.38	43.8	49.6	53.5	65.4	73.2	88.5	125.5	139.7	160.3
Water -- Lbs/Ft	52.7	52.2	51.1	49.7	49.0	48.5	47.0	46.0	44.0	39.3	37.5	34.9
WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
 L.R. 90° Elbow	51.2 3.0	57.0 3.0			122.0 3.0		156.0 3.0					375.0 3.0
 S.R. 90° Elbow	33.6 2.0	38.1 2.0			82.0 2.0		104.0 2.0					
 L.R. 45° Elbow	25.5 1.3	29.0 1.3			60.3 1.3		78.0 1.3					182.0 1.3
 Tee	46.7 2.5	54.0 2.5			162.0 2.5		180.0 2.5					360.0 2.5
 Lateral	74.7 5.4	86.2 5.4			180.0 5.4		273.0 5.4					
 Reducer	14.1 0.7	20.9 0.7			33.4 0.7		43.6 0.7					94.0 0.7
 Cap	6.2 1.5	7.1 1.5			29.5 1.5		38.1 1.5					95.0 1.5

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	6.04	6.04	8.13	10.5	12.7	12.7	15.1	17.9	17.9	20.4	20.4
Combination	Nom. Thick., In.						3	3½	4	4	4½	4½
	Lbs./Ft						17.7	21.9	26.7	26.7	31.1	31.1

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron			Steel					
		125	250	150	300	400	600	900	1500	2500
	Screwed or Slip-On	58 1.5	123 1.5	71 1.5	140 1.5	164 1.5	261 1.5	388 1.5	820 1.5	1611 1.5
	Welding Neck			87 1.5	163 1.5	212 1.5	272 1.5	434 1.5	843 1.5	1919 1.5
	Lap Joint			71 1.5	164 1.5	187 1.5	286 1.5	433 1.5	902 1.5	1573 1.5
	Blind	95 1.5	165 1.5	117 1.5	209 1.5	261 1.5	341 1.5	475 1.5	928 1.5	1775 1.5
	S.R. 90° Elbow	257 5	430 5.2	345 5	509 5.2	669 5.5	815 5.8	1474 6.2		
	L.R. 90° Elbow	357 6.2		485 6.2	624 6.2			1598 6.2		
	45° Elbow	227 4.3	360 4.3	282 4.3	414 4.3	469 4.5	705 4.7	1124 4.8		
	Tee	387 7.5	640 7.8	513 7.5	754 7.8	943 8.3	1361 8.7	1928 9.3		
	Flanged Bonnet Gate	687 7.8	1298 8.5	635 4	1015 5	1420 5.5	2155 7	2770 7.2	4650 8	
	Flanged Bonnet - Globe or Angle	808 9.4	1200 9.5	710 5	1410 5.5					
	Flanged Bonnet - Check	674 9.4	1160 9.5	560 6	720 6.5		1410 7.2	2600 8	3370 8	
	Pressure Seal - Bonnet, Gate						1975 5.5	2560 6	4515 7	
	Pressure Seal - Bonnet, Globe									

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE											
	5S	10S	10	20	30/Std.	40	XS	60	80	120	140	160
Thickness -- In.	0.156	0.188	0.250	0.312	0.375	0.438	0.500	0.593	0.750	1.093	1.250	1.406
Pipe -- Lbs/Ft	23.0	27.7	36.71	45.7	54.6	63.4	72.1	84.9	106.1	150.7	170.2	189.1
Water -- Lbs/Ft	63.7	63.1	62.06	60.92	59.7	58.7	57.5	55.9	53.2	47.5	45.0	42.6

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
L.R. 90° Elbow	65.6 3.5	78.0 3.5			157.0 3.5		200.0 3.5					
S.R. 90° Elbow	43.1 2.3	51.7 2.3			108.0 2.3		135.0 2.3					
L.R. 45° Elbow	32.5 1.5	39.4 1.5			80.0 1.5		98.0 1.5					
Tee	49.4 2.8	59.6 2.8			196.0 2.8		220.0 2.8					
Lateral	94.4 5.8	113 5.8			218.0 5.8		340.0 5.8					
Reducer	25.0 1.1	31.2 1.1			63.0 1.1		83.0 1.1					
Cap	7.6 1.7	9.2 1.7			35.3 1.7		45.9 1.7					








PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	6.16	6.16	8.38	10.7	13.1	13.1	15.8	18.5	18.5	21.3	21.3
Combination	Nom. Thick., In.						3	3½	4	4	4½	4½
	Lbs/Ft						18.2	22.8	27.5	27.5	32.4	32.4

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
	Pressure Rating (PSI)											
		Cast Iron		Steel								
		125	250	150	300	400	600	900	1500	2500		
Screwed or Slip-On		90 1.5	184 1.5	95 1.5	195 1.5	235 1.5	318 1.5	460 1.5	1016 1.5			
Welding Neck				130 1.5	217 1.5	277 1.5	406 1.5	642 1.5	1241 1.5			
Lap Joint				119 1.5	220 1.5	254 1.5	349 1.5	477 1.5	1076 1.5			
Blind		125 1.5	239 1.5	141 1.5	267 1.5	354 1.5	437 1.5	574 1.5				
S.R. 90° Elbow		360 5.3	617 5.5	497 5.3	632 5.5	664 5.7	918 5.9	1549 6.4				
L.R. 90° Elbow		480 6.6	767 6.6	622 6.6	772 6.6							
45° Elbow		280 4.3	497 4.4	377 4.3	587 4.4	638 4.6	883 4.8	1246 4.9				
Tee		540 8	956 8.4	683 8	968 8.3	1131 8.6	1652 8.9	2318 9.6				
Flanged Bonnet Gate		921 7.9	1762 8.8	905 4.9	1525 6	1920 6.3	2960 7	4170 8	6425 8.8			
Flanged Bonnet - Globe or Angle		1171 9.9										
Flanged Bonnet - Check		885 9.9		1010 5	1155 5.2							
Pressure Seal - Bonnet, Gate						2620 6	3475 6.5	6380 7.5				
Pressure Seal - Bonnet, Globe												














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE											
	5S	10S	10	20	30/Std	40/XS	60	80	100	120	140	160
Thickness -- In.	0.165	0.188	0.250	0.312	0.375	0.500	0.656	0.843	1.031	1.218	1.438	1.593
Pipe -- Lbs/Ft	28.0	32.0	42.1	52.4	62.6	82.8	107.5	136.5	164.8	192.3	223.6	245.1
Water -- Lbs/Ft	83.5	83.0	81.8	80.5	79.1	76.5	73.4	69.7	66.1	62.6	58.6	55.9

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR						
 L.R. 90° Elbow	89.8 4.0	102.0 4.0			208.0 4.0	270.0 4.0
 S.R. 90° Elbow	59.7 2.5	67.7 2.5			135.0 2.5	177.0 2.5
 L.R. 45° Elbow	44.9 1.7	51.0 1.7			104.0 1.7	136.0 1.7
 Tee	66.8 3.2	75.9 3.2			250.0 3.2	278.0 3.2
 Lateral	127.0 6.7	144.0 6.7			275.0 6.7	431.0 6.7
 Reducer	31.3 1.2	35.7 1.2			77.0 1.2	102.0 1.2
 Cap	10.1 1.8	11.5 1.8			44.3 1.8	57.0 1.8

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	6.90	6.90	9.33	12.0	14.6	14.6	17.5	20.5	20.5	23.6	23.6
Combination	Nom. Thick., In. Lbs./Ft						3 20.3	3½ 25.2	4 30.7	4 30.7	4½ 36.0	4½ 36.0

