LASCO® Fittings, Inc.

PRODUCT SPECIFICATIONS
PVC SCHEDULE 80 PRESSURE FITTINGS

SCH80PSPEC-01 | Nov 29, 2018

APPLICATION:

Corrosion resistant injection molded PVC pipe fittings, IPS sizes 1/4" through 12" produced to Schedule 80 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 chemical processing, plating, chilled water, potable water, water and waste water treatment, chemical drainage, and other industrial applications where corrosive fluids are conveyed.

SCOPE:

This specification establishes minimum manufacturing requirements for Poly (Vinyl Chloride) (PVC) Schedule 80 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 No. 61 and ANSI/NSF Standard No. 14.

MATERIALS:

The materials used in the manufacture of the fittings shall be a dark gray in color Rigid Poly (Vinyl Chloride) (PVC) Type 1 PVC compound having a Cell Classification of 12454 per ASTM D1784 (also 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.

DIMENSIONS AND PROPERTIES:

All sizes of PVC Schedule 80 injection molded pressure fittings shall be manufactured in strict accordance to the requirements of ASTM D2467 (Schedule 80 socket fittings) or ASTM D2464 (Schedule 80 threaded fittings) as applicable for physical dimensions and tolerances. All schedule 80 PVC injection molded fittings shall consistently meet and/or exceed the Quality Assurance and other requirements of ASTM D2467 or D2464 with regard to material, workmanship, burst pressure, dimensions and product marking. All PVC flanges shall be designed and manufactured to meet ANSI Standard B16.5 CL150 bolt pattern, and carry a maximum internal pressure rating of 150 psi, non-shock at 73°F. All PVC Schedule 80 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 80 fittings shall meet the marking requirements of ASTM D2467 or ASTM D2464, which includes as a minimum the manufacturers name and/or trademark, the material designation PVC 1, the NSF mark seal of approval for use with potable water, and the designation D2467 or D2464 as applicable.

LASCO Fittings Inc. PVC Sch 80 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 D2464	Threaded Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
ASTM D2467	Socket Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80
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
ANSI/ASME B16.5	Pipe Flanges and Flanged Fittings - LASCO Flanges bolt hole dimensions conform to ANSI B16.5 Class 150 bolt pattern.
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 LASCO Fittings Inc. are manufactured in the United States of America

PVC SCHEDULE 80 FITTINGS SAMPLE SPECIFICATION:

All PVC Schedule 80 fittings shall be supplied by LASCO Fittings, Inc. from a rigid Type 1 Polyvinyl Chloride (PVC) compound with a Cell Classification of 12454 per ASTM D1784. Fittings manufactured by LASCO shall be manufactured in the USA in strict compliance to ASTM D2467 for schedule 80 socket fittings or ASTM D2464 for schedule 80 threaded fittings, consistently meeting and/or exceeding the Quality Assurance and other requirements of these standards with regard to material, workmanship, burst pressure, dimensions and product marking. All PVC Schedule 80 fittings shall bear the NSF International mark as being certified for use with potable water. All PVC Schedule 80 injection molded fittings shall be supplied by LASCO Fittings, Inc.

MADE IN USA

LASCO® Fittings, Inc.

PRODUCT SPECIFICATIONS
PVC SCHEDULE 80 PIPE PRESSURE RATINGS

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Nominal Size	* Pipe Maximum W.P. Rating (non-shock) @73°F
¼″	1130
⅜″	920
½″	850
¾″	690
1″	630
1¼″	520
1½″	470
2″	400
2½″	420
3″	370
4″	320
6″	280
8″	250
10″	230
12″	230

* Pressure ratings stated are for pipe. PVC Sch 80 fittings meeting the requirements of ASTM D2467 or D2464 meet the same burst pressure as the same size Sch 80 pipe. There are no working pressure ratings established for fittings per these standards.

** 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

*The maximum allowable operating temperature for PVC is 140°F

EXAMPLE:

What is the maximum allowable pressure rating for 4″ PVC SCH 80 pipe operating at a temperature of 110°F?

4″ PVC Sch 80 pipe = 320 psi@73°F

4″ PVC Sch 80 pipe (320 psi x 0.51) = 163 psi

Maximum allowable pressure rating for 4″ PVC Sch 80 pipe non-shock for water operating at a temperature of 110°F = 163 psi

NOTES:

PVC Schedule 80 Pipe and Fitting Material Equivalents: ASTM D1784 Cell Classification 12454 = PVC Type 1 (formerly Type 1, Grade 1 PVC) = PVC1120 = Rigid PVC = UPVC (Unplasticized PVC). Maximum Hydrostatic Design Stress (HDS) @73°F = 2,000 psi; Maximum Hydrostatic Design Basis (HDB) @73°F = 4,000 (Per ASTM D2837/PPI TR-3/PPI TR-4).

Solvent Welded joints should be utilized for joining systems operating at or near maximum allowable temperatures for PVC. LASCO Fittings, Inc. 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. Threading of Schedule 40 pipe is not recommended due to insufficient wall thickness. Thread only Schedule 80 dimensions or heavier walls. Threaded piping systems require a 50% reduction in pressure rating stated for plain-end pipe. Flange components must be installed in accordance with LASCO 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 80 fittings are not established per ASTM D2464 or D2467. 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). LASCO Fittings, Inc. 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.

Contact LASCO Technical Services for additional information.
Customer Service: 800-776-2756 • www.lascofittings.com

⚠ WARNING: USE OF COMPRESSED AIR OR GAS IN PVC/CPVC PIPE AND FITTINGS CAN RESULT IN EXPLOSIVE FAILURES AND CAUSE SEVERE INJURY OR DEATH.

MADE IN USA

This specification is provided for reference only. LASCO Fittings, Inc. reserves the right to change any portion of this specification without notice and without incurring obligation to make such changes to LASCO products previously or subsequently sold. Please visit our website www.lascofittings.com for the most current information.

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