



SERIES 601, 602, 603 & 605 UNIVERSAL COUPLINGS, ADAPTORS & END CAPS 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 600 Universal Couplings are available in straight barrel, stepped, flange adaptor and as an end cap configuration. Each coupling size is designed to fit a range of Outside Pipe Diameters, check data sheets for individual coupling size range.

Note: Series 600 Universal Couplings do not provide end restraint.

Materials:

Sealing ring
EPDM rubber

Fasteners
Stainless Steel (nut PTFE coated)

Cap - Bolt
Plastic

Coating - Ductile Iron
Fusion bonded epoxy (FBE)

Castings
Brackets - Ductile Iron
Barrels - Ductile Iron or 316 Stainless Steel
Adaptors - Ductile Iron
End cap - Ductile Iron

Refer to individual datasheets for specific information



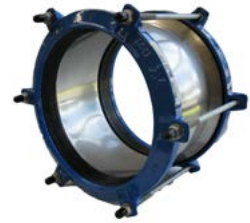
601 - 3 bolt



601 - 4 bolt



601 - 4 bolt
(Stainless Steel)



601 - 6 bolt
(Stainless Steel)



602



603



605

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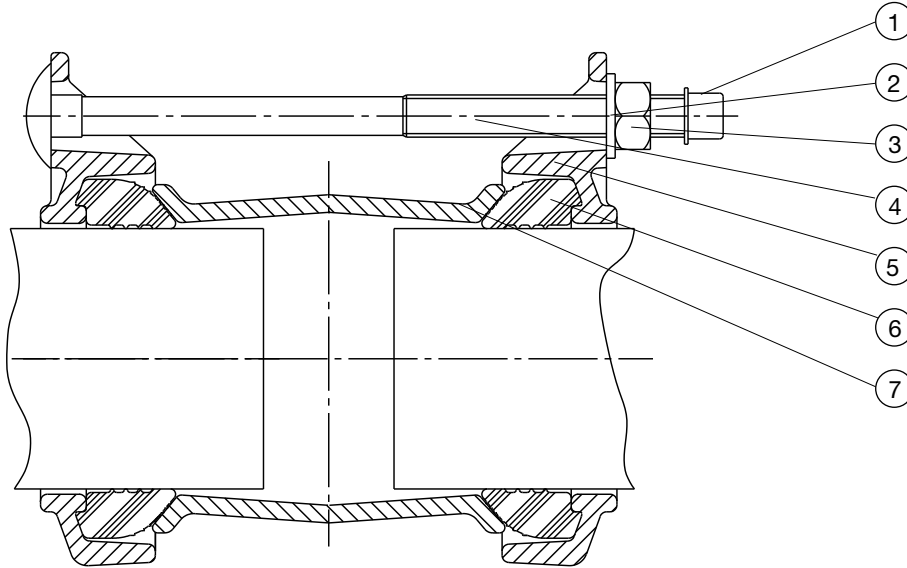
Component list - Series 601

