VACUUM FITTINGS AND VALVES

SOLUTIONS YOU CAN TRUST

Valves for Vacuum Systems

Complete Range

Whatever the application, Edwards has the right solution to meet your process requirements. Well known for its innovation in pump design, Edwards applies the same energy and commitment to its valves. The result is an extensive range of valves, with a choice of actuation methods, materials and size. Materials of construction have been uncompromisingly selected for performance in high vacuum. Confidence in Edwards valves begins early in the design process.

We use techniques such as Finite Element Analysis to optimise the design of the valve. An arduous testing program in our environmental testing laboratory prior to release to production ensures that every valve we supply will meet the needs of your application.

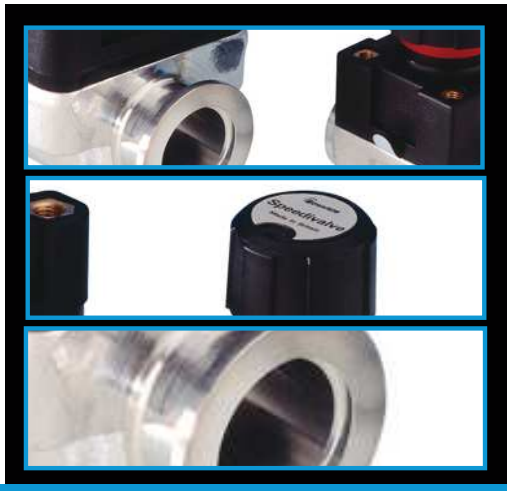
Once in production, all valves are subject to stringent quality control and are individually tested with a helium mass spectrometer leak detector. Bellows sealed pipeline valves are manufactured with 100% grease free O-rings exposed to vacuum delivering unrivalled low contamination levels.

Selection Guide

When you design a vacuum system, your choice of valves will be determined by the need for certain operating parameters. When you choose a valve for your vacuum system, consider all of the parameters listed in the left hand column of the table as described below.

- **Actuation** The choice is manual, solenoid or pneumatic, which will be determined by your system design and what facilities are available to the machine.
- **Dirty System Tolerance** Vacuum valves have a differing ability to remain leak tight in “dirty” vacuum systems. If your system generates or contains dust or other particulates, choose a valve with a high tolerance.
- **Size** Choose a valve which complements the size of your vacuum pipeline. To maintain high pumping speeds and throughputs, do not reduce the size of your pipeline to accommodate a smaller valve.
- **Pressure Range** Both the maximum and minimum pressure rating are important, particularly if the vacuum system is occasionally pressurised to above atmospheric pressure.
- **Port Configuration** Depending on the location of the valve, you may need either an in-line or a right angle valve.
- **Life** The mean time to failure is important for solenoid and pneumatic valves in rapid cycle duties, or where you have extended maintenance intervals.
- **Position Indication** You may need local or remote indication of valve, position as part of your control system.
- **Closure Speed** Use either a solenoid valve or pneumatic valve if you must have rapid valve closure.
- **Corrosion Resistance** Valves are available in stainless steel for those applications that process corrosive gases.

SPEEDIVALVE



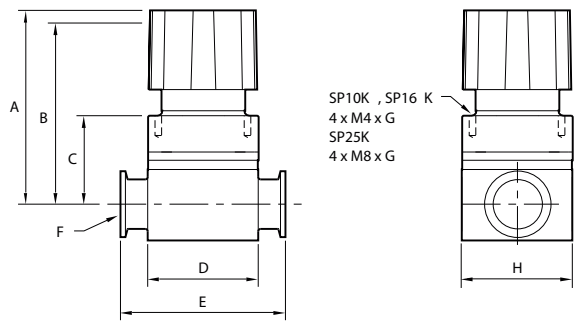
Edwards SP Speedivalves are diaphragm sealed in-line, isolation valves. The construction consists essentially of a flexible elastomeric diaphragm which is sealed onto a lightly polished seat by a screw thread mechanism. The mechanism is isolated from the system by the diaphragm resulting in an extremely rugged and 'dirty' system tolerant valve.

The valve terminates in NW flanges and can be pipeline supported or panel mounted. (SP40K is pipeline supported only).

Features and benefits

- Easy to operate with visual indication of valve open (SP10K to SP25K).
- Leak tight to better than 10^{-6} mbar ls^{-1} / 8×10^{-7} Torr ls^{-1}.
- Diaphragm completely isolates mechanism from vacuum system.
- Extremely rugged and 'dirty' system tolerant
- Will withstand 9 bar overpressure (SP10K to SP40K, with Co-Seal).

Speedivalve Dimension



Model	A Open	B Closed	C	D	E	F	G	H
SP10K	71	64	33.5	42	60	NW10	8	43
SP16K	71	64	33.5	42	80	NW16	8	43
SP25K	123	111	51	67	100	NW25	12	72
SP40K	130	–	–	105	130	NW40	–	96

Technical Data

	Speedivalve
Construction materials	
Body	Aluminium alloy to BS1490
Hand wheel and bonnet	Glass reinforced plastics
Diaphragms	Nitrile or Fluoroelastomer
Leak rate (1 bar / 14.5 psi differential)	
Valve (overall and across seat)	10^{-6} mbar ls^{-1}/8 x 10^{-7} Torr ls^{-1}
Coupling	10^{-7} mbar ls^{-1}/8 x 10^{-8} Torr ls^{-1}
Molecular conductance	
SP10K, SP16K	1.7 ls^{-1}
SP25K	9.0 ls^{-1}
SP40K	23.3 ls^{-1}
Pressure rating using co-seal	9 bar/131 psi
Ambient operating range	0 to 40 ˚C
Ambient storage range	-10 to 40 ˚C
Panel thickness	3 mm/0.117 in maximum
Weight	
SP10K	230 g/8.1 oz
SP16K	240 g/8.4 oz
SP25K	760 g/26.6 oz
SP40K	2300 g/80.5 oz
Baking temperature	60 ˚C

Speedivalve

Ordering information

Product description	Order no:
SP10K, Nitrile Diaphragm	C33105000
SP10K, Fluoroelastomer Diaphragm	C33155000
SP16K, Nitrile Diaphragm	C33205000
SP16K, Fluoroelastomer Diaphram	C33255000
SP25K, Nitrile Diaphram	C33305000
SP25K, Fluoroelastomer Diaphram	C33355000
SP40K, Nitrile Diaphragm	C33405000
SP40K, Fluoroelastomer Diaphragm	C33455000

Diaphragm

Product description	Order no:
Fluoroelastomer Diaphragm	
Fluoroelastomer Diaphragm for SP10/16	C33155800
Fluoroelastomer Diaphragm for SP25	C33355800
Fluoroelastomer Diaphragm for SP40	C33455800
Nitrile Diaphragm	
Nitrile Diaphragm for SP10/16	C33105800
Nitrile Diaphragm for SP25	C33305800
Nitrile Diaphragm for SP40	C33405800

IBV SERIES VACUUM BALL VALVES

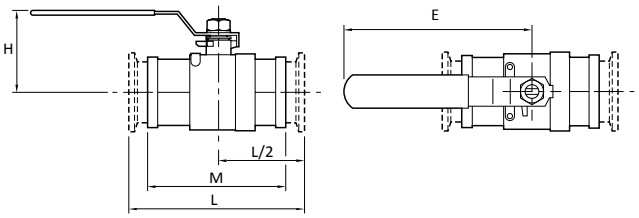
Ball valves are popular in applications where fast action and full bore pumping are needed.

The Edwards IBV series valves combine these practical everyday features plus ease of use and economy in a high specification design. Manufactured in 316L stainless steel with PTFE seats they deliver robust performance in a wide variety of vacuum duties.

Features and benefits

- Low capital cost
- Convenient NW16, 25, 40, 50 sizes
- Optional BSP threaded versions
- Easy to use manual operation
- High conductance full bore pumping

IBV Dimension



Model	E	H	L	M	Flange
IBV16MKS	123	56	97.3	-	NW10/16
IBV16MS	123	56	-	59.7	½" BSP
IBV25MKS	145	70	125.7	-	NW25
IBV25MS	145	70	-	82.5	1" BSP
IBV40MKS	189	84	166	-	NW40
IBV40MS	189	84	-	111	1½" BSP
IBV50MKS	189	94	175.9	-	NW50
IBV50MS	189	94	-	125	2" BSP

Technical Data

	IBV
Construction materials	
Body/Ball	AISI 316L stainless steel
Cups	PTFE
Leak rate	1 x 10^{-6} mbar ls^{-1}/ 8 x 10^{-7} Torr ls^{-1}
Molecular conductance	
IBV16MKS	5.3 ls^{-1}
IBV25MKS	15.9 ls^{-1}
IBV40MKS	46.5 ls^{-1}
IBV50MKS	86.0 ls^{-1}
Pressure rating (bar absolute) using NW co-seal	7 bar/102 psi
Ambient operating temp range	5 to 65 ˚C
Reliability MTTF	30000 cycles
Weight (g/lbs)	
IBV16MKS (MS)	1200/2.6 (750/1.7)
IBV25MKS (MS)	1750/3.9 (1500/3.3)
IBV40MKS (MS)	3100/6.8 (2600/5.7)
IBV50MKS (MS)	4300/9.4 (3600/7.9)

IBV series vacuum ball valves

Ordering information

Product description	Order no:
IBV16MKS Ball Valve NW16	C36000100
IBV16MS Ball Valve ½" BSP	C36000110
IBV25MKS Ball Valve NW25	C36000200
IBV25MS Ball Valve 1" BSP	C36000210
IBV40MKS Ball Valve NW40	C36000300
IBV40MS Ball Valve 1.1/2" BSP	C36000310
IBV50MKS Ball Valve NW50	C36000400
IBV50MS Ball Valve 2" BSP	C36000410

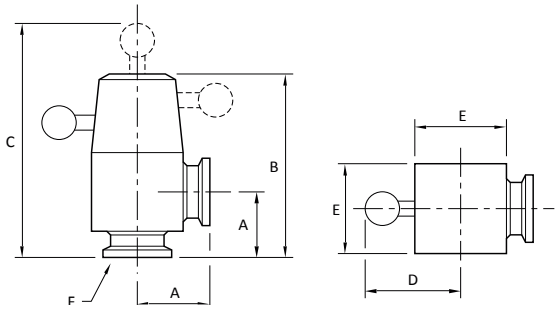
PVMK MANUAL OPERATION RIGHT ANGLE ISOLATION VALVES

The PVMK is a quick acting, bellows sealed, right-angled lever operated valve and is available with either an aluminium or stainless steel body. The lever, connected to a self lubricating plastic cam-piston, actuates the valve stem and valve plate through PTFE bearings. The valve plate 'O' ring groove is vented to prevent gas bursts. The valves are designed to operate down to 10^{-9} mbar/ 8 x 10^{-10} Torr and up to a pressure of 2100 mbar/1575 Torr (30 psi).

