

# BGV stainless steel gate valve

The BGV basement gate valves are a range of stainless-steel, bellows-sealed basement isolation valves. They have been designed to enable vacuum pumps to be kept running during foreline maintenance in order to maximise the reliability and up-time of pumps operating on harsh processes. These valves were developed for Edwards, a world leader in dry vacuum pumps, in a joint collaboration with VAT, a worldwide leader in vacuum valves, and are available with manual or pneumatic actuation.

The valves have been specially designed with a simple and innovative wedge sealing system that eliminates the complex mechanism of traditional gate valves. The benefit means no oil, grease or complex moving parts within the vacuum thereby reducing the risk of the mechanism being damaged by contamination of the lubrication in dusty processes. In addition, the simplified gate sealing design makes for quick and easy maintenance.

The BGV Valves are designed for an operating pressure range of  $1 \times 10^{-9}$  mbar to 1.2 bar absolute ( $1 \times 10^{-7}$  to  $1.2 \times 10^5$  Pa). The valves withstand 1.2 bar absolute in either direction and can tolerate opening against a 1 bar differential pressure across the valve seat.



## Features and benefits

- Stainless steel construction and robust design for a long service life
- Simple grease-free mechanism minimises damage due to particulates in dusty processes
- Can be operated with 1 bar pressure differential so pressure equalisation is not required
- Easy servicing with only inexpensive consumables for low cost of ownership
- Smooth surfaces for easy cleaning
- Available with solenoid fitted and wired for easy ordering and installation
- New BGV Mk2 pneumatic versions ready configured for use with Edwards iXH dry pumps

## Technology

The BGV valve has a unique wedge mechanism incorporating PEEK™ gliders that has the following benefits over traditional spreader mechanisms:

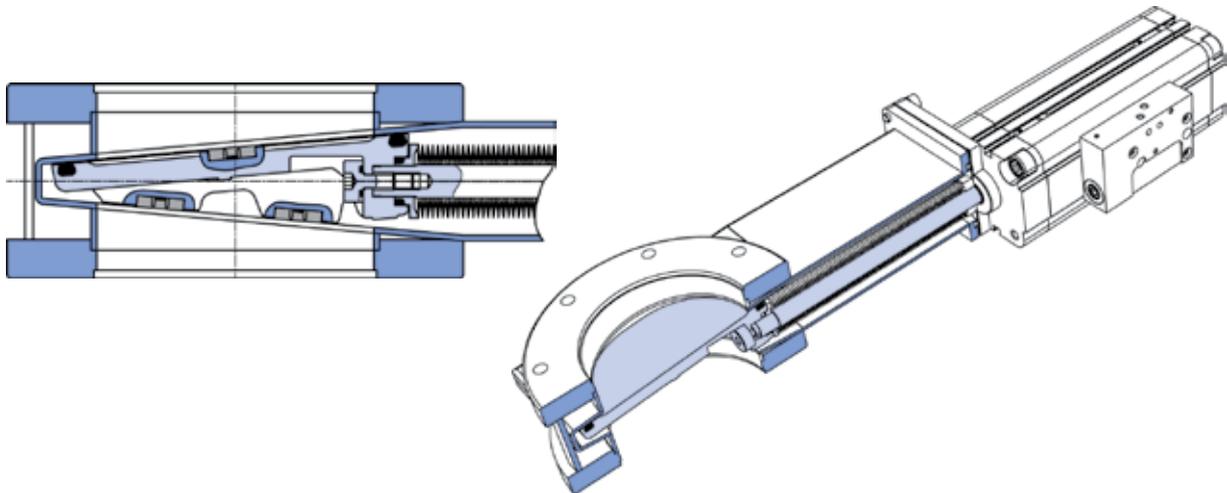
- It eliminates the need for bearings and thus grease within the vacuum. This removes the risk of damage to the mechanism due to contamination from process debris.
- The PEEK™ gliders mean no metal to metal contact and additionally they act to control the compression of the O-ring.
- As the gate closes, the O-ring brushes across the sealing surface briefly before it seals. This helps to clean debris from the sealing surface, giving a better seal.

The BGV valves are available with a choice of manual or pneumatic actuation. Building on the success of the BGV range, the pneumatic BGV Mk2 series are fitted with a 24 V ac/dc solenoid and a pre-wired cable and plug for direct connection to Edwards iXH dry vacuum pumps. This 15-way “D” plug offers a single point of connection for both power to the solenoid and the signal from the position indicators.

When use with Edwards iXH dry pumps, position indication of the gate is provided by reed-switches and local display of the valve status is also available by LEDs indicating “valve open” or “valve closed”.

