

Bryan Donkin Valves Limited

Product Information and Operating Instructions 555-300-004, 555-370-003 and 555/200-002

AVKD IM6005 Rev F

Date. 03/08/22

Bryan Donkin Valves Limited

Product Information and Operating Instructions 555-300-004, 555-370-003 and 555/200-002

AVKD IM6005 Rev F

Date. 03/08/22



Product Information And Instructions 555 and 555PE Cast Iron Flanged & PE Ended PUR Coated Wedge Gate Valves (555/300-004, 555/370-003, 555/200-002 & 555/100-003)

CE MARKING AND THE PRESSURE EQUIPMENT DIRECTIVE 2014/68/EU, UKCA MARKING AND THE PRESSURE EQUIPMENT REGULATIONS SI2016 No.1105 AS AMENDED BY SI2019 No.696

The regulations apply to all valves that are not designed specifically for pipelines. Valves with a maximum allowable pressure not exceeding 0.5 barg are outside the scope of the directive. Valves are categorised in relation to the intended fluid contents, the maximum working pressure and the nominal size. Fluids are classified as Group 1, dangerous substances, Group 2, all other fluids including steam. Categories are SEP (sound engineering practise) and for ascending levels of hazard, I, II, III or IV. Valves designated as SEP do not bear the CE or UKCA mark and do not require a Declaration of Conformity.

Valves classified as category I, II, III or IV carry the CE or UKCA mark, as applicable, and require a Declaration of Conformity (Note: all valves up to and including DN25(1" NB) having a maximum allowable pressure greater than 0.5 bar are designated SEP regardless of fluid group).

PRODUCT LIFE CYCLE

The life of the valve is dependent upon its installation and application. The valve should be protected from the adverse effects of mechanical shock, loading, excess weight and corrosion. This includes forces either applied to it or via the installation process or pipework that the valve is attached to; consideration should also be given to various loadings, which can occur at the same time. The valve on no account should be tampered with or modified in any way.

If for any reason work is to be carried out on the valve it is wholly the responsibility of the user to ensure the valve is depressurised and rendered safe prior to any fasteners/fixings being loosened.

To ensure correct installation of the valve it is essential that the personnel carrying out the installation have the correct training and skills.

TYPE

Double faced, bi-directional, internal screw wedge gate valve with two independent resilient seats giving double block and bleed facility.

- Soft seal primary shut off
- Secondary metal to metal seating
- Plugged boss for double block and bleed facility
- Full clear bore suitable for under pressure drilling
- Polyurethane coated for corrosion resistant buried service

PRESSURE/TEMPERATURE RATING

Valves must only be installed in a piping system whose pressure and temperature do not exceed the above ratings. If system testing will subject the valve to pressures in excess of the working pressure rating, this should be within the production test pressure for the valve.

The maximum allowable pressure as specified is for non-shock conditions. Water hammer and impact for example, should be avoided. If the limits of use specified in these instructions are exceeded or if the valve is used on applications for which it was not designed, a potential hazard could result.

LIMITS OF USE

They are permitted for use with Group 1 hazardous gases. As standard they are suitable for the isolation of Natural Gas, Manufactured Gas and other non-aggressive gases and non-aromatic oils.

Prior to use on any other fluid the compatibility of the valve materials must be verified.

The valves are designed for 'end of line' service. They are not suitable for fatigue loading, creep conditions, wind and earthquake loading, fire testing, fire hazard environment, corrosive or erosive service, transporting fluids with abrasive solids. It is the responsibility of the end user/installer to ensure the integrity of the valve is not adversely affected by the surrounding environment. If there is any doubt the user/installer must implement checks to monitor the product integrity.

The valves have been type tested and are Kitemarked (except DN800 2bar and DN350-600 4bar) to GIS/V7-1 and GIS/PL3.

The flanged valves referred to in this document have been categorised in accordance with the Pressure Equipment Directive and Pressure Equipment (Safety) Regulations.

Maximum Allowable Pressure PS (barg)	Nominal Size DN	Category
7	50 - 100 150 - 300	I II

Maximum Allowable Pressure PS (barg)	Nominal Size DN	Category
2	350 - 800	III
4	350 - 600	III

Categories I, II, and III require CE or UKCA mark.