Features and benefits

- Easy to use
- Bellows sealed mechanism
- High conductance

PVMK Dimension



	A	B	C	D	E	F
PV10MK	30	76.5	105	38	38	NW10
PV16MK	40	85.6	114	38	38	NW16
PV25MK	50	120	149	51	51	NW25
PV40MK	65	169	222	86	77	NW40
PV50MK	70	186	239	86	89	NW50

Technical Data

	PVMK	
Construction material		
Body	HE30TF grade aluminium	
Bellows	AISI 316L stainless steel	
'O' ring	Fluoroelastomer	
Leak rate	< 10^{-9} mbar ls^{-1}/ < 7.5 x 10^{-10} Torr ls^{-1}	
Operating pressure range	10^{-9}-2100 mbar/8 x 10^{-10}-1575 Torr (30 psi)	
Molecular conductance		
PV10MK	3 ls^{-1}	
PV16MK	4 ls^{-1}	
PV25MK	10 ls^{-1}	
PV40MK	38 ls^{-1}	
PV50MK	50 ls^{-1}	
Maximum baking temperature	100 ˚C	
Reliability (MTTF)	100000 operations	
Weight	Aluminium	Stainless Steel
PV10MK	170 g/6 oz	-
PV16MK	180 g/ 6.3 oz	500 g/17.5 oz
PV25MK	490 g/17.1 oz	1050 g/36.8 oz
PV40MK	1400 g/49 oz	3300 g/116 oz
PV50MK	-	3800 g/133 oz

PVMK

Ordering information

Product description	Order no:
PV16MKA Right Angle, Aluminum, NW16	C31205000
PV16MKS Right Angle, Stainless Steel, NW16	C31215000
PV25MKA Right Angle, Aluminum, NW25	C31305000
PV25MKS Right Angle, Stainless Steel, NW25	C31315000
PV40MKA Right Angle, Aluminum, NW40	C31405000
PV40MKS Right Angle, Stainless Steel, NW40	C31415000
PV50MKS Right Angle, Stainless Steel, NW50	C31515000
PV10MKA Right Angle, Aluminum, NW10	C31105000

O-Ring Kit

Product description	Order no:
PV10/16MK O-Ring Kit	C41101800
PV25MK O-Ring kit	C41301810
PV40MK O-Ring kit	C41401800
PV50MK O-Ring kit	C41501800

Major Overhaul Kit

Product description	Order no:
PV10/16MK Major overhaul kit	C31105826
PV25MK Major overhaul kit	C31305826
PV40MK Major overhaul kit	C31405826
PV50MK Major overhaul kit	C31515826

Valve body

Product description	Order no:
Valve body PV10KA	C41101816
Valve body PV16KA	C41201816
Valve body PV16KS	C41602801
Valve body PV25KA	C41301816
Valve body PV25KS	C41622801
Valve body PV40KS	C41642801
Valve body PV50KS	C41662801

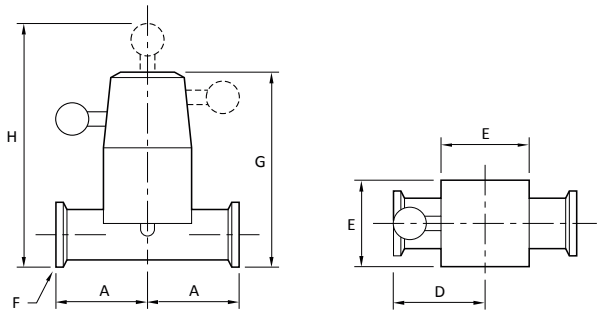
IPVMK MANUAL OPERATION IN-LINE ISOLATION VALVES

The IPVMK is a quick acting, bellows sealed, right-angled lever operated valve and is available with either an Aluminium or stainless steel body. The lever, connected to a self lubricating plastic cam-piston, actuates the valve stem and valve plate through PTFE bearings. The valve plate O-ring groove is vented to prevent gas bursts. The valves are designed to operate down to 10^{-9} mbar/ 8 x 10^{-10} Torr and up to a pressure of 2100 mbar/1575 Torr (30 psi).

Features and benefits

- Easy to use
- Bellows sealed mechanism
- High conductance

IPVMK Dimension



	A	B	C	D	E	F	G	H
IPV10MK	30	76.5	105	38	38	NW10	-	-
IPV16MK	40	85.6	114	38	38	NW16	70	99
IPV25MK	50	120	149	51	51	NW25	112	141
IPV40MK	65	169	222	86	77	NW40	155	208

Technical Data

	IPVMK	
Construction material		
Body	HE30TF grade aluminium or AISI304 grade stainless steel	
Bellows	AISI 316L stainless steel	
O-ring	Fluoroelastomer	
Leak rate	< 10^{-9} mbar ls^{-1} / < 7.5 x 10^{-10} Torr ls^{-1}	
Operating pressure range	10^{-9} – 2100 mbar/8 x 10^{-10} – 1575 Torr (30 psi)	
Molecular conductance		
IPV16MK	2 ls^{-1}	
IPV25MK	6 ls^{-1}	
IPV40MK	22 ls^{-1}	
Maximum baking temperature	100 ˚C	
Reliability (MTTF)	100000 operations	
Weight	Aluminium	Stainless Steel
IPV16MK	180 g/6.3oz	500 g/17.5oz
IPV25MK	490 g/17.1oz	1050 g/36.8oz
IPV40MK	1400 g/49oz	3300 g/116oz

IPVMK

Ordering information

Product description	Order no:
IPV16MKA, Aluminium, NW16	C41218000
IPV16MKS, Stainless Steel, NW16	C41219000
IPV25MKA, Aluminium, NW25	C41321000
IPV25MKS, Stainless Steel, NW25	C41322000
IPV40MKS, Stainless Steel, NW40	C41421000
IPV40MKA, Aluminium, NW40	C41420000

O-Ring Kit

Product description	Order no:
PV10/16MK O-Ring Kit	C41101800
PV25MK O-Ring kit	C41301810
PV40MK O-Ring kit	C41401800

Major Overhaul Kit

Product description	Order no:
PV10/16MK Major overhaul kit	C31105826
PV25MK Major overhaul kit	C31305826
PV40MK Major overhaul kit	C31405826

Valve body

Product description	Order no:
Valve body IPV16KA	C41201802
Valve body IPV16KS	C41602811
Valve body IPV25KA	C41621802
Valve body IPV25KS	C41622811
Valve body IPV40KA	C41641802
Valve body IPV40KS	C41642811

PVPK PNEUMATIC OPERATION RIGHT ANGLE ISOLATION VALVES

The range of single acting cylinder, spring return pipeline valves is designed for high speed actuation from standard pneumatic lines, and are offered in sizes NW10, 16, 25, 40 and 50.

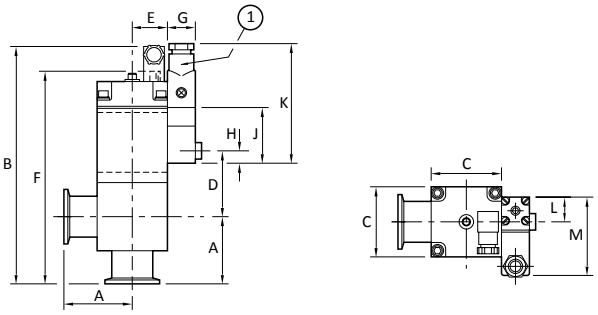
They are available with aluminium or stainless steel bodies with either O-ring (shaft seal Aluminium only) or bellows seal.

The valves are designed for long life duties, with a MTTF of 5,000,000 cycles for both bellows and 'O' ring sealed versions providing long intervals between services.

Features and benefits

- Improved lifetime, mean-time-to-failure now 5,000,000 cycles.
- Electrical and visual indication of valve status.
- Fast acting – 20 ms to close (PV16).
- Available in aluminium or stainless steel.
- Choice of bellows or 'O' ring shaft sealing with aluminium bodies.

PVPK Dimension



	A	B	C	D	E	F	G	H	J	K	L	M
PV10PK	30	139.5	38	41	25	122	20	10	40	88	19	59
PV16PK	40	149.5	38	41	25	132	20	10	40	88	19	59
PV25PK	50	171.3	50.8	47.6	28	153.7	20	10	40	88	19	59
PV40PK	65	200.6	76.2	57.8	41	183	20	10	40	88	19	59
PV50PK	70	218	92	70	41	200	20	10	40	88	19	59

① Optional control valve

Technical Data

	PVPK
Valve actuation type	Single acting, pneumatically opened, spring closed
Pressure range	1 x 10^{-9} to 2100 mbar/8 x 10^{-10} to 1575 Torr
Max pressure differential	
Opening	1000 mbar/750 Torr
Closing	2100 mbar/1575 Torr
Leak rate	< 1 x 10^{-9} mbar ls^{-1}/< 8 x 10-10 Torr ls^{-1}
Pneumatic connector	Rp 1/8 (⅛ inch BSP) *
Pneumatic operating pressure	2.8 to 4.2 bar/41 to 61 psi
Electrical indicator	Single microswitch ‡
Microswitch electrical rating	24 V, 1.5 A a.c. or d.c.
Max cycle frequency	900 h^{-1}
Bellows reliability, MTTF	5,000,000 cycles
Ambient operating temp	5-100 ˚C
Maximum baking temp	100 ˚C
Construction materials	
PVPKA	HE30TF aluminium
PVPKS	AISI304 stainless steel
Bellows	AISI316L stainless steel
O-ring	Fluoroelastomer

* With optional control valve fitted

	PVPK	
Molecular conductance (ls^{-1})	Right angled	
PV10PK	3	
PV16PK	4	
PV25PK	10	
PV40PK	40	
PV50PK	50	
	Time to open (ms)*	Time to close (ms)*
PV10/16PK	60	20
PV25PK	15	41
PV40PK	50	155
PV50PK	50	155
Weight	Aluminium	Stainless Steel
PV16PK	310 g/10.9 oz	520 g/18.2 oz
PV25PK	610 g/21.4 oz	980 g/34.3 oz
PV40PK	1500 g/52.5 oz	2300 g/80.5 oz
PV50PK	2000 g/70.5 oz	4000 g/140 oz

PVPK

Ordering information

Product description	Order no:
PV10PKAO, O-ring sealed, aluminium	C41113000
PV10PKA, bellows sealed, aluminium	C41111000
PV16PKAO, O-ring sealed, aluminium	C41213000
PV16PKA, bellows sealed, aluminium	C41211000
PV16PKS, bellows sealed, stainless steel	C41215000
PV25PKAO, O-ring sealed, aluminium	C41313000
PV25PKA, bellows sealed, aluminium	C41311000
PV25PKS, bellows sealed, stainless steel	C41315000
PV40PKAO, O-ring sealed, aluminium	C41413000
PV40PKA, bellows sealed, aluminium	C41411000
PV40PKS, bellows sealed, stainless steel	C41415000
PV50PKA, bellows sealed, aluminium	C41510000
PV50PKS, bellows sealed, stainless steel	C41515000

Spares Kit Valve Seals

Product description	Order no:
Spares Kit Valve Seals PVPK10/16	C41111800
Spares Kit Valve Seals PV25PK	C41311800
Spares Kit Valve Seals PV40PK	C41411800

