



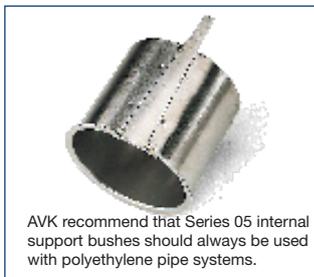
## OPERATION AND MAINTENANCE INSTRUCTIONS

# AVK WEDGE GATE VALVE

01/79

### 1. INTRODUCTION

Operation and Maintenance instructions for the series 01/79 Wedge Gate Valve for water and waste water.



AVK recommend that Series 05 internal support bushes should always be used with polyethylene pipe systems.

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## 2. HEALTH AND SAFETY PRECAUTIONS

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:-

All of the following procedures must be carried out with due regard to relevant Road Traffic Act Guidelines, Health and Safety and COSHH directives.

### Safety Note:

- Please take care when lifting either valves or components thereof, that health and safety guidelines are observed.

### Note:

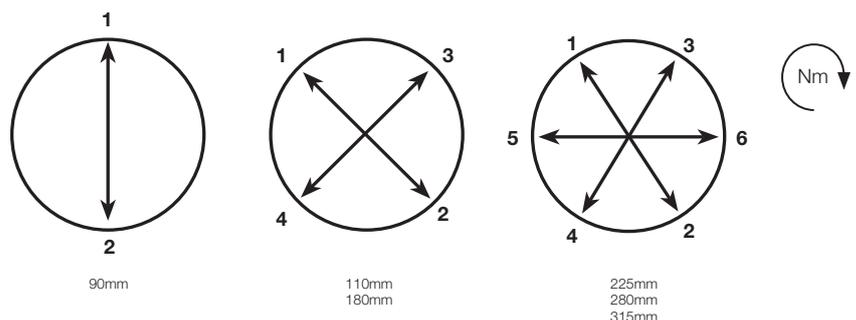
- The valves are NOT designed for “end of line” services. In the event of a valve being mounted on the end of a pipeline, we strongly advise the use of a blanking flange or plug.
- Resilient seated isolating (gate) valves designed for waterworks purposes may have a small air gap under the wedge bottom if being closed in dry conditions, using relatively low closing torque with the valve inadequately restrained. This is because the friction between the wedge rubber and the coated valve body seats is higher in dry conditions. The air gap is designed to allow for full compression of the rubber on the wedge against all sealing surfaces. Full compression takes place when the rubber wedge is lubricated by the pipeline medium thus allowing the valve to be fully closed.
- It is recommended that applications in a corrosive atmosphere or sited in exposed locations or in proximity to sea water or spray, use a stainless steel stem 1.4404 (316) and all exposed fasteners are in A4 stainless steel. A class A coating (300 microns inside and out) is also recommended.
- Air Venting: whenever a valve or pipeline is being filled it should be done slowly. It is also vitally important to ensure that all air is vented, preferably by using air release valves particularly at the highest point in the pipeline. These will also assist when emptying the line.
- To lift the valve remove the stem cap and screw in an eye bolt.

## 3. INSTALLATION

- Check that the fitting to be assembled is compatible with the pipeline.
- Check end of pipeline where fittings are to be assembled, ensuring that any defects such as jagged or tapered ends are restricted to within 5mm of the pipe end.
- Pipe support bushes are required when assembling these fittings onto PE pipelines. Check that the correct size of bush is selected to suit both the nominal Dia. and the pressure rating of the pipeline.
- Once the pipe support bush is fully inserted into the pipe end, drive the wedge in between the bush and inside Dia. of pipe. This will cause the bush to expand onto the bore of the pipe providing support from external forces.
- Any protrusion of the wedge once fitted can be removed by sawing if required.
- Assemble the fitting over the pipe end, ensuring that a minimum pipe length of 10mm protrusion through the seal is always maintained.
- Gradually tighten each nut evenly in turn to tighten the bracket (5) into position. Continue until the recommended bolt torque is achieved. (see chart below). Should the product be used in an aggressive (e.g. salt laden) environment, please ensure there is sufficient secondary corrosion protection applied before backfilling.

