

**ROGERS WATER UTILITIES SEWER SYSTEM
ROGERS, ARKANSAS**

**SPECIFICATIONS FOR PVC
FORCE MAIN, DUCTILE IRON
FORCE MAIN AND FITTINGS
REVISED DECEMBER 2004**

1. **SCOPE**

This specification covers 4 in., 6 in, 8 in., 10 in. and 12 in. in diameter force mains for the transportation of sanitary sewer from lift stations. 4 inch and 6 inch in diameter force mains shall be constructed of PVC pipe. 8 inch and 12 inch in diameter force mains shall be constructed of ductile iron pipe.

2. **GENERAL REQUIREMENTS OF PVC FORCE MAIN PIPE**

- a. This specification covers force main pipe, 4 inch and 6 inch in sizes. The force main pipe shall conform to all the minimum requirements of AWWA C900 and have a cell classification of 12454B as defined in Specifications ASTM D1784.
- b. The force main pipe shall have a minimum Dimension Ratio (DR) of 18 (Class 150).
- c. The force main pipe shall meet all test requirements as described in AWWA C900.
- d. All joints shall be push-on conforming to ASTM D3139. All gaskets shall be a lock-in elastomeric rubber (at point of manufacture) and conforming to ASTM F477.
- e. Each length of pipe furnished shall bear all identification markings as specified in Section 2.6 of AWWA C900.
- f. Lubricant furnished for lubricant joints shall be as recommended by the manufacturer. The lubricant container must be labeled with the manufacturer's name.

2. **GENERAL REQUIREMENTS OF DUCTILE IRON FORCE MAIN PIPE**

- a. This specification covers force main pipe, 8 inch, 10 inch and 12 inch in size. The force main pipe shall be Class 50 or greater ductile iron pipe and conform to all requirements of AWWA/ANSI C151/A21.51 and ASTM A377.

PVC FORCE MAIN,
DUCTILE-IRON FORCE MAIN
AND FITTINGS
03-03 SPECIFICATIONS

- b. Dimension and tolerance for each nominal pipe size shall be in accordance with Table 51.5 (push-on) or Table 51.5 (mechanical joint) of AWWA Standard C151 for pipe with nominal laying length of 20 feet.
- c. Flanged end pipe shall conform to ANSI A21.51/AWWA C115.
- d. All pipes shall have a ceramic polymeric interior lining of 40 mils (nominal thickness) and must conform to the specifications of Protecto 401. Interior lining of calcium aluminate cement mortar is not allowed in force main applications.
- e. Exterior coating of pipe shall consist of a nominal one-mil thick asphaltic material applied to the outside of the pipe as described in section 51.8.1 of AWWA C151.
- f. All rubber joint gaskets utilized on ductile iron pipe shall be conformance with ANSI A21.11/AWWA C111, latest revision.
- g. Each length of pipe furnished shall bear identification markings OF “DI”, “Ductile” and “Sewer Use”.
- h. Lubricant furnished for lubricant joints shall be non-toxic and shall conform to ANSI 21.11. The lubricant container must be labeled with the manufacturer’s name.

3. **GENERAL REQUIREMENTS FOR DUCTILE IRON FITTINGS**

- a. This specification covers fittings, 4 in., 6 in., 8 in. and 12 inch in sizes.
- b. Mechanical joint fittings shall be manufactured in accordance of ANSI A21.53/AWWA C153 (compact body).
- c. Couplings shall be made of ductile iron (full body) with mechanical joint (MJ) ends. Coupling shall conform to ANSI/AWWA C110/A21.10 and ANSI/AWWA C111/A21.11.
- d. Flanged fittings shall be manufactured in accordance of ANSI A21.10/AWWA C110 and have 150 lb. Flanges. Flanges shall be faced and drilled in accordance with ANSI Specification B16.1, Class 125.
- e. All fittings and couplings shall have a ceramic polymeric interior lining of 40 mils (nominal thickness) and must conform to the specifications of Protecto 401. Interior lining of calcium aluminate cement mortar is not allowed in force main applications.

**PVC FORCE MAIN,
DUCTILE-IRON FORCE MAIN
AND FITTINGS
03-03 SPECIFICATIONS**

- f. Exterior coating of fittings and couplings shall consist of a nominal one-mil thick asphaltic material applied to the outside of the fitting as described in section 51.8.1 of AWWA C151.
- g. All rubber joint gaskets utilized on ductile iron fitting shall be conformance with ANSI A21.11/AWWA C111, latest revision.
- h. Each fitting shall bear identification markings of “DI”, “Ductile” and “Sewer Use”.
- i. Lubricant furnished for lubricant joints shall be non-toxic and shall conform to ANSI 21.11. The lubricant container must be labeled with the manufacturer’s name.
- j. Retainer glands shall be utilized on all mechanical joint fittings. Retainer glands shall conform to 02-08 of Joint Restraint Systems of this specification. Retainer glands that are manufactured by EBBA, Inc. are approved for use on PVC force main pipe.

4. QUALITY ASSURANCE

- a. The Rogers Water Utilities may, at no cost to the manufacturer, subject random force main pipe and fittings to testing by an independent laboratory for compliance with these standards. Any visible defect or failure to meet the quality standards herein will be grounds for rejecting.
- b. All force main pipe and fittings shall be domestically manufactured.

The following manufactures are approved for force main pipe and fittings.

APPROVED PVC FORCE MAIN PIPE MANUFACTURERS LIST

Johns Mansfield (J-M Pipe) Company
Certain Teed Corporation
North American Pipe Corporation
Diamond Plastics Corporation
Jet Stream Plastic Pipe Co.

PVC FORCE MAIN,
DUCTILE-IRON FORCE MAIN
AND FITTINGS
03-03 SPECIFICATIONS

APPROVED DUCTILE IRON FORCE MAIN PIPE
MANUFACTURERS LIST

American Cast Iron Pipe Company	Protecto 401
U.S. Pipe Company	Protecto 401
McWane, Inc.	Protecto 401

APPROVED DUCTILE IRON FORCE MAIN FITTING
MANUFACTURERS LIST

American Cast Iron Pipe Company	Protecto 401
U.S. Pipe Company	Protecto 401
Tyler Pipe Company	Protecto 401

Previous Specifications
April 16, 1997