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.

Weight of tube = F x 10.68 x T x (D - T) 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/in^3.

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

Weight of Tube Contents = G x .3405 x (D - 2T)^2 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 l2"	+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

Pipe Insulation Weight = I x .0218 x T x (D+T) 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

Weight of Piping Materials – 1" Pipe (1.313" O.D.)

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 -- LbsIFt	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. Lbs./Ft	1 0.72	1 0.72	1½ 1.23	2 1.94	2 1.94						
Combination	Nom. Thick., In. Lbs/Ft						2½ 3.3	2½ 3.3	2½ 3.3	3 4.7	3 4.7	3 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.

Weight of Piping Materials – 1¼" Pipe (1.660" O.D.)

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 -- LbslFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1 0.65	1 0.65	1½ 1.47	2 1.83	2 1.83	2½ 2.65	2½ 2.65	2½ 2.65	3 3.58	3 3.58	3 3.58
Combination	Nom. Thick., In. Lbs/Ft						2½ 3.17	2½ 3.17	2½ 3.17	3 5.76	3 5.76	3 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.

Weight of Piping Materials – 1½" Pipe (1.900" O.D.)

Pipe								
Sch./Wall Designation -->	**5S**	**10S**	**40/Std.**	**80/XS**	**160**	**XXS**		
Thickness -- In.	0.065	0.109	0.145	0.200	0.281	0.400	0.525	0.650
Pipe -- LbsIFt	1.27	2.09	2.72	3.63	4.86	6.41	7.71	8.68
Water -- Lbs/Ft	1.07	0.96	0.88	0.77	0.61	0.41	0.25	0.12

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	

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. Lbs./Ft	1 0.84	1 0.84	1½ 1.35	2 2.52	2 2.52	2½ 3.47	2½ 3.47	2½ 3.47	3 4.52	3 4.52	3 4.52
Combination	Nom. Thick., In. Lbs/Ft						2½ 4.2	2½ 4.2	2½ 4.2	3 5.62	3 5.62	3 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.

Weight of Piping Materials – 2" Pipe (2.375" O.D.)

Pipe								
Sch./Wall Designation -->	**5S**	**10S**	**40/Std.**	**80/XS**	**160**	**XXS**		
Thickness -- In.	0.065	0.109	0.154	0.218	0.343	0.436	0.562	0.687
Pipe -- LbslFt	1.60	2.64	3.65	5.02	7.44	9.03	10.88	12.39
Water -- Lbs/Ft	1.72	1.58	1.46	1.28	0.97	0.77	0.53	0.34

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	

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. Lbs./Ft	1 1.01	1 1.01	1½ 1.71	2 2.53	2 2.53	2½ 3.48	2½ 3.48	3 4.42	3 4.42	3 4.42	3½ 5.59
Combination	Nom. Thick., In. Lbs/Ft						2½ 4.28	2½ 4.28	3 5.93	3 5.93	3 5.93	3½ 7.80

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	**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.

Weight of Piping Materials – 2½" Pipe (2.875" O.D.)

Pipe								
Sch./Wall Designation -->	**5S**	**10S**	**40/Std.**	**80/XS**	**160**	**XXS**		
Thickness -- In.	0.083	0.120	0.203	0.276	0.375	0.552	0.675	0.800
Pipe -- LbsIFt	2.48	3.53	5.79	7.66	10.01	13.70	15.86	17.73
Water -- Lbs/Ft	2.5	2.36	2.08	1.84	1.54	1.07	0.79	0.55

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	

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. Lbs./Ft	1 1.14	1 1.14	1½ 2.29	2 3.23	2 3.23	2½ 4.28	2½ 4.28	3 5.46	3 5.46	3½ 6.86	3½ 6.86
Combination	Nom. Thick., In. Lbs/Ft						2½ 5.2	2½ 5.2	3 7.36	3 7.36	3½ 9.58	3½ 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.

Weight of Piping Materials – 3" Pipe (3.500" O.D.)

