



ISOMETRIC SYMBOLS



**CONCENTRIC
REDUCER**



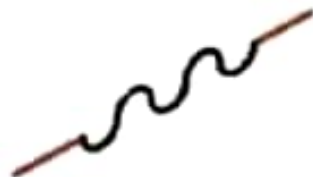
**ECCENTRIC
REDUCER
FSU (FLAT SIDE UP)**



**ECCENTRIC
REDUCER
FSD (FLAT SIDE DOWN)**



SWAGE



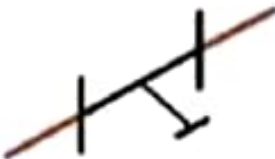
FLEXIBLE HOSE



STRAINER



**T-TYPE
STRAINER**



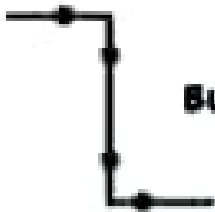
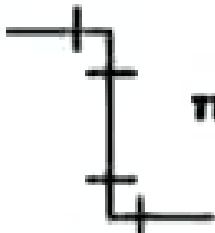
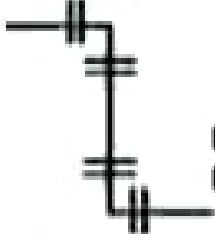
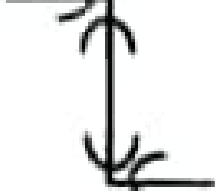
**Y-TYPE
STRAINER**

Piping Isometric Symbols

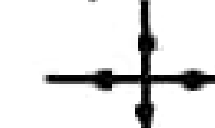


ISOMETRIC PIPING SYMBOLS

Connections or Joints

- 33)  Butt Weld Joints
- 34)  Threaded /Screwed Joints
- 35)  Flanged Joints or Flange to Flange
- 36)  Socket Weld Joints
- 37)  Bell & Spigot

Tees & Crosses

- 38)  Straight Tee
- 39)  Reducing Tee
- 40)  Straight Cross

- 41)  Reducing Cross

Strainers

- 42)  Y-Type Strainer
- 43)  Bucket Type

Other Isometric Symbols

- 44)  90° Elbow
- 45)  45° Elbow
- 46)  Field Weld Joint
- 47)  Revision
- 48)  End Cap Butt Weld
- 49)  End Cap Threaded
- 50)  Plug
- 51)  Pump
- 52)  Union

ISOMETRIC PIPING SYMBOLS

Kinds of Valves

- 1)  Gate Valve
- 2)  Globe Valve
- 3)  Ball Valve
- 4)  Check Valve
- 5)  Butterfly Valve
- 6)  Butterfly Check Valve
- 7)  (P.S.V.)
- 8)  PRESSURE SAFETY
- 9)  VALVE
- 10)  Control Valve
- 11)  Motor Operated Valve
- 12)  Float Valve
- 13)  Needle Valve
- 14)  3 Way Valve
- 15)  Plug Valve
- 16)  Angle Valve
- 17)  Diaphragm Valve

Kinds of Flanges

- 18)  Slip-on Flanges
- 19)  Weld Neck Flange
- 20)  Weld Neck Flange
- 21)  Blind Flange
- 22)  Lap Joint Flange
- 23)  Orifice Flange
- 24)  Ring Joint
- 25)  Reducing Flange

Kinds of Outlets

- 26)  Socket Outlet (SOL)
- 27)  Threaded Outlet (TOL)
- 28)  Welded Outlet (WOL)
- 29)  Lateral Outlet (LOL)
- 30)  Elbow Outlet (EOL)

Reducers

- 31)  Concentric Red.
- 32)  Eccentric Red.

