

## Engineering Specifications

# Viega MegaPress<sup>®</sup> FKM Fittings



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Viega products are designed to be installed by licensed and trained plumbing and mechanical professionals who are familiar with Viega products and their installation. **Installation by non-professionals may void Viega LLC's warranty.**

## Part 1: General

### 1.1 Summary

MegaPress FKM is a cold press mechanical joint fitting system utilizing standard Schedule 5 to Schedule 40 carbon steel pipe in sizes ½" to 4".

### 1.2 Definitions

ASME: American Society of Mechanical Engineers  
 ASTM: American Society for Testing and Materials  
 AWWA: American Water Works Association  
 CRN: Canadian Registration Number  
 CSA: Canadian Standards Association  
 FKM: Fluoroelastomer  
 FM: Factory Mutual  
 IACS: International Association of Classification Societies  
 IAPMO: International Association of Plumbing & Mechanical Officials  
 ICC: International Code Council  
 MSS: Manufacturers Standardization Society  
 NACE International: National Association of Corrosion Engineers  
 NFPA: National Fire Protection Association  
 UL: Underwriters Laboratory

### 1.3 References

ANSI/CAN/UL 213 Rubber gasketed fittings for fire protection service  
 ASME A13.1 Scheme for the Identification of Piping Systems  
 ASME B1.20.1 Pipe Threads, General Purpose (inch)  
 ASME B16.3 Malleable Iron Threaded Fittings  
 ASME B16.9 Factory Made Wrought Steel Butt Welding Fittings  
 ASME B31.1 Power Piping  
 ASME B31.3 Process Piping  
 ASME B31.9 Building Piping Systems  
 ASME B36.10 Welded and Seamless Wrought Steel Pipe

ASTM A53 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless Pipe  
 ASTM A106 Specification for Seamless Carbon Steel Pipe - High Temperature Service  
 ASTM A135 Specification for Electric-Resistance-Welded Steel Pipe  
 ASTM A420 Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low Temperature Service  
 ASTM A795 Specification for Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Fire Protection Use  
 ASTM D2000 Classification System for Rubber Products in Automotive Applications  
 ASTM F1476 Performance of Gasketed Mechanical Couplings for Use in Piping Applications  
 ASTM F3226 Standard specification for metallic press-connect fittings for piping and tubing systems  
 AWWAC651 Standard for Disinfecting Water Mains  
 FM Class 1920 Pipe coupling and fittings for aboveground fire protection systems  
 IACS Requirements concerning Pipes And Pressure Vessels  
 IAPMO Uniform Mechanical Code  
 IAPMO Uniform Plumbing Code  
 IAPMO Z1117 Press and Nail Connections  
 ICC International Mechanical Code  
 ICC International Plumbing Code  
 MSS SP 58 Pipe Hangers and Supports Materials, Design and Manufacturer  
 NACE RP 0169 Control of External Corrosion on Underground or Submerged Metallic Piping Systems  
 NFPA13 Standard for the Installation of Sprinkler Systems  
 NFPA13D Standard for the Installation of Sprinkler Systems in One/Two Family Dwellings and Mobile Homes  
 NFPA13R Standard for the Installation of Sprinkler Systems for Residential Occupancies up to and including Four Stories in Height  
 NFPA14 Standard for the Installation of Standpipe and Hose Systems

#### 1.4 Quality Assurance

- A. Installer shall be qualified, licensed within the jurisdiction, and familiar with the installation of cold press mechanical joint systems.
- B. MegaPress press fittings shall be installed using the proper tool, actuator, jaws and rings as instructed by the press fitting manufacturer.
- C. The installation of carbon steel pipe in sprinkler or standpipe systems shall conform to NFPA13, 13D, 13R and 14.
- D. The installation of carbon steel pipe in hydronic systems shall conform to the requirements of the ICC International Mechanical Code or the IAPMO Uniform Mechanical Code.
- E. Compliance to ASME B31.9 for building services piping.

#### 1.5 Delivery, Storage and Handling

- A. Carbon steel pipe shall be shipped to the job site in such a manner to protect the pipe. The pipe and fittings shall not be roughly handled during shipment. Pipe and fittings shall be unloaded with reasonable care.
- B. Protect the stored product from moisture and dirt. Elevate above grade. When stored inside, do not exceed the structural capacity of the floor.
- C. Protect fittings and piping specialties from moisture and dirt.

#### 1.6 Project Conditions

Verify length of pipe required by field measurements.