O-Ring kit

Product description	Order no:
PV50MK O-Ring kit	C41501800

Top Cap Assembly

Product description	Order no:
Top Cap Assembly PV10/16P	C41111821
Top Cap Assy PV25P	C41311821
Top Cap Assembly PV40P	C41411821

Actuator

Product description	Order no:
PV10P O Ring Actuator Assembly	C41113035
PV25P O Ring Actuator Assembly	C41313035
PV40P O Ring Actuator Assembly	C41413035
Bellows Actuator Assy PV10P	C41111035
Bellows Actuator Assy PV25P	C41311035
Bellows Actuator Assy PV50P	C41515035
Bellows Actuator Assy PV40P	C41411035

Valve body

Product description	Order no:
Valve body PV10KA	C41101816
Valve body PV16KA	C41201816
Valve body PV16KS	C41602801
Valve body PV25KA	C41301816
Valve body PV25KS	C41622801
Valve body PV40KA	C41401816
Valve body PV40KS	C41642801
Valve body PV50KA	C41662816
Valve body PV50KS	C41662801

Electropneumatic Control Valve

Product description	Order no:
3 Port Electropneumatic Control Valve 24 V d.c.	H06200124
3 Port Electropneumatic Control Valve 24 V a.c.	H06200125
3 Port Electropneumatic Control Valve 110 V a.c.	H06200126
3 Port Electropneumatic Control Valve 230 V a.c.	H06200138

IPVPK PNEUMATIC OPERATION IN-LINE ISOLATION VALVES

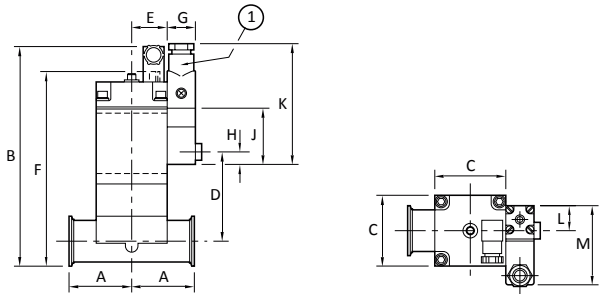
The Edwards range of in-line single acting cylinder, spring return pipeline valves are designed for high speed actuation from standard pneumatic lines, and are offered in sizes NW16, 25, 40 and 50. They are available with aluminium or stainless steel bodies with either O-ring (shaft seal, aluminium only) or bellows sealed.

The valves are designed for long life duties, with a MTTF of 5,000,000 cycles for both bellows and 'O' ring sealed versions providing long intervals between services.

Features and benefits

- Improved lifetime, mean-time-to-failure now 5,000,000 cycles.
- Electrical and visual indication of valve status.
- Fast acting – 20 ms to close (PV16).
- Available in aluminium or stainless steel.
- Choice of bellows or 'O' ring shaft sealing with aluminium bodies.

IPVPK dimension



	A	B	C	D	E	F	G	H	J	K	L	M
PV16PK	40	132.9	38	49.4	22.9	115.4	20	10	40	88	19	59
PV25PK	50	161.9	50.8	68.2	25.8	144.3	20	10	40	88	19	59
PV40PK	65	192.2	76.2	86.9	38.2	174.6	20	10	40	88	19	59
PV50PK	70	216.9	92	101.6	38.8	199.3	20	10	40	88	19	59

1. Optional control valve

Technical Data

	IPVPK
Valve actuation type	Single acting, pneumatically opened, spring closed
Pressure range	1 x 10^{-9} to 2100 mbar
	8 x 10^{-10} to 1575 Torr
Maximum pressure differential	
Opening	1000 mbar / 750 Torr
Closing	2100 mbar / 1575 Torr
Leak rate	< 1 x 10^{-9} mbar ls^{-1}
	< 8 x 10^{-10} Torr ls^{-1}
Pneumatic connector	Rp ⅛ (⅛ inch BSP) *
Recommended pneumatic	24 V, 1.5 A a.c. or d.c.
Operating pressure	2.8 to 4.2 bar / 41 to 61 psi
Electrical indicator	Single micro switch ‡
Micro switch electrical rating	24 V, 1.5 A a.c. or d.c.
Max cycle frequency	900 h^{-1}
Bellows reliability, MTTF	5,000,000 cycles
Ambient operating temperature	5-100 ˚C
Maximum baking temperature	100 ˚C
Construction materials	
IPVPKA	HE30TF aluminium
IPVPKS	AISI304 stainless steel
Bellows	AISI316L stainless steel
O-ring	Fluoroelastomer

‡ Twin micro switch versions are available on request.

	IPV16PK	IPV25PK	IPV40PK	IPV50PK
Molecular conductance (ls^{-1})	2	6	18	30
Time to open (ms)*	60	15	50	50
Time to close (ms)*	20	41	155	155
Weight				
Aluminium (g/oz)	310/10.9	610/21.4	1500/52.5	-
Stainless Steel (g/oz)	520/18.2	980/34.3	2300/80.5	4000/140

* With optional control valve fitted

Ordering information

Product description	Order no:
IPV16PKAO, O-ring sealed, aluminium	C41603000
IPV16PKA, bellows sealed, aluminium	C41601000
IPV16PKS, bellows sealed, stainless steel	C41602000
IPV25PKAO, O-ring sealed, aluminium	C41623000
IPV25PKA, bellows sealed, aluminium	C41621000
IPV25PKS, bellows sealed, stainless steel	C41622000
IPV40PKAO, O-ring sealed, aluminium	C41643000
IPV40PKA, bellows sealed, aluminium	C41641000
IPV40PKS, bellows sealed, stainless steel	C41642000
IPV50PKS, bellows sealed, stainless steel	C41662000

Spares Kit Valve Seals

Product description	Order no:
Spares Kit Valve Seals PVPK10/16	C41111800
Spares Kit Valve Seals PV25PK	C41311800
Spares Kit Valve Seals PV40PK	C41411800

O-Ring kit

Product description	Order no:
PV50MK O-Ring kit	C41501800

Valve body

Product description	Order no:
Valve body IPV16KA	C41201802
Valve body IPV16KS	C41602811
Valve body IPV25KA	C41621802
Valve body IPV25KS	C41622811
Valve body IPV40KA	C41641802
Valve body IPV40KS	C41642811

Top Cap Assembly

Product description	Order no:
Top Cap Assembly PV10/16P	C41111821
Top Cap Assy PV25P	C41311821
Top Cap Assembly PV40P	C41411821

Actuator

Product description	Order no:
Bellows Actuator Assy PV10P	C41111035
Bellows Actuator Assy PV25P	C41311035
Bellows Actuator Assy PV50P	C41515035
Bellows Actuator Assy PV40P	C41411035

PVEK SOLENOID OPERATION RIGHT ANGLE ISOLATION VALVES

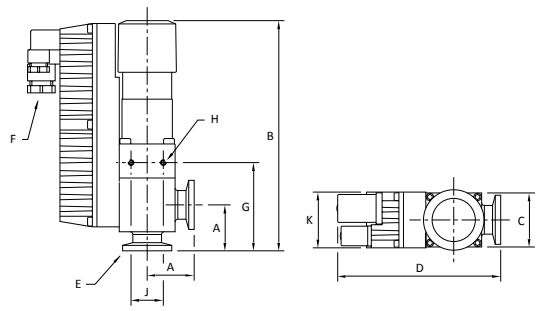
The Edwards PVEK series valves are compact, light-weight electromagnetic vacuum valves suitable for use in vacuum pipeline systems down to 1 x 10^{-9} mbar. A double wound coil combined with an electronic switching circuit ensures low energy consumption, low operating temperatures and extended operating life.

Bellows sealed, the PVEK solenoid operated right angle valves are available with either aluminium (A) or stainless steel (S) bodies, with an overall MTTF of up to 500,000 cycles.

Features and benefits

- Transient high power for opening – electronically switched.
- Low energy consumption in the 'hold open' position.
- Enclosure rating to IP55.
- Grease free vacuum.
- MTTF up to 500000 cycles.

PVEK Dimension



mm (inches)	A	B	C	D	E	G	H	J	K
PV10EK	30 (1.17)	150 (5.85)	38 (1.48)	116 (4.52)	NW10	59 (2.3)	M4 x 7	20 (0.78)	41 (1.6)
PV16EK	40 (1.56)	160 (6.24)	38 (1.48)	126 (4.91)	NW16	69 (2.69)	M4 x 7	20 (0.78)	41 (1.6)
PV25EK	50 (1.95)	182 (7.1)	51 (1.99)	142 (5.54)	NW25	82 (3.2)	M4 x 7	20 (0.78)	41 (1.6)
PV40EK	65 (2.54)	230 (8.97)	76 (2.96)	170 (6.63)	NW40	110 (4.29)	M6 x 9	40 (1.56)	41 (1.6)

Technical Data

	PVEK	
Valve actuation type	Single acting, electrically opened, spring closed	
Pressure range valve open	1 x 10^{-9} to 2000 mbar	
	7.5 x 10^{-10} to 1500 Torr (30 psi)	
Maximum press differential		
Opening/closing	1000 mbar/750 Torr	
Leak rate	< 1 x 10^{-9} mbar ls^{-1}	
	< 7.5 x 10^{-10} Torr ls^{-1}	
Reed switch (peak ratings)		
Maximum voltage	24 V a.c. or d.c.	
Maximum current	0.25 A	
Maximum power	3 VA	
Maximum cycle frequency	400 h^{-1}	
Ambient operating temperature		
PV10/16	5 ˚C to 45 ˚C	
PV25/40	5 ˚C to 50 ˚C	
Valve temperature above ambient		
Rapid cycling		
PV10/16	< 25 ˚C	
PV25/40	< 20 ˚C	
Valve open	< 10 ˚C	
Bellows reliability MTTF		
PV10/16	500000 cycles	
PV25/40	130000 cycles	
Construction materials		
PVEKA	HE30TF aluminium	
PVEKS	AISI304 stainless steel	
Bellows	AISI316L stainless steel	
O-ring	Fluoroelastomer	
Weight (g/oz)	Aluminium	Stainless Steel
PV10EKA	800 g / 28.1 oz	900 g / 28.5 oz
PV16EKA	800 g / 28.1 oz	1200 g / 41.2 oz
PV25EKA	1800 g / 63.3 oz	2400 g / 84.4 oz
PV40EKA	4500 g / 158.2 oz	6400 g / 225 oz

Molecular conductance (ls^{-1})	
PV10EKA	3
PV16EKA	4
PV25EKA	10
PV40EKA	34

Ordering information

Product description	Order no:
PV10EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41103000
PV10EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41101000
PV16EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41203000
PV16EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41201000
PV16EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41204000
PV16EKS, 220-240 V 1-ph 50/60 Hz, stainless steel	C41202000
PV25EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41303000
PV25EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41301000
PV25EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41304000
PV25EKS, 220-240 V 1-ph 50/60 Hz, stainless steel	C41302000
PV40EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41403000
PV40EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41401000
PV40EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41404000
PV40EKS, 220-240 V 1-ph 50/60 Hz, stainless steel	C41402000

O-Ring Kit

Product description	Order no:
PV10/16MK O-Ring Kit	C41101800
Spares Kit Pad & Body O-ring PV25EK	C41301800
PV40MK O-Ring kit	C41401800

Moving Pole Assy

Product description	Order no:
Moving Pole Assy PV10E	C41101007
Moving Pole Assy PV25EK	C41301007
Moving Pole Assy PV40E	C41401007

Valve body

Product description	Order no:
Valve body PV10KA	C41101816
Valve body PV16KA	C41201816
Valve body PV16KS	C41602801
Valve body PV25KA	C41301816
Valve body PV25KS	C41622801
Valve body PV40KA	C41401816

IPVEK SOLENOID OPERATION IN-LINE ISOLATION VALVES

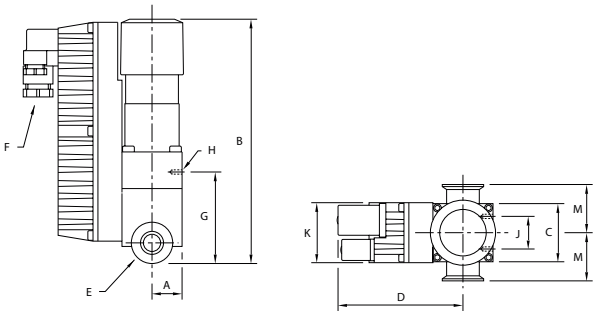
The Edwards IPVEK series valves are compact, light-weight electromagnetic vacuum valves suitable for use in vacuum pipeline systems down to 1 x 10^{-9} mbar. A double wound coil combined with an electronic switching circuit ensures low energy consumption, low operating temperatures and extended operating life.