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR											
		Pressure Rating (PSI)									
		Cast Iron		Steel							
		125	250	150	300	400	600	900	1500	2500	
	Screwed or Slip-On	114 1.5	233 1.5	107 1.5	262 1.5	310 1.5	442 1.5	559 1.5	1297 1.5		
	Welding Neck			141 1.5	288 1.5	351 1.5	577 1.5	785 1.5	1597 1.5		
	Lap Joint			142 1.5	282 1.5	337 1.5	476 1.5	588 1.5	1372 1.5		
	Blind	174 1.5	308 1.5	184 1.5	349 1.5	455 1.5	603 1.5	719 1.5			
	S.R. 90° Elbow	484 5.5	826 5.8	656 5.5	958 5.8	1014 6	1402 6.3	1886 6.7			
	L.R. 90° Elbow	684 7	1036 7	781 7	1058 7						
	45° Elbow	374 4.3	696 4.6	481 4.3	708 4.6	839 4.7	1212 5	1586 5			
	Tee	714 8.3	1263 8.7	961 8.3	1404 8.6	1671 9	2128 9.4	3054 10			
	Flanged Bonnet Gate	1254 8	2321 9	1190 5	2015 7	2300 7.2	3675 7.9	4950 8.2	7875 9		
	Flanged Bonnet - Globe or Angle										
	Flanged Bonnet - Check	1166 10.5			1225 6						
	Pressure Seal - Bonnet, Gate						3230 7	8130 8			
	Pressure Seal - Bonnet, Globe										

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE											
	5S	10S	10	20	Std.	30	XS	40	60	80	120	160
Thickness -- In.	0.165	0.188	0.250	0.312	0.375	0.438	0.500	0.562	0.750	0.937	1.375	1.781
Pipe -- Lbs/Ft	31.0	36.0	47.4	59.0	70.6	82.1	93.5	104.8	138.2	170.8	244.1	308.5
Water -- Lbs/Ft	106.2	105.7	104.3	102.8	101.2	99.9	98.4	97.0	92.7	88.5	79.2	71.0

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION FACTOR												
L.R. 90° Elbow	114.0 4.5	129.0 4.5			256.0 4.5		332.0 4.5					
S.R. 90° Elbow	75.7 2.8	85.7 2.8			176.0 2.8		225.0 2.8					
L.R. 45° Elbow	57.2 1.9	64.5 1.9			132.0 1.9		168.0 1.9					
Tee	83.2 3.6	94.7 3.6			282.0 3.6		351.0 3.6					
Lateral	157.0 7.5	179.0 7.5			326.0 7.5		525.0 7.5					
Reducer	42.6 1.3	48.5 1.3			94.0 1.3		123.0 1.3					
Cap	12.7 2.1	14.5 2.1			57.0 2.1		75.0 2.1					








PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	7.73	7.73	10.4	13.3	16.3	16.3	19.3	22.6	22.6	25.9	25.9
Combination	Nom. Thick., In.						3	3½	4	4	4½	4½
	Lbs/Ft						22.7	28	33.8	33.8	39.5	39.5

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR												
	Pressure Rating (PSI)	Cast Iron & Steel										
		Cast Iron		Steel								
		125	250	150	300	400	600	900	1500	2500		
Screwed or Slip-On		125 1.5		139 1.5	331 1.5	380 1.5	573 1.5	797 1.5	1694 1.5			
Welding Neck				159 1.5	355 1.5	430 1.5	652 1.5	1074 1.5	2069 1.5			
Lap Joint				165 1.5	355 1.5	415 1.5	566 1.5	820 1.5	1769 1.5			
Blind		209 1.5	396 1.5	228 1.5	440 1.5	572 1.5	762 1.5	1030 1.5				
S.R. 90° Elbow		599 5.8	1060 6	711 5.8	1126 6	1340 6.2	1793 6.6	2817 7				
L.R. 90° Elbow			1350 7.4	941 7.4	1426 7.4							
45° Elbow		439 4.4	870 4.7	521 4.4	901 4.7	1040 4.8	1543 5	2252 5.2				
Tee		879 8.6	1625 9	1010 8.6	1602 9	1909 9.3	2690 9.9	4327 10.5				
Flanged Bonnet Gate		1629 8.2	2578 9.3	1510 6	2505 6.5	3765 7	4460 7.8	6675 8.5				
Flanged Bonnet - Globe or Angle												
Flanged Bonnet - Check		1371 10.5										
Pressure Seal - Bonnet, Gate							3100 5.5	3400 5.6	4200 6			
Pressure Seal - Bonnet, Globe												














