

Technical Data

EXCALIBUR

EXTRUSIONS

Excalibur's Part Numbers

For your convenience, you will find our part numbers on each of our nipple sheets. This will give you the option of ordering by description or by part number.

Example—1/2" x 6" Sch 80 PVC
005060

Physical & Thermal Properties of:

	PVC	CPVC
Specific Gravity	1.4	1.55
Izod Impact Strength (fts. Lbs./inch of notch)	0.8	3.0
Modules of Elasticity, psi	4.2 x 10 [#]	4.23 x 10 [#]
Ultimate Tensile Strength, psi	7200	8400
Working Stress@73 F, psi	2000	2000
Hazen & Williams "C" factor	150	150
Coefficient of Linear Expansion x 10 # in(in F)	3.0	3.8
Thermo Conductivity BTU/(hr F ft#/in)	1.10	0.95
Upper Temperature Limit	140	210
Flammability—Burns only when in contact with ignition source.		

Chemical Resistance of PVC

Weak Acids	Resistant
Strong Acids	Resistant in most situations
Weak Basis	Resistant
Strong Basis	Resistant
Solvents	Resists alcohols, aliphatic hydrocarbons and oils. Soluble or swell in ketones and esters. Swell in aromatics.
Halogens	Attacked by elemental halogens. Resists water solutions.

Temperature Correction Factors

The effects of temperature have been exhaustively studied and correction (derating) factors developed for each thermoplastic piping compound. To determine the maximum operating pressure at any given temperature, multiply the pressure rating at ambient by the temperature correction factor for that material. Attention must also be given to the pressure rating of the joining technique, i.e., threaded system normally reduces pressure capabilities substantially.

Operating Temperatures °F	FACTORS		
	PVC	CPVC	POLYPROPYLENE
73	1.00	1.00	1.00
80	0.90	0.96	0.97
90	0.75	0.92	0.91
100	0.62	0.85	0.85
110	0.50	0.77	0.80
120	0.40	0.70	0.75
130	0.30	0.62	0.68
140	0.22	0.55	0.65
150	N/R	0.47	0.57
160	N/R	0.40	0.50
180	N/R	0.25	N/R
200	N/R	0.18	N/R
210	N/R	0.16	N/R
220	N/R	N/R	N/R

Caution should be exercised in design of system operating above 100 °F

Compressed Air or Gases

Excalibur strongly recommends against testing assembled PVC piping systems with compressed air or other compressed gases and against using PVC systems for distribution of compressed air or gases.

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PRIMER AND CEMENT:

First and most important, choose the proper solvent cements and primers. According to the American Society for Testing and Materials (ASTM), a primer must be identified by its function and the designation "F-656" on its label. This avoids confusion with plastic piping cleaner, which is intended only to clean the surface of the pipe. Most primers are colored blue or purple to aid you in verifying their use in a completed joint. Most solvent cement labels show the pipe sizes that the manufacturer recommends for that cement. Follow the cement manufacturer's instructions rigidly; otherwise, joint failure is likely. Solvent cements designed for smaller-sized piping systems have a more "water-like" consistency. They do not have the body necessary to fill the normal gap or void between larger-diameter fittings and pipe. In some of the larger sizes (4-inch Schedule 40, for example), the industry-allowable tolerances for pipe and fittings can result in a gap of approximately 1/32 inch at the socket entrance. Correct size applicators Solvent cement consists primarily of volatiles that evaporate during curing. When an applicator or brush is too small to apply the cement quickly, the volatiles flash off, leaving insufficient solvent to create a bond between the pipe and fitting. This results in a dry joint. To prevent dry joints, the applicator size should be at least one half the pipe diameter. For example, a 4-inch pipe requires a 2-inch wide brush or applicator. The typical one-quart cement can comes with a 1½-inch-diameter applicator. .

Proper procedures for solvent cementing PVC Do not ignore the proper sequence of applying the primer and cement.

Follow these steps in order:

1. Assemble necessary materials needed.
2. Cut pipe square.
3. Remove all burrs.
4. Clean ends to remove dirt and moisture.
5. Conduct a dry-fit of pipe to the fitting socket.
6. Prime both the pipe and fitting socket to be joined.
7. Immediately apply a coat of cement to the pipe end.
8. Apply a light coat of cement to the fitting socket.
9. Add a second coat of cement to the pipe.
10. Push the parts together, rotating one-eighth to one-quarter turn, and hold for 15 to 30 seconds. (In cold weather installations, increase the hold time to prevent push-off.)
11. Wipe off excess cement.
12. Follow specified wait-time prior to disturbing.
13. Place carefully into position.
14. Snake pipe in ditch from side-to-side.
15. Shade pipe with back-fill, leaving joints exposed for testing.
16. Check cure time, which will depend on humidity, temperature, pipe size, cement type, and dry-fit tightness.
17. Bring pipe to operating temperature prior to testing and backfilling.
18. Conduct pressure test.

INSTALLATION OF FLEXIBLE PVC IPS HOSE:

1. Flexible PVC hose is not recommended for closed systems. Please note, a drip irrigation system is not classified as an open-end system.
2. If the system is to be pressure tested this must be done before installation of the flexible PVC hose or damage to the nipples could result.
3. Do not install under constant static pressure conditions such as under quick couplers or valve-in-head sprinklers.