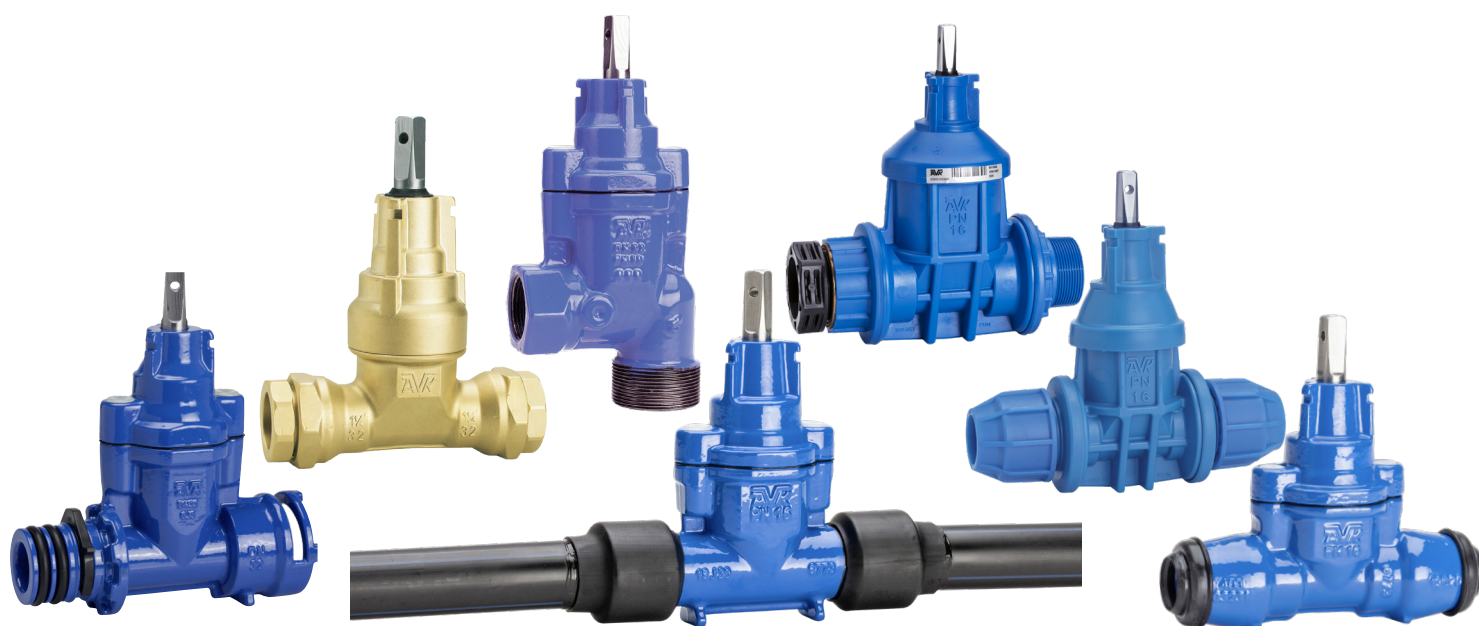




Installation, operation & maintenance manual - original version

AVK service connection valves for water and wastewater
Series 03, 103, 11, 16 and 36



Expect... **AVR**

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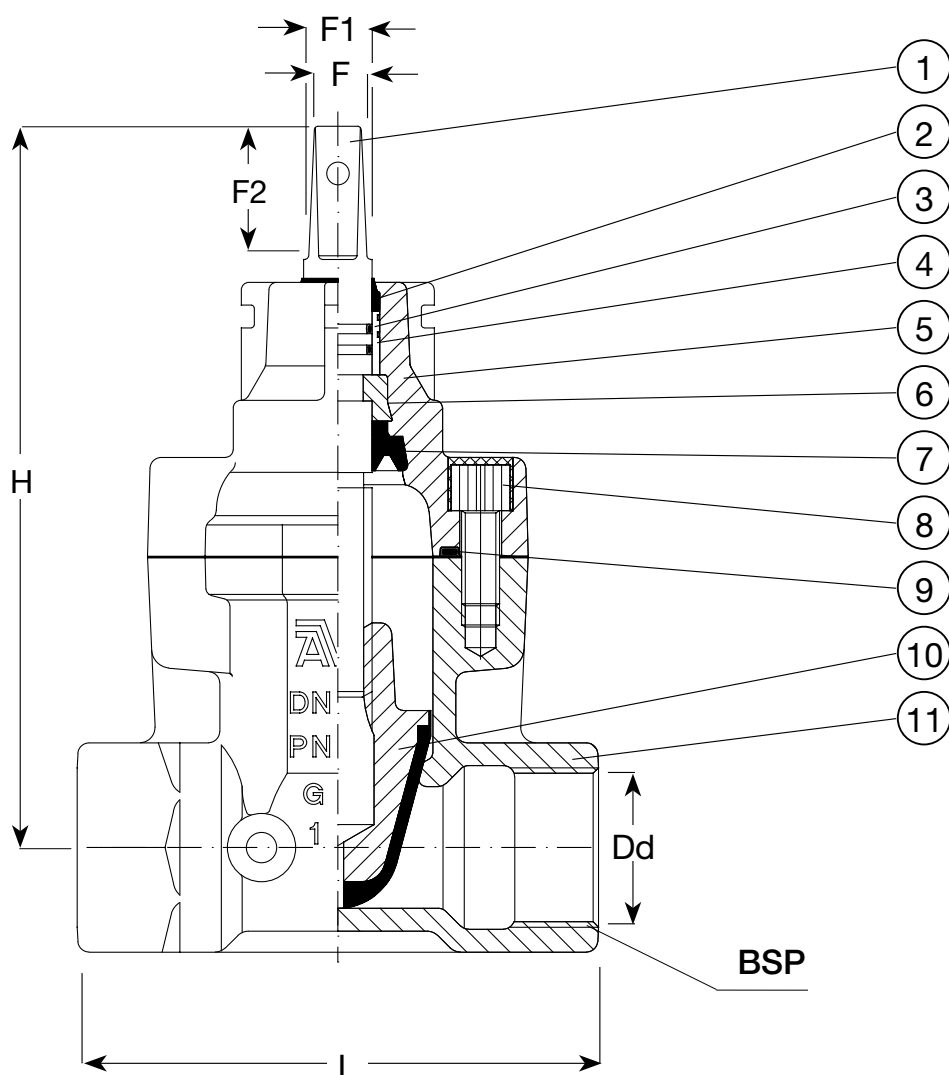
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2. AVK series 03/00 drawing and parts list



