

BGV Manual Gate Valves



The BGV basement gate valves are a range of stainless steel, bellows-sealed basement isolation valves. They have been designed, in conjunction with VAT, to enable pumps to be kept running during foreline maintenance in order to maximise the reliability and up-time of pumps operating on harsh processes. The BGV valves are designed for an operating pressure range of 1×10^{-9} mbar to 1.2 bar absolute (1×10^{-7} to 1.2×10^5 Pa). The valves withstand 1.2 bar absolute in either direction and can tolerate against a 1 bar differential pressure across the valve seal.

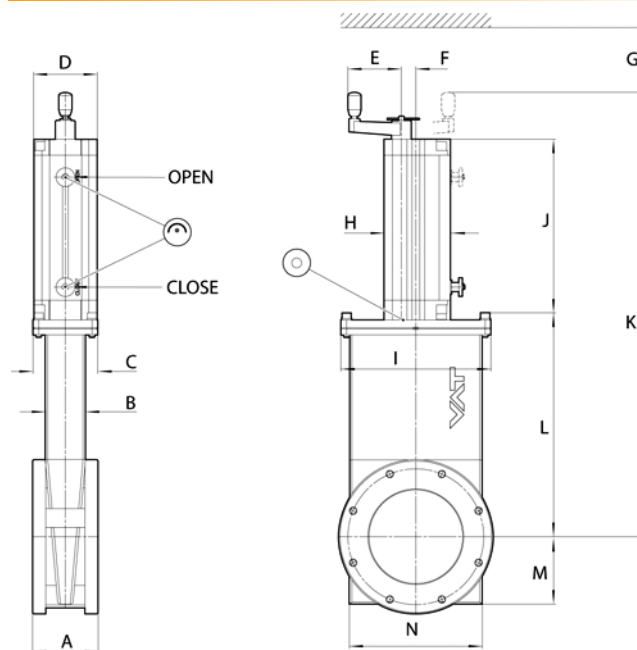
Although principally designed for isolation of pumps in a semiconductor fab basement, the BGV valves are ideal for other applications where a 1 bar differential at opening is desirable and 20000 cycles is acceptable.



Features & Benefits

- Jointly developed with VAT, a world leader in sealing technology.
- Stainless steel construction and robust patented design for a long service life
- Simple grease-free mechanism minimizes damage due to particulates in dusty processes
- Can be operated with 1 bar pressure differential so pressure equalization is not required
- Easy servicing with only inexpensive consumables for low cost of ownership

Dimensions



		NW50	ISO63	ISO80	ISO100	ISO160
A	mm/inch	60/2.36	70/2.75	70/2.75	70/2.75	90/3.54
B	mm/inch	36/1.41	43/1.69	43/1.69	43/1.69	64/2.52
C	mm/inch	63/2.48	69/2.71	69/2.71	69/2.71	87/3.42
D	mm/inch	62/2.44	62/2.44	62/2.44	62/2.44	62/2.44
E	mm/inch	60/2.36	68/2.67	68/2.67	68/2.67	87/3.42
F	mm/inch	120/4.72	160/6.3	200/7.87	200/7.87	260/10.23
G	mm/inch	62.5/2.46	71/2.79	71/2.79	71/2.79	91/3.58
H	mm/inch	70.5/2.77	75/2.95	75/2.95	75/2.95	85/3.34
I	mm/inch	119/4.68	138/5.43	155/6.09	174.5/6.86	241/9.47
J	mm/inch	110/4.32	123/4.83	142/5.58	160/6.29	210/8.25
K	mm/inch	268/10.53	314/12.34	364/14.31	413.5/16.25	578/22.72
L	mm/inch	149/5.86	176/6.92	209/8.21	239/9.39	337/13.24
M	mm/inch	45/1.77	53.5/2.1	72/2.83	72/2.83	97/3.81
N	mm/inch	90/3.54	105/4.13	124/4.87	142/5.58	192/7.55

Technical Data

Leak rate	
Body	$< 1 \times 10^{-9}$ mbar ls ⁻¹
Valve seat	$< 1 \times 10^{-7}$ mbar ls ⁻¹
Pressure range	1×10^{-9} mbar to 1.2 bara
Differential pressure on the gate	1.2 bar in either direction
Differential pressure at opening	1 bar
Cycles until first service	20, 0000
Maximum operating temps	
Valve body	120 °C
Manual actuator	80 °C
Pneumatic actuator	80 °C
Position indicator	60 °C
Solenoid	50 °C
Molecular flow conductance	
NW50	300 ls ⁻¹
ISO63	400 ls ⁻¹
ISO80	1100 ls ⁻¹
ISO100	1700 ls ⁻¹
ISO160	4600 ls ⁻¹
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 of construction:	
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-teflon coated
Handle	Reinforced polyamide
Manual Valves	
Turns of the handle to open/close	
NW50	22
ISO63	27
ISO80	33
ISO100	39
ISO160	41