Pipe								
Sch./Wall Designation -->	**5S**	**10S**	**40/Std.**	**80/XS**	**160**	**XXS**		
Thickness -- In.	0.083	0.120	0.216	0.300	0.438	0.600	0.725	0.850
Pipe -- LbsIFt	3.03	4.33	7.58	10.25	14.32	18.58	21.49	24.06
Water -- Lbs/Ft	3.78	3.61	3.20	2.86	2.35	1.80	1.43	1.10

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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1 1.25	1 1.25	1½ 2.08	2 3.01	2 3.01	2½ 4.07	3 5.24	3 5.24	3 5.24	3½ 6.65	3½ 6.65
Combination	Nom. Thick., In. Lbs/Ft						2½ 5.07	3 6.94	3 6.94	3 6.94	3½ 9.17	3½ 9.17

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	**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.

Weight of Piping Materials – 3½" Pipe (4.000" O.D.)

Pipe					
Sch./Wall Designation -->	**5S**	**10S**	**40/Std.**	**80/XS**	**160**
Thickness -- In.	0.083	0.120	0.226	0.318	0.636
Pipe -- LbsIFt	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**	**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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1 1.83	1 1.83	1½ 2.77	2 3.71	2½ 4.88	2½ 4.88	3 6.39	3 6.39	3½ 7.80	3½ 7.80	3½ 7.80
Combination	Nom. Thick., In. Lbs/Ft						2½ 6.49	3 8.71	3 8.71	3½ 10.8	3½ 10.8	3½ 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.

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- 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.

Weight of Piping Materials – 4" Pipe (4.500" O.D.)

Pipe											
Sch./Wall Designation -->	**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 -- LbslFt	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		

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. Lbs./Ft	1 1.62	1 1.62	1½ 2.55	2 3.61	2½ 4.66	2½ 4.66	3 6.07	3 6.07	3½ 7.48	3½ 7.48	4 9.10
Combination	Nom. Thick., In. Lbs/Ft						2½ 6.07	3 8.3	3 8.3	3½ 10.6	3½ 10.6	3½ 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*
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.

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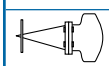
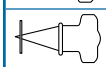
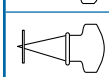
- Insulation weights are based on 85% magnesia and hydrous calcium silicate at 11 lbs/cu. foot. The listed thicknesses and weights of combination covering are the sums of the inner layer of diatomaceous earth at 21 lbs/cu. foot and the outer layer at 11 lbs/cubic foot.
- Insulation weights include allowances 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.

Weight of Piping Materials – 5" Pipe (5.563" O.D.)

Pipe									
Sch./Wall Designation -->	**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 -- LbsIFt	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								
 L.R. 90° Elbow	**6.0** 1.3	**7.4** 1.3	**16.0** 1.3	**21.4** 1.3		**33.0** 1.3	**34.0** 1.3	
 S.R. 90° Elbow	**4.2** 0.8	**5.2** 0.8	**10.4** 0.8	**14.5** 0.8				
 L.R. 45° Elbow	**3.1** 0.5	**3.8** 0.5	**8.3** 0.5	**10.5** 0.5		**14.0** 0.5	**18.0** 0.5	
 Tee	**9.8** 1.2	**12.0** 1.2	**19.8** 1.2	**26.9** 1.2		**38.5** 1.2	**43.4** 1.2	
 Lateral	**15.3** 2.5	**18.4** 2.5	**31.0** 2.5	**49.0** 2.5				
 Reducer	**2.5** 0.4	**4.3** 0.4	**5.9** 0.4	**8.3** 0.4		**12.4** 0.4	**14.2** 0.4	
 Cap	**1.3** 0.7	**1.6** 0.7	**4.2** 0.7	**5.7** 0.7		**11.0** 0.7	**11.0** 0.7	

