

1.0 Scope

This specification covers thrust-restrained Polyvinyl Chloride (PVC) Pipe, 2" – 16", with Iron Pipe Size (I.P.S.) outside diameters. Pipe is intended for use in pressure-rated potable water delivery systems, as well as in sewer force main and fire protection piping systems.

2.0 Reference Documents ASTM International

- ASTM D1784** STANDARD SPECIFICATION FOR RIGID PVC COMPOUNDS AND CHLORINATED PVC COMPOUNDS
- ASTM D2241** STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PRESSURE-RATED PIPE (SDR SERIES)
- ASTM D2837** STANDARD TEST METHOD FOR OBTAINING HYDROSTATIC DESIGN BASIS FOR THERMOPLASTIC PIPE MATERIALS
- ASTM D3139** STANDARD SPECIFICATION FOR JOINTS FOR PLASTIC PRESSURE PIPES USING FLEXIBLE ELASTOMERIC SEALS
- ASTM F477** STANDARD SPECIFICATION FOR ELASTOMERIC SEALS (GASKETS) FOR JOINING PLASTIC PIPE

National Sanitation Foundation (NSF)

- NSF61** DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS
- NSF14** PLASTIC PIPING SYSTEM COMPONENTS AND RELATED MATERIALS

3.0 Requirements

3.1 General

Products delivered under this specification shall be manufactured only from water distribution pipe and couplings conforming to ASTM D2241. The restrained joint pipe system shall also meet all short and long term pressure test requirements of ASTM D2241. Pipe, couplings, and locking splines shall be completely non-metallic to eliminate corrosion problems.

3.2 Materials

Pipe and couplings shall be made from unplasticized PVC compounds having a minimum cell classification of 12454, as defined in ASTM D1784. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000 psi for water at 73.4°F, in accordance with the requirements of ASTM D2837. 16" high-pressure couplings shall be made from glass-reinforced thermoset filament-wound materials.

3.3 Approvals

Restrained joint PVC pipe products shall have been tested and approved by NSF International. 2" through 16" PVC pipe and coupling systems up to Class 250 shall be listed in NSF14. All products intended for contact with potable water shall be evaluated, tested, and certified for conformance with NSF 61 by an acceptable certifying organization. Copies of agency approval reports or product listings shall be provided to the Engineer.

3.4 DIMENSIONS

Nominal outside diameters and wall thicknesses of thrust-restrained pipe shall conform to the requirements of ASTM D2241. Thrust-restrained pipe shall be furnished in 2", 3", 4", 6", 8", 10", 12", & 16" sizes, with pressure ratings from 90 psi to 315 psi. Pipe shall be furnished in standard lengths of 20 feet. Dimensions of the pipe are shown below:

DIMENSIONS

Yelomine Integral Bell (IB) Piping Products

O-ring and Spline included

| Size | PSI Rating | SDR | O.D. | BOD | P | C | Min. Wall | Weight Lbs/ft | Part No. ① |
|------|------------|-----|-------|------|------|------|-----------|---------------|------------|
| 4" | 200 | 21 | 4.500 | 5.11 | .188 | 3.00 | .214 | 1.86 | 266225 |
| 4" | 250 | 17 | 4.500 | 5.27 | .188 | 3.00 | .265 | 2.26 | 266218 |
| 6" | 200 | 21 | 6.625 | 7.50 | .219 | 3.00 | .316 | 3.99 | 266249 |
| 6" | 250 | 17 | 6.625 | 7.74 | .219 | 3.00 | .390 | 4.87 | 266232 |
| 8" | 200 | 21 | 8.625 | 9.75 | .256 | 3.16 | .410 | 6.72 | 266379 |