BF

ISOMETRIC PIPING SYMBOLS

- 53)  Expansion Joint
- 54)  Figure Eight (Open)
- 55)  Figure Eight (Open)
- 56)  Slope
- 57)  Flow Direction
- 58)  Pipe Support
- 59)  Insulation
- 60)  Saddle 90°
W/Reinforcing Pad

ORTHOGRAPHIC SYMBOLS

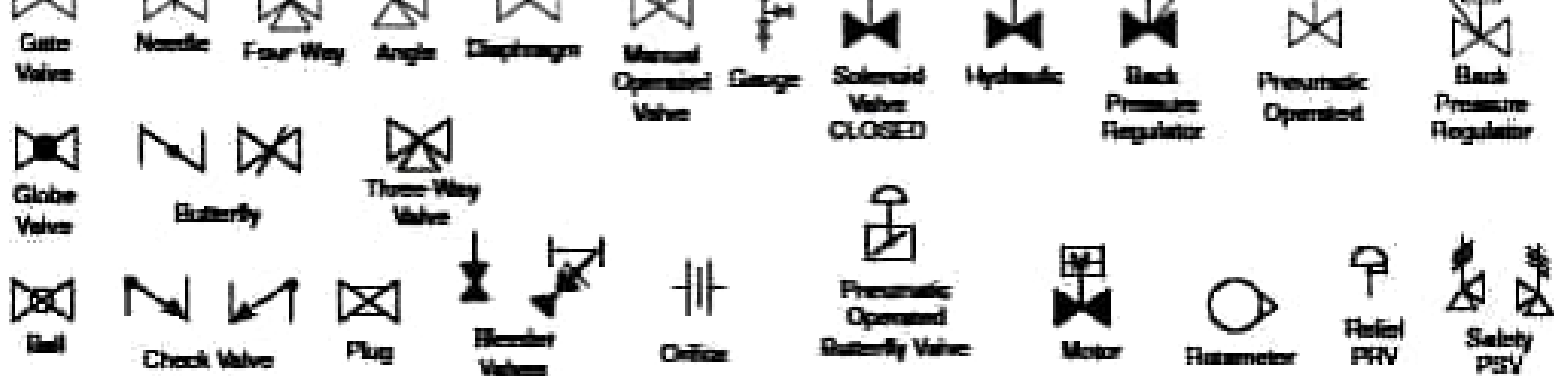
- 61)  90° Elbow Up
- 62)  90° Elbow Down
- 63)  45° Elbow Up
- 64)  45° Elbow Down
- 65)  Tee Down
- 66)  Tee Up
- 67)  Reducer

