

Engineering Specifications

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ProPress Stainless

ART 1 – GENERAL

1.1 SUMMARY

- 1.1.1 Stainless Steel Pipe and Fitting System using cold press connection technology. The system is assembled when the pipe is fully inserted into the fitting, then pressed on both sides of the fitting seal, creating a mechanical joint.

1.2 REFERENCES

- 1.2.1 ASME A13.1 Scheme for the Identification of Piping Systems
- 1.2.2 ASME B1.20 Pipe Threads, General Purpose (Inch)
- 1.2.3 ASME B31.9 Building Services Piping
- 1.2.4 ASTM A312 Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
- 1.2.5 ASTM A554 Standard Specification For Welded Stainless Steel Mechanical Tubing
- 1.2.6 AWWA C651 Standard for Disinfecting Water Mains
- 1.2.7 IAPMO Uniform Mechanical Code
- 1.2.8 IAPMO Uniform Plumbing Code
- 1.2.9 ICC International Plumbing Code
- 1.2.10 ICC International Mechanical Code
- 1.2.11 MSS-SP-58 Pipe Hangers and Supports - Materials, Design and Manufacture
- 1.2.12 MSS-SP-69 Pipe Hangers and Supports - Selection and Application
- 1.2.13 NFPA 13 Standard for the Installation of Sprinkler Systems (Approval Pending)
- 1.2.14 NFPA 13D Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes (Approval Pending)
- 1.2.15 NFPA 13R Standard for the Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height (Approval Pending)
- 1.2.16 NSF 61 Drinking Water System Components – Health Effects
- 1.2.17 ASME B31.1 Power Piping
- 1.2.18 ASME B31.3 Process Piping

1.3 QUALITY ASSURANCE

- 1.3.1 The installer shall be a qualified installer, licensed within the jurisdiction, and familiar with the installation of stainless steel pipe.
- 1.3.2 The installation of stainless steel pipe for hot and cold water distribution systems shall conform to the requirements of the ICC International Plumbing Code or IAPMO Uniform Plumbing Code. The installation of stainless steel pipe in hydronic systems shall conform to the requirements of the ICC International Mechanical Code or the IAPMO Uniform Mechanical Code.

1.4 DELIVERY, STORAGE, AND HANDLING

- 1.4.1 Stainless steel pipe shall be shipped to the job site by truck or in such a manner to protect the pipe. The pipe and fittings shall not be handled roughly during shipment. The pipe and fittings shall be unloaded with reasonable care.
- 1.4.2 Protect the stored pipe from moisture and dirt. Elevate above grade. When stored inside, do not exceed the structural capacity of the floor.
- 1.4.3 Protect fittings and piping specialties from moisture and dirt.

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1.5 PROJECT CONDITIONS

- 1.5.1 Verify length of pipe required by field measurements.

1.6 WARRANTY

- 1.6.1 The pipe and fittings manufacturer shall warrant that the pipe and fittings are free from defects and conform to the designated standard. The warranty shall only be applicable to pipe and fittings installed in accordance with the manufacturer's installation instructions.
- 1.6.2 The manufacturer of the pipe and fittings shall not be responsible for the improper use, handling, or installation of the product.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- 2.1.1 Stainless Steel Press Fittings: Viega North America, 301 N. Main Street, 9th Floor, Wichita, KS 67202, 800-976-9819

2.2 MATERIAL

- 2.2.1 Pipe Standard: Stainless Steel Pipe shall conform to ASTM A312 or ASTM A554.
- 2.2.2 Fitting Standard: Stainless steel fittings shall conform to the material requirements of ASTM A312 or ASTM A554.
- 2.2.3 Press Fitting: Stainless steel press fittings shall conform to the material and sizing requirements of ASME A312 or ASTM A554. O-rings for stainless steel press fittings shall be EPDM, or FKM, depending on the application.
- 2.2.4 Threaded Fittings: Pipe Threads shall conform to ASME B1.20.1.
- 2.2.5 Hanger Standard: Hangers and supports shall conform to MSS-SP-58.

2.3 SOURCE QUALITY CONTROL

- 2.3.1 All pipe, fittings, and joining materials in contact with drinking water shall be listed by a third party agency to NSF 61.

PART 3 – EXECUTION

3.1 EXAMINATION

- 3.1.1 The installing contractor shall examine the stainless steel pipe and fittings for defects or cracks. There shall be no defects of the pipe or fittings. Any damaged pipe or fittings shall be rejected.

3.2 PREPARATION

- 3.2.1 Stainless steel pipe shall be cut with a wheeled pipe cutter or approved stainless steel pipe cutting tool. The pipe shall be cut square to permit proper joining with the fittings.
- 3.2.2 Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly. The pipe end shall be wiped clean and dry. The burrs on the pipe shall be reamed with a deburring or reaming tool.