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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1 1.86	1½ 2.92	1½ 2.92	2 4.08	2½ 5.38	2½ 5.38	3 6.9	3½ 8.41	3½ 8.41	4 10.4	4 10.4
Combination	Nom. Thick., In. Lbs/Ft						2½ 7.01	3 9.3	3½ 11.8	3½ 11.8	4 14.9	4 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** 1.5	**28** 1.5	**18** 1.5	**32** 1.5	**37** 1.5	**73** 1.5	**100** 1.5	**162** 1.5	**259** 1.5
 Welding Neck			**22** 1.5	**36** 1.5	**49** 1.5	**78** 1.5	**103** 1.5	**162** 1.5	**293** 1.5
Lap Joint			**18** 1.5	**32** 1.5	**35** 1.5	**71** 1.5	**98** 1.5	**168** 1.5	**253** 1.5
Blind	**21** 1.5	**35** 1.5	**23** 1.5	**39** 1.5	**50** 1.5	**78** 1.5	**104** 1.5	**172** 1.5	**272** 1.5
 S.R. 90° Elbow	**55** 4.3	**91** 4.3	**80** 4.3	**113** 4.3	**123** 4.5	**205** 4.7	**268** 4.8	**435** 5.2	
 L.R. 90° Elbow	**65** 4.7		**91** 4.7	**128** 4.7					
 45° Elbow	**48** 3.8	**80** 3.8	**66** 3.8	**98** 3.8	**123** 4	**180** 4.2	**239** 4.3	**350** 4.5	
 Tee	**84** 6.4	**139** 6.5	**119** 6.4	**172** 6.4	**179** 6.8	**304** 7	**415** 7.2	**665** 7.8	
 Flanged Bonnet Gate	**138** 7.3	**264** 7.9	**150** 4.3	**265** 4.9	**310** 5.3	**455** 5.5	**615** 6	**1340** 7	
 Flanged Bonnet – Globe or Angle	**138** 7.6	**247** 8	**155** 4.3	**215** 5	**355** 5.2	**515** 5.8	**555** 5.8	**950** 6	
 Flanged Bonnet – Check	**118** 7.6	**210** 8	**110** 4.3	**165** 5	**185** 5	**350** 5.8	**560** 6	**1150** 7	
 Pressure Seal – Bonnet, Gate						**350** 3.1	**520** 3.8	**865** 4.5	
 Pressure Seal – Bonnet, Globe							**280** 4	**450** 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.
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- 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.

Weight of Piping Materials – 6" Pipe (6.625" O.D.)

Pipe										
Sch./Wall Designation -->	**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 -- LbsIFt	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		

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. Lbs./Ft	1 2.11	1½ 3.28	2 4.57	2 4.57	2½ 6.09	3 7.60	3 7.60	3½ 9.82	3½ 9.82	4 11.5	4 11.4
Combination	Nom. Thick., In. Lbs/Ft						3 10.3	3 10.3	3½ 13.4	3½ 13.4	4 16.6	4 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	

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- 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.

Weight of Piping Materials – 8" Pipe (8.625" O.D.)

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 -- LbsIFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 4.13	1½ 4.13	2 5.64	2 5.64	2½ 7.85	3 9.48	3½ 11.5	3½ 11.5	4 13.8	4 13.8	4½ 16
Combination	Nom. Thick., In. Lbs/Ft						3 12.9	3½ 16.2	3½ 16.2	4 20.4	4 20.4	4½ 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	

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- Insulation weights include allowances for wire, cement, canvas, bands and paint but not special surface finishes.
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- 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.

Weight of Piping Materials – 10" Pipe (10.750" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbslFt	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

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.	1½	1½	2	2½	2½	3	3½	3½	4	4	4½
	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)									
	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	

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- 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.

Weight of Piping Materials – 12" Pipe (12.750" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbsIFt	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

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. Lbs./Ft	1½ 6.04	1½ 6.04	2 8.13	2½ 10.5	3 12.7	3 12.7	3½ 15.1	4 17.9	4 17.9	4½ 20.4	4½ 20.4
Combination	Nom. Thick., In. Lbs/Ft						3 17.7	3½ 21.9	4 26.7	4 26.7	4½ 31.1	4½ 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.

Weight of Piping Materials – 14" Pipe (14" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbsIFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 6.16	1½ 6.16	2 8.38	2½ 10.7	3 13.1	3 13.1	3½ 15.8	4 18.5	4 18.5	4½ 21.3	4½ 21.3
Combination	Nom. Thick., In. Lbs/Ft						3 18.2	3½ 22.8	4 27.5	4 27.5	4½ 32.4	4½ 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.

Weight of Piping Materials – 16" Pipe (16" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbsIFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 6.90	1½ 6.90	2 9.33	2½ 12.0	3 14.6	3 14.6	3½ 17.5	4 20.5	4 20.5	4½ 23.6	4½ 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.

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- 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.

Weight of Piping Materials – 18" Pipe (18" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbslFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 7.73	1½ 7.73	2 10.4	2½ 13.3	3 16.3	3 16.3	3½ 19.3	4 22.6	4 22.6	4½ 25.9	4½ 25.9
Combination	Nom. Thick., In. Lbs/Ft						3 22.7	3½ 28	4 33.8	4 33.8	4½ 39.5	4½ 39.5

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*
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.