DECIMAL EQUIVALENTS OF FRACTIONS

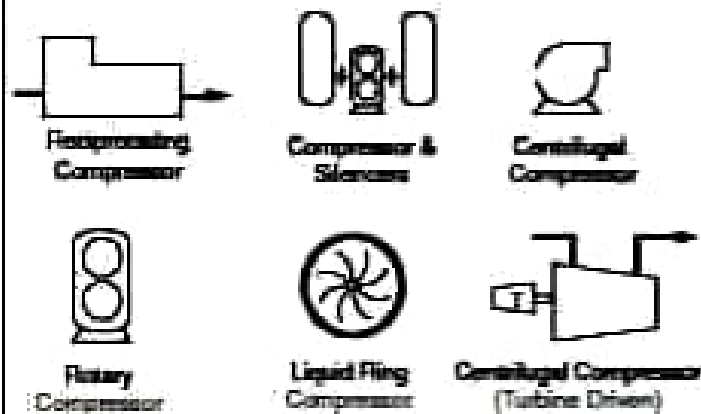
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$\frac{3}{64}$ _____	0.046875	$\frac{5}{16}$ _____	0.546875
$\frac{1}{16}$ _____	0.0625	$\frac{3}{8}$ _____	0.5625
$\frac{5}{64}$ _____	0.078125	$\frac{7}{16}$ _____	0.578125
$\frac{3}{32}$ _____	0.09375	$\frac{1}{2}$ _____	0.59375
$\frac{1}{8}$ _____	0.109375	$\frac{9}{16}$ _____	0.609375
$\frac{7}{64}$ _____	0.125	$\frac{5}{8}$ _____	0.625
$\frac{1}{4}$ _____	0.140625	$\frac{11}{16}$ _____	0.640625
$\frac{9}{64}$ _____	0.15625	$\frac{3}{4}$ _____	0.65625
$\frac{5}{32}$ _____	0.171875	$\frac{13}{16}$ _____	0.671875
$\frac{3}{16}$ _____	0.1875	$\frac{7}{8}$ _____	0.6875
$\frac{11}{64}$ _____	0.203125	$\frac{15}{16}$ _____	0.703125
$\frac{1}{2}$ _____	0.21875	$\frac{1}{2}$ _____	0.71875
$\frac{13}{64}$ _____	0.234375	$\frac{9}{8}$ _____	0.734375
$\frac{3}{8}$ _____	0.25	$\frac{17}{16}$ _____	0.75
$\frac{7}{32}$ _____	0.265625	$\frac{19}{16}$ _____	0.765625
$\frac{1}{2}$ _____	0.28125	$\frac{5}{4}$ _____	0.78125
$\frac{15}{64}$ _____	0.296875	$\frac{11}{8}$ _____	0.796875
$\frac{5}{16}$ _____	0.3125	$\frac{3}{2}$ _____	0.8125
$\frac{3}{4}$ _____	0.328125	$\frac{13}{8}$ _____	0.828125
$\frac{17}{64}$ _____	0.34375	$\frac{7}{4}$ _____	0.84375
$\frac{9}{32}$ _____	0.359375	$\frac{15}{8}$ _____	0.859375
$\frac{1}{2}$ _____	0.375	$\frac{17}{8}$ _____	0.875
$\frac{19}{64}$ _____	0.390625	$\frac{9}{4}$ _____	0.890625
$\frac{5}{8}$ _____	0.40625	$\frac{19}{8}$ _____	0.90625
$\frac{11}{32}$ _____	0.421875	$\frac{5}{2}$ _____	0.921875
$\frac{3}{8}$ _____	0.4375	$\frac{11}{4}$ _____	0.9375
$\frac{13}{32}$ _____	0.453125	$\frac{3}{2}$ _____	0.953125
$\frac{7}{16}$ _____	0.46875	$\frac{13}{4}$ _____	0.96875
$\frac{21}{64}$ _____	0.484375	$\frac{15}{4}$ _____	0.984375
$\frac{1}{2}$ _____	0.5	1 _____	1

DECIMAL DEGREE EQUIVALENTS OF MINUTES

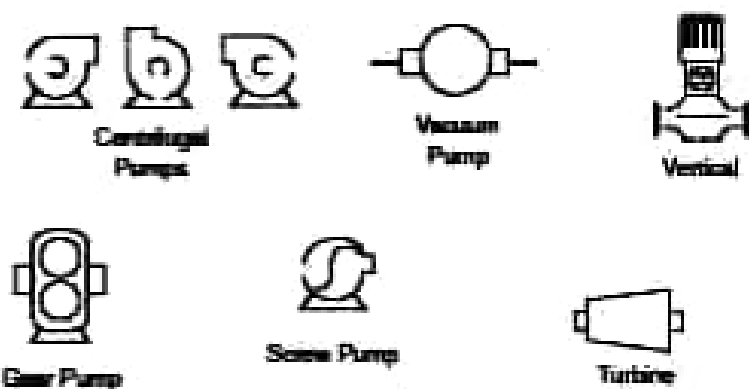
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1	0.0167	16	0.2667	31	0.5167	46	0.7667
2	0.0333	17	0.2833	32	0.5333	47	0.7833
3	0.0500	18	0.3000	33	0.5500	48	0.8000
4	0.0667	19	0.3167	34	0.5667	49	0.8167
5	0.0833	20	0.3333	35	0.5833	50	0.8333
6	0.1000	21	0.3500	36	0.6000	51	0.8500
7	0.1167	22	0.3667	37	0.6167	52	0.8667
8	0.1333	23	0.3833	38	0.6333	53	0.8833
9	0.1500	24	0.4000	39	0.6500	54	0.9000
10	0.1667	25	0.4167	40	0.6667	55	0.9167
11	0.1833	26	0.4333	41	0.6833	56	0.9333
12	0.2000	27	0.4500	42	0.7000	57	0.9500
13	0.2167	28	0.4667	43	0.7167	58	0.9667
14	0.2333	29	0.4833	44	0.7333	59	0.9833
15	0.2500	30	0.5000	45	0.7500	60	1.0000



