



## SERIES 36/81 GATE VALVE WITH PE PIPES INSTALLATION, OPERATION & MAINTENANCE MANUAL



### Instruction for use

Thank you for selecting an AVK product. With correct use, it will give long and reliable service. This manual has been prepared to assist you install, operate and maintain the valve to the maximum efficiency. For ease of reference, it has been divided into sections covering all aspects of use, and it is in the users best interests to read it and ensure that it is fully understood.



### Health and Safety

It is always recommended that wherever work is being carried out on a valve that the valve is fully depressurised prior to carrying it out, and for the convenience draining of the line may be beneficial.

It is essential that the user of the valve is aware of the weight of the components and/or assemblies that must be handled and manipulated during installation and maintenance. It is the users responsibility to ensure that safe working practices are followed at all times.

Whenever AVK products are installed, operated, or maintained, it is essential that the staff that undertake these operations be adequately trained. The hazards of pressurised liquids and gases can be severe, and it is the responsibility of the users to ensure that trained, competent staff undertake these duties. This manual has been designed to assist, but it can never fully replace quality training in the workplace. AVK technical staff will always be available to answer any questions relating to specific problems that may not be covered by this manual.

AVK products are designed and manufactured to be fit for purpose, and to a high and reliable standard. This provides a safe product with minimum risk to health when used correctly for the purpose for which it was designed. However, this assumes that the equipment is used and maintained in accordance with the manual, and the user is advised to study this manual, and to make it available to all staff that may need to refer to it.

AVK cannot be held responsible for any incidents arising from incorrect installation, operation or maintenance. The responsibility for this must rest wholly with the user.

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## 1. Introduction

AVK series 36 gate valves are available in DN65 to DN300. The valve has a full and straight bore corresponding to the nominal diameter and can be installed independent of the flow direction. To keep the advantage of the full and straight bore vertical installation is recommended, however, flow/pressure limitations outlined below should be observed.

The valves are 100% factory tested hydrostatically.

**IT IS IMPORTANT TO STATE OPERATING TEMPERATURE, PRESSURE, MEDIUM AND OPERATING CONDITIONS WITH ENQUIRIES/ORDERS, SO THE MOST SUITABLE VALVE WILL BE SUPPLIED FOR YOUR SPECIFIC PURPOSE.**