BOLT TORQUE NM	PIPE DIMENSIONS
60	DN32/40mm to DN65/75mm
110	DN80/90mm to DN150/180mm DN200/200mm PN10 DN200/225mm PN10
140	DN200/200mm PN16 DN200/225mm PN16
160	DN250/250mm to DN250/280mm
200	DN300/315mm

Torquing sequence:



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### 4. OPERATION

Series 01 valves are suitable for use with clean water or neutral liquids up to 70°C. Minimum liquid temperature must be above freezing. Insulation is essential for external temperatures from 0° 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 (22).

### 5. REPLACEMENT OF STEM SEAL

1. 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.
2. Fully open valve to ensure it is back-seated.
3. In the case of a stem cap being fitted carefully prise out plastic insert. Remove stem cap bolt and stem cap (24).
4. Remove hot melt / screw cover to expose 2 x socket cap bolts (27).
5. Gland flange (19) can now be lifted clear of stem (23) allowing access to the stem sealing arrangement. Lift clear of stem and replace the 2 'O' Rings and it is recommended to lubricate the 'O' rings using a Water Regulations approved grease e.g. Rocol, Aqua-Sil. Refit bushing on stem taking care not to nip or tear the new 'O' Rings.
6. Refit gland flange (19) with a new gland flange 'O' Ring and tighten the 2 socket cap bolts using a torque wrench set at 100 NM to 110 NM. If the wiper ring is damaged, a complete new gland flange must be fitted.
7. Refit stem cap assembly and insert (24).
8. Close wedge by a few turns and check the integrity of the new seal arrangement.

### 6. REPLACEMENT OF WEDGE

1. Isolate valve and ensure there is no pressure in the pipeline.
2. Adjust handwheel or stem cap to put the wedge into a slightly open position.
3. Remove hot melt / screw cover to expose bonnet bolts (13) then remove bolts.
4. Lift the entire bonnet (15) and wedge assembly (2) clear of valve body (11).
5. Unscrew wedge (2) from the stem (23).
6. 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 of the body.
7. Replace bonnet seal (12). It is suggested that the bonnet bolts (13) are inserted into the bonnet holes first and then the seal (12) is fitted over them. The whole bonnet assembly can now be refitted onto the body (11).
8. Tighten the bonnet bolts (13) following a diagonal sequence and using a torque wrench set at 25NM to 30 NM. Re-set the torque wrench at 40 NM to 50 NM and re-tighten the bolts following a circumferential sequence.
9. Check integrity of seal by re-charging the main. Ensure all air is vented prior to fitting the valve.
10. Should any leakage be found, tighten bonnet bolts (13) following the diagonal sequence as in h) with the torque wrench set at 70 NM to 80 NM.

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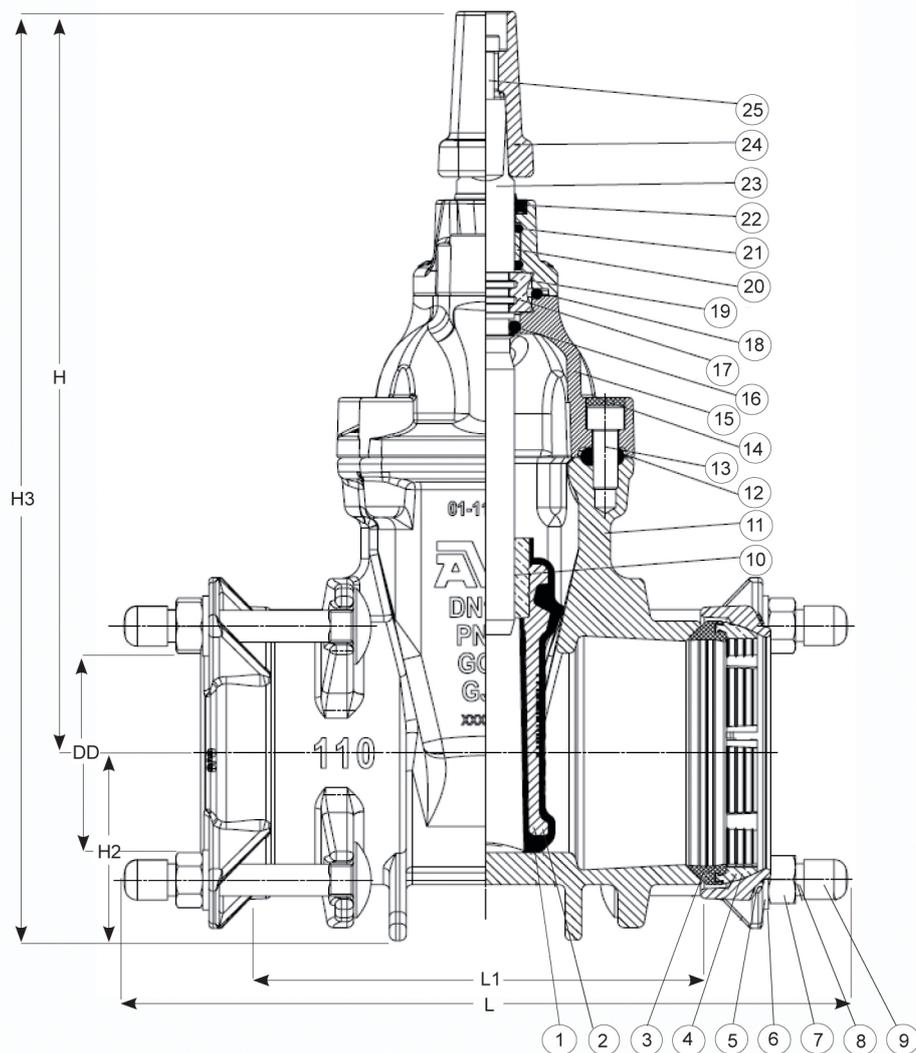
### 7. REPLACEMENT OF STEM SEAL 'O' RING