1. End cap
2. Washer

3. Nut
4. Bolt

5. Gland ring
6. Rubber seal

7. Barrel



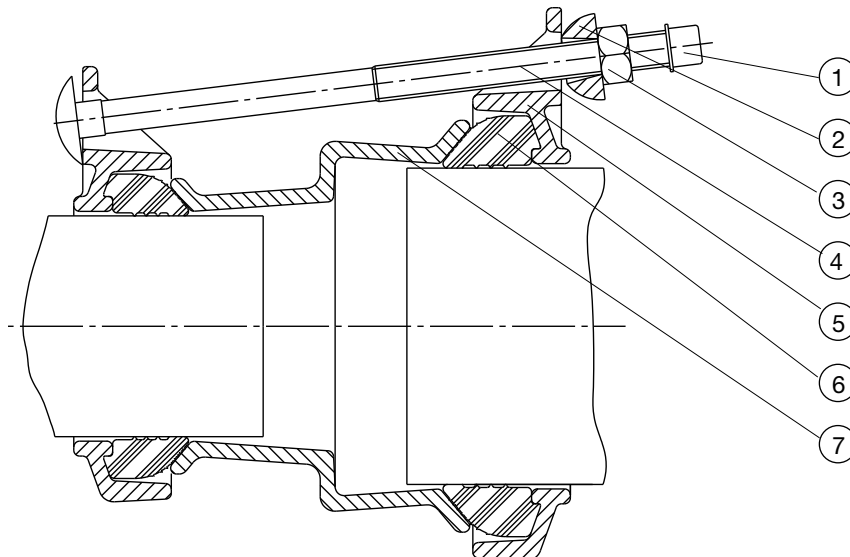
Component list - Series 602

1. End cap
2. Washer

3. Nut
4. Bolt

5. Gland ring
6. Rubber seal

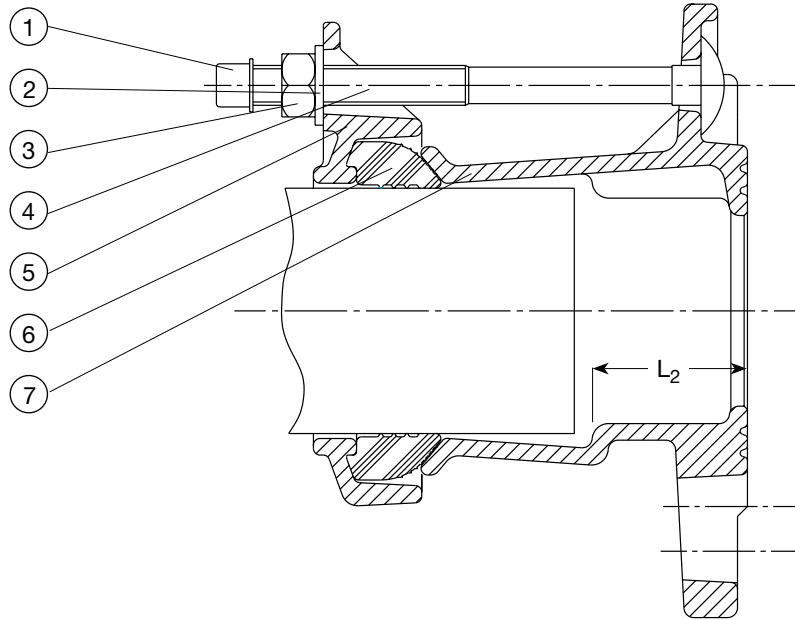
7. Stepped barrel



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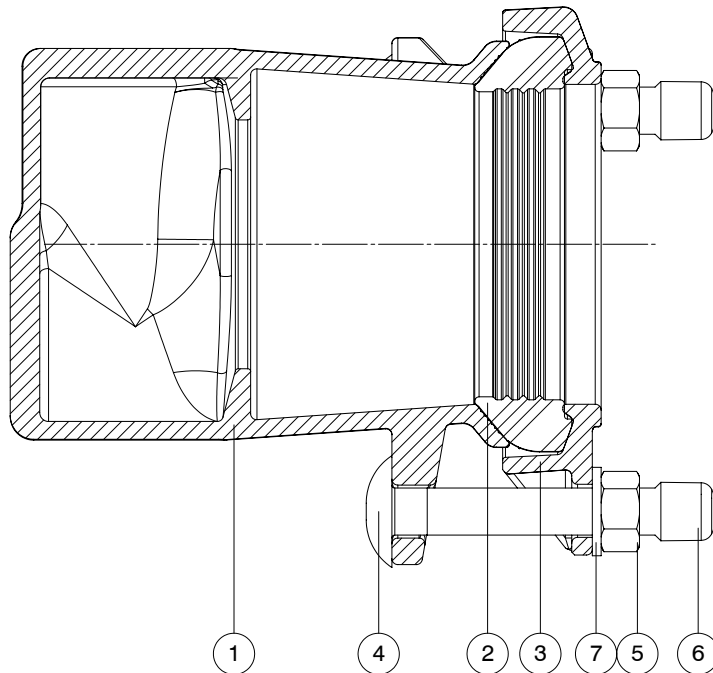
Component list - Series 603

- | | | | |
|------------|---------|----------------|-----------|
| 1. End cap | 3. Nut | 5. Gland ring | 7. Flange |
| 2. Washer | 4. Bolt | 6. Rubber seal | |



Component list - Series 605

- | | | | |
|----------------|---------------|--------|-----------|
| 1. Body | 3. Gland ring | 5. Nut | 7. Washer |
| 2. Rubber seal | 4. Bolt | 6. Cap | |