### Materials:

**Castings (body, bonnet & stem cap)**  
Ductile Iron

**Coating**  
Fusion bonded epoxy (FBE)

**Stem & bonnet bolts**  
Stainless Steel

**Wedge**  
Ductile Iron, with EPDM rubber

**Sleeve**  
Stainless Steel

**Pipes**  
PE

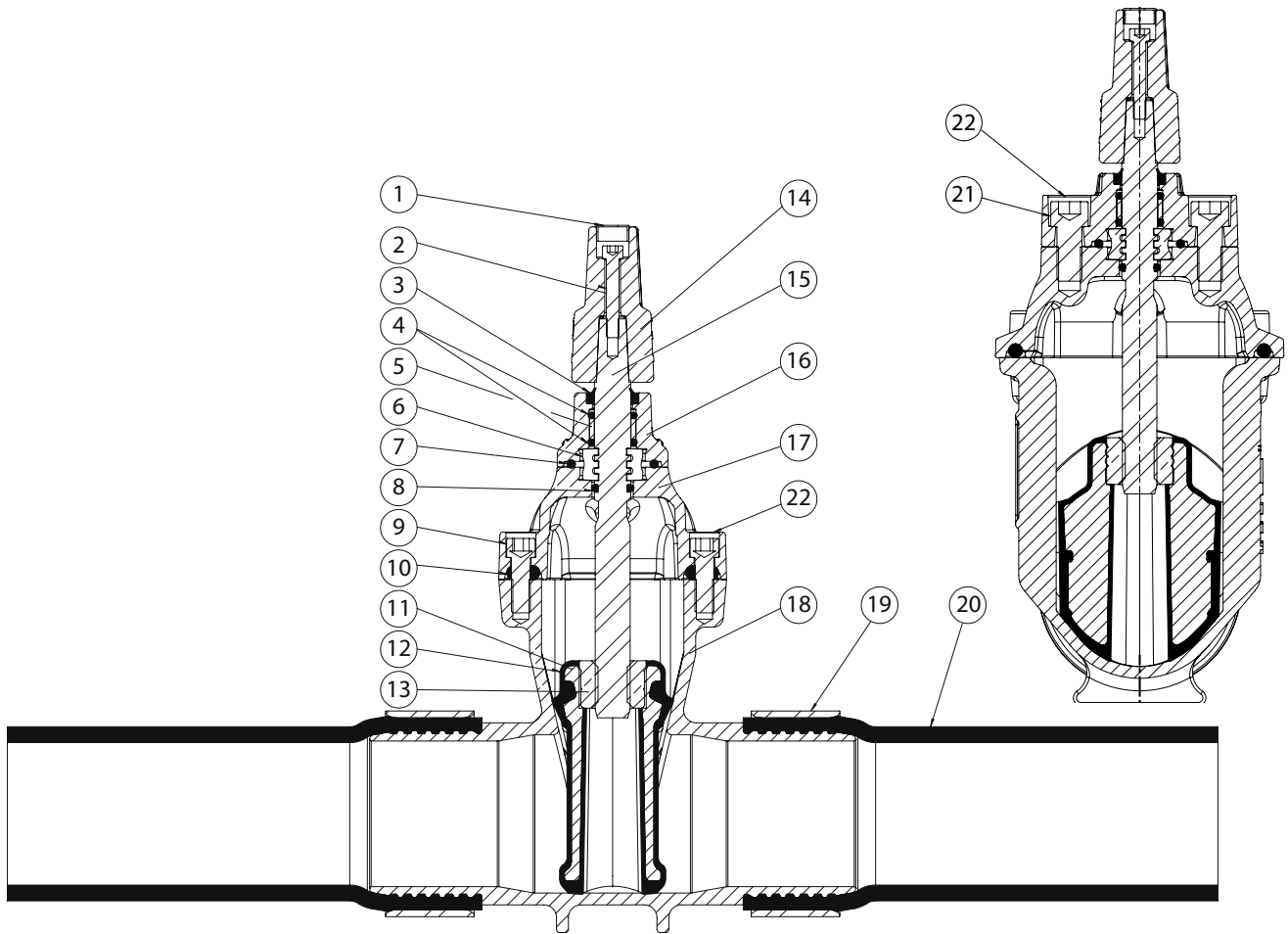
Refer to datasheets for specific information



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## Component list

1. Insert	7. O-ring	13. Wedge nut	19. Sleeve
2. Bolt	8. O-ring	14. Stem cap	20. Pipe
3. Wiper ring	9. Bonnet bolt	15. Stem	21. Gland flange bolt
4. O-ring	10. Bonnet gasket	16. Gland flange	22. Hot melt
5. Bushing	11. Wedge	17. Bonnet	
6. Thrust collar	12. Wedge rubber	18. Body	



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## **2. Installation**

- When installing valves, ensure that the seats and the pipe ends are clean.
- When valves are provided with lifting lugs, plates or eye nuts, these must be used to lift the valve.
- Refer to pipe, welding equipment or fusion coupling installation and operation manual for connection of PE tails.

## **3. Operation**

Series 36 valves are suitable for use with clean water or neutral liquids up to 70°C. Note: Always observe pipe material recommended operating temperatures. Minimum liquid temperature must be above freezing. Insulation is essential for external temperatures on 0°C to - 10°C. The valves can be operated manually by either ring key and bar, tee key, handwheel, gearbox or electric actuation. Direction of closing is on top of the gland flange (16).