Bellows sealed, the IPVEK solenoid operated in-line valves are available with either aluminium (A) or stainless steel (S) bodies, with an overall MTTF of up to 500,000 cycles.

Features and benefits

- Transient high power for opening – electronically switched.
- Low energy consumption in the 'hold open' position.
- Enclosure rating to IP55.
- Grease free vacuum.
- MTTF up to 500000 cycles.

IPVEK Dimension



mm (Inches)	A	B	C	D	E	G	H	J	K	M
IPV16EK	19 (0.7)	142.9 (5.57)	38 (1.48)	85 (3.32)	NW16	37.4 (1.46)	M4 x 7	20 (0.78)	41 (1.6)	40 (1.56)
IPV25EK	25.4 (1.0)	172 (6.7)	51 (1.99)	93 (3.63)	NW25	72.5 (2.83)	M4 x 7	20 (0.78)	41 (1.6)	50 (1.95)
IPV40EK	38.1 (1.5)	222 (8.69)	76 (2.96)	111 (4.33)	NW40	101.5 (3.96)	M6 x 9	40 (1.56)	41 (1.6)	65 (2.54)

Technical Data

	IPVEK	
Valve actuation type	Single acting, electrically opened, spring closed	
Pressure range valve open	1 x 10^{-9} to 2000 mbar	
	7.5 x 10^{-10} to 1500 Torr (30 psi)	
Maximum press differential		
Opening/closing	1000 mbar/750 Torr	
Leak rate	< 1 x 10^{-9} mbar ls^{-1}	
	< 7.5 x 10^{-10} Torr ls^{-1}	
Reed switch (peak ratings)		
Maximum voltage	24 V a.c. or d.c.	
Maximum current	0.25 A	
Maximum power	3 VA	
Maximum cycle frequency	400 h^{-1}	
Ambient operating temperature	5 ˚C to 45 ˚C	
Valve temperature above ambient		
Rapid cycling	< 25 ˚C	
Valve open	< 10 ˚C	
Bellows reliability MTTF	500000 cycles	
Construction materials		
IPVEKA	HE30TF aluminium	
Bellows	AISI316L stainless steel	
O-ring	Fluoroelastomer	
Time to open (ms)	40	
Time to close (ms)	100	
Operating power (VA)		
220 V a.c. at 25 ˚C pulse	417	
220 V a.c. at 25 ˚C hold	4.7	
Maximum continuous power 220 V a.c. rms (W)	4.5	
Weight (g/oz)	Aluminium	Stainless Steel
PV16EKA	800 g / 28.1 oz	1200 g / 41.2 oz
PV25EKA	1800 g / 63.3 oz	2500 g / 87.9 oz
PV40EKA	4600 g /161.7 oz	6800 g / 239.1 oz

Molecular conductance (ls^{-1})	
PV16EKA	2
PV25EKA	6
PV40EKA	15

IPVEK

Ordering information

Product description	Order no:
IPV16EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41610000
IPV16EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41611000
IPV16EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41613000
IPV25EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41630000
IPV25EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41631000
IPV25EKS, 220-240 V 1-ph 50/60 Hz, stainless steel	C41632000
IPV25EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41633000
IPV40EKA, 220-240 V 1-ph 50/60 Hz, aluminium	C41651000
IPV40EKA, 110-127 V 1-ph 50/60 Hz, aluminium	C41652000
IPV40EKS, 220-240 V 1-ph 50/60 Hz, stainless steel	C41653000
IPV40EKS, 110-127 V 1-ph 50/60 Hz, stainless steel	C41654000

IEC plug

Product description	Order no:
IEC plug to mating socket for PVEK valves	C41101090

Moving Pole Assy

Product description	Order no:
Moving Pole Assy PV10E	C41101007
Moving Pole Assy PV25EK	C41301007
Moving Pole Assy PV40E	C41401007

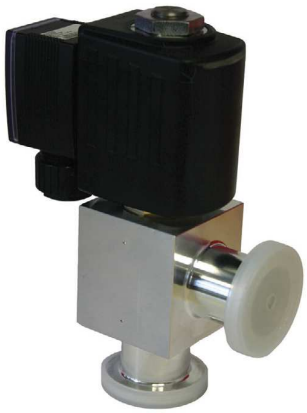
O-Ring kit

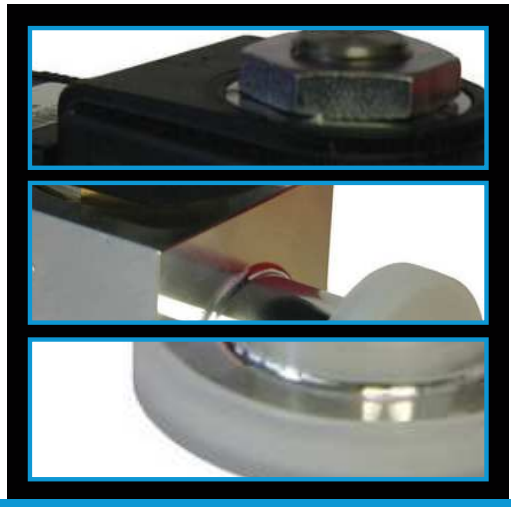
Product description	Order no:
PV10/16MK O-Ring Kit	C41101800
PV40MK O-Ring kit	C41401800
Spares Kit Pad & Body O-ring PV25EK	C41301800

Valve body

Product description	Order no:
Valve body IPV16KS	C41602811
Valve body IPV16PKA	C41601802
Valve body IPV25KA	C41621802
Valve body IPV25KS	C41622811
Valve body IPV40KA	C41641802
Valve body IPV40KS	C41642811
Valve body PV16KA	C41201816

LCPVEK SOLENOID OPERATION ISOLATION VALVES





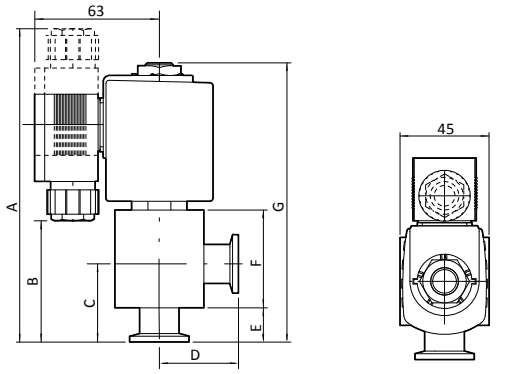
Edwards' aluminium LCPVEK valves are designed for vacuum applications which need a compact, simple, solenoid operation valve to control gas flow. These economical valves are ideal for a number of duties ranging from simple laboratory pump isolation to OEM vacuum system integration and design. The valve has two ports with NW flanges at 90 degrees to each other and maybe mounted in either direction, making them effective in both vacuum pipelines and in chamber admittance applications.

Careful design of the solenoid power control and vacuum isolation components delivers efficient magnetic actuation with optimum vacuum performance at an affordable price.

Features and benefits

- Economical design.
- Electrical actuation.
- Low power requirements.
- Electronic boost power supply..
- Efficient magnetic design.

LCPVEK Dimension



mm	A	B	C	D	E	F	G
LCPV16EKA	160	62	40	40	17.5	50	143
LCPV25EKA	168	70	50	50	25.5	50	151

LCPVEK

Ordering information

Product description	Order no:
LCPV16EKA 24 V a.c./d.c. Solenoid Valve	C41780200
LCPV16EKA 230 V a.c./d.c. Solenoid Valve*	C41751000
LCPV16EKA 110 V a.c./d.c. Solenoid Valve*	C41751100
LCPV25EKA 24 V a.c./d.c. Solenoid Valve	C41790200
LCPV25EKA 230 V a.c. Solenoid Valve	C41790000
LCPV25EKA 110 V a.c. Solenoid Valve	C41790100

* Original valve part number

Technical Data

	LCPVEK
Valve actuation type	Single acting, electrically opened, spring return
Molecular conductance	1.5 ls^{-1}
Pressure range	1 x 10^{-6} – 1000 mbar
	7.5 x 10^{-7} – 750 Torr
Max pressure differential	20 ppm/˚C
(open/close)	1000 mbar/750 Torr
Time to open	20 ms
Time to close	50 ms
Max cycle frequency	600 h^{-1}
Leak rate	Typically 1 x 10^{-6} mbar ls^{-1}
	Typically 7.5 x 10^{-7} Torr ls^{-1}
Power consumption	
Open	72 W for 400 ms/50-110 ms (a.c./d.c. supply)
Hold	Typically 5 W a.c./d.c. version and 7 W 230 V a.c. version
Operating temperature range	-10 to 55 ˚C
Weight	
LCPV16EK	900 g/31 oz
LCPV25EK	900 g/31 oz
Enclosure rating	IP65
Voltage	
24 V a.c/d.c.	+/- 10%
100 V a.c.	+/- 10%
230 V a.c.	+/- 10%
Construction materials	
Body	Aluminium, stainless steel, silver
Seals	FKM Fluoroelastomer

BRV BACKING/ROUGHING VALVE

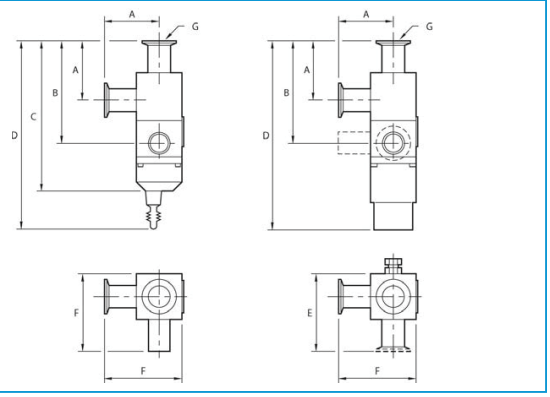
Edwards backing/roughing valves with ISO NW roughing and forepump terminations feature manual or pneumatic actuation. They combine the function of separate backing/roughing valves in one integral 3 port unit.

