



## HOW TO SELECT AND INSTALL P.V.C. PIPE

### **USES**

The primary uses of P.V.C. pipe are potable water system, underground piping, and sprinkler irrigation system piping. It is also used to pipe many chemicals. If you are planning any special job where P.V.C. might be applicable, we invite you to check with us and we will help you obtain the information on which to make the correct selection of materials.

### **ADVANTAGES**

Some of the advantages of P.V.C. are: low initial installation and maintenance costs; easy, quick installation; resistant to rust, rot, and corrosion; free from toxicity, taste, and odors; smooth (no build-up) interior for greater flow; light-weight (1/6 of steel) for easy handling; and resistant to most chemicals.

### **TRENCHING**

The trench should be wide enough to allow side-to-side snaking of the pipe to allow for expansion or contraction that can be reasonably expected prior to stabilization. A pipe 100' long that is 100° F in temperature when it is cemented will shrink 2" when buried and carrying 40° water. Trenches in ordinary soil conditions should be at least 18" deep and where a frost problem exists should be 12" below the maximum recorded frost level. The bottom of the trench should be smooth, even, and rock-free. A layer of soft dirt or sand should be put in the bottom of rocky trenches to prevent damage to the pipe during backfilling and natural settling processes.

### **JOINING**

A guide to good, leak-free joining of P.V.C. pipe is listed in the seven steps that are illustrated below. Temperatures of the pipe, cement, and fittings should be within the range of 40° to 100° F during assembly and cure. *Make certain that the cement is good and fluid! If the cement thickens much beyond its original consistency, do not use it! Do not try to dilute it!*

### **CURING**

After joining pipe and fittings, it should be handled very carefully or not at all for 1/2 hour if the temperature is between 60° and 100° F, 2 hours if 40° to 60° F, or 6 hours if 0° to 40° F to allow initial set to take place. Pipe can then be placed in the trench. Total cure times for the temperature ranges stated above are 2 hours, 4 hours, and 16 hours respectively. These times are for pipe sizes up to 3" diameter. In humid or damp weather, allow 50% more cure time.

### **INSTALLING**

The pipe should be placed in the trench (remember to snake) with the markings (as much as possible) visible for inspection. Cover the pipe by hand, except at the joints, with 6" of rock-free dirt. Testing should be done in the cooler part of the day, preferably in the morning. If a joint is leaking, cut it out and replace it. Don't try to make a shortcut repair. Threaded fittings should be made up with Teflon (DuPont reg. T.M.) tape or Teflon paste suitable for P.V.C. pipe. Plastic threads usually take up leak-free 1/2 turn beyond hand tight so do not apply the same force you would use in making up metal threads. With the line under pressure, cover the joint areas by hand with 6" of rock-free soil. Normal backfilling with machinery can now be completed. Care should be taken when installing P.V.C. in areas subject to freezing. P.V.C. lines should be buried 12" below local frost levels.



**SIZE SELECTION WATER DELIVERY CHART FOR SCHEDULE 40 P.V.C. PIPE**

Pipe Size	High Pressure Municipal Service Based on 60 PSI at Source and Maintaining 40 PSI at Head					Low Pressure Municipal Service Based on 45 PSI at Source and Maintaining 35 PSI at Head					Average Water Well System Based on 35 PSI at Tank and Maintaining 30 PSI at Head				
	100'	200'	300'	400'	500'	100'	200'	300'	400'	500'	100'	200'	300'	400'	500'
1/2"	7	5	4	3	3	5	3	3	2	2	3	2	2	1.5	1.5
3/4"	16	11	8	7	6	11	7	6	5	4	7.5	5	4	3.5	3
1"	30	20	16	14	12	20	14	11	10	8	14	10	8	7	6
1-1/4"	62	43	34	29	26	43	29	23	20	18	29	20	16	14	12
1-1/2"	94	64	52	44	39	64	44	35	30	27	44	30	24	21	18
2"	182	125	100	86	76	125	86	69	59	52	86	59	48	41	36

FLOWS NOTED ABOVE = GALLONS PER MINUTE (gpm)

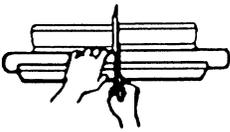
To Use the Chart:

1. Determine which area of the chart to work from by studying the headings.
2. Find the column in this area that corresponds with the distance you must cover.
3. Drop down this column until the number is as large as the gallons you need per minute.
4. Go from this number to the left of the chart to find the size pipe you need.

NOTE!! The chart is based on the outlet being the same elevation as the source. The shaded flow values indicate flows with velocities in excess of 5 feet per second (fps). Plumbing codes recommend flow velocities of 5 fps or less. Use caution when exceeding 5 fps velocities.

*The quantities within the chart were established from the Hazen & Williams formula.*



1.  Cut pipe square using a miter box or plastic pipe cutting tool which *does not* flare up diameter at end of the pipe. A diagonal cut reduces bonding area in the most effective part of the joint.
2.  Remove all burrs with a file or knife. Burrs will scrape away the cement from the joints leaving void spots and a poor Joint.
3.  Clean and dry the pipe and fittings of all dirt and grease with a clean, dry cloth.
4.  Check dry fit of pipe and fittings by inserting pipe into the fitting. With light pressure, pipe should go at least 1/3 of the way into the fitting. If it bottoms, it should be snug.
5.  Remove the surface gloss from P.V.C. pipe and fittings with a good P.V.C. Cleaner/Primer applied with a brush until a damp coat is obtained on the pipe and fittings. (Be sure to read cautions on the Cleaner/Primer container.)
6.  Immediately apply cement, first to the fitting, then to the pipe with a natural bristle brush of sufficient size to provide rapid coverage. *Do not leave voids.* Don't put cement on the pipe beyond the shoulder of the fitting when assembled.
7.  Assemble parts QUICKLY. Parts must be assembled while the cement is still fluid. If ASSEMBLY is interrupted, recoat parts and assemble. Push pipe fully into fitting, using a turning motion to 1/4 turn until it bottoms. Hold them together for a minute or so to offset tendency of pipe to move out of fitting. With a rag, wipe off excess cement from the juncture of the pipe and fitting leaving a small bead.



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