

PVC Industrial Pipe: Schedule 120

Application:

High pressure corrosion resistant, IPS sizes $\frac{1}{2}$ " through 8", for use at temperatures up to and including 140 °F. Pressure rating (380 psi to 1010 psi) varies with pipe size and temperature as stated in Harvel Plastics, Inc. engineering bulletin (Product Bulletin 112/401). Generally resistant to most acids, bases, salts, aliphatic solutions, oxidants, and halogens. Chemical resistance data is available and should be referenced for proper material selection. Pipe exhibits excellent physical properties and flammability characteristics (independently tested flame and smoke characteristics-ULC). Typical applications include: chemical processing, plating, high purity applications, potable water systems, water and wastewater treatment, and other industrial applications involving corrosive fluid transfer where high pressures are encountered. Schedule 120 heavy wall dimensions provide sufficient wall thickness suitable for many drilling, tapping, and other custom machining/fabrication operations.

Scope:

This specification outlines minimum manufacturing requirements for Polyvinyl Chloride (PVC) schedule 120 iron pipe size (IPS) pressure pipe. This pipe is intended for use in industrial systems where the fluid conveyed does not exceed 140 °F. This pipe meets and or exceeds the industry standards and requirements as set forth by the American Society for Testing and Materials (ASTM) and NSF International (NSF Std. 61 and NSF Std 14).

PVC Materials:

The material used in the manufacture of the pipe shall be domestically produced rigid polyvinyl chloride (PVC) compound, Type I Grade I, with a Cell Classification of 12454 as defined in ASTM D1784. This compound shall be gray in color, and shall be approved by the NSF International (NSF) for use with potable water.

Dimensions:

PVC Schedule 120 pipe shall be manufactured in strict accordance to the requirements of ASTM D1785 for physical dimensions and tolerances. Each production run of pipe manufactured in compliance to this standard, shall also meet or exceed the test requirements for materials, workmanship, burst pressure, flattening, and extrusion quality defined in ASTM D1785. All belled-end pipe shall have tapered sockets to create an interference-type fit, which meet or exceed the dimensional requirements and the minimum socket length for pressure-type sockets as defined in ASTM D2672.

Marking:

Product marking shall meet the requirements of ASTM D1785 and shall include: the manufacturers name (or the manufacturers trademark when privately labeled); the nominal pipe size; the PVC 1120 material designation code; the pipe schedule and pressure rating in psi for water @ 73 °F; the ASTM designation D1785; the independent laboratory's seal of approval for potable water usage (NSF-pw), and the date of manufacture.

Sample Specification:

All PVC Schedule 120 pipe shall be manufactured from a Type I, Grade I Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784, trade name H707 PVC. The pipe shall be manufactured in strict compliance to ASTM D1785, consistently meeting and/or exceeding the Quality Assurance test requirements of this standard with regard to material, workmanship, burst pressure, flattening, and extrusion quality. The pipe shall be manufactured in the USA, using domestic materials, by an ISO 9002 certified manufacturer. All pipe shall be stored indoors after production at the manufacturing site until shipped from factory. This pipe shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications. All pipe shall be manufactured by HARVEL PLASTICS, INC.



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Schedule 120 Dimensions

Nom. Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nom. Wt./Ft.	Max. W.P.
1/2	0.840	0.480	0.170	0.236	1010
3/4	1.050	0.690	0.170	0.311	770
1	1.315	0.891	0.200	0.464	720
1-1/4	1.660	1.204	0.215	0.649	600
1-1/2	1.900	1.423	0.225	0.787	540
2	2.375	1.845	0.250	1.111	470
2-1/2	2.875	2.239	0.300	1.615	470
3	3.500	2.758	0.350	2.306	440
4	4.500	3.574	0.437	3.713	430
6	6.625	5.434	0.562	7.132	370
8	8.625	7.189	0.718	11.277	380

ASTM STANDARD D1784 MATERIAL EQUIVALENTS:
Cell Classification 12454 = PVC Type I Grade I = PVC1120

PIPE SIZES SHOWN ARE MANUFACTURED IN STRICT COMPLIANCE WITH ASTM D1785

The working pressure ratings (W.P.) given are for water, non-shock, @ 73 °F. The following temperature de-rating factors are to be applied to the working pressure ratings (W.P.) listed when operating at elevated temperatures.

Multiply the working pressure rating of the selected pipe at 73 °F by the appropriate de-rating factor to determine the maximum working pressure rating of the pipe at the elevated temperature chosen.

EX: 6" PVC SCHEDULE 120
@ 130 °F = ?
370 psi x 0.31 =
115 psi max. @ 130 °F

THE MAXIMUM SERVICE TEMPERATURE FOR PVC IS 140 °F.

Solvent cemented joints should be utilized when working at or near maximum temperatures.

Harvel Plastics does not recommend the use of PVC for threaded connections at temperatures above 110 °F; use flanged joints, unions, or roll grooved couplings where disassembly is necessary at elevated temperatures.

Threading requires a 50% reduction in pressure rating stated for plain end pipe @73 °F.

Chemical resistance data should be referenced for proper material selection and possible de-rating when working with fluids other than water. Refer to Harvel Plastics 112/401 Product Bulletin for chemical resistance and installation data.

Reference Harvel Plastics, Inc Product Bulletin 112/401 for information pertaining to chemical resistance, physical properties, joining methods, hangers and supports, collapse pressure ratings, system components and other system design and installation related data.

De-Rating Factor	
Operating Temp (°F)	De-Rating Factor
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22