A flexible neoprene connector is supplied for the backing connection. The roughing and forepump ports terminate in the appropriate NW termination.

Features and benefits

- Easy to operate - both ports closed position
- Long life - 100,000 operations or more
- Position indicator on pneumatic valve
- Leak tight to better than 10^{-9}mbar ls^{-1}/ 8×10^{-10} Torr l s^{-1}

BRV Backing/Roughing Valve Dimension



(mm)	A	B	C	D	E	F	G
BRV10K	30	90	134	169	52.5	49	NW10
BRV10PK	30	90	-	198	52.5	49	NW10
BRV25K	50	98	155	195	82	75	NW25
BRV25PK	50	98	-	203	82	75	NW25

(inches)	A	B	C	D	E	F	G
BRV10K	1.17	3.51	5.23	6.59	2.05	1.91	NW10
BRV10PK	1.17	3.51	-	7.72	2.05	1.91	NW10
BRV25K	1.95	3.82	6.05	.61	3.2	2.93	NW25
BRV25PK	1.95	3.82	-	7.92	3.2	2.93	NW25

Applications

The valves have been designed particularly for the Diffstak® pumping systems, but have applications where a compact change-over valve is required in the pressure range 10^{-7} - 2000 mbar / 8 x 10^{-8} - 1500 Torr.

Technical Data

Construction materials	
Body and pneumatic cylinder	HE 30TF aluminum
Lever and bonnet (manual)	Glass reinforced plastic
Operating shaft/valve seat	Stainless steel
Body seals, port seals, shaft seal 'O' ring	Fluoroelastomer
Leak rate	
Overall	< 10^{-9}mbar ls^{-1}/ < 8 x 10^{-10} Torr l s^{-1}
Across ports	< 10^{-9}mbar ls^{-1}/ < 8 x 10^{-10} Torr l s^{-1}
NW coupling	< 10^{-9}mbar ls^{-1}/ < 8 x 10^{-10} Torr l s^{-1}
Operating pressure range	10^{-7}- 2100 mbar / 8 x 10^{-8} - 1575 Torr
Max baking temperature	
Pneumatic	70°C
Manual	90°C
Reliability (MTTF)	100000 cycles
Recommended air pressure	2.8 - 4.2 bar / 40.6 - 61 psi
Maximum air pressure	7.0 bar / 102 psi
Minimum air pressure	2.4 bar / 35 psi
Air connections	1/8 in BSP, for 6 mm Ø plastic or copper tube
Microswitch rating	24 V 1.5 A a.c. or d.c.
Weight	
BRV10K	350g / 12oz
BRV10PK	380g / 13oz
BRV25K	860g / 30oz
BRV25PK	900g / 31.7oz

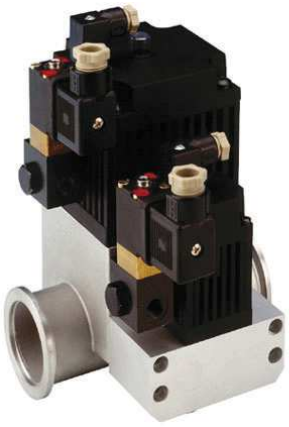
BRV Backing/Roughing Valve

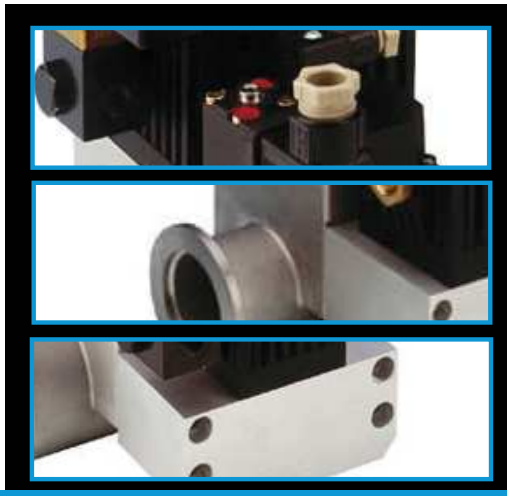
Ordering information

Product description	Order no:
BRV10K, Manual Operation	C32103000
BRV10PK Backing/Roughing Valve Pneumatic Operation	C32104000
BRV25K Backing/Roughing Valve, Manual Operation	C32303000
BRV25PK Backing/Roughing Valve, Pneumatic Operation	C32304000
BRV25PK Backing/Roughing Valve, Pneumatic Operation, Inline Flanges	C32304900
BRV25PK Backing/Roughing Valve, Pneumatic Operation, All NW25 Flanges	C32303500

Accessories & Spares	Order no:
NW10 Flexible Sleeve For 15mm OD Tube	C26501002
NW25 Flexible Sleeve For 28mm OD Tube	C26501004
O Ring Viton 1119 Pk 2	H02106119
O Ring Viton 0215 Pk 5	H02106025
O Ring Viton 024 Pk 5	H02106261
O Ring Viton Vit 031 Pk 2	H02106262
5 Port Lightweight Electropneumatic Control Valve 24V a.c.	B28703030
5 Port Lightweight Electropneumatic Control Valve 24V d.c.	B28703055
5 Port Lightweight Electropneumatic Control Valve 110V a.c.	B28703031
5 Port Lightweight Electropneumatic Control Valve 230V a.c.	B28703032

SIPVP SOFT-START ISOLATION VALVES





Soft-start, pneumatically operated, in-line valves with interchangeable orifices for the controlled pump-down of processes where turbulent flow can cause problems with particulate contamination. Slave and master valve combination allows slow initial pumping to minimise disturbance. Both slave and master valves require separate pneumatic connections.

Features and benefits

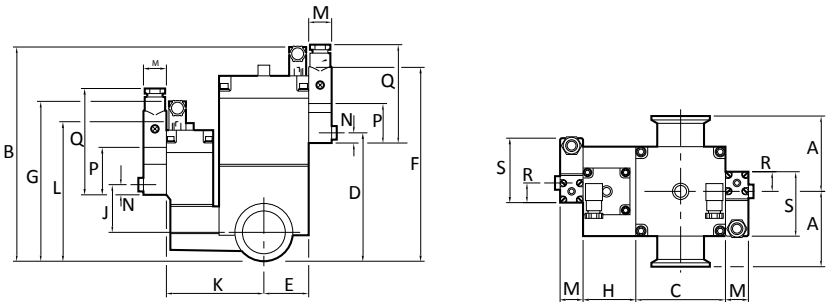
- MTTF of 5,000,000 cycles.
- Controlled pump down to match process.
- Aluminium bodies.
- Fast acting valves in the event of power failure.
- Supplied with 5 mm, 6 mm and 7 mm interchangeable orifices.

Applications

When the slave valve is opened gas flows at a low rate between the two sides of the valve through interchangeable orifices allowing slow pumping. Having reached a predetermined pressure level specified by the user, the master valve is opened by means of a user supplied signal allowing full bore pumping.

The bellows sealed valves are single acting with pneumatic opening and spring closure. They are supplied with three interchangeable orifices to enable pumping characteristics to be matched to your process. A microswitch is supplied as standard to indicate valve status. Both the valve and the microswitch can be baked to 100 ˚C to speed up degassing, and to prevent process gases from condensing inside the valve. While designed primarily for the semiconductor industry the valve can also be used in other applications requiring controlled pump-down.

SIPVP Dimension



mm (Inches)	A	B	C	D	E	F
SIPV25P	50 (1.95)	161.9 (6.31)	50.8 (1.98)	68.2 (2.66)	25.8 (1)	144.3 (5.63)
SIPV40P	65 (2.65)	192.2 (7.49)	76.2 (2.97)	68.2 (2.66)	38.2 (1.49)	174.6 (6.81)
	G	H	J	K	L	M
SIPV25P/ SIPV40P	145 (5.66)	43.5 (1.69)	49 (1.91)	86 (3.35)	127 (4.95)	20 (0.78)
	N	P	Q	R	S	
SIPV25P/ SIPV40P	10 (0.39)	40 (1.56)	88 (3.43)	19 (0.74)	59 (2.3)	

Technical Data

	SIPVP
Valve actuation type	Single acting, pneumatically opened, spring closed
Pressure range	1 x 10^{-9} to 2100 mbar
	8 x 10^{-10} to 1575 Torr
Maximum pressure differential	
Opening	1000 mbar/750 Torr
Closing	2100 mbar/1575 Torr
Leak rate	10^{-9} mbar ls^{-1}
	10^{-10} Torr ls^{-1}
Pneumatic connector	Rp ⅛ (⅛ inch BSP)*
Pneumatic operating pressure	2.8 to 4.2 bar/41 to 61 psi
Electrical indicator	Single microswitch
Microswitch electrical rating	24 V, 1.5 A a.c. or d.c.
Max cycle frequency	900 h^{-1}
Bellows reliability, MTTF	5,000,000 cycles
Ambient operating temperature	5-100 ˚C
Maximum baking temperature	100 ˚C
Construction materials	HE30TF aluminium
O-ring	Fluoroelastomer
Time to open/close at 4 bar (ms)	SIPV25P (SIPV40P)
Slave valve	60/20 (60/20)
Master valve	15/41 (50/155)
Weight (g/oz)	
SIPV25P	920/32
SIPV40P	1760/62

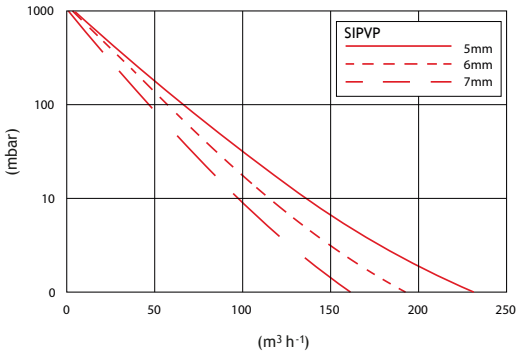
* With optional control valve fitted

SIPVP

SIPVP

Pressure range
1 x 10^{-9} to 2100 mbar
(8 x 10^{-10} to 1575 Torr)
Valve actuation type
Single acting, pneumatically opened, spring closed

SIPVP Performance Curve



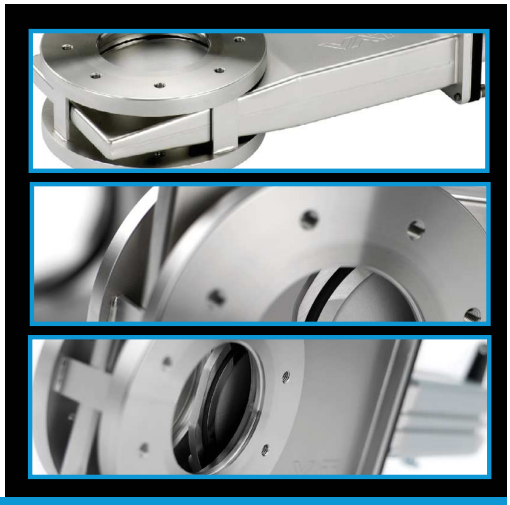
Ordering information

Product description	Order no:
SIPV25P, pneumatic, bellows sealed, aluminium body	C41624000
SIPV40P, pneumatic, bellows sealed, aluminium body	C41644000

Electropneumatic Control Valve

Product description	Order no:
3 Port Electropneumatic Control Valve 110 V a.c.	H06200126
3 Port Electropneumatic Control Valve 230 V a.c.	H06200138
3 Port Electropneumatic Control Valve 24 V a.c.	H06200125
3 Port Electropneumatic Control Valve 24 V d.c.	H06200124

BGV MANUAL GATE VALVES



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 x 10^{-8} mbar (1.2 x 105 to 1x10^{-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 BGV manual valves have a visual indication of the gate position on the side of the assembly to show when it is open.