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE											
	5S	10S	10	20/Std.	30/XS	40	60	80	100	120	140	160
Thickness -- In.	0.188	0.218	0.250	0.375	0.500	0.593	0.812	1.031	1.281	1.500	1.750	1.968
Pipe -- Lbs/Ft	40.0	46.0	52.7	78.6	104.1	122.9	166.4	208.9	256.1	296.4	341.1	379.0
Water -- Lbs/Ft	131.0	130.2	129.5	126.0	122.8	120.4	115.0	109.4	103.4	98.3	92.6	87.9

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR					
 L.R. 90° Elbow	160.0 5.0	185.0 5.0		322.0 5.0	438.0 5.0
 S.R. 90° Elbow	106.0 3.4	122.0 3.4		238.0 3.4	278.0 3.4
 L.R. 45° Elbow	80.3 2.1	92.5 2.1		160.0 2.1	228.0 2.1
 Tee	112.0 4.0	130.0 4.0		378.0 4.0	490.0 4.0
 Lateral	228.0 8.3	265.0 8.3		396.0 8.3	625.0 8.3
 Reducer	71.6 1.7	87.6 1.7		142.0 1.7	186.0 1.7
 Cap	17.7 2.3	20.5 2.3		71.0 2.3	93.0 2.3

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	8.45	8.45	11.6	14.6	17.7	17.7	21.1	24.6	24.6	28.1	28.1
Combination	Nom. Thick., In. Lbs./Ft						3 24.7	3½ 30.7	4 37	4 37	4½ 43.1	4½ 43.1

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
	Screwed or Slip-On	153 1.5		180 1.5	378 1.5	468 1.5	733 1.5	972 1.5	2114 1.5	
	Welding Neck			195 1.5	431 1.5	535 1.5	811 1.5	1344 1.5	2614 1.5	
	Lap Joint			210 1.5	428 1.5	510 1.5	725 1.5	1048 1.5	2189 1.5	
	Blind	275 1.5	487 1.5	297 1.5	545 1.5	711 1.5	976 1.5	1287 1.5		
	S.R. 90° Elbow	792 6	1315 6.3	922 6	1375 6.3	1680 6.5	2314 6.9	3610 7.3		
	L.R. 90° Elbow	1132 7.8	1725 7.8	1352 7.8	1705 7.8					
	45° Elbow	592 4.6	1055 4.8	652 4.6	1105 4.8	1330 4.9	1917 5.2	2848 5.4		
	Tee	1178 9	2022 9.5	1378 9	1908 9.5	2370 9.7	3463 10.1	5520 11		
	Flanged Bonnet Gate	1934 8.3	3823 9.5	1855 6	3370 7	5700 8	5755 8			
	Flanged Bonnet - Globe or Angle									
	Flanged Bonnet - Check	1772 11								
	Pressure Seal - Bonnet, Gate									
	Pressure Seal - Bonnet, Globe									

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE										
	5S	10	20/Std.	XS	30	40	60	80	120	140	160
Thickness -- In.	0.218	0.250	0.375	0.500	0.562	0.687	0.968	1.218	1.812	2.062	2.343
Pipe -- Lbs/Ft	55.0	63.4	94.6	125.5	140.8	171.2	238.1	296.4	429.4	483.1	541.9
Water -- Lbs/Ft	188.9	188	183.8	180.1	178.1	174.3	165.8	158.3	141.4	134.5	127.0

