

# BGV STAINLESS STEEL GATE VALVE MANUAL AND PNEUMATIC

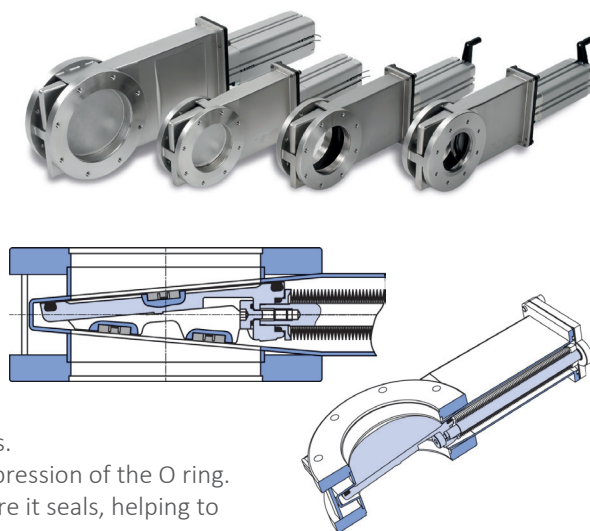
[edwardsvacuum.com](http://edwardsvacuum.com)

**Edwards BGV 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 gate valves are also ideal in other applications where a 1 bar differential at opening is desirable.**

They are designed for use in the pressure range of 1.2 bar absolute to  $1 \times 10^{-8}$  mbar ( $1.2 \times 10^5$  to  $1 \times 10^{-6}$  Pa). BGV gate 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 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.



BGV gate valves are available with a choice of manual or pneumatic actuation. The BGV manual valves have a visual indication of the gate position on the side of the assembly to show when it is open.

The BGV Mk2 pneumatic variant has reed switches which can be used by your control equipment to determine if the valve is open or closed, these also contain LEDs providing a visual display of the valve position. Each BGV Mk2 pneumatic 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.

Able to withstand 1.2 bar absolute in either direction  
**Avoiding re-start issues by keeping the pump 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**

## 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	< 150 °C < 100 °C < 60 °C < 50 °C
Pressure range		1 x 10 <sup>-8</sup> mbar to 1.2 bar (absolute) (1 x 10 <sup>-6</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 1s <sup>-1</sup> 1 x 10 <sup>-7</sup> mbar 1s <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>
Weight	NW50 ISO63 ISO80 ISO100 ISO160	3.3 kg 6.6 kg 6.9 kg 7.1 kg 14.5 kg

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

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

#### Pneumatic valve only

Electrical supply		24 V -15%, +10% a.c./d.c., 2.4 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	58 psig (4.0 bar gauge, 5.0 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 or closing time at supply pressure	NW50 ISO63/80/100 ISO160	< 1.5 s < 2 s < 3 s
Pneumatic connections		1/8" universal thread (accepts R 1/8" or 1/8" NPT)
Noise (due to compressed air)		84 dB(A) when changing state