COMPRESSORS



PUMPS & TURBINE





ANCHOR SUPPORTS



**REST SUPPORT
UP SIDE**



GUIDE SUPPORT



LINE STOP



**HOLD DOWN, GUIDE
& LINE STOP**



**REST & GUIDE
SUPPORT**



**REST & LINE STOP
SUPPORT**

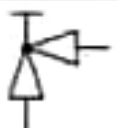
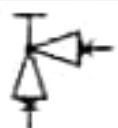
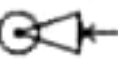
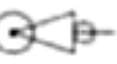
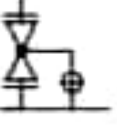
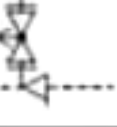
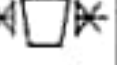
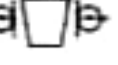
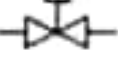
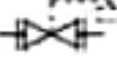
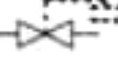
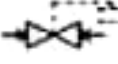
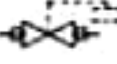
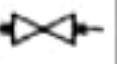
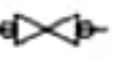
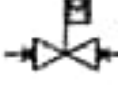
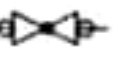


**REST, GUIDE &
LINE STOP**

PIPE SUPPORT SYMBOLS

SYMBOLS FOR ISO DRGS.

SR. NO.	DESCRIPTION	ISO SYMBOL	SR. NO.	DESCRIPTION	ISO SYMBOL
1	Pipe		17	90° Mitre Elbow (3 - cut)	
2	Traced Line		18	Pulled Bend (any angle)	
3	Jacketted line		19	90° Elbow or Bend other than butt weld & Flanged	
4	Flow Direction		20	90° Elbow or Bend Butt Weld	
5	Pipe Slope		21	90° Elbow or Bend Flanged	
6	Existing / Hidden / Underground Lines		22	Tee Butt Weld	
7	Match Line		23	Tee Flanged	
8	Battery Limit		24	Coupling, Half-Coupling	
9	Butt Weld		25	Reducer Conc.	
10	Field Weld (Site Weld)		26	Reducer Ecc.	
11	Weld Neck		27	Swage Nipple Conc.	
12	Slip-on-Flange		28	Swage Nipple Ecc.	
13	SCRD, Socket Weld & Blind Flange		29	Figd. Reducer Conc.	
14	Lap Jt. Flange		30	Figd. Reducer Ecc.	
15	Spectacle Blind		31	Strainer (Butt Weld)	
16	90° MITRE ELBOW (2-Cut)		32	Strainer (Flanged)	

	Flanged	Screwed	Spigot	Welded	Sold
Valve - Globe Angle Globe (Elevation)					
Valve - Globe (Plan)					
Valve (Auto) - By-Pass					
Valve (Auto) - Governor Operated					
Valve - Reducing					
Valve - Check (Straight Way)					
Valve - Cock					
Valve - Diaphragm					
Valve - Float					
Valve - Gate*					
Valve - Gate Motor Operated					
Valve - Globe					
Valve - Globe Motor Operated					