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR				
L.R. 90° Elbow	260.0 6.0		500.0 6.0	578.0 6.0
S.R. 90° Elbow	178.0 3.7		305.0 3.7	404.0 3.7
L.R. 45° Elbow	130.0 2.5		252.0 2.5	292.0 2.5
Tee	174.0 4.9		544.0 4.9	607.0 4.9
Lateral	361.0 10.0		544.0 10.0	875.0 10.0
Reducer	107.0 1.7		167.0 1.7	220.0 1.7
Cap	28.6 2.8		102.0 2.8	134.0 2.8

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3	3½	4	4	4½	4½
Calcium Silicate	Lbs./Ft	10.0	10.0	13.4	17.0	21.0	21.0	24.8	28.7	28.7	32.9	32.9
Combination	Nom. Thick., In.						3	3½	4	4	4½	4½
	Lbs/Ft						29.2	36.0	43.1	43.1	50.6	50.6








CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
	Pressure Rating (PSI)	Cast Iron & Steel								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On		236 1.5		245 1.5	577 1.5	676 1.5	1056 1.5	1823 1.5	3378 1.5	
Welding Neck				295 1.5	632 1.5	777 1.5	1157 1.5	2450 1.5	4153 1.5	
Lap Joint				295 1.5	617 1.5	752 1.5	1046 1.5	2002 1.5	3478 1.5	
Blind		404 1.5	757 1.5	446 1.5	841 1.5	1073 1.5	1355 1.5	2442 1.5		
S.R. 90° Elbow		1231 6.7	2014 6.8	1671 6.7	2174 6.8	2474 7.1	3506 7.6	6155 8.1		
L.R. 90° Elbow		1711 8.7	2644 8.7	1821 8.7	2874 8.7					
45° Elbow		871 4.8	1604 5	1121 4.8	1634 5	1974 5.1	2831 5.5	5124 6		
Tee		1836 10	3061 10.2	2276 10	3161 10.2	3811 10.6	5184 11.4	9387 12.1		
Flanged Bonnet Gate		3062 8.5	6484 9.8	2500 5	4675 7	6995 8.7	8020 9.5			
Flanged Bonnet - Globe or Angle										
Flanged Bonnet - Check		2956 12								
Pressure Seal - Bonnet, Gate										
Pressure Seal - Bonnet, Globe										

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.














Sch./Wall Designation -->	PIPE								
		10	Std.	20/XS					
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	67.0	85.7	102.6	136.2	169.0	202.0	235.0	267.0	299.0
Water -- Lbs/Ft	221.4	219.2	216.8	212.5	208.6	204.4	200.2	196.1	192.1

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR

 L.R. 90° Elbow			602.0 8.5	713.0 8.5
 S.R. 90° Elbow			359.0 5.0	474.0 5.0
 L.R. 45° Elbow			269.0 3.5	355.0 3.5
 Tee			634.0 6.8	794.0 6.8
 Lateral				
 Reducer			200.0 2.5	272.0 2.5
 Cap			110.0 4.3	145.0 4.3

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	10.4	10.4	14.1	18.0	21.9	26.0	30.2	34.6	39.1	39.1	48.4
Combination	Nom. Thick., In. Lbs/Ft						3½ 37.0	4½ 51.9	5½ 67.8	6 76.0	6½ 84.5	7 93.2

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR

		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
 Screwed or Slip-On				292 1.5	699 1.5	650 1.5	950 1.5	1525 1.5		
 Welding Neck				342 1.5	799 1.5	750 1.5	1025 1.5	1575 1.5		
 Lap Joint										
 Blind				567 1.5	1179 1.5	1125 1.5	1525 1.5	2200 1.5		
 S.R. 90° Elbow										
 L.R. 90° Elbow										
 45° Elbow										
 Tee										
 Flanged Bonnet Gate										
 Flanged Bonnet - Globe or Angle										
 Flanged Bonnet - Check										
 Pressure Seal - Bonnet, Gate										
 Pressure Seal - Bonnet, Globe										

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE								
		10	Std.	20/XS	30				
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	74.0	92.4	110.6	146.9	182.7	218.0	253.0	288.0	323.0
Water -- Lbs/Ft	257.3	255.0	252.7	248.1	243.6	238.9	234.4	230.0	225.6