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2. Installation

- All of the series 600 mechanical fittings are supplied as an assembled unit ready for use, dismantling of the parts is unnecessary.
- Examine the fitting before assembling to ensure that no damage has occurred during transit.
- Check that the sealing range indicated on the label of the fitting is compatible with the actual pipe diameter/s.
- When assembling Universal Flange Adaptors, check that the Nominal flange size and pressure ratings are compatible with the valve.
- Check that the sealing element supplied is suitable for the medium conveyed in the pipeline.
- Examine pipe ends to which the fitting is to be assembled, ensuring that they are round and square and free from dents, bulges and score marks.
- When assembling to a steel pipe which has longitudinal seam welds, the weld seam must be removed by grinding. Care should be taken to ensure that the pipe surface profile is maintained.
- Pipe end(s) must be cleaned by wire brushing, to remove all rust, scale or debris etc...
- Align pipe end(s) maintaining the correct level and concentricity, whilst leaving sufficient gap between pipe ends to allow installation of the fitting. Ensure deflection does not exceed $\pm 4^\circ$ per connection.

COUPLINGS

- To provide indication that the coupling has been assembled central over the pipe ends, mark both pipe ends at a distance equal to half the length of the barrel + half the setting gap.

$$\text{DISTANCE OF MARK FROM EACH PIPE END} = \frac{\text{BARREL LENGTH OF FITTING} + \text{SETTING GAP}}{2}$$

Example: 601-133000-4312, Barrel length = 100mm
Setting gap = 20mm (see below)

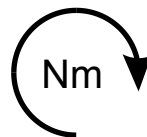
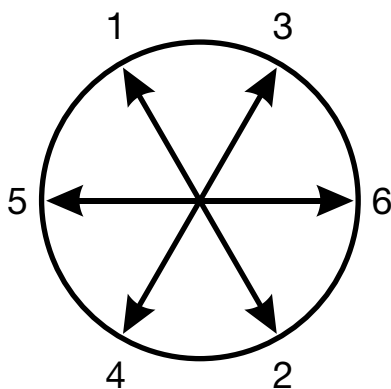
$$\text{DISTANCE OF MARK FROM EACH PIPE END} = \frac{100+20}{2} = 60\text{mm}$$

RECOMMENDED GAP SETTINGS

DN40 to DN200 Maximum setting gap = 20mm
DN250 to DN400 Maximum setting gap = 37mm

- Slide coupling onto the fixed pipe end (use necessary lubricant as appropriate).
- Slide free pipe end into coupling, ensuring that the markings on both pipe ends line up with the ends of the fitting.
- Tighten diametrically opposed bolts as indicated on label, to ensure that the sealing element is loaded evenly. It is essential that all bolts are torqued using a torque wrench evenly as indicated on the label.

Bolt Torquing Sequence



Torque Setting:

3 bolt couplings 60-70Nm
4 bolt or more 40-50Nm

Note: S/S fasteners should not be reused.

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- On completion of the bolt tightening, the radial gap between the pipe and inside diameter of the glandring should be even all around the fitting. Some evidence of rubber extruding between the pipe and glandring might be evident.

Notes !

- These couplings will not provide end restraint, this must be proved by other means, especially when using the stepped type couplings.
- External loading action on the fittings might have serious effects upon its performance such as weights of pipelines, spool pieces, back fill etc... All pipes should be supported independently on each side of the fitting.
- It is advisable to replace all stainless steel fasteners in the event of having to reposition the fitting.

FLANGE CONNECTIONS

- When installing flange adaptors ensure the flange faces are clean.
- To ensure adequate sealing it is important to select the correct type of gasket for the medium concerned, gaskets with the correct flange size must be used.
- Tighten flange bolts loosely.
- Tighten bolts in a diagonal sequence to ensure flanges are pulled up parallel.
- Finally tighten bolts to correct torque levels as recommended in WSA 109 specification.

Flange bolt size

The following table shows the bolt sizes you should use for the DN flange dimensions.

DN	AS 4087 Table B5		AS 2129 Table E	
	Bolts	Quantity	Bolts	Quantity
50	M16	4	M16	4
80	M16	4	M16	4
100	M16	4	M16	8
150	M16	8	M20	8
200	M16	8	M20	8
225	M16	8	-	-
250	M16	8	M20	12
300	M20	12	M24	12
375	M24	12	M24	12
400	M24	12	M24	12