Features and benefits

- Able to withstand 1.2 bar absolute in either direction. Avoids re-start issues by keeping the pump running during maintenance.
- Stainless steel construction and robust design. Long service life and reliability in harsh environments.
- Pneumatic solenoid and pre-wired option. Pre-configured simple ‘plug and play’ installation.
- Simple grease-free sealing mechanism. Minimises damage due to particulates in dusty processes.

The Technology

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:

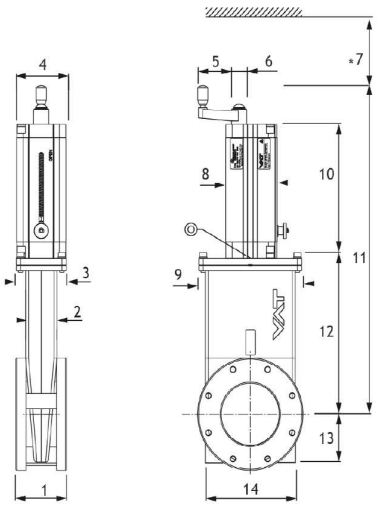
- No oil, grease or complex moving parts within the valve, removing the risk of damage to the mechanism due to contamination from process debris.
- PEEK gliders provide no metal-to-metal contact and act to control the compression of the O ring.
- As the gate closes the O ring brushes across the sealing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

Technical Data

	BGV Pneumatic Gate Valves
Leak rate	
Body	< 1 x 10^{-9} mbar ls^{-1}
Valve seat	< 1 x 10^{-7} mbar ls^{-1}
Pressure range	1 x 10^{-8} mbar to 1.2 bar absolute
Differential pressure on the gate	1.2 bar in either direction
Differential pressure at opening	1 bar
Cycles until first service	5,000
Maximum operating temps	
Valve body	150 ˚C
Pneumatic actuator	100 ˚C
Position indicator	60 ˚C
Solenoid	50 ˚C
Molecular flow conductance	
NW50	250 ls^{-1}
ISO63	600 ls^{-1}
ISO80	900 ls^{-1}
ISO100	1700 ls^{-1}
ISO160	5000 ls^{-1}
Weight	
NW50	3.3 kg
ISO63	6.6 kg
ISO80	6.9 kg
ISO100	7.1 kg
ISO160	14.5 kg
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
Pneumatic valves	
Solenoid rating	
Standard solenoid	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
Phenumatic supply	
Min supply pressure	58 psig (4 bar gauge, 5 bar absolute, 6 x 10^5 Pa)
Max supply pressure	100 psig (7 bar gauge, 8 bar absolute, 8 x 10^5 Pa)
Phenumatic connection	⅛" universal thread (accepts R ⅛" or ⅛" NPT)
Valve opening or closing time at supply pressure	
NW50	< 1.5 s
ISO63/80/100	< 2 s
ISO160	< 3 s
Noise (due to compressed air)	84 dB(A) when changing state

(1) Maximum values; depending on operating conditions and sealing materials
(2) Depending on the process conditions shorter service intervals may be required

BGV ManualGate Valves Dimension



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

Dimensions

mm/ Inches	NW50	ISO63	ISO80	ISO100	ISO160
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	68/2.68	68/2.68	87/3.43
5	57/2.24	57/2.24 5	7/2.24	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 Manual Gate Valves

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

Vacuum Seals Kit

Product description	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

Product description	Order no:
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

Product description	Order no:
Spare gate NW50	B90000655
Spare gate ISO63	B90000660
Spare gate ISO80	B90000665
Spare gate ISO100	B90000670
Spare gate ISO160	B90000680

BGV MK2 PNEUMATIC GATE VALVES

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 x 10^{-8} mbar (1.2 x 105 to 1x10^{-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 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.

In order to connect the BGV Mk2 pneumatic valve to Edwards legacy products the BGV Mk2 TIM interface cable should be used. The functionality of the LEDs is not available on legacy products.

Lock Out Tag Out (LOTO) versions are also available.

Features and benefits

- Able to withstand 1.2 bar absolute in either direction. Avoids re-start issues by keeping the pump running during maintenance.
- Stainless steel construction and robust design. Long service life and reliability in harsh environments.
- Pneumatic solenoid and pre-wired option.
- Pre-configured simple 'plug and play' installation.
- Simple grease-free sealing mechanism. Minimises damage due to particulates in dusty processes.
- Lock Out Tag Out (LOTO) versions are also available.

The Technology

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:

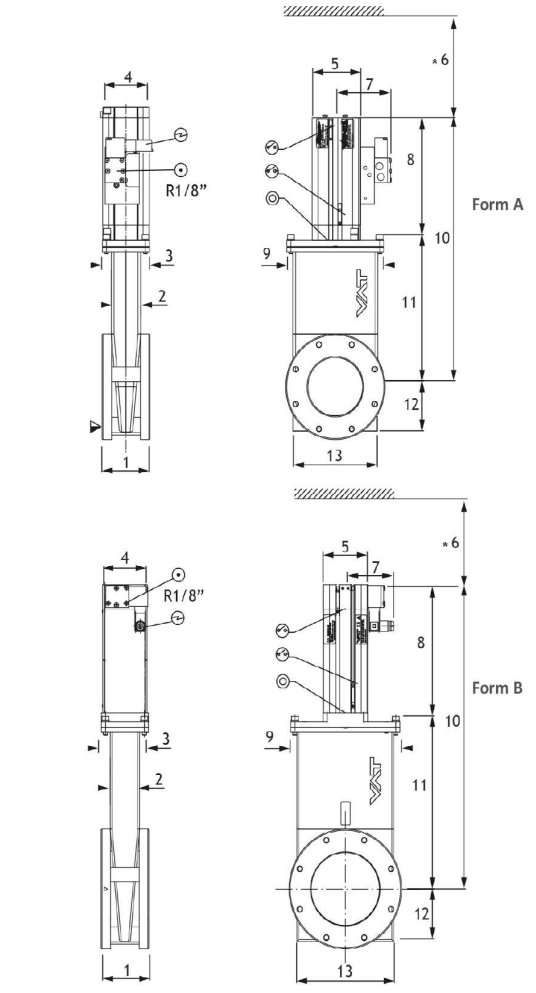
- No oil, grease or complex moving parts within the valve, removing the risk of damage to the mechanism due to contamination from process debris.
- PEEK gliders provide no metal-to-metal contact and act to control the compression of the O ring.
- As the gate closes the O ring brushes across the sealing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

Technical Data

	BGV Pneumatic Gate Valves
Leak rate	
Body	< 1 x 10^{-9} mbar ls^{-1}
Valve seat	< 1 x 10^{-7} mbar ls^{-1}
Pressure range	1 x 10^{-8} mbar to 1.2 bar absolute
Differential pressure on the gate	1.2 bar in either direction
Differential pressure at opening	1 bar
Cycles until first service	5,000
Maximum operating temps	
Valve body	150 ˚C
Pneumatic actuator	100 ˚C
Position indicator	60 ˚C
Solenoid	50 ˚C
Molecular flow conductance	
NW50	250 ls^{-1}
ISO63	600 ls^{-1}
ISO80	900 ls^{-1}
ISO100	1700 ls^{-1}
ISO160	5000 ls^{-1}
Weight	
NW50	3.3 kg
ISO63	6.6 kg
ISO80	6.9 kg
ISO100	7.1 kg
ISO160	14.5 kg
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
Pneumatic valves	
Solenoid rating	
Standard solenoid	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
Phenumatic supply	
Min supply pressure	58 psig (4 bar gauge, 5 bar absolute, 6 x 10^5 Pa)
Max supply pressure	100 psig (7 bar gauge, 8 bar absolute, 8 x 10^5 Pa)
Phenumatic connection	⅛" universal thread (accepts R ⅛" or ⅛" NPT)
Valve opening or closing time at supply pressure	
NW50	< 1.5 s
ISO63/80/100	< 2 s
ISO160	< 3 s
Noise (due to compressed air)	84 dB(A) when changing state

(1) Maximum values; depending on operating conditions and sealing materials
(2) Depending on the process conditions shorter service intervals may be required

BGV Mk2 Pneumatic Gate Valves Dimension



Dimensions

mm/ Inches	Form A			Form B	
	NW50	ISO63	ISO80	ISO100	ISO160
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

Ordering information

Product description	Order no:
BGV Mk2 pneumatic gate valve NW50	B90003105
BGV Mk2 pneumatic gate valve ISO63	B90003110
BGV Mk2 pneumatic gate valve ISO80	B90003125
BGV Mk2 pneumatic gate valve ISO100	B90003130
BGV Mk2 pneumatic gate valve ISO160	B90003140

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.

Vacuum Seals Kit

Product description	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

Product description	Order no:
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

Product description	Order no:
Spare gate NW50	B90000655
Spare gate ISO63	B90000660
Spare gate ISO80	B90000665
Spare gate ISO100	B90000670
Spare gate ISO160	B90000680

Spare Solenoid

Product description	Order no:
Spare solenoid 24 V a.c./d.c.	B90000790

Interface Cable

Product description	Order no:
BGV Mk2 TIM interface cable	B90003388

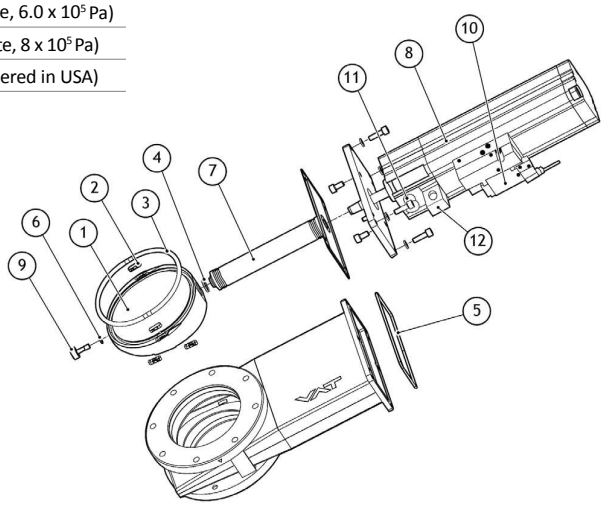
BGV LOTO Pneumatic Gate Valves

	BGV Pneumatic Gate Valves
Leak rate	
Body	< 1 x 10^{-9} mbar ls^{-1}
Valve seat	< 1 x 10^{-7} mbar ls^{-1}
Pressure range	1 x 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
Pneumatic actuator	100 ˚C
Position indicator	60 ˚C
Solenoid	50 ˚C
Molecular flow conductance	
NW50	250 ls^{-1}
ISO63	600 ls^{-1}
ISO80	900 ls^{-1}
ISO100	1700 ls^{-1}
ISO160	5000 ls^{-1}
Weight	
NW50	4.5 kg
ISO63	7.5 kg
ISO80	7.9 kg
ISO100	9.6 kg
ISO160	15.3 kg
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
Pneumatic valves	
Solenoid rating	
Standard solenoid	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	
Min supply pressure	73 psig (0.5 bar gauge, 6 bar absolute, 6.0 x 10^5 Pa)
Max supply pressure	100 psig (7 bar gauge, 8 bar absolute, 8 x 10^5 Pa)
Pneumatic connection	R¼ inch (⅛ inch NPT for valves ordered in USA)

[1] Maximum values; depending on operating conditions and sealing materials
[2] Depending on the process conditions shorter service intervals may be required

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

**(bracket protecting solenoid has been removed for clarity)*



BGV Stainless Steel Gate Valve with LOTO Safety Feature

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 x 10^{-9} mbar (1.2 x 105 to 1x10^{-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.