3.3 INSTALLATION GENERAL LOCATIONS

- 3.3.1 Plans indicate general location and arrangement of piping systems. Identified locations and arrangements are used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated, except where deviations to layout are approved on coordination drawings.

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3.4 INSTALLATION, STAINLESS STEEL PIPE

- 3.4.1 Pressure Rating: Install components having a pressure rating equal to or greater than the system operating pressure.
- 3.4.2 Install piping free of sags, bends, and kinks.
- 3.4.3 Change in Direction: Install fittings for changes in direction and branch connections.
- 3.4.4 Press Connections: Stainless steel press fittings shall be made in accordance with the manufacturer's installation instructions. The pipe shall be fully inserted into the fitting and the pipe marked at the shoulder of the fitting. The fitting alignment shall be checked against the mark on the pipe to assure the pipe is fully engaged (inserted) in the fitting. The joints shall be pressed using the tool approved by the manufacturer.
- 3.4.5 Threaded Joints: Threaded joints shall have pipe joint compound or teflon tape applied to the male threads only. Tighten joint with a wrench and backup wrench as required.
- 3.4.6 Pipe Protection: Provide protection against abrasion where stainless steel pipe is in contact with other building members by wrapping with an approved tape, pipe insulation or otherwise suitable method of isolation.
- 3.4.7 Penetration Protection: Provide allowance for thermal expansion and contraction of stainless steel pipe passing through a wall, floor, ceiling or partition by wrapping with an approved tape or pipe insulation, or by installing through an appropriately sized sleeve. Penetrations of fire resistance rated assemblies shall maintain the rating of the assembly
- 3.4.8 Backfill Material: Backfill material shall not include any ashes, cinders, refuse, stones, boulders or other materials which can damage or break the pipe or promote corrosive action in any trench or excavation in which pipe is installed.
- 3.4.9 Horizontal Support: Install hangers for horizontal piping in accordance with MSS-SP-69 or the following maximum spacing and minimum rod sizes:

All systems must be installed per local codes and /or standards and requirements. Consult the Viega technical support department before installing the system in other applications or applications with temperatures and/or pressures outside the stated ratings. Refer to Viega's Application Guide for more information

| Nominal Pipe Size (in) | Stainless Steel Pipe Max. Span (ft) | Min. Rod Diameter (in) |
|------------------------|-------------------------------------|------------------------|
| Up to $\frac{3}{4}$ | 10 | $\frac{3}{8}$ |
| 1 | 10 | $\frac{3}{8}$ |
| 1 $\frac{1}{4}$ | 10 | $\frac{3}{8}$ |
| 1 $\frac{1}{2}$ | 10 | $\frac{3}{8}$ |
| 2 | 10 | $\frac{3}{8}$ |
| 2 $\frac{1}{2}$ | 11 | $\frac{1}{2}$ |
| 3 | 12 | $\frac{1}{2}$ |
| 4 | 14 | $\frac{5}{8}$ |

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- 3.4.10 Vertical Support: Vertical stainless steel pipe shall be supported at each floor or at 10 foot intervals.
- 3.4.11 Galvanic Corrosion: Hangers and supports shall be either stainless steel or vinyl coated to prevent galvanic corrosion between the pipe and the supporting member.
- 3.4.12 Restraint: In seismic areas, stainless steel pipe shall be installed to withstand all seismic forces.
- 3.4.13 Identification: Stainless steel pipe systems shall be identified in accordance with the requirements of ASME A13.1.

3.5 FIELD QUALITY CONTROL

- 3.5.1 Viega ProPress for stainless includes the Smart Connect (SC) feature, a quick and easy way of identifying unpressed connections during the pressure testing process. This indentation is removed during the pressing process, creating a leak-free permanent connection. The function of the feature is to provide identification of connections which have not been pressed prior to putting the system in to operation. The function of the Smart Connect feature is carried out by pressurizing the piping system. The Smart Connect feature may be pressure tested with air or water
 - 3.5.1.1 When testing with air, the pressure range is ½ psi to 85 psi maximum.
 - 3.5.1.2 When testing with water, the pressure range is 15 psi to 85 psi maximum.
- 3.5.2 The Smart Connect feature test is not a substitute for local code required pressure testing of the piping system. Carry out the final piping system pressure test in accordance with local codes.

3.6 CLEANING (For potable water systems.)

- 3.6.1 Disinfection: The stainless steel hot and cold water distribution system shall be disinfected prior to being placed in service. The system shall be disinfected in accordance with AWWA C651 or the following requirements:
 - 3.6.1.1 The piping system shall be flushed with potable water until discolored water does not appear at any of the outlets.
 - 3.6.1.2 The system shall be filled with a water chlorine solution containing at least 50 parts per million of chlorine. The system shall be valved in the closed position and allowed to stand for 24 hours.
 - 3.6.1.3 Following the standing time, the system shall be flushed with water until the chlorine is purged from the system.

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