## **4. Maintenance**

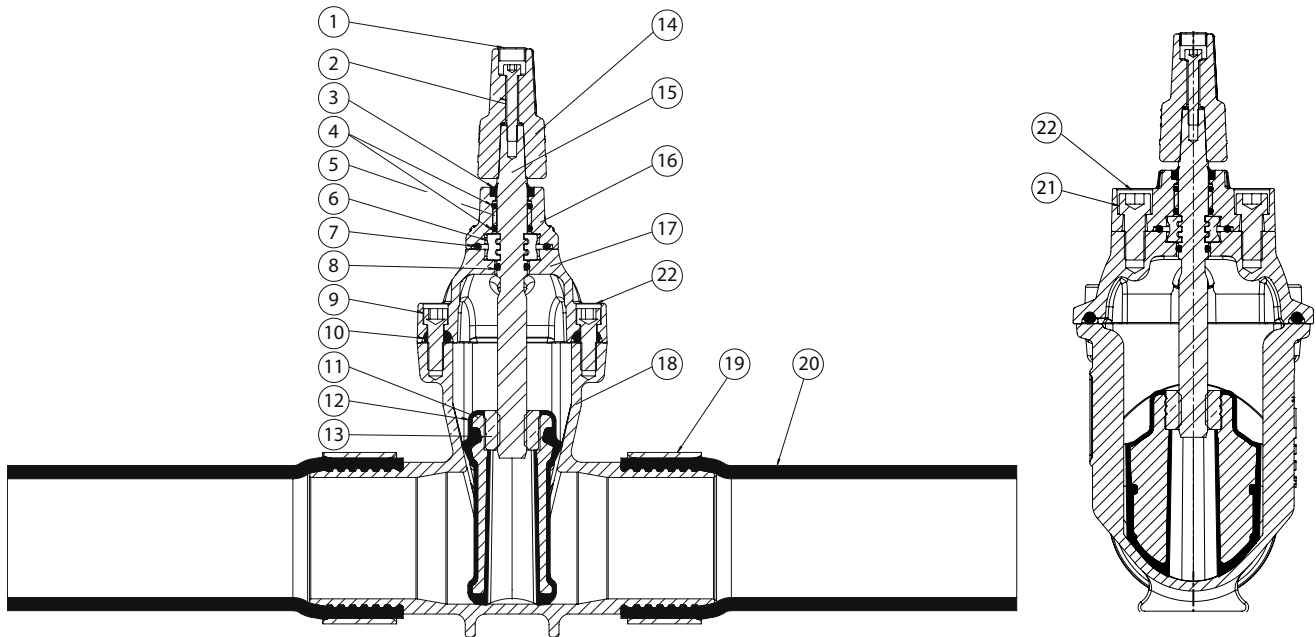
### **4.1. General**

The valve is designed for underground use with minimum maintenance and requires no lubrication.

In the event of a spares replacement becoming necessary the recommended procedure is as follows.

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### 4.2 Replacement of Stem Seals



This can be carried out with valve under pressure in the pipeline, but take care over step 'a' to ensure a seal is formed between wedge and bonnet.

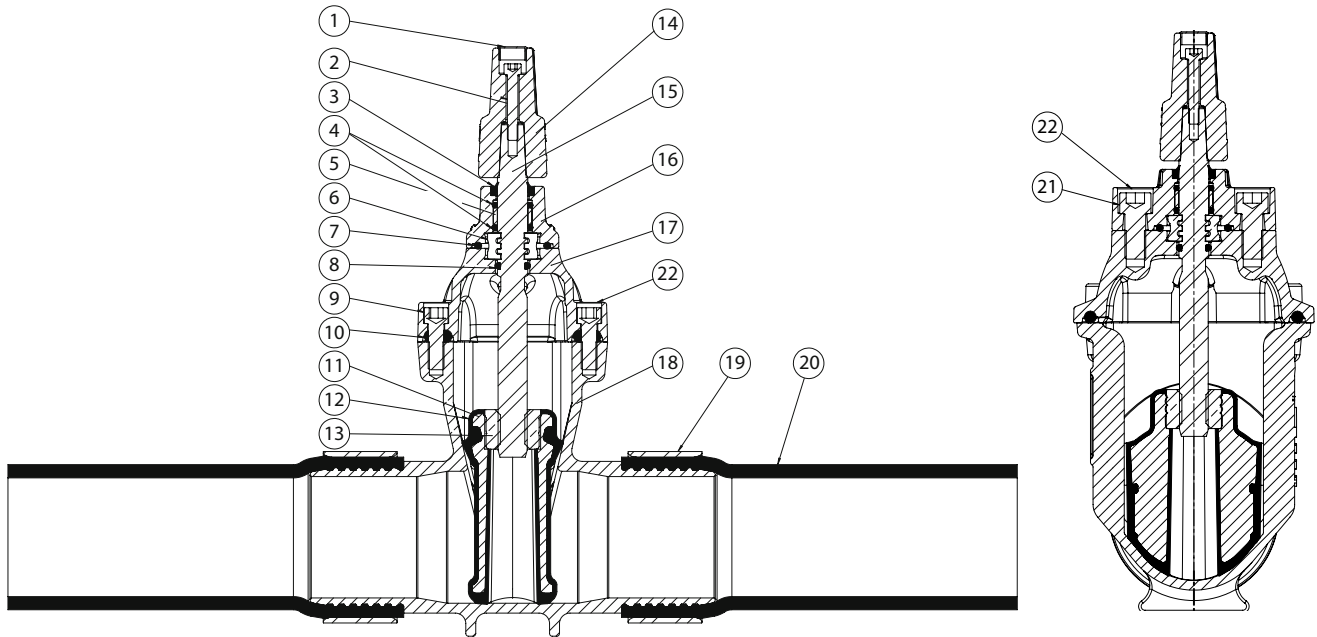
- a) Fully open valve to ensure it is back-seated.
- b) In the case of a stem cap being fitted carefully prise out plastic insert (1). Remove stem cap bolt (2) and stem cap (14).
- c) Remove 2 gland flange bolts (21) on top of gland flange (16).
- d) Gland flange (16) can now be lifted clear of stem (15) allowing access to the stem sealing arrangement. Lift clear of stem and replace the 2 'O' Rings (4). Refit bushing (5) on stem taking care not to nip or tear the new 'O' Rings.
- e) Refit gland flange (16) with a new gland flange 'O' Ring (7) and tighten the 2 gland flange bolts (21) using a torque wrench set at 35 Nm.
- f) Refit stem cap assembly i.e. (1) (2) (14).
- g) Close wedge by a few turns and check the integrity of the new seal arrangement.