Ordering Information

Product Description	Order No.
BGV manual gate valve NW50	B90000195
BGV manual gate valve ISO63	B90000200
BGV manual gate valve ISO80	B90000215
BGV manual gate valve ISO100	B90000220
BGV manual gate valve ISO160	B90000230
Accessories & Spares	Order No.
Vacuum seals kit NW50	B90000595
Vacuum seals kit ISO63	B90000600
Vacuum seals kit ISO80	B90000605
Vacuum seals kit ISO100	B90000610
Vacuum seals 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 solenoid 24V a.c./d.c.	B90000790

BGV Pneumatic Gate Valves



The BGV basement gate valves are a range of stainless steel, bellows-sealed basement isolation valves. They have been designed, in conjunction with VAT, to enable pumps to be kept running during foreline maintenance in order to maximise the reliability and up-time of pumps operating on harsh processes. The BGV valves are designed for an operating pressure range of 1×10^{-9} mbar to 1.2 bar absolute (1×10^{-7} to 1.2×10^5 Pa). The valves withstand 1.2 bar absolute in either direction and can tolerate against a 1 bar differential pressure across the valve seal.

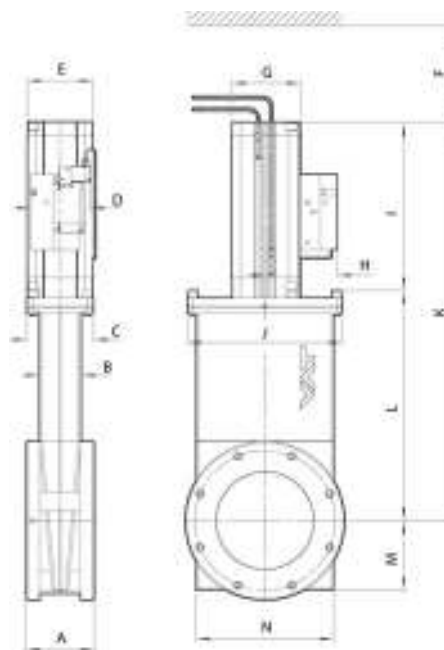
Although principally designed for isolation of pumps in a semiconductor fab basement, the BGV valves are ideal for other applications where a 1 bar differential at opening is desirable and 20000 cycles is acceptable.



Features & Benefits

- Jointly developed with VAT, a world leader in sealing technology.
- Stainless steel construction and robust patented design for a long service life
- Simple grease-free mechanism minimizes damage due to particulates in dusty processes
- Can be operated with 1 bar pressure differential so pressure equalization is not required
- Easy servicing with only inexpensive consumables for low cost of ownership

Dimensions



		NW50	ISO63	ISO80	ISO100	ISO160
A	mm/inch	60/2.36	70/2.75	70/2.75	70/2.75	90/3.54
B	mm/inch	36/1.41	43/1.69	43/1.69	43/1.69	52.5/2.06
C	mm/inch	63/2.48	69/2.71	69/2.71	69/2.71	87/3.42
D	mm/inch	60/2.36	68/2.67	68/2.67	68/2.67	87/3.42
E	mm/inch	57/2.24	57/2.24	57/2.24	57/2.24	73/2.87
F	mm/inch	13/0.51	15.5/0.61	15.5/0.61	15.5/0.61	20.3/0.8
G	mm/inch	120/4.71	160/6.3	200/7.87	200/7.87	260/10.23
H	mm/inch	62.5/2.46	71/2.79	71/2.79	71/2.79	91/3.58
I	mm/inch	110/4.32	123/4.84	142/5.58	160/6.3	210/8.26
J	mm/inch	134/5.27	149/5.86	165/6.49	185/7.28	264/10.39
K	mm/inch	333/13.09	375/14.76	424/16.66	474/18.66	651/25.62
L	mm/inch	149/5.86	176/6.92	209/8.21	239/9.4	337/13.27
M	mm/inch	45/1.77	53.5/2.1	72/2.83	72/2.83	97/3.83
N	mm/inch	90/3.54	105/4.13	124/4.87	142/5.59	192/7.55