Valve Types



Gate



Barstock



Diaphragm



Three-way



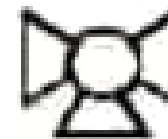
Plug



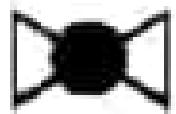
Four-way



Ball



Transflow



Globe



Angle



Needle



Flush



Butterfly



Unspecified



Check



Fusible Link

Valves



Gate valve,
Hand-operated



Gate valve



Globe
valve,
Hand-operated



Globe valve



Needle
valve



Control
valve



Back
Pressure
valve



Plug or
cock valve



Check valve



Check valve
2



Butterfly
valve



Flanged
valve,



Flanged
valve 2



Angle
valve,



Relief
valve



Angle
valve,



Ball
valve



Diaphragm
valve



Solenoid
valve



Hydraulic
valve



Motor-op...
valve



Powered
valve



Float-op...
valve



Needle
valve



3-way plug
valve



Four-way
valve



Gauge
valve



Bleeder
valve



Orifice



Rotameter

TYPES OF VALVES

GATE VALVES



GLOBE VALVES



PLUG VALVES



DIAPHRAGM VALVES



BALL VALVES



BUTTERFLY VALVES



NEEDLE VALVES



CHECK VALVES



PRESSURE RELIEF VALVES



CONTROL VALVES



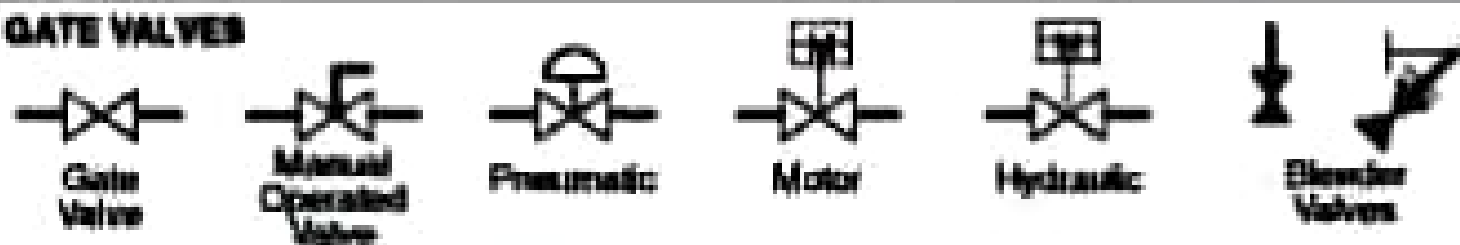
STEAM TRAPS



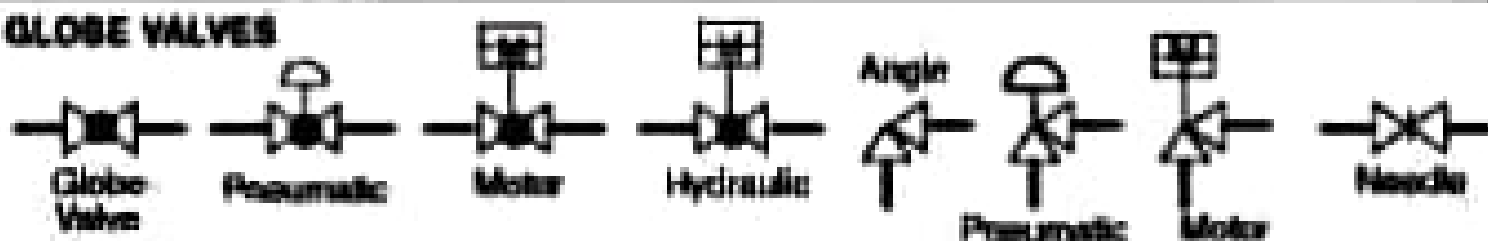
STRAINERS



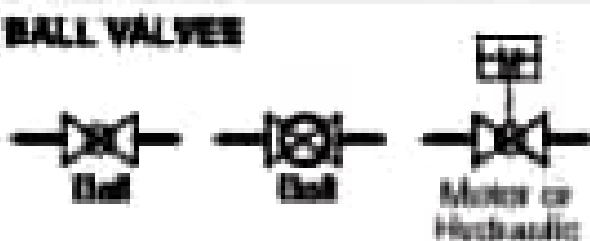
GATE VALVES



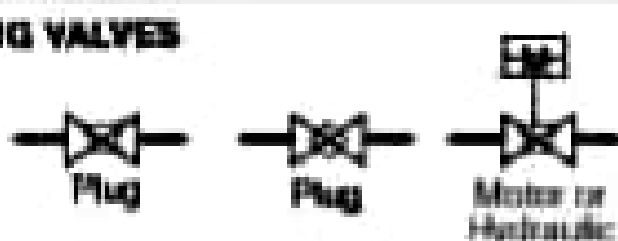
GLOBE VALVES



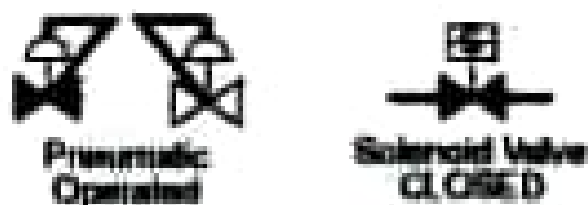
BALL VALVES