For installations where the volume is more appropriate than the nominal size the following should be used.

Nominal Size DN	80	100	150	200	250	300
Internal Volume of Assembly (litres)	2.2	2.4	6.3	16	32	47

NOTE: The PE ended valves must only be installed into compatible PE80 or PE100 polythene pipelines used for the conveyance of natural gas or similar compatible media to or from an installation. This can include the last isolation device located within the confines of the installation.

On this basis the valve is excluded from the Pressure Equipment Directive (article 1, clause 3.1), Pressure Equipment (Safety) Regulations (Schedule 1, clause 1a).

This exclusion does not apply to valves within pressure reduction or compression stations and as such these PE Ended valves must not be used in such an application.

OPERATING PRESSURES AND TEMPERATURES

Flanged Valves

50mm to 300mm

Maximum Working Pressure: 7 barg (100 psig)
Temperature Range: -10°C to +60°C

350mm to 800mm

Maximum Working Pressure: 2 bar (29 psig)
Temperature Range: -10°C to +60°C

350mm to 600mm

Maximum Working Pressure: 4 bar (58 psig)
Temperature Range: -10°C to +60°C

PE Ended

Maximum Working Pressure: SDR 11 Pipe 'PE 100' (HPPE) - 7 bar (100 psig) 90-180mm, 4 bar (60psig) 250-315mm

SDR 11 Pipe 'PE 80' (MDPE) - 4 bar (60 psig)

SDR 17 Pipe 'PE 100' (HPPE) - 4 bar (60 psig)

SDR 17 Pipe 'PE 80' (MDPE) - 2 bar (30 psig)

SDR 17 Peelable Pipe 'PE100' (HPPE) - 4 bar (60 psig)

Temperature Range: -10°C to +40°

Bryan Donkin Valves Limited

Product Information and Operating Instructions 555-300-004, 555-370-003 and 555/200-002

AVKD IM6005 Rev F

Date. 03/08/22

Bryan Donkin Valves Limited

Product Information and Operating Instructions 555-300-004, 555-370-003 and 555/200-002

AVKD IM6005 Rev F

Date. 03/08/22

STORAGE

The valve should be handled and stored in such a way as to always protect the valve from becoming damaged both internally and externally, either mechanically or by chemical/substance corrosion and to ensure the protective coating supplied remains intact.

If fitted, valve end protectors should not be removed unless necessary to do so for inspection or installation. If outdoor storage is unavoidable, valves should be supported off the ground and protected by a weatherproof cover. Valves with Polyethylene ends must not be stored in direct sunlight. Rubber components in valves, or provided as spares, should not be exposed to heat or direct sunlight where this can be avoided, as this accelerates the ageing of the rubber.

LAYOUT AND SITING

It should be considered at the design stage where valves will be located to give access for operation, adjustment, maintenance and repair. Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the valve body, which would impair its performance. Heavy valves may need independent support or anchorage. The valves are delivered corrosion protected for normal buried service conditions only. It is the users/installers responsibility to further adequately protect the valve from corrosion in relation to the installed environment. The valves may be installed in any orientation. In the interests of safety, it is highly recommended that valves installed on end-of-line services should be fitted with a locking device on the operating mechanism or a blanking flange on the downstream flange of the valve to prevent unauthorised discharge to atmosphere.

INSTALLATION

Prior to installation, a check of the valve labelling and marking must be made to ensure that the correct valve is being installed. Record the valve serial number and its location to help with traceability. The valve should be fully opened and closed to ensure it is operating satisfactorily. The corrosion protective coating must be inspected for signs of damage and repaired if required prior to being backfilled. Valves are precision manufactured items and as such, should not be subjected to misuse such as careless handling or allowing dirt to enter the valve through the end ports. Excessive forces during installation and operation must be avoided. All special packaging materials must be removed. When valves are provided with lifting lugs or eye nuts, these should be used to lift the valve. These lugs are designed to take the weight of the valve only and not any attached pipe work etc. Valves should not be lifted using the handwheel or stem. During lifting all applicable Health & Safety requirements should be observed. Immediately prior to valve installation, the pipework to which the valve is fastened should be checked for cleanliness and freedom from debris. Valve end protectors should only be permanently removed immediately before installation. The valve interior should be inspected through the end ports to determine whether it is clean and free from foreign matter. The mating flanges (both valve and pipework flanges) should be checked for correct gasket contact face, surface finish and condition. If a condition is found which might cause leakage, no attempt to assemble should be made until the condition has been corrected.