Technical Data

Leak rate

Body	$< 1 \times 10^{-9}$ mbar ls ⁻¹
Valve seat	$< 1 \times 10^{-7}$ mbar ls ⁻¹
Pressure range	1×10^{-9} mbar to 1.2 bara

Differential pressure on the gate 1.2 bar in either direction

Differential pressure at opening 1 bar

Cycles until first service 20, 0000

Maximum operating temperatures

Valve body	120 °C
Manual actuator	80 °C
Pneumatic actuator	80 °C
Position indicator	60 °C
Solenoid	50 °C

Molecular flow conductance

NW50	300 ls ⁻¹
ISO63	400 ls ⁻¹
ISO80	1100 ls ⁻¹
ISO100	1700 ls ⁻¹
ISO160	4600 ls ⁻¹

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 of construction:

Body	AISI 304 stainless steel
Bonnet	Black anodized aluminum
Gate	AISI 304 stainless steel
Gliders	PEEK
Bellows	AISI 633 stainless steel
Seals	Fluoroelastomer
Gate fixation screw	A2 stainless steel Ni-TEFLON coated
Handle	Reinforced polyamide

Pneumatic valves

Solenoid rating

Standard solenoid 24 V - 15% / + 10%, AC/DC, 2.4 W

Position indicator contact rating 12 - 30 V AC/DC, max 500 mA, max 10 W

Pneumatic supply

Min supply pressure 58 psig (4 bar gauge, 5 bar absolute, 5×10^5 Pa)

Max supply pressure 100 psig (7 bar gauge, 8 bar absolute, 8×10^5 Pa)

Pneumatic connection R1/8 inch (1/8 inch NPT for valves ordered in USA)

Ordering Information

Product Description

BGV pneumatic gate valve NW50	B90003105
BGV pneumatic gate valve ISO63	B90003110
BGV pneumatic gate valve ISO80	B90003125
BGV pneumatic gate valve ISO100	B90003130
BGV pneumatic gate valve ISO160	B90003140

Accessories & Spares

Accessories & Spares	Order No.
Vacuum seals kit NW50	B90000595
Vacuum seals kit ISO63	B90000600
Vacuum seals kit ISO80	B90000605
Vacuum seals kit ISO100	B90000610
Vacuum seals kit ISO160	B90000620
Bellows feed-through NW50	B90000625
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Spare gate NW50	B90000655
Spare gate ISO63	B90000660
Spare gate ISO80	B90000665
Spare gate ISO100	B90000670
Spare gate ISO160	B90000680
Spare solenoid 24V a.c./d.c.	B90000790
BGV mk2 TIM interface cable	B90003388

GV Manual and Pneumatic Gate Valves



The Edwards GV range of stainless steel, bellows sealed gate valves is designed for applications requiring overall leak tightness and a minimum of hydrocarbon in the residual atmosphere.

These superior quality valves offer high vacuum integrity coupled with maximum conductance. The valves are available with flange options of ISO, CF (metal sealed) for applications at ultra high vacuum requiring increased bakeout temperatures.

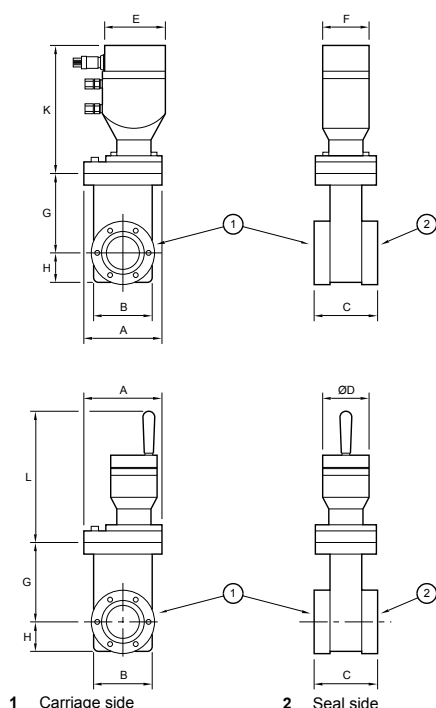
The stainless steel valve bodies are vacuum brazed, a special process which includes a bakeout at 1100 °C. This eliminates any possibility of virtual leaks and ensures a product with low outgassing characteristics.

A laser welded stainless steel bellows effectively seals the actuator from the valve. The concept provides ease of servicing and allows the gate and linkage mechanism to be removed while the valve remains in situ.