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## 4.3 Replacement of Wedge

### Component list

1. Insert	7. O-ring	13. Wedge nut	19. Sleeve
2. Bolt	8. O-ring	14. Stem cap	20. Pipe
3. Wiper ring	9. Bonnet bolt	15. Stem	21. Gland flange bolt
4. O-ring	10. Bonnet gasket	16. Gland flange	22. Hot melt
5. Bushing	11. Wedge	17. Bonnet	
6. Thrust collar	12. Wedge rubber	18. Body	



- Isolate valve and ensure there is no pressure in the pipeline.
- Adjust handwheel or stem cap to put the wedge into a slightly open position.
- Remove hot melt/screw cover (22) to expose bonnet bolts (9) then remove bolts.
- Lift the entire bonnet assembly (17) and wedge (11) clear of valve body (18).
- Unscrew wedge (11) from the stem (17).
- Fit new wedge by reversing step 'e', take care that the wedge is in a mid-position on the stem so that when refitting it will be clear of the base and body.
- Replace bonnet gasket (10). It is suggested that the bonnet bolts (9) are inserted into the bonnet holes first and then the gasket (10) is fitted over them. The whole bonnet assembly can now be refitted onto the body (18).
- Tighten the bonnet bolts (9) following a diagonal sequence and using a torque wrench set at 25 Nm to 30 Nm. Re-set the torque wrench at 40 Nm to 50 Nm and re-tighten the bolts following a circumferential sequence.
- Check integrity of seal by re-charging the main.
- Should any leakage be found, tighten bonnet bolts (9) following the diagonal sequence as in h) with the torque wrench set at 75 Nm for stainless steel bolts, 60 Nm for Grade 8.8 and 12.9 bolts.
- We recommend that the bonnet bolt heads are re-sealed to prevent corrosion. Ensure the sealant is water resistant by using, for example, a silicone type sealant.