The gasket should be suitable for operation conditions or maximum pressure/temperature ratings and should be checked to ensure freedom from defects or damage. Care should be taken to provide correct alignment of the flanges being assembled. It is important when installing any valve that pipeline stresses are kept to a minimum and no undue external forces are placed on the valve connections. During assembly the bolts must be tightened sequentially to make the initial contact of flange and gasket flat and parallel followed by gradual and uniform tightening to the specified torque for the gasket being used in an opposite bolting sequence to avoid bending one flange relative to the other, particularly on flanges with raised faces. Parallel alignment of flanges is especially important in the case of the assembly of a valve into an existing system. The bolting used for the flange connection must be checked for correct size, length, material and that all connection flange bolt holes are utilised. NOTE: as per EN 1092-2:1997 section 5.3 Bolting The bolting shall be chosen by the user according to the pressure, temperature, flange material and gasket. For joints comprising at least one grey iron flange it is recommended that bolting having a yield strength not exceeding 240N/mm² should be used. After venting the valve through the bleed plug, ensure the outer dust seal is correctly positioned prior to replacing the bleed plug. Lubricate the chamfer on the outside of the bleed plug prior to tightening to 60Nm.

CORROSION PROTECTION: The valve is corrosion protected for normal buried service. It is the users/installer's responsibility that flanged valves intended for underground usage or flanged valves to be installed in an area with risk of corrosion are to be provided with further adequate corrosion protection on the connecting flanges, e.g. appropriately wrapped. The corrosion protection should be of a sufficient quality and execution to ensure protection of the valves and their components against the environment in which they are installed throughout their expected lifetime.

OPERATING

Clockwise rotation to close by means of factory fitted handwheel or false cap

The following options are available

- Stainless Steel Spindle.
- Viton Seals.
- Block and bleed ball valve.
- Snap on Position Indicator.
- Tapped branches for purging.
- Down pipe Adaptor
- Field applied coating repair kit.

MAINTENANCE

The valve is designed to give long trouble-free service without the need of routine maintenance. If internal or external leakage is suspected, it is recommended that the Donkin Valve Division be contacted to suggest suitable remedial action.

Replacement of spindle and/or gland seal (555/100-003 DN350 to DN800 flanged only)

1. Fully open valve to a torque of 150 Nm
2. Remove thrust housing fasteners and thrust housing
3. Remove 'O' ring seals from the grooves on spindle and from the bonnet/gland groove
4. Thoroughly clean dirt, grease etc from spindle, bonnet face, gland face paying particular attention to ensure the grooves are clear of any dirt/debris
5. Replace the 'O' ring in the bonnet/thrust housing groove and lightly grease with graphite grease
6. Replace 'O' ring seals in the grooves on the spindle taking care to avoid damaging them. Lightly grease seals with graphite grease. Replace the thrust housing carefully over the spindle and seals.
7. Replace and tighten the thrust housing fasteners and pressure relief plug to the torque below (threads lubricated with light machine oil).

VALVE SIZE	BOLT SIZE	TORQUE
DN 50	M10	50 Nm
DN350 - 600	M16	160 Nm
DN800	M20	200 Nm
PR Plug	-	60Nm

*If DN800 is mounted horizontally complete with the factory fitted gearbox this has a 4:1 ratio with a 3.4:1 mechanical advantage. Therefore the maximum allowable input torque on the gearbox input shaft is 60Nm.

Valve Operating Torques		
Size	Operating Torque (Nm)	Maximum Allowable Torque (Nm)
DN50	40	150
DN80 (90PE)	50	150
DN100 (125PE)	50	150
DN150 (180PE)	50	150
DN200 (250PE)	90	150
DN250	100	150
DN300 (315PE)	120	150
DN350	120	150
DN400	120	150
DN450	130	150
DN500	145	150
DN600	150	150
DN800*	150	200