



Specification for Stainless Steel Pipe 2-1/2" (DN65) and Larger

1.01 General:

A. Section Includes:

1. General
2. Materials:
 - a. Pipe
 - b. Couplings
 - c. Pressure Ratings
 - d. Fittings
 - e. Valves
3. Execution

B. Submittals:

1. Grooved joint couplings and fittings shall be shown on drawings and product submittals and shall be specifically identified with the applicable style or series designation.

C. References:

1. American Society for Testing and Materials (ASTM)
 - a. ASTM A193 - Alloy-Steel and Stainless Steel Bolting Materials for High Temperature or High Pressure Service and Other Special Purpose Applications
 - b. ASTM A312 – Seamless and Welded Austenitic Stainless Steel Pipe
 - c. ASTM A351 – Castings, Austenitic, Austenitic-Ferritic (Duplex), for pressure Containing Parts
 - d. ASTM A536 – Ductile Iron Castings
 - e. ASTM A743 – Castings, Iron-Chromium Nickel, Corrosion Resistant, for General Applications
 - f. ASTM A744 – Castings, Iron-Chromium Nickel, Corrosion Resistant, for Severe Applications

D. Quality Assurance:

1. All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.



2.01 Materials:

- A. **Pipe:** ASTM A312, Type 304/304L or 316/316L, Schedule 5, 10, or 40. Roll or Cut grooved as appropriate to the pipe material, wall thickness, pressure, size and method of joining. Use Victaulic RX roll sets specifically designed for grooving schedule 5 or 10 stainless steel pipe.
- B. **Mechanical Couplings for Joining Stainless Steel Pipe:**
1. **Stainless Steel Mechanical Couplings:** Manufactured in two or more segments of cast stainless steel, conforming to ASTM A-351, A-743, and A-744. Gaskets shall be pressure-responsive synthetic rubber, grade to suit the intended service, conforming to ASTM D-2000. (Gaskets used on potable water systems shall be UL classified in accordance with ANSI/NSF-61 for potable water service.) Mechanical coupling bolts shall be stainless steel, type 316, meeting the physical properties of ASTM A-193, grade B8M, Class2.
 - a. **Rigid Type:** Cast with key designed to clamp the bottom of the groove to provide an essentially rigid joint. Victaulic Series 489.
 - b. **Flexible Type:** Use in locations where vibration attenuation and stress relief are required. Victaulic Series 77S.
 2. **Ductile Iron Mechanical Couplings:** Manufactured in two segments of cast ductile iron, conforming to ASTM A-536. Gaskets shall be pressure-responsive synthetic rubber, grade to suit the intended service, conforming to ASTM D-2000. Mechanical coupling bolts shall be zinc plated (ASTM B-633) heat treated carbon steel track head conforming to ASTM A-449 and A-183, minimum tensile strength 110,000 psi (758450 kPa).
 - a. Sizes to 12", rigid type, designed to clamp the bottom of the groove to provide an essentially rigid joint. Victaulic Series 89.
 - b. 14" through 24": Victaulic AGS series with lead-in chamfer on housing key and wide width gasket. Rigid type, housing key shall fill the wedge shaped AGS groove and provide rigidity. Victaulic Style W89.
 - c. 2" through 4" sizes may be Installation-Ready, for direct stab installation without field disassembly, with grade EHP gasket rated to +250 deg F / 120 deg C. Victaulic Style 107H (rigid) or Style 177 (flexible).



3. **Flange Adapters:** For use with grooved end pipe and fittings, for mating to ANSI Class 125 flanged components. Victaulic Style 441.
- C. Grooved End Fittings:** Fittings shall be manufactured of stainless steel conforming to ASTM A-403, WPW, WPW/S9, or CR/S9, or shall be fabricated from stainless steel pipe conforming to ASTM A312, with factory grooved ends. Fittings shall be type 304/304L or 316/316L stainless steel.
- E. Grooved End Valves:**
1. **Butterfly Valves:** Grade CF8M stainless steel body and disc, 316 stainless steel stem, PTFE impregnated glass fabric bearings with 316 stainless steel backing, with synthetic rubber seal. (Grade to suit the intended service.) Valve stem shall be offset from the disc centerline to provide full 360-degree circumferential seating. Bubble-tight, dead-end or bi-directional service to 300 psi (2065 kPa) CWP. Victaulic Series 763.
 2. **Ball Valves:** Grade CF8M stainless steel body, 316 stainless steel ball and stem, TFE seats, fluoroelastomer seals, standard port, two-piece valve. Victaulic Series 726S.



3.01 Execution:

1. Installation:

- a. Pipe ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove.
- b. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified.
- c. See the latest copy of the manufacturer's Field Assembly and Installation Instruction Pocket Handbook (I-100).

2. Training:

- a. A factory trained field representative (direct employee) shall provide on-site training for contractor's field personnel in the proper use of grooving tools, application of groove, and installation of grooved piping products.

3. Application:

- a. Use grooved couplings and fittings on applicable systems in accordance with manufacturer's recommendations.
- b. Unions are not required in installations using grooved mechanical couplings. (The couplings shall serve as unions.)
- c. Grooved joint products may be installed in all locations as permitted by the engineer and local code.
- d. Use grooved end valves where possible. Install grooved joint flange adapters where flanged or lug type valves are necessary.
- e. The coupling manufacturer's representative shall periodically visit the jobsite and review installation. Contractor shall remove and replace any joints deemed improperly installed.