Features & Benefits

- In situ removal of gate and linkage mechanism for easy servicing
- Virtual leaks eliminated due to vacuum brazed manufacture
- Electropolished finish inside and outside
- Compact design with high conductance
- Manual or pneumatic options
- Microswitch position indicator as standard on pneumatic version
- Long periods of use between maintenance
- Low vibration and shock
- Free choice of orientation
- Wide range from 40 mm / 1.56 inch bore up to 320 mm / 12.48 inch bore
- Flange options – ISO, CF (metal sealed)
- High reliability – 1000000 cycle option
- Optional 3 position operation
- Vacuum brazed to 1100 °C to eliminate virtual leaks

Dimensions



Technical Data

Pressure range	10 ⁻⁹ mbar to 1 bar (absolute) / 8 x 10 ⁻¹⁰ – 750 Torr
Leak rate	< 10 ⁻⁹ mbar l s ⁻¹ / 8 x 10 ⁻¹⁰ Torr l s ⁻¹
Maximum differential pressure on the valve plate	1 bar / 750 Torr in either direction
Maximum differential pressure on the valve plate at opening	20 mbar / 15 Torr
Position indicator switch, breaking capacity	24 V d.c., 5 A
Material of construction	
Body, valve plate	AISI 304 stainless steel
Mechanism	AISI 304 stainless steel
Bearings	Hardened high carbon chrome steel
Circlips	SS PH 15-7 Mo
Bellows	AM 350 stainless steel
Seals, valve plate	Fluoroelastomer
Bonnet	
Metal sealed valves	OFHC
Other valves	Fluoroelastomer
Bakeout temperature	
Valve body, valve open	150 °C (fluoroelastomer bonnet seal)
Valve body, valve open	250 °C (metal bonnet seal)
Valve closed	200 °C
Actuator, manual	200 °C
Actuator, pneumatic	100 °C
Average life until first service*	100000 closures
Mounting position	Any orientation
Pneumatic operating pressure	4 – 5.5 bar / 60 – 80 psi

* Dependent on the vacuum environment and the opening and closing speed

Flange Bore		Conductance in High Vacuum l s ⁻¹	Pneumatic Valve Minimum Closing & Opening Time at 5 bar, Seconds	Approx Weight, kg
mm	in			
40	1.5	130	0.5	5
50	2	250	0.5	6
63	2.5	520	1	8
100	4	2000	1.5	15
160	6	6300	1.5	23
200	8	15000	2 (close) 3 (open)	34
250	10	23000	3 (close) 4 (open)	73
320	12	39000	3 (close) 4 (open)	77

* Special versions available, including 1 million cycle types, 3 position types, larger valves, and pneumatic versions with reed switch position indicators.

		Model No.	Body Dimensions (mm)										Flange Dimensions (mm)					
			A	B	C	Ø D	E	F	G	H	K	L	Ø M	Ø N	P	Ø S	Ø T	V
NW		GVI 040	84.1	26.2	50.5	50.8	69.3	50.7	86.1	33.0	134.9	91.7	55.0	38.1	—	41.2	—	12.7
		GVI 050	96.8	75.2	50.5	50.8	69.3	50.7	104.5	37.6	134.9	91.7	75.0	50.8	—	52.2	—	12.7
ISO		GVI 063	111.0	89.4	51.6	50.8	69.3	50.7	122.1	43.1	134.9	91.7	130.1	63.5	4	110.0	M8	12.7
		GVI 080	125.0	109.1	51.6	50.8	69.3	50.7	145.9	72.8	134.9	91.7	145.1	75.9	8	126.0	M8	12.7
		GVI 100	177.8	143.5	61.2	75.5	93.5	76.2	206.4	66.9	175.6	201.3	165.1	101.6	8	145.0	M8	12.7
		GVI 160	222.3	191.8	67.0	75.5	93.5	76.2	270.5	87.6	175.6	201.3	225.0	152.4	8	200.0	M10	16.0
		GVI 200	285.8	254.5	67.6	75.5	93.5	76.2	353.4	114.6	175.6	201.3	285.8	203.2	12	260.0	M10	15.9
		GVI 250	341.1	303.5	80.0	88.9	120.4	120.4	460.6	146.6	240.7	231.7	335.0	254.0	12	310.0	M10	19.0
		GVI 320	408.2	362.7	80.0	88.9	120.4	120.4	560.5	174.9	240.7	231.7	425.0	304.8	12	395.0	M12	19.0
CF		GVC 015	84.1	62.5	51.6	50.8	69.3	50.7	86.1	33.0	134.9	91.7	69.3	38.1	6	58.7	M6	12.7
		GVC 020	96.8	75.2	57.9	50.8	69.3	50.7	104.5	37.6	134.9	91.7	85.7	50.8	8	72.4	M8	15.9
		GVC 025	111.0	89.4	61.2	50.8	69.3	50.7	122.1	43.1	134.9	91.7	113.5	63.5	8	92.2	M8	17.5
		GVC 040	177.8	143.5	75.4	75.9	93.5	76.2	206.4	66.9	175.6	190.6	151.6	101.9	16	130.3	M8	19.8
		GVC 060	222.3	191.8	80.5	75.9	93.5	76.2	270.5	87.6	175.6	200.2	202.4	152.4	20	181.1	M8	22.4
		GVC 080	285.8	254.5	85.1	75.9	93.5	76.2	353.4	114.6	175.6	200.2	253.2	203.2	24	231.9	M8	24.6
		GVC 100	341.4	303.5	98.8	88.9	120.4	101.6	460.6	146.6	240.7	231.7	304.8	254.0	32	284.0	M8	28.5
		GVC 120	403.2	362.7	98.8	88.9	120.4	101.6	560.5	174.9	240.7	231.7	354.6	304.8	30	325.4	M10	28.5