The BGV Mk2 valves can also be used with other Edwards dry pumps, for example, the iQ and iH series pumps with the addition of an adaptor cable. The reed-switches are available, but the LEDs will not illuminate. For compatibility with iGX pumps, please contact Edwards.

The manual valves also have a visual indication of the gate position.



## Technical data

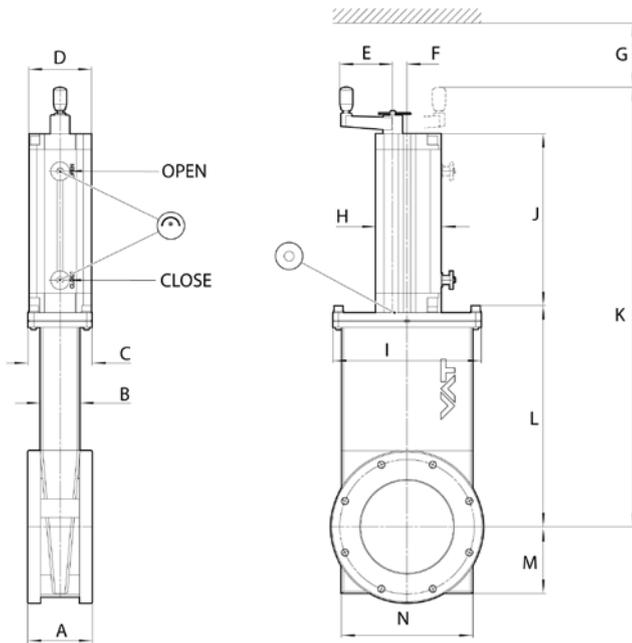
Leak rate	
Body	$< 1 \times 10^{-9}$ mbar ls <sup>-1</sup>
Valve seat	$< 1 \times 10^{-7}$ mbar ls <sup>-1</sup>
Pressure range	$1 \times 10^{-9}$ mbar to 1.2 bar (abs)
Differential pressure on the gate	$\leq 1.2$ bar in either direction
Differential pressure at opening	$\leq 1.0$ bar
Cycles until first service	20,000
Temperature	
Valve body	$\leq 120$ °C
Manual actuator	$\leq 80$ °C
Pneumatic actuator	$\leq 80$ °C
Position indicator	$\leq 60$ °C
Solenoid	$\leq 50$ °C

Molecular flow conductance	
NW50	300 ls <sup>-1</sup>
ISO63	400 ls <sup>-1</sup>
ISO80	1000 ls <sup>-1</sup>
ISO100	1700 ls <sup>-1</sup>
ISO160	4600 ls <sup>-1</sup>
Weight	
NW50	3.3 kg (7.3 lbs)
ISO63	6.6 kg (14.6 lbs)
ISO80	7.0 kg (15.4 lbs)
ISO100	8.5 kg (18.7 lbs)
ISO160	17.7 kg (39.0 lbs)

### Materials

- Body AISI 304 stainless steel
- Bonnet black anodized aluminium
- Gate AISI 304 stainless steel
- Gliders PEEK™
- Bellows AISI 633 stainless steel
- Seals fluoroelastomer
- Gate fixation screw A2 stainless steel Ni-PTFE coated
- Handle reinforced polyamide

