

BGV STAINLESS STEEL GATE VALVE WITH LOTO SAFETY FEATURE

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Edwards BGV LOTO pneumatic gate valves include all the benefits of the standard BGV range, with LOTO safety feature and low power.

BGV LOTO gate valves are bellows sealed stainless steel gate valves for use in applications which require high leak tightness and a minimum of hydrocarbons in the vacuum system. Although principally designed for the isolation of pumps in the semiconductor fab basement, BGV valves are also ideal for other applications where a 1 bar differential at opening is desirable.



The unique Lock-Out-Tag-Out (LOTO) safety mechanism allows personnel to freely work on the vacuum system without fear of the valve inadvertently opening. The valve is physically held closed using a pin to lock the valve shut preventing it from being opened. If there is a requirement for the valve to be locked shut, a lockout hasp can be inserted through the LOTO pin and padlocked.

They are designed for use in the pressure range of 1.2 bar absolute to 1×10^{-9} mbar (1.2×10^5 to 1×10^{-7} Pa). BGV valves will withstand 1.2 bar absolute in either direction allowing the vacuum line above the pump to be vented with the valve closed.

The low power actuation requirement at just 1 W enables direct connection to Edwards latest generation dry pumps range without any additional external power supply, and facilitates 'plug and play' simple installation.

Reed switches can be used by your control equipment to determine if the valve is open or closed, these also contain LEDs to provide a visual display of the valve position. Each valve is fitted with a 24 V a.c./d.c. solenoid and pre-wired plug for direct connection to your Edwards latest generation vacuum pump. This 15-way "D" plug offers a single point of connection for both power to the solenoid and the signal from the reed switch position indicators.

LOTO valve can be locked securely closed
Providing a safe working environment during maintenance

Low power actuation at just 1 W
Direct connection to Edwards latest generation dry pump

Able to withstand 1.2 bar absolute in either direction
Allowing the pump to continue running during maintenance

Pneumatic solenoid and pre-wired option
Pre-configured simple 'plug and play' installation

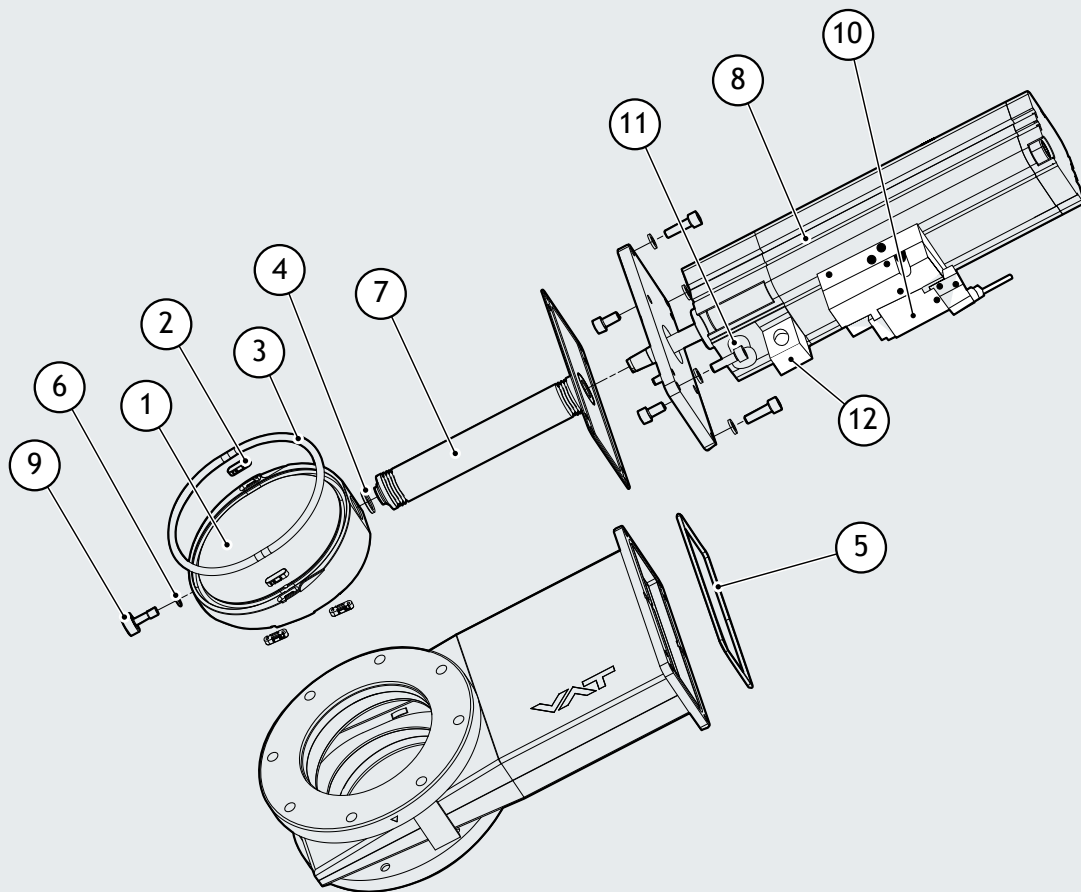
Stainless steel construction and robust design
Long service life and reliability in harsh environments

