

Resilient Seated Wedge Gate Valve

Installation, Operation & Maintenance Instructions



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CRANE
A Crane Co. Company

46-48 Wilbury Way
Hitchin, Hertfordshire
SG4 0UD. United Kingdom

Tel: +44 (0)1462 443322
Fax: +44 (0)1462 443311
Email: info@vikingjohnson.com
www.vikingjohnson.com



For further information on all Viking Johnson products and services contact our Marketing Department.



A Crane Co. Company

World leaders in pipe joint, repair & flow control products

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CE Marking & the Pressure Equipment Directive

Valves for Waterworks purposes are excluded from the scope of the Pressure Equipment Directive (see article 1 clause 3.2 of the PED)

Product Life Cycle

The life of the valve is dependant on the frequency of use and freedom from misuse.

The Valves are not designed for use as “end of line” services, where mounted on the end of a pipeline we strongly recommend the use of a blanking flange.

Operating Pressures & Temperatures

PN	Non-shock pressure within temperature range	Non-shock pressure at maximum pressure
16	16 bar from 0°C to 70°C	16 bar at 70°C

The Viking Johnson Resilient Seated Gate Valves are rated PN16 and comply with BS EN 1074 parts 1 and 2 and must be installed in a piping system whose normal pressure and temperature falls within the above parameters. Insulation is essential for external temperatures from 0°C to 10°C. The Valves are not suitable for fatigue loading, creep conditions, corrosive or erosive service or transporting fluids with abrasive solids.

Off-Loading

When off-loading valves, care must always be taken. Lifting the valves by use of a handwheel where fitted is not acceptable. On no account should the valve be handled using the upper flanges. Valves should be lowered gently with care onto wooden battens placed on firm ground clear of mud and water.

Storage

If the valves are to be stored in the open for sometime, protection should be provided to keep the valves clear of sand and mud. Particular care should be taken to protect the seat.

Installation

The valve should be checked to ensure it is suitable for the service conditions e.g. pressure, temperature and service media.

Remove all packing/protection material from the valve. Before installation examine the pipeline for impurities and foreign matter, removing and cleaning if necessary.

The valves may be installed in horizontal pipework with the stem in the vertical position, or in vertical pipework with the stem horizontal. The valves should not be installed in horizontal pipework with the stem horizontal because shut off performance may be impaired.

Consideration should be given to access for operation and maintenance. Valves installed outside will need protection against the direct effects of extreme weather conditions.

Suitable flange gaskets should be used during installation of the valve. The distance between the pipe flanges should exceed the face to face dimension of the valve by at least 20mm. This will ensure that raised faces are not damaged and gaskets can be inserted.

In accordance with good engineering practice mating flanges must be parallel and concentric. Bolt tightening must be even and diagonal to prevent distortion.

Operation

Viking Johnson Resilient Seated Gate Valves are designed for On-Off service, regulating or throttling services should be avoided. They comply with both BS EN 1074 parts 1 & 2. The valve is closed by turning the operating element i.e. Cap-Top, Handwheel or Extension Spindle in a clockwise or anti-clockwise direction, which is confirmed on the Identification label.

Once installed operate the valve through its full extent of travel to check for ease of function.

Operation & Application

The valve should be operated by Handwheel or Tee Key without applying excessive forces. Valves can also be fitted with correctly sized and fitted gearboxes or Actuators that should be specific for the process or duty.

Gate Valves are designed to operate either in the fully closed or open positions, if used in an intermediate position this will lead to increased wear and therefore reduced life expectancy.

Media temperature limitations should not be exceeded.

The maximum pressure rating is that on a closed valve.

Where EPDM is used as the sealing medium, oil or grease should not be allowed to come into contact as this will cause swelling in the EPDM.

Maintenance

Viking Johnson Resilient Seated Gate Valves are designed for underground use with minimum maintenance and requires no lubrication. Differing qualities or properties of the system media will require the valve to be regularly checked for ease of operation, at least every three years.

Pre-Maintenance Checks

The valve should be at zero pressure and ambient temperature prior to any maintenance.

Maintenance Engineers & Operators are reminded to use correct fitting tools and equipment.

A full risk assessment and methodology statement must be compiled prior to any maintenance.

The risk assessment must take into account the possibility of the limits of use being exceeded whereby a potential hazard could result.

A maintenance programme should therefore include checks on the development of unforeseen conditions, which could lead to failure.