#### Materials of construction

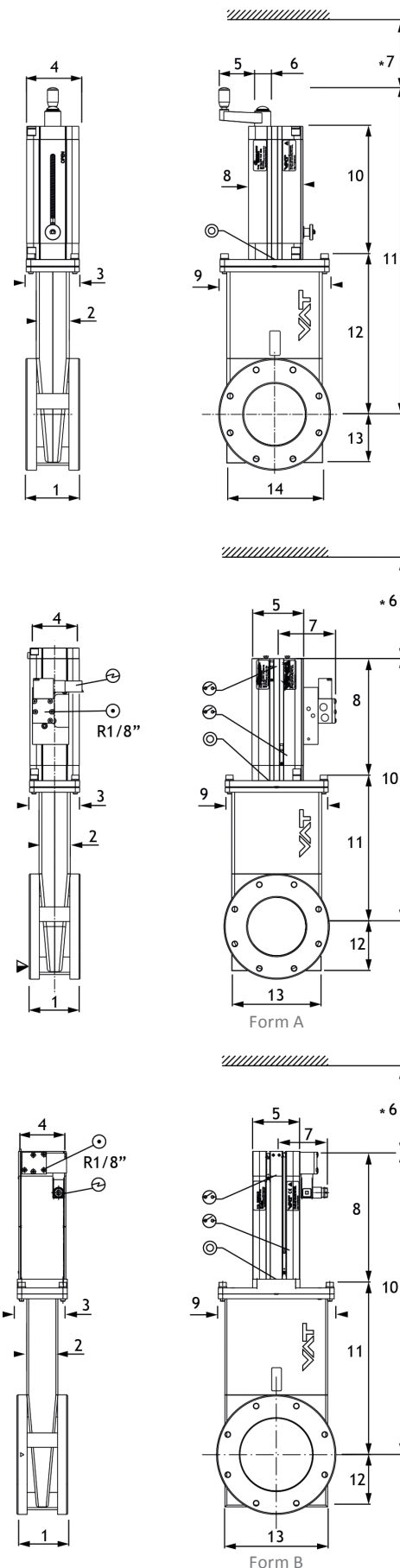
Body	AISI 304 stainless steel
Bonnet	Aluminium
Gate	AISI 304 stainless steel
Gliders	PEEK
Bellows	AISI 633 stainless steel
Seals	Fluoroelastomer
Gate fixation screw	A2 stainless steel Ni-PTFE coated

## DIMENSIONS

BGV Manual Gate Valve										
	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	43.6	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	2.68	68	2.68	87	3.43
5	57	2.24	57	2.24	57	2.24	57	2.24	73	2.87
6	13.5	0.53	15.5	0.61	15.5	0.61	15.5	0.61	20.5	0.81
7	120	4.72	160	6.30	200	7.87	200	7.87	260	10.24
8	62	2.46	71	2.80	71	2.79	71	2.79	91	3.58
9	109.5	4.31	123	4.84	142	5.59	160	6.3	210	8.27
10	135	5.31	149	5.87	165	6.50	185	7.28	250	9.84
11	334	13.15	375	14.76	424	16.69	474	18.66	651	25.63
12	149	5.87	176	6.93	209	8.23	239	9.41	337	13.27
13	45	1.77	59	2.32	62	2.44	72	2.83	97	3.82
14	90	3.54	105	4.13	124	4.88	142	5.59	192	7.56

BGV Mk2 Pneumatic Gate Valve										
	NW50		ISO63		ISO80		ISO100		ISO160	
	Form A		Form A		Form A		Form B		Form B	
	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	2.67	68	2.68	65	2.56	75	2.95
5	62.5	2.46	71	2.79	71	2.80	65	2.56	75	2.95
6	120	4.72	160	6.3	200	7.87	200	7.87	260	10.24
7	77	3.03	82	3.22	82	3.23	58	2.28	63	2.48
8	119	4.69	138	5.43	154	6.06	180	7.09	241	9.49
9	109.5	4.31	123	4.84	142	5.59	160	6.3	210	8.27
10	268	10.55	314	12.36	363	14.29	419	16.50	578	22.76
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 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
BGV Mk2 Pneumatic valves		
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
	B90003388	BGV Mk2 TIM Interface Cable

Common spares and accessories	
B90001700	Vacuum seal kit NW50
B90001701	Vacuum seal kit ISO63
B90001702	Vacuum seal kit ISO80
B90001703	Vacuum seal kit ISO100
B90001704	Vacuum seal kit ISO160
B90000625	Bellows feed-through NW50
B90000630	Bellows feed-through ISO63
B90000635	Bellows feed-through ISO80
B90000640	Bellows feed-through ISO100
B90000650	Bellows feed-through ISO160
B90000655	Spare gate NW50
B90000660	Spare gate ISO63
B90000665	Spare gate ISO80
B90000670	Spare gate ISO100
B90000680	Spare gate ISO160
B90000790	Spare solenoid 24 V
D37480835	Accessories Extension Lead (5 m)

## NOTE:

The BGV Mk2 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 Mk2 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 functionality of the LEDs is not available on legacy products.

Publication Number: 3601 0055 01

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