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- 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.

Weight of Piping Materials – 20" Pipe (20" O.D.)

Pipe												
Sch./Wall Designation -->	**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 -- LbsIFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 8.45	1½ 8.45	2 11.6	2½ 14.6	3 17.7	3 17.7	3½ 21.1	4 24.6	4 24.6	4½ 28.1	4½ 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.

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- 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.

Weight of Piping Materials – 24" Pipe (24" O.D.)

Pipe											
Sch./Wall Designation -->	**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 -- LbsIFt	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							

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. Lbs./Ft	1½ 10.0	1½ 10.0	2 13.4	2½ 17.0	3 21.0	3 21.0	3½ 24.8	4 28.7	4 28.7	4½ 32.9	4½ 32.9
Combination	Nom. Thick., In. Lbs/Ft						3 29.2	3½ 36.0	4 43.1	4 43.1	4½ 50.6	4½ 50.6

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	**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.

Weight of Piping Materials – 26" Pipe (26" O.D.)

Pipe									
Sch./Wall Designation -->		**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 -- LbsIFt	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

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. Lbs./Ft	1½ 10.4	1½ 10.4	2 14.1	2½ 18.0	3 21.9	3½ 26.0	4 30.2	4½ 34.6	5 39.1	5 39.1	6 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.

Weight of Piping Materials – 28" Pipe (28" O.D.)

Pipe									
Sch./Wall Designation -->		**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 -- LbslFt	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

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. Lbs./Ft	1½ 11.2	1½ 11.2	2 15.1	2½ 19.2	3 23.4	3½ 27.8	4 32.3	4½ 36.9	5 41.6	5 41.6	6 51.4
Combination	Nom. Thick., In. Lbs/Ft						3½ 39.5	4½ 55.4	5½ 72.2	6 80.9	6½ 89.8	7 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*	*2500*
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.

Weight of Piping Materials – 30" Pipe (30" O.D.)

Pipe									
Sch./Wall Designation -->	**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 -- LbsIFt	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 Calcium Silicate	Nom. Thick., In. Lbs./Ft	1½ 11.9	1½ 11.9	2 16.1	2½ 20.5	3 25.0	3½ 29.5	4 34.3	4½ 39.1	5 44.1	5 44.1	6 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.

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- 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 -->		**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 -- LbsIFt	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

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. Lbs./Ft	1½ 12.7	1½ 12.7	2 17.1	2½ 21.7	3 26.5	3½ 31.3	4 36.3	4½ 41.4	5 46.6	5 46.6	6 57.5
Combination	Nom. Thick., In. Lbs/Ft						3½ 44.7	4½ 62.3	5½ 80.9	6 90.5	6½ 100.4	7 110.5

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*
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.

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- 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.

Weight of Piping Materials – 34" Pipe (34" O.D.)

Pipe										
Sch./Wall Designation -->		**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 -- LbsIFt	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	

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. Lbs./Ft	1½ 13.4	1½ 13.4	2 18.2	2½ 23.0	3 28.0	3½ 33.1	4 38.3	4½ 43.7	5 49.1	5 49.1	6 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									

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- 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 -->		**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 -- LbsIFt	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

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. Lbs./Ft	1½ 14.2	1½ 14.2	2 19.2	2½ 24.2	3 29.5	3½ 34.8	4 40.3	4½ 45.9	5 51.7	5 51.7	6 63.5
Combination	Nom. Thick., In. Lbs/Ft						3½ 49.8	4½ 69.3	5½ 89.7	6 100.2	6½ 111.0	7 122.0

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*	*2500*
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.

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- 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.

Weight of Piping Materials – 42" Pipe (42" O.D.)

Pipe								
Sch./Wall Designation -->		**Std.**	**20/XS**	**30**	**40**			
Thickness -- In.	0.250	0.375	0.500	0.625	0.750	1.000	1.250	1.500
Pipe -- LbsIFt	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	

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. Lbs./Ft	1½ 16.5	1½ 16.5	2 22.2	2½ 28.0	3 34.0	3½ 40.1	4 46.4	4½ 52.7	5 59.2	5 59.2	6 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.