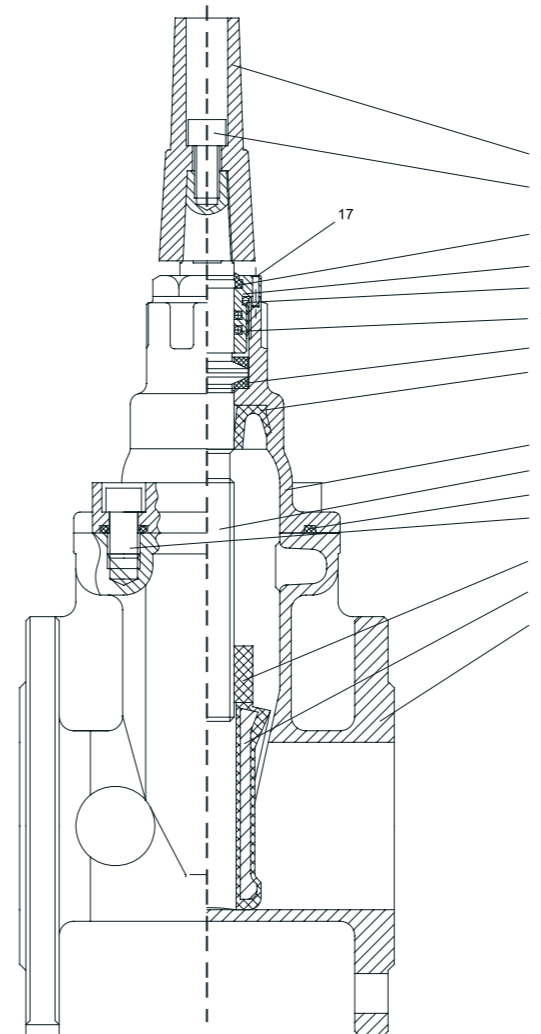
Leaking Gland

Operate the valve one full turn or more and return to the original position.

If leaking persists the ‘O’ rings in the gland require replacing.

Stem ‘O’ Ring Replacement

1. Turn off circulating pumps.
2. Open the valve fully (the leaking should become minimal or stop completely).
3. Slacken the handwheel or cap top retaining screw. (item 14)
4. Remove the handwheel or cap top from the stem (tapping underneath with a mallet may be necessary).
5. Remove locking pin from the Gland Bush (item 17)
6. Unscrew the Gland Bush (Anti-Clockwise). (item 12)
7. Remove the Gland Bush from the stem.
8. Fit new stem ‘O’ rings and Gland Bush ‘O’ ring. (A smear of silicone grease may be applied to the ‘O’ rings while fitting). (items 10 and 11)
9. Carefully refit the Gland Bush onto the stem, preventing ‘O’ ring damage.
10. Screw the Gland Bush down until tight (Clockwise).
11. Fit the locking pin in the Gland Bush
12. Fit the handwheel or cap top.
13. Tighten the handwheel or cap top retaining screw.
14. Close and open the valve to check for satisfactory operation.



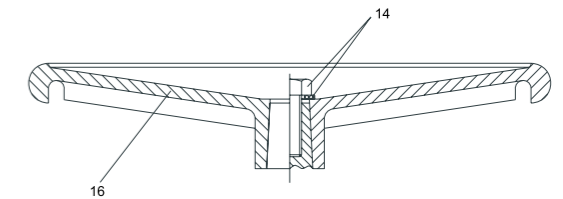
Leaking Bonnet Gasket/Seal

If a body/bonnet seal leak exists, check that the bolts (item 4) are adequately tightened and re-tighten if necessary. If the leaking persists the body/bonnet seal (item 5) will need replacing.

Body/Bonnet Gasket/Seal Replacement

It is recommended that the valve is isolated from the system and valve is drained before carrying out this operation.

1. Operate the valve to mid-position.
2. Loosen and remove body/bonnet bolting (item 4).
3. Operate the valve to the closed position, (rotation of the handwheel/cap top). When closed, operate the valve a further 1/2 to 1 turn, this will break the bonnet seal.
4. Open the valve to mid-position (rotation of handwheel/cap top).
5. The complete bonnet sub-assembly including the valve wedge can then be lifted off the valve body.
6. Remove the body/bonnet seal (item 5) and ensure that both sealing faces are clean and free from damage.
7. Fit new body/bonnet joint (smear of silicon grease may be applied for assistance while fitting).
8. Fit the bonnet sub-assembly and tighten the bolting evenly, in a diagonal sequence.
9. Close and open the valve to check for satisfactory operation.



No	Item	Quantity	Material
17	Pin	1	Stainless Steel A2
16	Handwheel	1	Ductile Iron QT450-12 to EN-GJS-450
15	Stem Cap	1	Ductile Iron QT450-12 to EN-GJS-450
14	Capscrew/Bolt	1	Stainless Steel A2
13	Wiper Ring	1	EPDM to BS EN 681
12	Gland Bush	1	DZR Brass to BS EN 12165 CW602N
11	O-Ring	1	EPDM to BS EN 681
10	O-Rings	2	EPDM to BS EN 681
9	Washer	1	PTFE
8	Seal	1	EPDM to BS EN 681
7	Bonnet	1	Ductile Iron QT450-12 to EN-GJS-450
6	Stem	1	Stainless Steel 431 S29
5	Bonnet Gasket	1	EPDM to BS EN 681
4	Capscrews	4	Stainless Steel A2
3	Stem Nut	1	DZR Brass to BS EN 12165 CW602N
2	Wedge	1	EPDM Encapsulated Ductile Iron Wedge
1	Body	1	Ductile Iron QT450-12 to EN-GJS-450