1. Isolate valve and ensure there is no pressure in the pipeline.
2. Turn stem (23) to put the wedge (2) into a slightly open position.
3. In the case of a stem cap being fitted carefully prise out plastic insert and remove stem cap bolt and stem cap (24).
4. Remove hot melt / screw cover to expose 2x Socket Cap bolts (27).
5. The gland flange (19) can now be lifted clear of stem (23) allowing access to the stem seal arrangement.
6. Fully close the valve in order to raise the stem (23) clear of the bonnet (15), ensuring that the two thrust collars (17) are retained for re-assembly.
7. Remove stem seal 'O' ring (18) and replace with a new 'O' ring, grease the 'O' ring with a Water Regulations approved grease e.g. Rocol Aqua-Sil.
8. Replace the two 'O' rings and nylon bushing in the glandflange (27). Grease internally using the approved grease. Grease thrust collar grooves in stem (23). Screw stem (23) back into wedge (2) whilst fitting thrust collars (17) ensuring they seat fully inside recess in bonnet (15).
9. Refit gland flange (27) with a new gland flange 'O' Ring and tighten the 2 Socket cap bolts using a torque wrench set at 100 NM to 110 NM.
10. Refit stem cap assembly (24) and insert.
11. Close wedge by a few turns and check the integrity of the new seal arrangement.
12. To check the integrity of the new seal arrangement, it will be necessary to recharge the main slowly and open and close the wedge (2) a few times.

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

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## Component list

1. Wedge Rubber	EPDM WRAS	14. Bolt Cover	Holt melt
2. Wedge Body	Ductile iron, EN-GJS-450-10 BS EN 1563	15. Bonnet	DI EN 1563; GJS-500-7
3. Gasket	EPDM WRAS	16. O-ring	NBR, EN 681-1, WRAS
4. Tensile Ring	Bronze BS 1400; LG2	17. Thrust collar	Dezn. res. brass EN 12165:SW602N (CZ132)
5. Bracket	Ductile Iron EN-GJS-500-7 to BS EN 1563	18. O-ring	NBR, EN 681-1, WRAS
6. Washer, M16,	SS ISO 3506; Grade A2 DIN 125A A2	19. Gland flange	DI EN 1563; GJS-500-7
7. Nut M16	Grade A4 - Delta Seal	20. Bearing shell	PA 6.6 (Polyamid)
8. Square neck bolt	Grade A2	21. O-ring	EPDM, WRAS
9. Cap	Plastic	22. Wiper Ring	NBR, AS1646
10. Wedge Nut	Dezincification resistant brass	23. Stem	SS EN 10088-1; (W 1.4021)
	BS2874;CZ132	24. Stem Cap	Ductile iron
11. Body	Ductile Iron EN-GJS-500-7 to BS EN 1563	25. Cap screw	HT Steel grade 8.8 F2B
12. Bonnet gasket	EPDM WRAS	26. Screw cover	Holt melt
13. Bolt	HT Steel grade 8.8 FZB	27. Bolt	HT Steel grade 8.8 FZB

Components can be substituted with equivalent or higher class materials.