1. Stem	Stainless steel 1.4104 (430F)
2. Wiper ring	NBR rubber
3. O-ring	NBR rubber
4. Bearing	Polyamide
5. Bonnet	Ductile iron GJS-500-7 (GGG-50)
6. Thrust collar	Brass, DZR CW602N
7. Manchette	EPDM rubber
8. Bonnet bolt	Stainless steel A2, sealed with hot melt
9. Bonnet gasket	EPDM rubber
10. Wedge	Brass, DZR CW626N with EPDM
11. Body	Ductile iron GJS-500-7 (GGG-50)

4. Principle of operation

AVK service connection valves are designed for fully open or fully closed service installed in pipelines as isolating valves, and should not be used as control or regulating valves. The valves can be used for installation in potable water, wastewater, or neutral liquids depending on the specified application stated in the datasheet for the relevant product. Working conditions must be limited by temperature and pressure as stated in the datasheet. Normally work conditions are temperatures between -20 °C and +70 °C and up to 16 bar differential pressure.

AVK service connection valves may not be installed and used as anchor points, and should at all times be kept free from stress arising from the pipeline or installation.

Operation of the service connection valve is performed doing an either clockwise to close (CTC) or clockwise to open (CTO) rotating motion of the stem. When operating the service connection valve stem the wedge moves up- or downwards on the threaded part of the stem. AVK service connection valves are designed to be self-cleaning due to the full and straight bore. To get the full benefit of this AVK recommends to install the valve in upright position or in a 45 degree angle. Upside down installation is not recommended.

5. Health and safety at work

Make sure all relevant health and safety issues and regulations are adhered to prior to and during installation or maintenance work carried out on this product. It is the end users responsibility to ensure that safe working practices are followed at all times.

Whenever AVK's products are installed, operated or maintained the inherent dangers of pressurised liquids and gasses must be addressed. Before work on a valve or other piping component is undertaken, that may involve the release of internal pressure, the valve or line must be fully isolated, depressurised and drained prior to commencing the work. **FAILURE TO COMPLY WITH THIS MAY RESULT IN SEVERE INJURY OR DEATH.**

All workers handling the product must be aware of the weight of the components or assemblies to be handled and manipulated during installation and maintenance. It is essential that staff undertaking these operations are adequately trained and it is the responsibility of the end user that only trained and competent staff undertake these duties.

This manual has been designed to assist, but it cannot replace quality training in the workplace. However, AVK's technical staff are always available to answer questions related to specific problems that may not be covered by this manual.

AVK's products are designed to be fit for purpose and to a high reliability standard. This provides a safe, low risk product when used correctly for the purpose for which it has been designed. However, this assumes that the equipment is used and maintained in accordance with this manual, and the user is advised to study it and to make it available to all staff that may need to refer to it. AVK cannot be held responsible for incidents arising from incorrect installation, operation or maintenance. The responsibility for this rests entirely with the end user.

6. Receiving and storage

Unloading must be carried out carefully. The load must be put gently to the ground without dropping. Lift only by means of shackles in the flange bolt holes or slings around the body casting. If a forklift is used it shall have sufficient capacity to lift the required weight and have a valid inspection certificate.

All workers involved in the unloading shall be able to perform their functions. They shall wear safety boots, safety vest, safety goggles and hard hat.

All slings used for the lifting shall be of sufficient strength. A record shall document that they have been stored under cool, dry conditions away from sunlight and chemical atmosphere, and that they still perform according to their marked strength.

