



**Product Information
and Instructions
Wedge Gate Valves
555/103,
555/163 & 555/303**

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 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).

NOTE: The 50bar weld end version is not CE or UKCA marked or approved to the Pressure Equipment Directive, Pressure Equipment (Safety) Regulations and therefore must not be used in installations within the scope of the directive.

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 and excess weight and corrosion. This includes forces either applied to it or via the installation process or pipework that the valve is attached to; also consideration should 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 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
- PN16 and Class 150 versions are tested for double block and bleed to 7 barg rating.
- Face to face dimension to BS EN558-1

LIMITS OF USE

They are permitted for use with Group 1 hazardous gases. As standard they are suitable for the isolation of Natural Gas, Towns Gas, Hydrogen (DN50-300 flanged only), 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.

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.

These sizes are tested for double block and bleed to a maximum of 7 barg rating.

The valves are not designed for 'end of line service'. In the event of the valve being mounted at the end of the pipeline, we strongly advise the use of a blanking plate or plug.

It is the responsibility of the end user to ensure the integrity of the valve is not adversely affected by the surrounding environment. If there is any doubt the user must implement checks to monitor the product integrity.

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

Maximum Allowable Pressure PS (barg)	Nominal Size DN	Category
19	50	I
19	80 -150	II
19	150 – 300	III
50	50	N/A
50	80 - 300	N/A
7	400 - 600	III

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

OPERATING PRESSURES AND TEMPERATURES

50mm to 300mm

Maximum Working Pressure: (Flanged BS 1560 Class 150) - 19 bar
(Flanged BS EN1092-1 PN16) - 16 bar
(Weld End) – 50 bar - Not approved to the PED
All valves 10 bar for hydrogen applications

Temperature Range: -20°C to +60°C

400mm, 450mm and 600mm Bore

Maximum Working Pressure: 7 bar
Temperature Range: -20°C to +60°C

TORQUE (Nm). (Note: Operating torque quoted below is to obtain a seal)

Size	7 Bar		19 Bar		50 bar	
	Operating Torque	Maximum Allowable Torque	Operating Torque	Maximum Allowable Torque	Operating Torque	Maximum Allowable Torque
50	25	150	40	150	41	150
80	25	150	40	150	47	150
100	40	150	50	150	47	150
150	40	150	60	150	95	150
200	90	150	100	150	136	150
250	90	150	100	150	176	200
300	95	150	145	200	250	300
400	140	200				
450	140	200				
600	150	210				

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.

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.

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 transportation and storage 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.

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.

CORROSION PROTECTION: It is the users'/installers responsibility that valves intended for underground use or valves to be installed in an area with risk of corrosion are to be provided with adequate corrosion protection, 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.
- Anti clockwise closure.
- Aluminium position Indicator.
- Cast iron handwheel.

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 seal (50mm- 300mm)

1. Close valve
2. Vent body cavity by slackening pressure relief plug.
3. Remove handwheel.
4. Remove gland retaining nuts and glands.
5. Remove 'O' ring seal from gland and replace with new seal in the gland recess.
6. Check condition of thrust washers located above and below spindle collar.
7. Carefully replace gland with 'O' ring insitu over spindle to avoid catching 'O' ring on any sharp edges. It is also important during assembly of the gland plate that once entered onto the spindle it should travel at all times towards the valve i.e. it should not be 'pulled back', even slightly as this will result in the 'O' ring becoming dislodged from the gland recess and thus the 'O' ring becoming tapped with the gland plate is tightened down. It is recommended that the 'O' ring be lightly greased before replacement.
8. Replace the tighten gland screws and pressure relief plug.

Replacement of spindle seal (400mm – 600mm)

1. Close valve
2. Vent body cavity by slackening pressure relief plug.
3. Remove thrust housing capscrews and thrust housing.
4. Remove 'O' ring seals from the grooves on spindle
5. Check condition of thrust collars located either side of spindle.
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 capscrews and pressure relief plug.