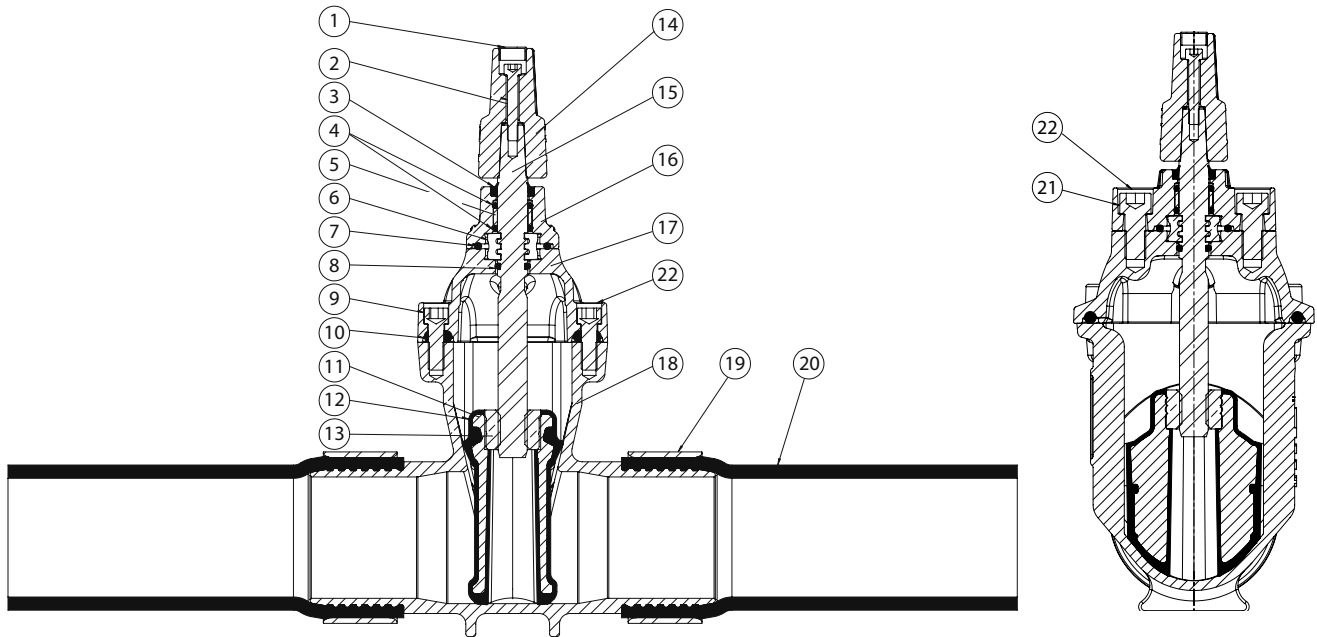
**NOTE: It is vitally IMPORTANT to ensure all air is vented prior to fully charging the main.**

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## 4.4 Replacement of Stem Seal 'O' Ring (Item 8)

### Component list

1. Insert	7. O-ring	13. Wedge nut	19. Sleeve
2. Bolt	8. O-ring	14. Stem cap	20. Pipe
3. Wiper ring	9. Bonnet bolt	15. Stem	21. Gland flange bolt
4. O-ring	10. Bonnet gasket	16. Gland flange	22. Hot melt
5. Bushing	11. Wedge	17. Bonnet	
6. Thrust collar	12. Wedge rubber	18. Body	



- a) Isolate valve and ensure there is no pressure in the pipeline.
- b) Turn keyed stem to put the wedge into a slightly open position.
- c) In the case of a stem cap being fitted carefully prise out plastic insert (1). Remove stem cap bolt (2) and stem cap (14).
- d) Remove 2 hexagon bolts (21) on top of gland flange (16).
- e) The gland flange (16) can now be lifted clear of stem (15) allowing access to the stem seal arrangement.
- f) Fully close the valve in order to raise the stem (15) clear of the bonnet (17) ensuring that the two thrust collars (6) are retained for re-assembly.
- g) Remove stem seal 'O' ring (8) and replace with a new 'O' ring (8), grease the 'O' ring with Water Regulations approved grease e.g. Rocol Aqua-Sil
- h) Replace the two 'O' rings (4) and nylon bushing (5) in the glandflange (16). Grease internally using the approved grease. Grease thrust collar grooves in stem (15). Screw stem (15) back into wedge (11) whilst fitting thrust collars (6) ensuring they seat fully inside recess in bonnet (17).
- i) Refit gland flange (16) with a new gland flange 'O' ring (7) and tighten the 2 hexagon bolts (21) using a torque wrench set at 35 Nm.
- j) Refit stem cap (14), bolt (2) and insert (1).
- k) Close wedge by a few turns and check the integrity of the new seal arrangement
- l) The check the integrity of the new seal arrangement, it will be necessary to re-charge the main slowly and open and close the wedge (11) a few times.

**NOTE:** It is vitally IMPORTANT to ensure all air is vented prior to fully charging the main.