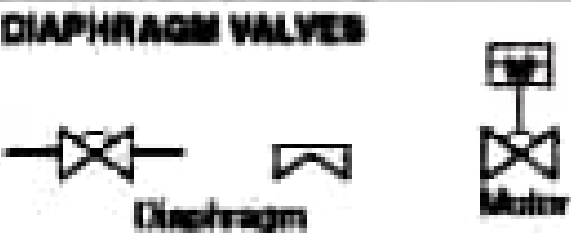
PLUG VALVES



BUTTERFLY VALVES



DIAPHRAGM VALVES



CHECK VALVES



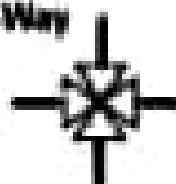
SAFETY (Gases)



RELIEF (Liquids)



Four-Way



Three-Way Valve



Knife Valve



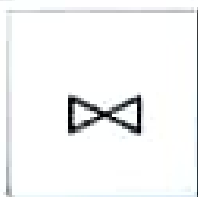
Pinch Valve



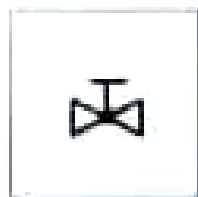
Valves



Gate valve,
Hand-oper...



Gate valve



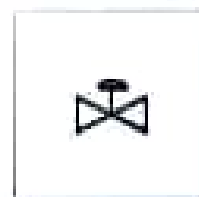
Globe valve,
Hand-oper...



Globe valve



Needle valve



Control valve



Back
Pressure



Plug or cock
valve



Check valve



Check valve
2



Butterfly
valve



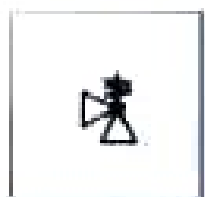
Flanged
valve,



Flanged
valve 2



Angle valve,
Hand-oper...



Relief valve



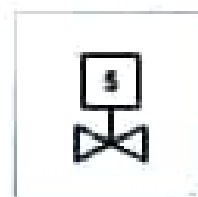
Angle valve,
Hand-oper...



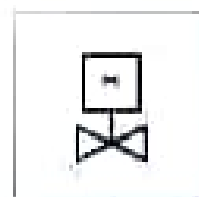
Ball



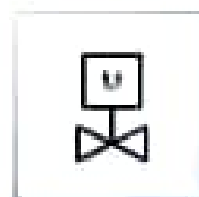
Diaphragm



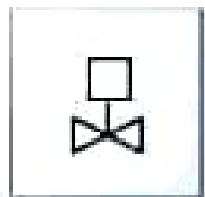
Solenoid
valve



Hydraulic
valve



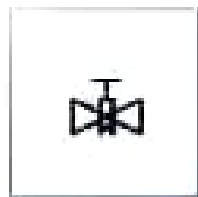
Motor-oper...
valve



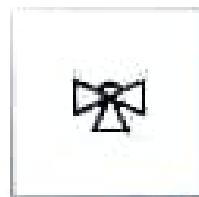
Powered
valve



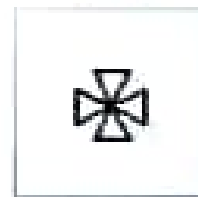
Float-operat...
valve



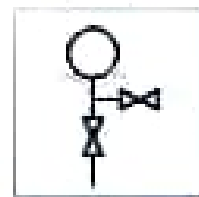
Needle valve



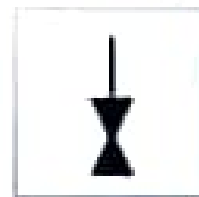
3-way plug
valve



Four-way
valve



Gauge



Bleeder valve