Immediately after unloading the item should be inspected for compliance with specifications and damage in shipment. Compliance with specification check shall as a minimum comprise size, pressure class, etc. Damage in shipment check shall as a minimum comprise: coating, seating and sealing surfaces etc. or accessories or any other evidence of mishandling during shipment. Each item should be operated through one complete open-close cycle in the position in which it is to be installed.

Storage shall be under dry, cool conditions, away from direct sunlight and corrosive or otherwise chemically active atmosphere. The valves must be stored in upright position and in an almost closed position to prevent long-term compression of the wedge rubber. Valves stored in cold storage must be protected against freezing. Series 36 service connection valves with PE pipe connection have to be stored and handled carefully to avoid damage of the pipe. According to EN12007-2 the storage time for PE pipes is maximum 2 years from the production date (printed on the pipe). Therefore, the "first in, first out" principle is recommended.

6.1 Product marking

Casting - valve side 1

- AVK logo
- Product dimension (DN) and/or pressure class (PN)
- Material / design standard

Label - valve side 1

- AVK logo or approval logo
- Item number
- Dimension / pressure class / coating
- Standard
- EAN number and barcode
- Casting material / rubber material
- Stem material
- Closing direction / application / temperature



Casting - valve side 2

- AVK logo
- Product dimension (DN) and/or pressure class (PN)
- Date/year of production

Label - valve side 2

- AVK logo
- Series number
- Item number
- Barcode
- Internal production order number
- Serial number
- Year of production



7. Installation and commissioning

WARNING: Prior to installation make sure that all pressurised lines involved in the installation are isolated, depressurised and drained before starting any work. Failure to do so may result in sudden pressure release and subsequent severe injury or death.

AVK service connection valves must be protected from damage during transportation, loading and handling. Never suspend the valve in a handwheel.

Before installation, a visual check must be performed. Special attention should be paid to checking the stem, valve seat area, connections and coating. Look for defects, bended or out of place parts, dents, scratches and other damages. Actions should be taken to repair or replace the valves if any defects are detected.

AVK service connection valves are supplied with a number of different connections to the pipeline. The use of threads, sockets, PE pipes ends or other type of connections, depends on customers' specifications. For all connection types correct craftsmanship must be applied.

During installation in the pipeline system care must be taken to ensure that the connection system of the pipeline getting in contact with the service connection valves are arranged parallel to each other and are exactly aligned to avoid any tension loads acting upon the valve body.

Service connection valves with PE pipe ends are to be installed either by means of appropriate welding or the use of a suitable coupling. For welding procedures please refer to the pipe manufacturers' specifications. For choice of coupling please consult an AVK representative.

For installation of specific type connections visit:
<https://www.avkvalves.eu/en/product-finder?page=1>

7.1 Pressure testing

After installation, perform a pressure test before the trench is closed. Secure the pipe and service connection valve against movement. If the pipeline and valve are tested with water prior to gas/air tests, ensure that the pipeline and valve are drained to prevent frost damage. AVK valves are designed to resist a test pressure of 1.5 x PN.

8. Operation and maintenance

8.1 Operation

Service connection valves in below ground installations are typically operated with an extension spindle. In manholes or in above ground installations handwheels may be used.

Ensure proper sizing of the handwheel and/or operating keys and extension spindles. Please refer to AVK datasheets for further information. When the valve is installed in a chamber with an extension spindle going to above ground level, ensure that no vertical force from the extension spindle presses down directly on the valve stem top. The extension spindle must be supported by wall mounts or similar to prevent vertical forces and thereby supporting the weight of the extension spindle.

Once the valve has reached its fully open position, it is recommended to turn the stem slightly towards the closing position in order to release any stress on the stem thread.

When closing the service connection valve ensure that the appropriate torque and number of turns are applied to the valve. See table 1.

Table 1

Valve dimension DN mm	Max. torques			
	Operating Torque Nm	Rupture Torque Nm	Free Torque Nm	Turns to open
25	40	200	3	7
32	45	200	3	9
40	50 ¹⁾ /40 ²⁾	200	4	11
50	50 ¹⁾ /40 ²⁾	200	4	14

1) Ductile iron series 03, brass series 16

2) POM Series 16

To maintain full functionality of the valve throughout the expected life time frequent operation of the valve is recommended. Depending on the media flowing through the valve, the frequency of operation may vary from once a year to several times per month.

8.2 Maintenance

WARNING: Prior to any maintenance work that requires disassembly make sure that the pressurised line involved is isolated, depressurised and drained before starting any disassembly. Failure to do so may result in sudden pressure release and subsequent severe injury or death.

9. Recommended spare parts

As the service connection valves is designed for installation directly in the ground, it is designed to be maintenance-free throughout the expected life time of the valve. Thus spare parts are not needed and repair of the valve in case of malfunction is not intended.

In cases where spare parts are needed for maintenance or repair, only genuine AVK spare parts should be used. AVK accepts no responsibility for damage caused by failing non-AVK parts.