PRODUCT SPECIFICATION

PVC UVR SCHEDULE 40 PRESSURE FITTINGS
Solvent Weld

APPLICATION:

Corrosion resistant injection molded PVC pipe fittings, IPS sizes 1/2" through 4" produced to Schedule 40 dimensions, for use at temperatures up to and including 140°F. Pressure rating varies with pipe size and temperature. Generally resistant to most acids, bases, salts, aliphatic solutions, oxidants and halogens. Chemical resistance data must be referenced by the design authority for proper material selection prior to use. Typical applications include potable water, water and waste water treatment, chilled water, irrigation, pool and spa, drainage, agricultural, chemical processing and other applications where corrosive fluids are conveyed. Ultra-violet Resistant (UVR) indicates that these fittings have enhanced resistance to degradation due to exposure to UV.

SCOPE:

This specification establishes minimum manufacturing requirements for Poly (Vinyl Chloride) (PVC) Schedule 40 pressure fittings. These fittings are intended for use in pressure applications where the temperature of the fluid conveyed does not exceed 140°F. These fittings meet or exceed the industry standards set forth by the American Society for Testing and Materials (ASTM) and NSF International ANSI/NSF Standard 61 and ANSI/NSF Standard 14.

MATERIALS:

The materials used in the manufacture of the fittings shall be a Rigid Poly (Vinyl Chloride) (PVC) Type 1 PVC compound having a Cell Classification of 12454 per ASTM D1784 (also formerly known as Type I, Grade I PVC; PVC 1120.) Materials used in the manufacture of these fittings shall meet the health and safety requirements of ANSI/NSF Standard 61 as being safe for use with potable water. Material used in the manufacture of UVR Schedule 40 fittings includes ingredients which improve resistance to degradation to due UV exposure. UVR fittings are tan in color.

DIMENSIONS AND PROPERTIES:

All sizes of PVC Schedule 40 injection molded pressure fittings shall be manufactured in strict accordance to the requirements of ASTM D2466 for physical dimensions and tolerances. All PVC Schedule 40 injection molded fittings shall consistently meet and/or exceed the quality assurance and other requirements of ASTM D2466 with regard to material, workmanship, burstpressure, dimensions and product marking. All PVC Schedule 40 fittings must also be certified to meet the requirements of ANSI/NSF Standard 61 and ANSI/NSF Standard 14 for use with potable water and shall bear the mark of the Listing agency. These products shall also be certified to NSF/ ANSI 372 conforming to the lead content requirements for "lead free" plumbing as defined by the U.S. Safe Drinking Water act and the state laws of California, Vermont, Maryland, and Louisiana.

MARKING:

All sizes of PVC Schedule 40 fittings shall meet the marking requirements of ASTM D2466 that includes as a minimum the manufacturers name and/or trademark, the material designation PVC 1, the NSF mark of approval for use with potable water, and the designation D2466. UVR Schedule 40 fittings include the mark "UV" and the part number includes the suffix "UV".

Westlake Pipe & Fittings PVC Sch 40 Fittings Conform to the Following Standards and Specifications as applicable:	
ASTM D1784 (Material)	Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds. Cell Classification 12454 Type I PVC (formerly known as Type I, Grade I PVC) PVC 1120
ASTM D2466	Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40
ASTM F1970	Standard Specification for Special Engineered Fittings, Appurtenances or Valves for use in Poly (Vinyl Chloride) or Chlorinated Poly (Vinyl Chloride) (CPVC) Systems
ANSI/ASME B1.20.1	American National Standard Tapered Pipe Threads, General Purpose, Inch
NSF Standard 61	Drinking Water System Components – Health Effects (Third Party Certification materials are suitable for potable water applications)
NSF Standard 14	Plastics Piping System Components and Related Materials (Third Party Certification products meet applicable ASTM performance requirements and are suitable for potable water applications per NSF Std 61)
USA	Pipe fittings manufactured by Westlake Pipe & Fittings are manufactured in the United States of America

Westlake Pipe & Fittings

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PVC UVR SCHEDULE 40 PRESSURE FITTINGS
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Nominal Size	* Pipe Maximum W.P. Rating (non-shock) @73°F
½"	600
¾"	480
1"	450
1¼"	370
1½"	330
2"	280
2½"	300
3"	260
4"	220

* Pressure ratings stated are for pipe. PVC Sch 40 fittings meeting the requirements of ASTM D2466 meet the same burst pressure as the same size Sch 40 pipe. There are no working pressure ratings established for fittings per this standard.
** See below for additional information.

Temperature De-Rating

The pipe pressure ratings shown are the maximum allowable working pressure for water, non-shock, at 73°F. Allowable pressure ratings decrease with an increase in temperature. The following temperature de-rating factors must be applied to the working pressure ratings shown to determine the maximum allowable pressure rating at elevated temperatures.

Multiply the working pressure rating shown at 73°F by the appropriate de-rating factor for the elevated temperature selected to determine the maximum allowable pressure rating at that temperature.

PVC Temperature De-Rating Factors

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

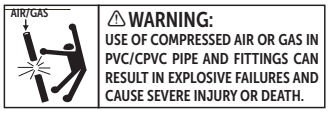
Example:

What is the maximum allowable pressure rating for 4" PVC SCH 40 pipe operating at a temperature of 110°F?

4" PVC Sch 40 pipe = 220 psi@73°F

4" PVC Sch 40 pipe (220 psi x 0.51) = 112 psi

Maximum allowable pressure rating for 4" PVC Sch 40 pipe non-shock for water operating at a temperature of 110°F = 112 psi



NOTES:

PVC Schedule 40 Pipe and Fitting Material Equivalents: ASTM D1784 Cell Classification 12454 = PVC Type 1 (formerly Type 1, Grade 1 PVC) = PVC1120 = Rigid (Unplasticized) PVC.

Solvent Welded joints should be utilized for joining systems operating at or near maximum allowable temperatures for PVC. Westlake Pipe & Fittings does not recommend the use of conventional PVC threaded connections at temperatures above 110°F. Use flanged connections, unions, grooved couplings or other suitable mechanical connections where disassembly is necessary at elevated temperatures. Flange components must be installed in accordance with Westlake Pipe & Fittings published Flange Installation Guidelines.

Plastic piping systems must be engineered, installed operated and maintained in accordance with accepted standards and procedures. Suitability for the intended application should be determined and verified by the designer and/or installer prior to use. Chemical resistance data must be referenced for proper material selection prior to use.

**Although fittings meet the same burst pressure as pipe, working pressure ratings for schedule 40 fittings are not established per ASTM D2466. A respected rule of thumb based on practical experience suggests that the working pressure ratings for PVC Sch 40 and Sch 80 molded fittings is 60% of the maximum working pressure rating of the same size and schedule PVC pipe (reference 1987 publication "Operating and Maintaining Piping Systems Using PVC Fittings" by Ron D. Bliesner). Westlake Pipe & Fittings supports this widely accepted rule of thumb. The exception is special engineered fittings such as flanges, unions, and valves that do have working pressure ratings established by the manufacturer (they are typically lower than that of the same size pipe). As is the case with pipe, the maximum allowable working pressure for fittings must be decreased with an increase in temperature using the same material temperature de-rating factors. Factors such as fitting geometry, fitting design, system operating conditions (i.e. actual surge conditions), fluids conveyed, severity of service, temperature and other variables must be considered by the design authority when determining suitability for the intended application. Substantial reductions in working pressure are advisable when handling aggressive chemicals and in high temperature service applications.

Westlake Pipe & Fittings