#### 1.7 Warranty

- A. Viega LLC (Viega) warrants to end users, installers and distribution houses that its Viega metal press products (MegaPress) when properly installed shall be free from failure caused by manufacturing defects. Refer to Viega warranties for specific information.
- B. Viega LLC (Viega) manufacturer of the fittings shall not be responsible for the improper use, handling or installation of the product.

## Part 2: Products

### 2.1 Manufacturer

Viega LLC  
 585 Interlocken Blvd.  
 Broomfield CO, 80021  
 Phone: (800) 976-9819  
 www.viega.us

### 2.2 Material

- A. Pipe: Carbon steel pipe shall conform to ASTM A53, A106, A135 or A795. Pipe schedule (pipe wall thickness) shall conform to the standard referenced dimensions for Schedule 5 to 40.
- B. Fittings: Cold Press Mechanical Joint Fitting shall conform to material requirements of ASTM A420 or ASME B16.3 and performance criteria of IAPMO Z1117 and ASTM F3226. Sealing elements for press fittings shall be FKM. Sealing elements shall be factory installed or an alternative supplied by fitting manufacturer. Press ends shall have Smart Connect® technology design. MegaPress fittings with the Smart Connect technology assure leakage of liquids and/or gases from inside the system past the sealing element of an unpressed connection. The function of this technology is to provide the installer quick and easy identification of connections which have not been pressed prior to putting the system into operation.
- C. Pipe Thread: Pipe Threads shall conform to ASTM B16.3.
- D. Hangers and supports: Hangers and supports shall conform to MSS SP 58.
- E. Hanger spacing: In accordance with ASME B 31.1, NFPA54, UPC, IMC other National or local codes.

### 2.3 Source Quality Control

- A. Fittings shall be listed & approved for their intended application.
- B. All fittings used in Fire Sprinkler Applications shall be UL or FM listed.

## Part 3: Execution

### 3.1 Examination

- A. The installing contractor shall examine the pipe and fittings for defects, sand holes or cracks. There shall be no defects of the pipe or fittings. Any damaged pipe or fittings shall be rejected.
- B. The installing contractor shall insure that internal components of the cold press mechanical joint press fitting are properly in place and free from damage. This is to include sealing elements, grip ring & separator rings.

### 3.2 Preparation

- A. Carbon steel pipe shall be cut with an approved pipe cutting tool. The pipe shall be cut square to permit proper joining with the fittings.
- B. Remove scale, slag, dirt and debris from inside and outside of pipe and fittings before assembly. The protective coating shall be removed from the outside of the pipe end and 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

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.

### 3.4 Installation

- A. Pressure ratings: Components shall have a pressure rating equal to or greater than the system operating pressure.
- B. Install piping free of sags, bends and kinks.
- C. Change of Direction: Fittings shall be used for changes in direction and branch connections.
- D. 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.
- E. Press Fittings: MegaPress FKM cold press mechanical joint fittings shall be installed in accordance with the manufacturer's installation instructions. The protective corrosion coating shall be removed from the outside of the pipe end. 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(s) approved by the manufacturer.
- F. Pipe Protection: Pipe shall be protected against abrasion where pipe is in contact with other building members by an approved tape, pipe insulation or otherwise suitable method of isolation.
- G. Penetration Protection: Provide allowance for thermal expansion and contraction of 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 for fire resistant rated assemblies shall maintain the rating of the assembly.
- H. Backfill Material: Backfill material shall not include any ashes, cinders, refuse, stones, boulders or other materials which can damage or break the piping or promote corrosive action in any trench or excavation in which piping is installed.
- I. Horizontal Support: Install hangers for horizontal piping in accordance with MSS SP 58.
- J. Vertical Support: Pipe shall be supported at each floor.
- K. Galvanic Corrosion: Hangers and supports shall be applicable to prevent galvanic corrosion between the system and the supporting members.
- L. Seismic Restraint: In areas where seismic conditions exist, the system shall be installed per the applicable seismic recommendations.
- M. Pipe Identification: Systems shall be identified in accordance with the requirements of ASME A13.1.

### 3.5 Field Quality Control

- A. All piping systems shall be tested per applicable local codes for joint tightness & leak detection prior to being placed in service.
- B. Water Testing: The piping system shall be water tested for joint tightness. The piping system shall be filled with water. The system shall be pressurized to the maximum pressure and length of time required by the code or standard. The system shall have no leaks at the rated pressure.
- C. Air Testing: The piping system shall be air tested for joint tightness. The piping system shall be pressurized with air to the maximum pressure of the system or to the code or standard required minimum for the required length of time. The system shall have no leaks at the rated pressure.