## Manual valve

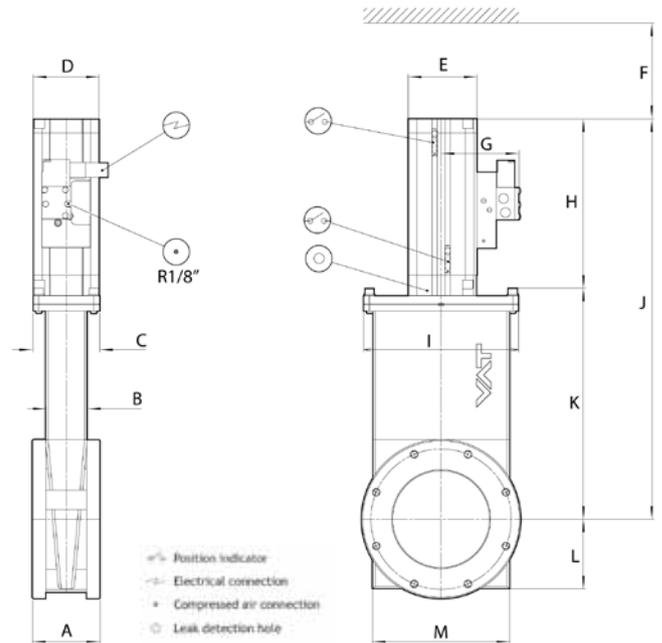


		NW50	ISO63	ISO80	ISO100	ISO160
A	mm	60	70	70	70	90
	inch	2.36	2.75	2.75	2.75	3.54
B	mm	36	43	43	43	64
	inch	1.42	1.69	1.69	1.69	2.52
C	mm	63	69	69	69	87
	inch	2.48	2.71	2.71	2.71	3.42
D	mm	60	68	68	68	87
	inch	2.36	2.67	2.67	2.67	3.42
E	mm	57	57	57	57	73
	inch	2.24	2.24	2.24	2.24	2.87
F	mm	13	15.5	15.5	15.5	20.5
	inch	0.51	0.61	0.61	0.61	0.8
G	mm	120	160	200	200	260
	inch	4.72	6.3	7.87	7.87	10.23
H	mm	62	71	71	71	91
	inch	2.44	2.79	2.79	2.79	3.58
I	mm	110	123	142	160	210
	inch	4.33	4.84	5.59	6.3	8.26
J	mm	134	149	165	185	264
	inch	5.28	5.86	6.49	7.28	10.39
K	mm	334	375	424	474	651
	inch	13.15	14.76	16.69	18.66	25.62N
L	mm	149	176	209	239	337
	inch	5.87	6.92	8.23	9.4	13.27
M	mm	45	53.5	72	72	97
	inch	1.77	2.1	2.83	2.83	3.83
N	mm	90	105	124	142	192
	inch	3.54	4.13	4.88	5.59	7.55

### Turns of handle to open/close

NW50	22
ISO63	27
ISO80	33
ISO100	39
ISO160	56

## Solenoid valve



		NW50	ISO63	ISO80	ISO100	ISO160
A	mm	60	70	70	70	90
	inch	2.36	2.75	2.75	2.75	3.54
B	mm	36	43	43	43	64
	inch	1.42	1.69	1.69	1.69	2.52
C	mm	63	69	69	69	87
	inch	2.48	2.71	2.71	2.71	3.42
D	mm	60	68	68	68	87
	inch	2.36	2.67	2.67	2.67	3.42
E	mm	63	71	71	71	91
	inch	2.48	2.79	2.79	2.79	3.58
F	mm	120	160	200	200	260
	inch	4.72	6.3	7.87	7.87	10.23
G	mm	77	82	82	82	92
	inch	3.03	3.22	3.22	3.22	3.62
H	mm	119	138	174.5	174.5	241
	inch	4.69	5.43	6.87	6.87	9.48
I	mm	110	123	142	160	210
	inch	4.33	4.84	5.59	6.3	8.26
J	mm	268	314	384	413.5	578
	inch	10.55	12.36	15.12	16.27	22.75
K	mm	149	176	209	239	337
	inch	5.87	6.92	8.23	9.4	13.27
L	mm	45	68	72	83	113
	inch	1.77	2.68	2.83	3.27	4.45
M	mm	90	105	124	142	192
	inch	3.54	4.13	4.88	5.59	7.55

### Solenoid rating

Standard solenoid	24 V - 15% + 10% AC/DC, 2.4 W
Position indicator rating	12 - 30 V AC/DC, max 500 mA, max 10 W

### Pneumatic supply

Minimum supply pressure	58 psig (4 bar gauge, 5 bar absolute, 5 x 10 <sup>5</sup> Pa)
Maximum supply pressure	100 psig (7 bar gauge, 8 bar absolute, 8 x 10 <sup>5</sup> Pa)

## Ordering information

### Manual valves

NW50	B90000195	BGV manual gate valve NW50
ISO63	B90000200	BGV manual gate valve ISO63
ISO80	B90000215	BGV manual gate valve ISO80
ISO100	B90000220	BGV manual gate valve ISO100
ISO160	B90000230	BGV manual gate valve ISO160

### Pneumatic valves

Pre-wired with cable for use with iXH dry pumps

NW50	B90003105	BGV Mk2 Pneumatic gate valve NW50 with solenoid
ISO63	B90003110	BGV Mk2 Pneumatic gate valve ISO63 with solenoid
ISO80	B90003125	BGV Mk2 Pneumatic gate valve ISO80 with solenoid
ISO100	B90003130	BGV Mk2 Pneumatic gate valve ISO100 with solenoid
ISO160	B90003140	BGV Mk2 Pneumatic gate valve ISO160 with solenoid

For other Edwards pumps - iQ, iH with TIM control - add BGV Mk2 interface cable B90003388

### Common spares and accessories

Vacuum seals 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



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