

SECTION 40 27 00.21 HIGH DENSITY POLYETHYLENE (HDPE) PRESSURE PIPE AND FITTINGS		
Item	Size	Description
General	All	Physical Characteristics: High Density Polyethylene (HDPE) pipe and fittings, ultraviolet (UV) protection 2% carbon black. Functional Characteristics: Service Flow Streams on Piping Schedule as shown on the Drawings. Performance Characteristics: Materials in contact with potable water shall conform to NSF 61 acceptance.
Tubing	3/4-inch through 3-inch	Physical Characteristics: Shall meet the requirements of AWWA C901 and ASTM D3350, material designation code PE 4710, cell classification of 445474C. Functional Characteristics: Iron Pipe Size (IPS). Dimension Ratio (DR) 9. Performance Characteristics: Pressure rated 250 psi when tested to 1600 psi at 73.4 degrees Fahrenheit per ASTM 2837.
Pipe	4-inch and Larger	Physical Characteristics: Shall meet the requirements of AWWA C906 and ASTM D3350, material designation code PE 4710, cell classification of 445474C. Functional Characteristics: Iron Pipe Size (IPS). Dimension Ratio (DR) 9, unless otherwise indicated on the Piping Schedule on the Drawings. Performance Characteristics: Pressure rated 250 psi when tested to 1,600 psi at 73.4 degrees F per ASTM 2837.

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Fittings	All	Physical Characteristics: Shall meet or exceed the requirements of adjoining pipe or tubing. Nominal sizes less than 8 inch shall be injection molded. Nominal sizes 8 inch or larger shall be thermal butt-fused, electrofusion welded. Functional Characteristics: Iron Pipe Size (IPS). Dimension Ratio (DR) 9, unless otherwise as required to meet or exceed pressure rating for given DR of adjoining pipe or tubing. Performance Characteristics: Pressure rated 250 psi minimum, same or higher than adjoining pipe or tubing, when tested to 1,600 psi at 73.4 degrees F per ASTM 2837.

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Joints	All	Physical Characteristics: Shall meet or exceed the requirements of adjoining pipe or tubing. Nominal sizes less than 8 inch shall be injection molded. Nominal sizes 8 inch or larger shall be thermal butt-fused, electrofusion welded. Joint Couplings: Nitrile gaskets, Type 316 stainless steel retaining rings, ductile iron housing (ASTM A536, 65-45-12), housing coated with fusion bonded epoxy. Functional Characteristics: Iron Pipe Size (IPS). Dimension Ratio (DR) 9, unless otherwise as required to meet or exceed pressure rating for given DR of adjoining pipe or tubing. Restrained Joint Couplings: Join plain ends HPDE pipe by means of restraint device. Performance Characteristics: Butt Fusion: Temperatures, times, and pressures of fusion shall be according to the manufacturer. Pipe joining equipment shall be provided by the pipe and fitting manufacturer.
Flanges	All	Physical Characteristics: Shall meet or exceed the requirements of adjoining pipe or tubing. Functional Characteristics: Iron Pipe Size (IPS). Dimension Ratio (DR) 9, unless otherwise as required to meet or exceed pressure rating for given DR of adjoining pipe or tubing. Performance Characteristics: Stub end and polyethylene coated steel backing ring with ASME B16.5, Class 150 bolt pattern. Follow manufacturer's torque and tightening procedures.

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Bolting	All	Physical Characteristics: ASTM A193/A193M, Type 316 stainless steel Grade B8M heavy hex head or stud bolts and ASTM A194/A194M, Grade 8M heavy hex head nuts. Functional Characteristics: As required for adjoining fittings. Performance Characteristics: Torque bolts per gasket and flange manufacturer recommendations. Stud bolts are not allowed when bolting to tapped flanges.
Gaskets	All	Physical Characteristics: ASME B16.5, Class 150 dimensions, and shall have two concentric, convex, molded rings between center hole and bolt hole circle in flange. Functional Characteristics: Full face gaskets. Performance Characteristics: Low torque.

END OF SECTION