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR				
L.R. 90° Elbow			626.0 9.0	829.0 9.0
S.R. 90° Elbow			415.0 5.4	551.0 5.4
L.R. 45° Elbow			312.0 3.6	413.0 3.6
Tee			729.0 7.0	910.0 7.0
Lateral				
Reducer			210.0 2.7	290.0 2.7
Cap			120.0 4.5	160.0 4.5








Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	11.2	11.2	15.1	19.2	23.4	27.8	32.3	36.9	41.6	41.6	51.4
Combination	Nom. Thick., In.						3½	4½	5½	6	6½	7
	Lbs/Ft						39.5	55.4	72.2	80.9	89.8	99.0

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR									
	Pressure Rating (PSI)								
		Cast Iron		Steel					
		125	250	150	300	400	600	900	1500
Screwed or Slip-On				334 1.5	853 1.5	780 1.5	1075 1.5	1800 1.5	
Welding Neck				364 1.5	943 1.5	880 1.5	1175 1.5	1850 1.5	
Lap Joint									
Blind				669 1.5	1408 1.5	1425 1.5	1750 1.5	2575 1.5	
S.R. 90° Elbow									
L.R. 90° Elbow									
45° Elbow									
Tee									
Flanged Bonnet Gate									
Flanged Bonnet - Globe or Angle									
Flanged Bonnet - Check									
Pressure Seal - Bonnet, Gate									
Pressure Seal - Bonnet, Globe									














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE								
	5S	10 & 10S	Std.	20/XS	30				
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	79.0	98.9	118.7	157.6	196.1	234.0	272.0	310.0	347.0
Water -- Lbs/Ft	296.3	293.5	291.0	286.0	281.1	276.6	271.8	267.0	262.2

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR					
 L.R. 90° Elbow	478.0 10.0		775.0 10.0	953.0 10.0	596.0 10.0
 S.R. 90° Elbow	319.0 5.9		470.0 5.9	644.0 5.9	388.0 5.9
 L.R. 45° Elbow	239.0 3.9		358.0 3.9	475.0 3.9	298.0 3.9
 Tee			855.0 7.8	1065.0 7.8	
 Lateral					
 Reducer			220.0 3.9	315.0 3.9	
 Cap			125.0 4.8	175.0 4.8	

PIPE INSULATION												
Temp. Range -->		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	11.9	11.9	16.1	20.5	25.0	29.5	34.3	39.1	44.1	44.1	54.4
Combination	Nom. Thick., In. Lbs/Ft						3½ 42.1	4½ 58.9	5½ 76.5	6 85.7	6½ 95.1	7 104.7

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR										
		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
	Screwed or Slip-On			365 1.5	975 1.5	900 1.5	1175 1.5	2075 1.5		
	Welding Neck			410 1.5	1095 1.5	1000 1.5	1300 1.5	2150 1.5		
	Lap Joint									
	Blind			770 1.5	1665 1.5	1675 1.5	2000 1.5	3025 1.5		
	S.R. 90° Elbow									
	L.R. 90° Elbow									
	45° Elbow									
	Tee									
	Flanged Bonnet Gate									
	Flanged Bonnet - Globe or Angle									
	Flanged Bonnet - Check									
	Pressure Seal - Bonnet, Gate									
	Pressure Seal - Bonnet, Globe									

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE									
		10	Std.	20/XS	30	40				
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.688	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	85.0	105.8	126.7	168.2	209.4	229.9	250.0	291.0	331.0	371.0
Water -- Lbs/Ft	337.8	335.0	323.3	327.0	321.8	319.2	316.7	311.6	306.4	301.3

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR				
L.R. 90° Elbow			818.0 10.5	1090.0 10.5
S.R. 90° Elbow			546.0 6.3	722.0 6.3
L.R. 45° Elbow			408.0 4.2	541.0 4.2
Tee			991.0 8.4	1230.0 8.4
Lateral				
Reducer			255.0 3.1	335.0 3.1
Cap			145.0 5.2	190.0 5.2








Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	12.7	12.7	17.1	21.7	26.5	31.3	36.3	41.4	46.6	46.6	57.5
Combination	Nom. Thick., In.						3½	4½	5½	6	6½	7
	Lbs/Ft						44.7	62.3	80.9	90.5	100.4	110.5

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR																			
	Pressure Rating (PSI)	Cast Iron								Steel									
		125		250		150		300		400		600		900		1500		2500	
		125	250	150	300	400	600	900	1500	2500	125	250	150	300	400	600	900	1500	2500
Screwed or Slip-On				476 1.5	1093 1.5	1025 1.5	1375 1.5	2500 1.5											
Welding Neck				516 1.5	1228 1.5	1150 1.5	1500 1.5	2575 1.5											
Lap Joint																			
Blind				951 1.5	1978 1.5	1975 1.5	2300 1.5	3650 1.5											
S.R. 90° Elbow																			
L.R. 90° Elbow																			
45° Elbow																			
Tee																			
Flanged Bonnet Gate																			
Flanged Bonnet - Globe or Angle																			
Flanged Bonnet - Check																			
Pressure Seal - Bonnet, Gate																			
Pressure Seal - Bonnet, Globe																			














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE									
	10	Std.	20/XS	30	40					
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.688	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	90.0	112.4	134.7	178.9	222.8	244.6	266.0	310.0	353.0	395.0
Water -- Lbs/Ft	382.0	379.1	376.0	370.3	365.0	362.2	359.5	354.1	348.6	343.2

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR				
 L.R. 90° Elbow			926.0 11.0	1230.0 11.0
 S.R. 90° Elbow			617.0 5.5	817.0 5.5
 L.R. 45° Elbow			463.0 4.4	615.0 4.4
 Tee			1136.0 8.9	1420.0 8.9
 Lateral				
 Reducer			270.0 3.3	355.0 3.3
 Cap			160.0 5.6	210.0 5.6








Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	13.4	13.4	18.2	23.0	28.0	33.1	38.3	43.7	49.1	49.1	60.5
Combination	Nom. Thick., In. Lbs/Ft						3½ 47.2	4½ 65.8	5½ 85.3	6 95.4	6½ 105.7	7 116.3

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR											
		Pressure Rating (PSI)									
		Cast Iron		Steel							
		125	250	150	300	400	600	900	1500	2500	
 Screwed or Slip-On				515 1.5	1281 1.5	1150 1.5	1500 1.5	2950 1.5			
 Welding Neck				560 1.5	1406 1.5	1300 1.5	1650 1.5	3025 1.5			
 Lap Joint											
 Blind				1085 1.5	2231 1.5	2250 1.5	2575 1.5	4275 1.5			
 S.R. 90° Elbow											
 L.R. 90° Elbow											
 45° Elbow											
 Tee											
 Flanged Bonnet Gate											
 Flanged Bonnet - Globe or Angle											
 Flanged Bonnet - Check											
 Pressure Seal - Bonnet, Gate											
 Pressure Seal - Bonnet, Globe											














Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.

Sch./Wall Designation -->	PIPE								
		10	Std.	20/XS	30	40			
Thickness -- In.	0.250	0.312	0.375	0.500	0.625	0.750	0.875	1.000	1.125
Pipe -- Lbs/Ft	96.0	119.1	142.7	189.6	236.1	282.4	328.0	374.0	419.0
Water -- Lbs/Ft	429.1	425.9	422.6	416.6	411.0	405.1	399.4	393.6	387.9

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR				
 L.R. 90° Elbow			1040.0 12.0	1380.0 12.0
 S.R. 90° Elbow			692.0 5.0	913.0 5.0
 L.R. 45° Elbow			518.0 4.8	686.0 4.8
 Tee			1294.0 9.5	1610.0 9.5
 Lateral				
 Reducer			340.0 3.6	360.0 3.6
 Cap			175.0 6.0	235.0 6.0