Ordering Information

Type	Model	Flange seals	No. seals*	Fixing kit	No. kits†
ISO	GVI 063	B27158170	1	B22417187	1
	GVI 100	B27158171	1	B22417187	2
	GVI 160	B27158172	1	B22417217	2
	GVI 200	B27158081	1	B22417217	2
	GVI 250	B27158143	1	B22417247	2
	GVI 320	B27158166	1	B22417247	2
CF	GVC 015	C10001290	10	B22417157	2
	GVC 020	C10005290	10	B22417187	2
	GVC 025	C10007490	10	B22417188	2
	GVC 040	C10009290	10	B22417189	2
	GVC 060	C10011290	5	B22417190	2
	GVC 080	C10012290	5	B22417190	2
	GVC 100	C10013290	5	B22417190	2

* Number of seals in each pack.

† Number of fixing kits that are needed to mount both flanges of the valve.

Ordering Information

		Nominal			Valve Ordering (Number)
Type	Flange	Bore mm/in	Model		
ISO Manual	NW40	40/1½	GVI040	B65001000	
	NW50	50/2	GVI050	B65101000	
	ISO63	63/2½	GVI063	B65201000	
	ISO80	75/3	GVI080	N03933800	
	ISO100	100/4	GVI100	B65301000	
	ISO160	160/6	GVI160	B65401000	
	ISO200	200/8	GVI200	B65501000	
	ISO250	250/10	GVI250	B65601000	
ISO Pneumatic	ISO320	320/12	GVI320	B65701000	
	NW40	40/1½	GVI040	B65051000	
	NW50	50/2	GVI050	B65151000	
	ISO63	63/2½	GVI063	B65251000	
	ISO80	75/3	GVI080	U30002092	
	ISO100	100/4	GVI100	B65351000	
	ISO160	160/6	GVI160	B65451000	
	ISO200	200/8	GVI200	B65551000	
CF Manual	ISO250	250/10	GVI250	B65651000	
	ISO320	320/12	GVI320	B65751000	
	2.37 inch od CF	40/1½	GVC015	B65003000	
	3.37 inch od CF	50/2	GVC020	B65103000	
	4.47 inch od CF	63/2½	GVC025	B65203000	
	6.00 inch od CF	100/4	GVC040	B65303000	
	8.00 inch od CF	160/6	GVC060	B65403000	
	10.00 inch od CF	200/8	GVC080	B65503000	
CF Pneumatic	12.00 inch od CF	250/10	GVC100	B65603000	
	14.00 inch od CF	320/12	GVC120	B65703000	
	2.37 inch od CF	40/1½	GVC015	B65053000	
	3.37 inch od CF	50/2	GVC020	B65153000	
	4.47 inch od CF	63/2½	GVC025	B65253000	
	6.00 inch od CF	100/4	GVC040	B65353000	
	8.00 inch od CF	160/6	GVC060	B65453000	
	10.00 inch od CF	200/8	GVC080	B65553000	
	2.00 inch od CF	250/10	GVC100	B65653000	
	14.00 inch od CF	320/12	GVC120	B65753000	