Simple grease-free sealing mechanism
Minimises damage due to particulates in dusty processes

Key features

The simple but innovative wedge sealing mechanism, incorporating PEEK gliders, make the valve especially suited to applications with high levels of process by product in the gas stream:

- No oil, grease or complex moving parts within the valve removing the risk of damage to the mechanism due to contamination from process debris.
- PEEK gliders provide no metal-to-metal contact and act to control the compression of the O ring.
- As the gate closes the O ring brushes across the sealing surface briefly before it seals, helping to clean debris from the sealing surface thus giving a better seal.



- | | |
|-------------------------------|------------------------|
| 1. Gate | 7. Bellows feedthrough |
| 2. Glider | 8. Pneumatic actuator |
| 3. Gate O-ring | 9. Gate Allen screw |
| 4. Bellows feedthrough O-ring | 10. Solenoid valve* |
| 5. Bonnet flange O-ring | 11. LOTO pin |
| 6. Gate screw O-ring | 12. LOTO mechanism |

*(bracket protecting solenoid has been removed for clarity)

PRODUCT DATA SHEET

Technical data

| | | |
|---|--|---|
| Ambient operating temperature range | | 0 °C to 50 °C |
| Maximum bake-out temperatures ⁽¹⁾ | Valve body Actuator Position indicator Solenoid | < 120 °C < 100 °C < 60 °C < 50 °C |
| Pressure range | | 1 x 10 ⁻⁹ mbar to 1.2 bar (absolute) (1 x 10 ⁻⁷ Pa to 1.2 x 10 ⁵ Pa) |
| Differential pressure on the gate | | 1.2 bar in either direction |
| Differential pressure at opening | | 1.0 bar |
| Leak tightness | To the outside Across the seat | 1 x 10 ⁻⁹ mbar 1 s ⁻¹ 1 x 10 ⁻⁷ mbar 1 s ⁻¹ |
| Average life before first service ⁽²⁾ | | 5000 cycles at ambient temperature |
| Molecular conductance (air) | NW50 ISO63 ISO80 ISO100 ISO160 | 250 ls ⁻¹ 600 ls ⁻¹ 900 ls ⁻¹ 1700 ls ⁻¹ 5000 ls ⁻¹ |
| Electrical supply | | 24 V -8%, +10% a.c./d.c., 1 W |
| Position indicator contact rating | | 12 - 30 V a.c./d.c., max 500 mA, max 10 W |
| Pneumatic supply | Minimum supply pressure Maximum supply pressure | 73 psig (5.0 bar gauge, 6.0 bar absolute, 6.0 x 10 ⁵ Pa) 100 psig (7.0 bar gauge, 8.0 bar absolute, 8.0 x 10 ⁵ Pa) |
| Valve opening/closing time at supply pressure | NW50, ISO63/80/100 ISO160 | 2 s / < 1.5 s 3 s / < 2.5 s |
| Pneumatic connections | | 1/8" universal thread (accepts R 1/8" or 1/8" NPT) |
| Maximum operating (surface) temperature of solenoid | | 60 °C |
| Noise (due to compressed air) | | 84 dB(A) when changing state |
| Weight | NW50 ISO63 ISO80 ISO100 ISO160 | 4.5 kg 7.5 kg 7.9 kg 9.6 kg 15.3 kg |

(1) Maximum values; depending on operating conditions and sealing materials






(2) Depending on the process conditions shorter service intervals may be required

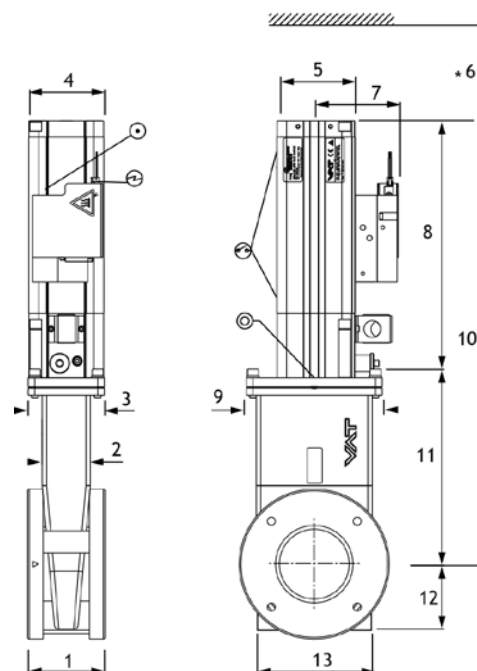
Materials of construction

| | |
|---------------------|-----------------------------------|
| Body | AISI 304 stainless steel |
| Bonnet | Aluminium |
| Gate | AISI 304 stainless steel |
| Gliders | PEEK |
| Bellows | AISI 633 stainless steel |
| Seals | Fluoroelastomer |
| Gate fixation screw | A2 stainless steel Ni-PTFE coated |

