

# 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  $1 \times 10^{-9}$  mbar ( $1.2 \times 10^5$  to  $1 \times 10^{-7}$  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

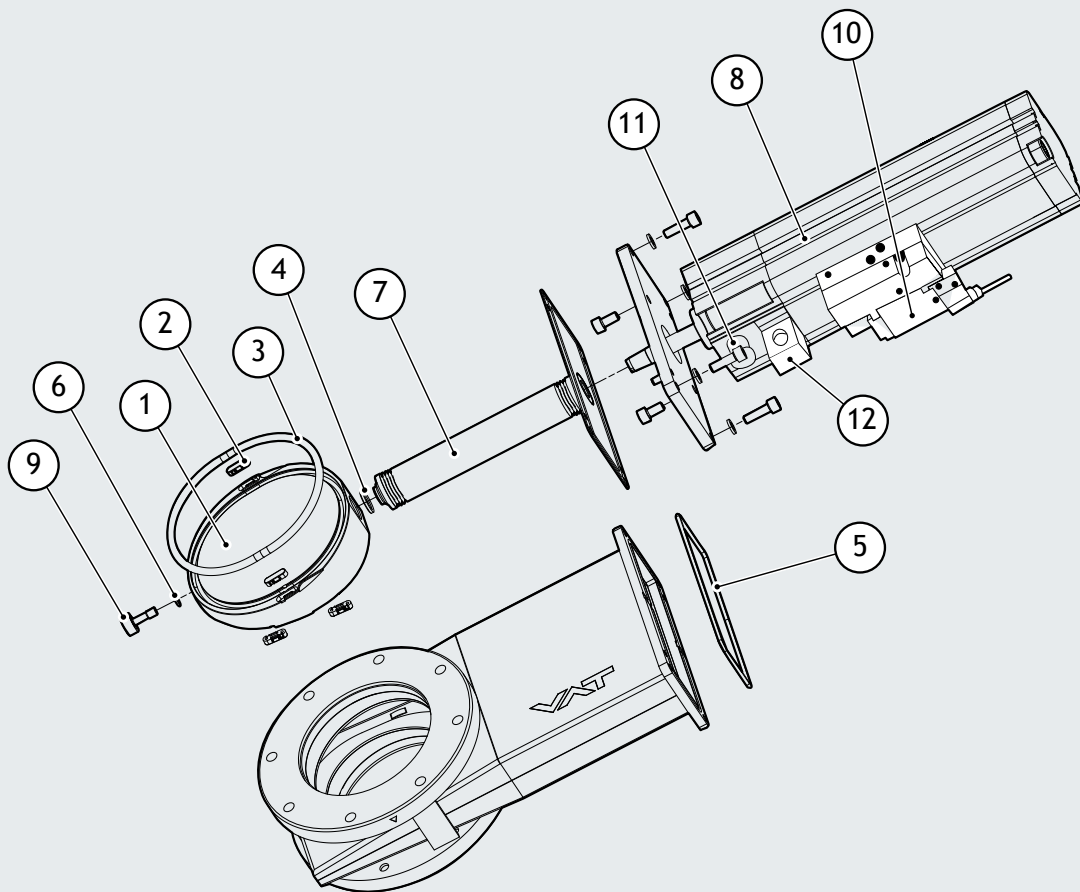
Stainless steel construction and robust design  
Long service life and reliability in harsh environments

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 <sup>(1)</sup>	Valve body Actuator Position indicator Solenoid	< 120 °C < 100 °C < 60 °C < 50 °C
Pressure range		1 x 10 <sup>-9</sup> mbar to 1.2 bar (absolute) (1 x 10 <sup>-7</sup> Pa to 1.2 x 10 <sup>5</sup> 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 <sup>-9</sup> mbar 1 s <sup>-1</sup> 1 x 10 <sup>-7</sup> mbar 1 s <sup>-1</sup>
Average life before first service <sup>(2)</sup>		5000 cycles at ambient temperature
Molecular conductance (air)	NW50 ISO63 ISO80 ISO100 ISO160	250 ls <sup>-1</sup> 600 ls <sup>-1</sup> 900 ls <sup>-1</sup> 1700 ls <sup>-1</sup> 5000 ls <sup>-1</sup>
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 <sup>5</sup> Pa) 100 psig (7.0 bar gauge, 8.0 bar absolute, 8.0 x 10 <sup>5</sup> 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

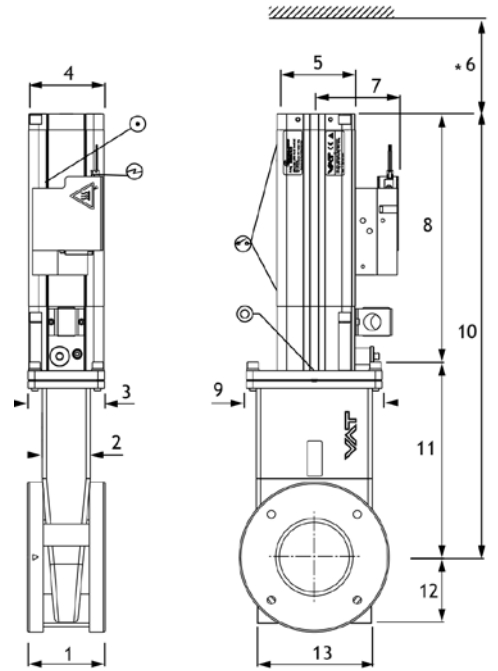
### Materials of construction

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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