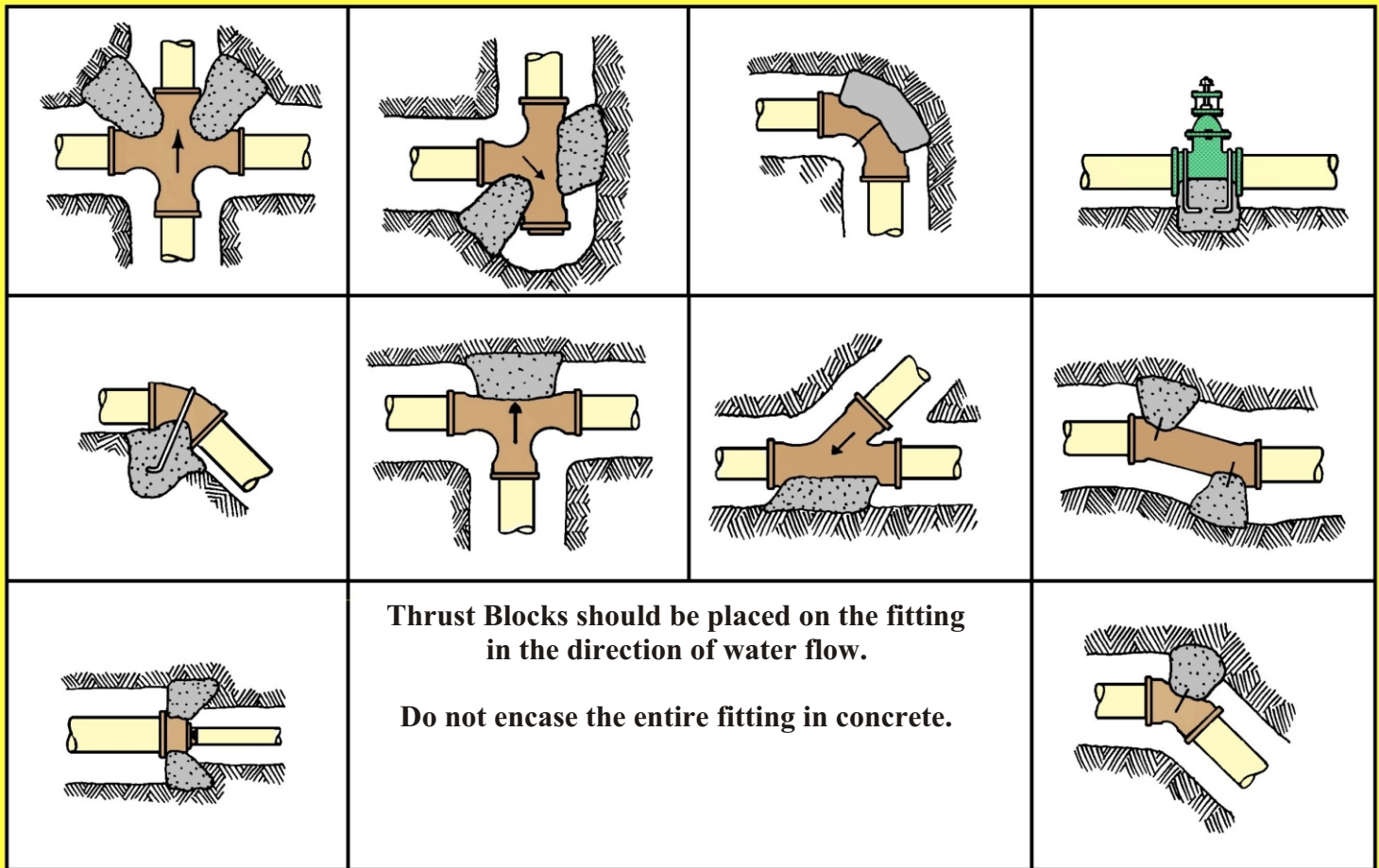


Thrust Blocking

TYPICAL THRUST BLOCK DETAILS FOR PVC BELL & RING PIPE



Thrust blocking should be used on all gasket joint pipe and fittings since there are great thrusts developed whenever there are changes in direction in the pipeline, dead ends, pipe sizes and valves. These thrusts can blow the joints apart creating big messes.

The thrust block should be placed against undisturbed, fully compacted earth. It should have sufficient area on the soil side to restrain the thrust. The fitting should be placed over a large enough area to keep stresses on the fitting at a minimum.

The thrust block should be designed knowing the intensity of the thrusts developed in the pipe and the load bearing strength of the soil.

Using the tables on the following page you can calculate the size of the thrust block for various pipe sizes.

Example: 4" pipe with a maximum pressure of 100psi at a 90 degree elbow in clay soil.

Thrust developed = 1,800 lbs. Load bearing strength of clay = 500 lbs.

$1,800 / 500 = 3.6$ square feet thrust block

Estimated Bearing Strength of Soils

Soil Type	Bearing Strength Lbs/ft ²
Mulch, Peat, Etc.	0
Soft Clay	500
Silt Loam	750
Sand	1,000
Sand and Gravel	1,500
Sand and Gravel with Clay	2,000
Sand and Gravel cemented with Clay	4,000
Hard Pan	5,000

Thrust Developed per 100 psi

Pipe Size Inches	90 Elbow lbs. Force	45 Elbow lbs force	valves, tees, dead ends lbs force
1 1/2	300	200	200
2	500	300	400
3	1,000	600	800
4	1,800	1,100	1,300
6	4,000	2,300	2,900
8	7,200	4,100	5,100
10	11,200	6,300	7,900
12	16,000	9,100	11,300

Reference: Unibell Handbook of PVC Pipe
 Designing, Operating and Maintaing Piping Systems Using PVC Fittings by Ron Bliesner