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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | June 25, 2014 | First draft review comments (AV) |
| 3 | June 8, 2015 | Second Draft for Review (AV) |
| **4** | **September 16, 2015** | **Updated, Finalized Specification – Reference eDOCS #5823649-v4 (AV)** |
| 5 | May 18, 2017 | Updated Reference Standards ASTM A193/A193M-16, ASTM A194/A194M-17, ASTM A351/A351M-16, ASTM D3261-16, ASME B16.1-2015 (AAM) |
| 6 | August 15, 2017 | Removal of specified products (CPD PMO, OMM) |

NOTE:

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**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

## References

### American Society for Testing Materials (ASTM)

#### ASTM A193/A193M-16, [Standard](http://www.astm.org/Standards/D2855.htm) Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications

#### ASTM A194/A194M-17, Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High temperature Service, or Both

#### ASTM A351/A351M-16, Standard Specification for Castings, Austenitic, For Pressure-Containing Parts

#### ASTM D3261-16, Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing

#### [ASTM D3350-14, Standard Specification for Polyethylene Plastics Pipe and Fittings](http://www.astm.org/Standards/D2665.htm) Materials

#### ASTM F714-13, Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

### Plastic Pipe Institute (PPI)

#### PPI PE 3408, pipe material designation

### American Water Works Association (AWWA)

#### AWWA C207-13, Steel Pipe Flanges for Waterworks Service, Sizes 4 In. Through 144 In. (100 mm Through 3,600 mm)

### American Society of Mechanical Engineers (ASME)

#### ASME B16.1-2015, Gray Iron pipe Flanges and Flanged Fittings

#### ASME B16.5-2013, Pipe Flanges and Flanged Fittings: NPS 1/2 through NPS 24 Metric/Inch Standard

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| Item | Size | Description |
| General | All | Pipe lengths, fittings, and flanged connections to be joined by thermal butt-fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier. |
| Pipe | 12 mm to 100 mm | 1. ASTM D3350-14, high-density polyethylene, maximum allowable hoop stress 11032 kPa at 23 degrees Celsius. 2. Polyethylene resins shall conform to Type PE 3408 or better. 3. Protection shall be provided against ultraviolet light degradation using carbon black, a minimum of 2 percent well dispersed in the resin. 4. Pipe wall thickness shall reflect the required SDR\* and diameter, as shown in Table 8, ASTM F714-13. 5. Design Stress Rating: ASTM F714-13, 11,032 kPa hydrostatic. 6. Pressure Rating: 160; SDR\*11   \*SDR: standard dimension ratio = OD/thickness |
| Fittings | 100 mm and smaller | Molded fittings, butt fusion joined, conforming to the requirements of ASTM D3261-16. |
| Flanges | All | 1. Van Stone type, cast ASTM A351/A351M-16, Type 316 stainless steel backing ring. 2. Bolting in accordance ANSI B16.1-2015, Class 125; ANSI B16.5-2013, Class 150; and AWWA C207-13, Class E. 3. Pressure performance of the backing ring equal to SDR rating of the pipe with safety factor of two. 4. Stub ends shall be the same grade HDPE and pressure rating as pipe. |
| Bolting | All | 1. Stainless steel, ASTM A193/A193M-16 Grade B8M studs and ASTM A194/A194M-17 Grade 8M hex head nuts. 2. Washers shall be the same material as bolts. |
| Gaskets |  | Flat ring, 1/8-inch ethylene propylene rubber (EPR). |

**END OF SECTION**