In order to connect the BGV LOTO pneumatic valve to Edwards legacy products the BGV TIM interface cable should be used. The functionality of the LEDs is not available on legacy products.

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.
- 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.

BGV LOTO Valve

Product description	Order no:
NW50 BGV LOTO VALVE 24 V a.c./d.c.	B90002010
ISO63 BGV LOTO VALVE 24 V a.c./d.c.	B90002020
ISO80 BGV LOTO VALVE 24 V a.c./d.c.	B90002030
ISO100 BGV LOTO VALVE 24 V a.c./d.c.	B90002040
ISO160 BGV LOTO VALVE 24 V a.c./d.c.	B90002050
BGV TIM Mk2 interface cable	B90003388

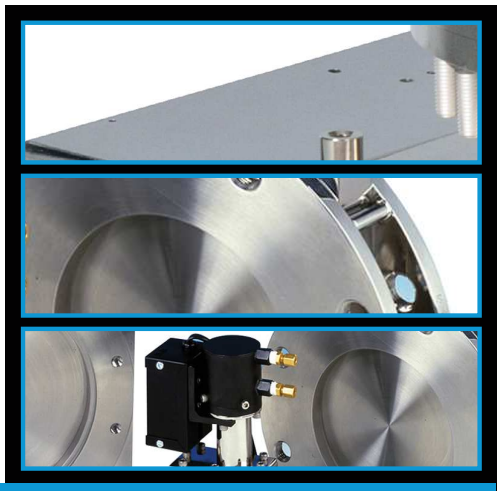
Product description	Order no:
Vacuum seals kit NW50	B90000595
Vacuum seal kit ISO63	B90000600
Vacuum seal kit ISO80	B90000605
Vacuum seal kit ISO100	B90000610
Vacuum seal kit ISO160	B90000620
Bellows feed-through NW50	B90000625
Bellows feed-through ISO63	B90000630
Bellows feed-through ISO80	B90000635
Bellows feed-through ISO100	B90000640
Bellows feed-through ISO160	B90000650
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 DC 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.

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 and 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 suitable for magnetic fields
- 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)
- Vacuum brazed to 1100 ˚C to eliminate virtual leaks.

Technical Data

	GV Manual and Pneumatic Gate Valves
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

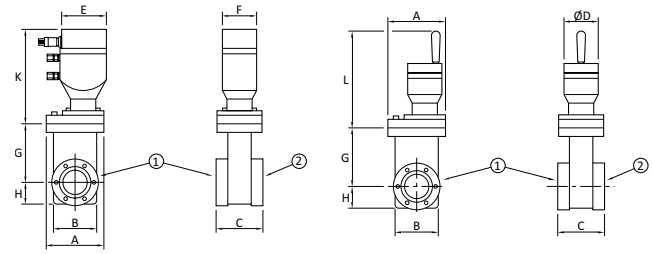
	GV Manual and Pneumatic Gate Valves
Bonnet:	
Metal sealed valves	OFHC
Other valves	Fluoroelastomer
Bakeout temperature:	
Valve body, valve open	150 ˚C (fluoroelastomer bonnet seal)
Valve body, valve open	250 ˚C (metal bonnet seal)
Valve closed	200 ˚C
Actuator, manual	200 ˚C
Actuator, pneumatic	100 ˚C
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

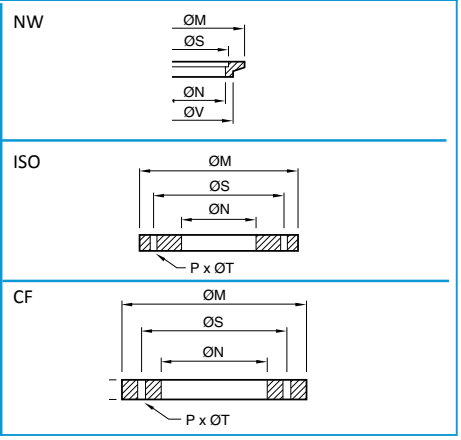
Flange Bore mm	Flange Bore in	Conductance in High Vacuum $l s^{-1}$	Pneumatic Valve minimum closing & opening time at 5 bar, seconds	Approx mm in Weight, kg
40	1.5	130	0.5	5
50	2	250	0.5	6
63	2.5	520	1	8
100	4	2000	1.5	15
160	6	6300	1.5	23
200	8	15000	2 (close)	34
			3 (open)	
250	10	23000	3 (close)	73
			4 (open)	
320	12	39000	3 (close)	77
			4 (open)	

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

GV Gate Valves Dimensions



① Carriage side
② Seal side



Body mm / Inches	GVI 040	GVI 050	GVI 063	GVI 080	GVI 100	GVI 160	GVI 200	GVI 250	GVI 320
A	84.1	96.8	111.0	125.0	177.8	222.3	285.8	341.1	408.2
B	26.2	75.2	89.4	109.1	143.5	191.8	254.5	303.5	362.7
C	50.5	50.5	51.6	51.6	61.2	67.0	67.6	80.0	80.0
ØD	50.8	50.8	50.8	50.8	50.8	75.5	75.5	88.9	88.9
E	69.3	69.3	69.3	69.3	93.5	93.5	93.5	120.4	120.4
F	50.7	50.7	50.7	50.7	76.2	76.2	76.2	120.4	120.4
G	86.1	104.5	122.1	145.9	206.4	270.5	353.4	460.6	560.5
H	33.0	37.6	43.1	72.8	66.9	87.6	114.6	146.6	174.9
K	134.9	134.9	134.9	134.9	175.6	175.6	175.6	240.7	240.7
L	91.7	91.7	91.7	91.7	201.3	201.3	201.3	231.7	231.7
Flange mm / Inches	GVI 040	GVI 050	GVI 063	GVI 080	GVI 100	GVI 160	GVI 200	GVI 250	GVI 320
ØM	55.0	75.0	130.1	145.1	165.1	225.0	285.8	335.0	425.0
ØN	38.1	50.8	63.5	75.9	101.6	152.4	203.2	254.0	304.8
P	–	–	4	8	8	8	12	12	12
ØS	41.2	52.2	110.0	126.0	145.0	200.0	260.0	310.0	395.0
ØT	–	–	M8	M8	M8	M10	M10	M10	M12
V	12.7	12.7	12.7	12.7	12.7	16.0	15.9	19.0	19.0

Body mm / Inches	GVC 015	GVC 020	GVC 025	GVC 040	GVC 060	GVC 080
A	84.1	96.8	111.0	177.8	222.3	285.8
B	62.5	75.2	89.4	143.5	191.8	254.5
C	51.6	57.9	61.2	75.4	80.5	85.1
ØD	50.8	50.8	50.8	75.9	75.9	75.9
E	69.3	69.3	69.3	93.5	93.5	93.5
F	50.7	50.7	50.7	76.2	76.2	76.2
G	86.1	104.5	122.1	206.4	270.5	353.4
H	33.0	37.6	43.1	66.9	87.6	114.6
K	134.9	134.9	134.9	175.6	175.6	175.6
L	91.7	91.7	91.7	190.6	200.2	200.2
Flange mm / Inches	GVC 015	GVC 020	GVC 025	GVC 040	GVC 060	GVC 080
ØM	69.3	85.7	113.5	151.6	202.4	253.2
ØN	38.1	50.8	63.5	101.9	152.4	203.2
P	6	8	8	16	20	24
ØS	58.7	72.4	92.2	130.3	181.1	231.9
ØT	M6	M8	M8	M8	M8	M8
V	12.7	15.9	17.5	19.8	22.4	24.6

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

* Number of seals in each pack.
† Number of fixing kits that are needed to mount both flanges of the valve.

Type	Flange	Bore mm/in	Model	Order no:
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
	ISO320	320/12	GVI320	B65701000
ISO Pneumatic	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
	ISO250	250/10	GVI250	B65651000
	ISO320	320/12	GVI320	B65751000
CF Manual	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	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

QSB QUARTER SWING BUTTERFLY VALVES

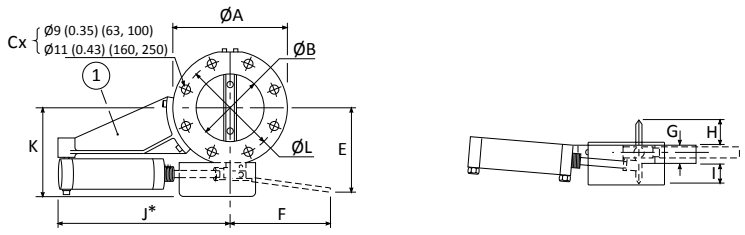
The QSB quarter swing valves are compact, quick acting, high conductance isolation valves. The QSB valves have a polished, stainless steel, ISO flanged body with fluoroelastomer 'O' ring sealed valve plate and shaft. The valve plate 'O' ring groove is vented to help maintain a stable high vacuum. The valve shaft 'O' rings and bearings are lubricated with Fomblin® grease to prevent gas bursts from behind the shaft seals.

This valve is supplied with a co-seal.

Features and benefits

- Manual operation.
- High conductivity.
- Resists atmosphere in either direction.
- Compact and quick acting.
- Corrosion resistant construction.