Certa-Lok Yelomine Pipe with Couplings

Certa-Lok Coupling, O-ring and Spline Included ②

| Size | PSI Rating | SDR | O.D. | ROD | P | C | Min. Wall | Weight Lbs/ft | Part No. ①② |
|-------|------------|------|--------|-------|------|------|-----------|---------------|-------------|
| 2" | 250 | 17 | 2.375 | 3.20 | .188 | 1.75 | .140 | 0.69 | 216213 |
| 3" | 250 | 17 | 3.500 | 4.38 | .188 | 2.50 | .206 | 1.47 | 217210 |
| 4" | 200 | 21 | 4.500 | 5.47 | .188 | 3.00 | .214 | 2.00 | 226212 |
| 4" | 250 | 17 | 4.500 | 5.47 | .188 | 3.00 | .265 | 2.41 | 218217 |
| 4" HP | 315 | 13.5 | 4.500 | 5.96 | .188 | 3.00 | .337 | 3.17 | 250217 |
| 6" | 125 | 32.5 | 6.625 | 7.84 | .313 | 3.00 | .204 | 2.97 | 243219 |
| 6" | 160 | 26 | 6.625 | 7.84 | .313 | 3.00 | .255 | 3.57 | 235214 |
| 6" | 200 | 21 | 6.625 | 7.84 | .313 | 3.00 | .316 | 4.27 | 227219 |
| 6" | 250 | 17 | 6.625 | 7.84 | .313 | 3.00 | .390 | 5.13 | 219214 |
| 6" HP | 315 | 13.5 | 6.625 | 8.37 | .313 | 3.00 | .491 | 6.63 | 251214 |
| 8" | 125 | 32.5 | 8.625 | 10.19 | .656 | 3.16 | .265 | 4.97 | 244216 |
| 8" | 160 | 26 | 8.625 | 10.19 | .656 | 3.16 | .332 | 6.07 | 236211 |
| 8" | 200 | 21 | 8.625 | 10.19 | .656 | 3.16 | .410 | 7.24 | 228216 |
| 8" | 250 | 17 | 8.625 | 10.95 | .656 | 3.16 | .508 | 9.17 | 220210 |
| 8" HP | 315 | 13.5 | 8.625 | 10.95 | .656 | 3.16 | .748 | 11.29 | 237218 |
| 10" | 125 | 32.5 | 10.750 | 12.44 | .656 | 3.50 | .331 | 7.49 | 245213 |
| 10" | 160 | 26 | 10.750 | 12.44 | .656 | 3.50 | .413 | 9.19 | 214219 |
| 10" | 200 | 21 | 10.750 | 12.44 | .656 | 3.50 | .511 | 10.98 | 230219 |
| 12" | 125 | 32.5 | 12.750 | 14.65 | .656 | 3.50 | .392 | 10.57 | 246210 |
| 12" | 160 | 26 | 12.750 | 14.65 | .656 | 3.63 | .490 | 12.88 | 215223 |
| 12" | 200 | 21 | 12.750 | 14.65 | .656 | 3.63 | .606 | 15.64 | 239229 |
| 16" | 90 ③ | 26 | 16.000 | 17.40 | .656 | 3.61 | .615 | 20.39 | 248214 ④ |
| 16" | 160 | 26 | 16.000 | 17.50 | .656 | 3.61 | .615 | 20.55 | 248214 ④ |
| 16" | 200 | 21 | 16.000 | 17.50 | .656 | 3.61 | .761 | 25.18 | 248337 |

HP = High Pressure

Note: All dimensions are in inches and are subject to normal manufacturing tolerances.

① Specify Permanent or Non-Permanent.

② Pipe may also be purchased without couplings, if desired. Use same part number, and specify "Pipe Only" on P.O.

③ PSI on this item is limited by the pressure rating of the coupling.

④ Specify desired pressure rating on P.O.

3.5 JOINTS

3.5.1 COUPLED JOINTS

Pipe shall be joined using non-metallic couplings to form an integral system for maximum reliability and interchangeability. High-strength, flexible thermoplastic splines shall be inserted into mating, precision-machined grooves in the pipe and coupling to provide full 360° restraint with evenly distributed loading.

Couplings shall be designed for use at or above the rated pressures of the pipe with which they are utilized, and shall incorporate twin elastomeric sealing gaskets meeting the requirements of ASTM F477. Joints shall be designed to meet the leakage test requirements of ASTM D3139.

3.5.2 INTEGRAL BELL JOINTS

Pipe shall be joined utilizing an integral bell system that does not require couplings. A high-strength, flexible thermoplastic spline shall be inserted into mating, precision-machined grooves in the pipe and integral-bell to provide full 360° restraint with evenly distributed loading. Integral bell shall incorporate an elastomeric sealing gasket meeting the requirements of ASTM F477. Joints shall be designed to meet the leakage test requirements of ASTM D3139.

3.6 WORKMANSHIP

Pipe and couplings shall be homogeneous throughout and free from voids, cracks, inclusions and other defects, and shall be as uniform as commercially practicable in color, density and other physical characteristics.

3.7 QUALITY CONTROL

Q.C. program shall be in accordance with NSF requirements.

3.8 MARKING

Pipe and couplings shall be legibly and permanently marked in ink with the following minimum information:

- Nominal size (for example, 4 In.)
- Outside Diameter System (I.P.S.)
- PVC
- Standard Dimension Ratio (SDR) and pressure rating
- ASTM designation D2241-05 (or latest edition)
- Manufacturer's name or trademark and production record code
- Seal (mark) of the testing agency verifying the suitability of the pipe material for potable water service

3.9 APPROVED MANUFACTURERS

Certa-Lok Yelomine restrained-joint pipe from CertainTeed Corporation, or approved equal.

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CertaFlow™ Yelomine™ Restrainted-Joint PVC Pipe