Dimensions

| | NW50 | | ISO63 | | ISO80 | | ISO100 | | ISO160 | |
|----|-------|-------|-------|-------|-------|-------|--------|------|--------|-------|
| | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch |
| 1 | 60 | 2.36 | 70 | 2.76 | 70 | 2.76 | 70 | 2.76 | 90 | 3.54 |
| 2 | 36 | 1.42 | 43 | 1.69 | 43 | 1.69 | 43 | 1.69 | 64 | 2.52 |
| 3 | 63 | 2.48 | 69 | 2.72 | 69 | 2.72 | 69 | 2.72 | 87 | 3.43 |
| 4 | 60 | 2.36 | 68 | 2.68 | 68 | 2.67 | 68 | 2.68 | 87 | 3.43 |
| 5 | 62.5 | 2.46 | 71 | 2.80 | 71 | 2.80 | 71 | 2.80 | 91 | 3.58 |
| 6 | 120 | 4.72 | 160 | 6.3 | 200 | 7.87 | 200 | 7.87 | 260 | 10.24 |
| 7 | 75 | 2.95 | 80 | 3.15 | 80 | 3.15 | 80 | 3.15 | 90 | 3.54 |
| 8 | 207 | 8.15 | 225 | 8.86 | 241.5 | 9.51 | 261.5 | 10.3 | 328 | 12.91 |
| 9 | 109.5 | 4.31 | 123 | 4.84 | 142 | 5.59 | 160 | 6.3 | 210 | 8.27 |
| 10 | 356 | 14.02 | 401 | 15.79 | 450.5 | 17.74 | 500.5 | 19.7 | 665 | 26.18 |
| 11 | 149 | 5.87 | 176 | 6.93 | 209 | 8.23 | 239 | 9.41 | 337 | 13.27 |
| 12 | 45 | 1.77 | 59 | 2.32 | 62 | 2.44 | 72 | 2.83 | 97 | 3.82 |
| 13 | 90 | 3.54 | 105 | 4.13 | 124 | 4.88 | 142 | 5.59 | 192 | 7.56 |

-  Valve seat side
-  Leak detection hole
-  Electrical connection
-  Position indicator
-  Compressed air connection



Ordering information

| BGV LOTO Valve Description | Order number |
|-------------------------------------|--------------|
| NW50 BGV LOTO VALVE 24V a.c./d.c. | B90002010 |
| ISO63 BGV LOTO VALVE 24V a.c./d.c. | B90002020 |
| ISO80 BGV LOTO VALVE 24V a.c./d.c. | B90002030 |
| ISO100 BGV LOTO VALVE 24V a.c./d.c. | B90002040 |
| ISO160 BGV LOTO VALVE 24V a.c./d.c. | B90002050 |
| BGV TIM Mk2 interface cable | B90003388 |

| Description | Order number |
|--|--------------|
| Vacuum seal kit NW50 | B90000595 |
| Vacuum seal kit ISO63 | B90000600 |
| Vacuum seal kit ISO80 | B90000605 |
| Vacuum seal kit ISO100 | B90000610 |
| Vacuum seal kit ISO160 | B90000620 |
| Bellows feed-through NW50 | B90000625 |
| Bellows feed-through ISO63 | B90000630 |
| Bellows feed-through ISO80 | B90000635 |
| Bellows feed-through ISO100 | B90000640 |
| Bellows feed-through ISO160 | B90000650 |
| Spare gate NW50 | B90000655 |
| Spare gate ISO63 | B90000660 |
| Spare gate ISO80 | B90000665 |
| Spare gate ISO100 | B90000670 |
| Spare gate ISO160 | B90000680 |
| Spare MAC solenoid 24 V d.c. low power | B90002790 |

NOTE:

The BGV LOTO pneumatic valve can be plugged directly into Edwards latest generation of dry vacuum pumps allowing full functionality. Latest generation products include: iXH, iXL, iXM and GXS pumps.

In order to connect the BGV LOTO pneumatic valve to Edwards legacy products the BGV Mk2 TIM interface cable should be used. Legacy products include: iGX, GX (or iQ and iH via the iTIM Module) pumps. The function of the LEDs is not possible with the TIM interface cable.

GLOBAL CONTACTS

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