



## **Suggested Specifications for AVK Series 66 Gate Valves in Polyethylene Piping Systems**

Specification for Gate Valves in Polyethylene Pipelines  
Resilient Seated Gate Valves for PE Pipelines, Potable Water Applications

### 1. General

- A. The valve shall be a ductile iron body, bonnet, gland flange, and wrenchnut, non-rising stem, open left, resilient seated, with AWWA standard 2" square operating nut and shall be protectively epoxy coated inside and outside as specified.
- B. Where applicable, valves shall comply with the AWWA C515 standard except where modified and/or augmented in these specifications.
- C. All bolting shall be stainless steel AISI grade 304. If nuts are used on the bolts the nuts shall be 304 stainless steel and the bolt threads shall be coated with an anti-galling compound. Bonnet bolting shall thread directly into the valve body. The head of each bonnet bolt shall be recessed in an iron pocket within the bonnet casting that is filled with hotmelt to prevent external water from touching the bolts.

### 2. Resilient gate

- A. The valve gate shall be ductile iron, fully encapsulated with EPDM rubber, and shall be capable of a drip-tight shutoff with flow in either direction.
- B. The EPDM resilient rubber material shall be permanently vulcanized to the gate.

### 3. Stems

- A. Valve stems shall be made of stainless steel or bronze with a minimum yield strength of 40,000psi.
- B. Stems shall be provided with separate or integral bronze thrust collars.
- C. Bronze valve stems shall contain no more than 2% zinc, no more than 2% aluminum, and no more than 0.09% lead.
- D. Stainless steel stems shall contain a minimum of 16% chrome and no more than 0.25% carbon.

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#### 4. Seals and Gaskets

- A. Valve stem seals shall be an o-ring type with not less than one o-ring below the thrust collars and two o-rings above the thrust collars.
- B. If an o-ring groove is cut into the stem the diameter of the groove shall not be less than the root diameter of the stem threads.
- C. O-rings and gaskets shall be made of an NBR rubber to help prevent the effects of permeation.
- D. Bonnet gaskets shall be an o-ring type that completely encircle each individual bonnet bolt so that the bolts are isolated from internal or external water sources. Bonnet gaskets shall be made of an NBR rubber to help prevent the effects of permeation.

#### 5. Protective Coatings

- A. The exposed ferrous surfaces shall be coated with a fusion bonded epoxy that shall be certified to the NSF 61 standard.
- B. The valve shall be epoxy coated inside and outside to meet the requirements of AWWA C550.

#### 6. End Connections

- A. The end connections of the valve body shall be a male barbed spigot.
- B. The polyethylene pipe shall be pressed onto the barbed spigot and secured in place with a steel compression sleeve that locks the pipe to the barbed spigot.
- C. The internal diameter of the steel compression sleeve shall be machined to match the compression requirements for the specified SDR of the pipe stub.
- D. After installation the steel compression sleeve shall be covered with a “heat activated shrink tube”, that is equipped with a heat activated inner adhesive coating, to prevent corrosion.
- E. The assembled valve-to-pipe-stub connection shall be capable of withstanding an internal pressure that is, at a minimum, equal to twice the rated working pressure of the installed PE pipe without any signs of deformation, loosening or leakage.

#### 7. Polyethylene Pipe Stubs

- A. The polyethylene (PE) pipe stub installed on the valve shall be XXX (DI or IPS) sized, with a SDR XX wall thickness.
- B. The PE pipe stub attached to the gate valve shall be made of (HDPE) PE3408 or PE4710 material according to ASTM D3350, certified to the NSF 61 standard, and meet the requirements of AWWA C901 or C906.
- C. The PE pipe stub shall contain a minimum 2% carbon black to protect against ultraviolet degradation during storage. Colored stripes are allowed on the pipe exterior for identification purposes. The pipe stub shall be installed onto the barbed spigot of the valve body so that one

stripe, or the identification text printed on the pipe, is located at the 12 o'clock position. This is to ensure vertical alignment with other valves mounted on the same pipeline.

- D. Scratches or gouges in the PE pipe surface that are more than 10% of the wall thickness in depth shall result in rejection of the valve.