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	14.2	14.2	19.2	24.2	29.5	34.8	40.3	45.9	51.7	51.7	63.5
Combination	Nom. Thick., In.						3½	4½	5½	6	6½	7
	Lbs/Ft						49.8	69.3	89.7	100.2	111.0	122.0








CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR									
	Pressure Rating (PSI)								
		Cast Iron		Steel					
		125	250	150	300	400	600	900	1500
 Screwed or Slip-On				588 1.5	1485 1.5	1325 1.5	1600 1.5	3350 1.5	
 Welding Neck				628 1.5	1585 1.5	1475 1.5	1750 1.5	3450 1.5	
 Lap Joint									
 Blind				1233 1.5	2560 1.5	2525 1.5	2950 1.5	4900 1.5	
 S.R. 90° Elbow									
 L.R. 90° Elbow									
 45° Elbow									
 Tee									
 Flanged Bonnet Gate									
 Flanged Bonnet - Globe or Angle									
 Flanged Bonnet - Check									
 Pressure Seal - Bonnet, Gate									
 Pressure Seal - Bonnet, Globe									

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.














Sch./Wall Designation -->	PIPE							
		Std.	20/XS	30	40			
Thickness -- In.	0.250	0.375	0.500	0.625	0.750	1.000	1.250	1.500
Pipe -- Lbs/Ft	112.0	166.7	221.6	276.0	330.0	438.0	544.0	649.0
Water -- Lbs/Ft	586.4	578.7	571.7	565.4	558.4	544.8	531.2	517.9

WELDED FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR

 L.R. 90° Elbow	1420.0 15.0	1880.0 15.0
 S.R. 90° Elbow	1079.0 9.0	1430.0 9.0
 L.R. 45° Elbow	707.0 6.0	937.0 6.0
 Tee	1870.0	2415.0
 Lateral		
 Reducer	310.0 4.5	410.0 4.5
 Cap	230.0 7.5	300.0 7.5

Temp. Range -->		PIPE INSULATION										
		100-199	200-299	300-399	400-499	500-599	600-699	700-799	800-899	900-999	1,000-1,099	1,100-1,200
85% Magnesia	Nom. Thick., In.	1½	1½	2	2½	3	3½	4	4½	5	5	6
Calcium Silicate	Lbs./Ft	16.5	16.5	22.2	28.0	34.0	40.1	46.4	52.7	59.2	59.2	72.6
Combination	Nom. Thick., In. Lbs/Ft						3½ 57.4	4½ 79.7	5½ 102.8	6 114.8	6½ 126.9	7 139.3

CAST IRON & STEEL FITTINGS - LINE 1: WEIGHT IN POUNDS, LINE 2: INSULATION WEIGHT FACTOR

		Pressure Rating (PSI)								
		Cast Iron		Steel						
		125	250	150	300	400	600	900	1500	2500
 Screwed or Slip-On				792 1.5	1895 1.5	1759 1.5	2320 1.5			
 Welding Neck				862 1.5	2024 1.5	1879 1.5	2414 1.5			
 Lap Joint										
 Blind				1733 1.5	3449 1.5	3576 1.5	4419 1.5			
 S.R. 90° Elbow										
 L.R. 90° Elbow										
 45° Elbow										
 Tee										
 Flanged Bonnet Gate										
 Flanged Bonnet - Globe or Angle										
 Flanged Bonnet - Check										
 Pressure Seal - Bonnet, Gate										
 Pressure Seal - Bonnet, Globe										

Note: **Boldface type** is weight in pounds and light type underneath is weight factor for insulation.

- Insulation thicknesses and weights are based on average conditions and do not constitute a recommendation for specific thicknesses of materials.
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
- To find the weight of covering on flanges, valves or fittings, multiply the weight factor by the weight per foot of covering used on straight pipe.
- Valve weights are approximate. Whenever possible, obtain weights from the manufacturer.
- Cast iron valve weights are for flanged end valves; steel weights for welding end valves.
- All flanged fitting, flanged valve and flange weights include the proportional weight of bolts or studs to make up all joints.