QSB Dimension



	A	B	C	E	F	G	H	I	J	K	ØL
63	130	63	4	111	130	23.5	24.5	19	-	-	110
63P	130	63	4	105	-	23.5	24.5	19	235	108	110
100	165	96	8	125	130	26	41	33	-	-	145
100P	165	96	8	123	-	26	41	33	238	126	145
160	225	142.5	8	170	180	43.5	55	48.5	-	-	200
160P	225	142.5	8	166	-	43.5	55	48.5	263	166	200

① Actuator cylinder support bracket (QSB63P, QSB100P and QSB160P only)

Technical Data

	QSB
Valve plate material	AISI 304 stainless steel
Operating pressure range	10^{-9} – 3000 mbar
	8 x 10^{-10} – 2250 Torr
Max pressure differential	1000 mbar / 750 Torr
Operating temp range	5-40 ˚C
Max baking temp	200 ˚C (without actuator)
Leak rate	< 10^{-9} mbar ls^{-1}
	8 x 10^{-10} Torr ls^{-1}
Pneumatic valves only:	
Reliability (MTTF)	> 1.5 x 10^{5} cycles
Pneumatic connectors	⅛ inch BSP, for 6 mm OD tube
Number of connectors	
QSB63, QSB100, QSB160	2
Reed switch rating	
Max voltage	30 V
Max current	500 mA
Max Power	6 W
Reed switch connectors	3 m flying leads
Microswitch rating	5A at 48 V
Microswitch connectors	
QSB63, QSB100, QSB160	Solder tags
Flange Size	ISO63 up to ISO250
Conductance *	420 ls^{-1}
QSB63	420 ls^{-1}
QSB100	1250 ls^{-1}
QSB160	2700 ls^{-1}
Recommended pneumatic pressure~ (bar)	
QSB63, QSB100, QSB160	2.8 to 6

* Conductance of equivalent tube length
~ Pneumatic operation

QSB Quarter Swing Butterfly Valve

Ordering information

Product description	Order no:
QSB63, Manual Operation	B42402000
QSB100, Manual Operation	B42602000
QSB160, Manual Operation	B42802000
QSB63P, Double Pneumatic Operation	B42403000
QSB100P, Double Pneumatic Operation	B42603000
QSB160P, Double Pneumatic Operation	B42803000
QSB63P, Double Pneumatic Operation with reed switches	B42409000
QSB100P, Double Pneumatic Operation with reed switches	B42609000
QSB250P, Single Pneumatic Operation*	B43003000

* On application requires 3 port control valve.

O Ring Viton

Product description	Order no:
O Ring Viton 1161 Pk 1	H02106161
O Ring Viton 0340 Pk 1	H02106055
O Ring Viton Vit 1208 Pk 1	H02106208
O Ring Viton Vit 0111 Pk 5	H02106011
Valve shaft seal O-Ring Vit 0012 Pk5	H02106010

Electropneumatic Control Valve

Product description	Order no:
5 Port Lightweight Electropneumatic Control Valve 24 V a.c.	B28703030
5 Port Lightweight Electropneumatic Control Valve 24 V d.c.	B28703055
5 Port Lightweight Electropneumatic Control Valve 110 V a.c.	B28703031
5 Port Lightweight Electropneumatic Control Valve 230 V a.c.	B28703032

AV5A AIR ADMITTANCE VALVE WITH COUPLINGS

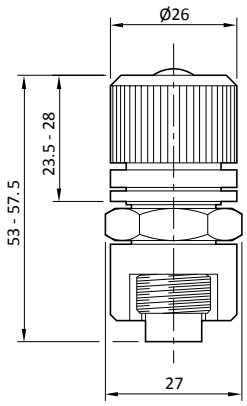
The AV5A is manufactured in aluminium alloy. It has a control knob attached to a screw-actuated plunger: turn the control knob clockwise to close the valve. A nitrile 'O' ring seals the plunger to the valve body.

The valve can be connected directly, pipeline supported or panel mounted, and is connected to the vacuum system with the Edwards SC5 coupling (supplied).

Features and benefits

- Simple manual air admit valve.

AV5A Dimension



Technical Data

	AV5A
Materials of construction	
Body	HE30 aluminium/nickel plated brass
Plunger	HE30 aluminium
Seal	Nitrile
Leak rate across seat	10^{-7} mbar ls^{-1} / 8 x 10^{-8} Torr ls^{-1}
Leak rate through body	10^{-1} mbar ls^{-1} / 8 x 10^{-2} Torr ls^{-1}
Panel mounting	Ø17 mm/Ø0.66 in hole, 3 mm/0.117 in maximum thickness
Vacuum connections	SC5 couplings or ⅜ inch BSP threaded body and bonded seal
Weight	85 g/3 oz

AV5A

Ordering information

Product description	Order no:
AV5A Air Admittance Valve With Couplings	C35003000

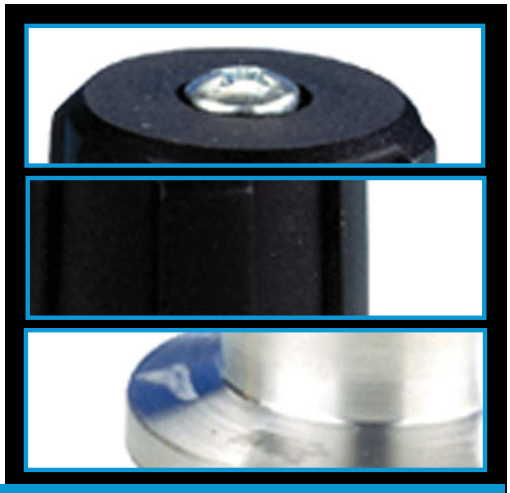
O Ring Nitrile

Product description	Order no:
O Ring Nitrile Vor 2A Pk 10	H02105115

Dowty Seal

Product description	Order no:
Dowty Seal ⅜ BSP MkC	H02104003

AV10K AIR ADMITTANCE VALVES



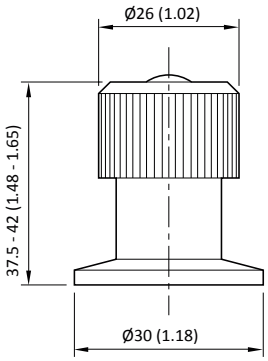
The AV10K is manufactured in aluminium alloy. It has a control knob attached to a screw-actuated plunger: turn the control knob clockwise to close the valve. A nitrile 'O' ring seals the plunger to the valve body.

The valve can be pipeline supported only and is connected to the vacuum system with an NW10 fitting.

Features and benefits

- Simple manual air admit valve.

AV10K Dimension



Technical Data

	AV10K
Materials of construction	
Body	HE30 aluminium
Control knob	Nylon 6
Seal	Nitrile
Leak rate across seat	10^{-7} mbar ls^{-1}/8 x 10^{-8} Torr ls^{-1}
Leak rate through body	10^{-1} mbar ls^{-1}/8 x 10^{-2} Torr ls^{-1}
Vacuum connections	NW10
Weight	100 g/3.5 oz

AV10K

Ordering information

Product description	Order no:
AV10K Air Admittance Valve	C35103000

O Ring

Product description	Order no:
O Ring Nitrile Vor 2A Pk 10	H02105115

IPVA10EK AIR ADMIT VALVE NW10

The IPVA10EK is a solenoid operated valve designed for automatic admittance of air or vent gas into a vacuum system. The valve has two ports with NW flanges. One of the valve ports is connected to the vacuum system, the other port can be left open to atmosphere or connected to a vent gas supply. The vacuum system is isolated from atmosphere (or the vent gas supply) by a fluoroelastomer pad on the base of the valve plunger, which seals against the body of the valve.

Features and benefits

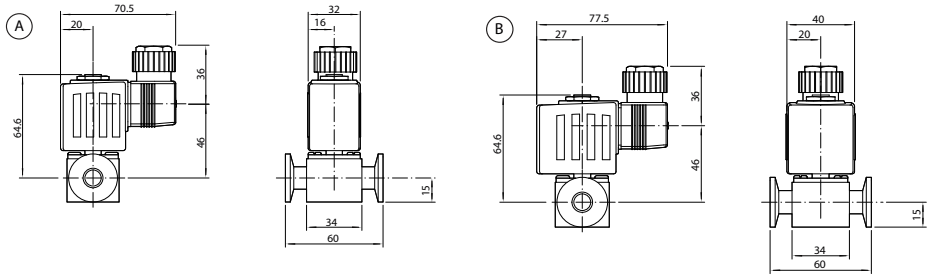
- Normally open or normally closed option.
- Small envelope.
- IP65 protection.
- MTTF 500,000 cycles.

IPVA10EK Air Admit Valve NW10

Ordering information

Product description	Order no:
IPVA10EK, 230 V a.c. (normally open)	C41760000
IPVA10EK, 110 V a.c. (normally open)	C41760100
IPVA10EK, 24 V d.c. (normally open)	C41760200
IPVA10EK, 230 V a.c. (normally closed)	C41770000
IPVA10EK, 110 V a.c. (normally closed)	C41770100
IPVA10EK, 24 V d.c. (normally closed)	C41770200

IPVA10EK NW10 Dimension



Normally Open Valves Voltage		
C417-60-000	230 V a.c.	Figure A
C417-60-100	110 V a.c.	Figure A
C417-60-200	24 V d.c.	Figure A
Normally Closed Valves		
C417-70-000	230 V a.c.	Figure A
C417-70-100	110 V a.c.	Figure A
C417-70-200	24 V d.c.	Figure B

Technical Data

	IPVA10EK Air Admit Valve NW10	
Operating temperature range	-20 to 55 ˚C	
Vent gas temperature range	-10 to 130 ˚C	
Venting rate	10 litres in 12 s	
Response time	20 ms to open/30 ms to close	
Maximum cycle frequency	100 min^{-1}	
Reliability (MTTF)	500,000 cycles	
Leak rate	<1 x 10^{-6} mbar ls^{-1}/<8 x 10^{-7} Torr ls^{-1}	
Electrical supply	110 V a.c. 1ph, 50/60 Hz	
	230 V a.c. 1ph, 50/60 Hz	
	24 V d.c.	
Tolerance	Normally closed	Normally open
a.c.	-10% to +10%	-10% to +10%
d.c.	-10% to +10%	-5*% to +10%
Power	Normally closed	Normally open
a.c.	5 W	7 W
d.c.	5 W	9 W
Enclosure rating	IP65	
Weight	350 g/11 oz	
Materials of construction**		
Body	Aluminium	
Valve seal	Fluoroelastomer	
Actuator	Stainless steel	
Coil insulation	Class H	
Shading rings	Silver	

The air or vent gas path through the valve is free from heavy metals.
*Voltage tolerance reduced at elevated ambient temperatures, maximum recommended ambient temperature: 40 °C
**Normally open variants have an additional carbon loaded PTFE slide ring within the vacuum envelope

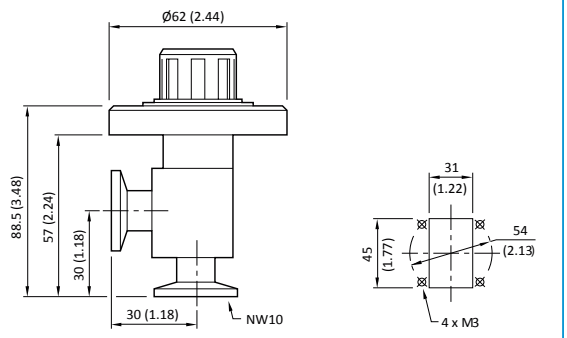
LV10K LEAK VALVE NW10 FLANGES

The LV10K needle valve provides fine control of gas bleed into a vacuum chamber or a regulated leak to control pressure in a vacuum system and is suitable for gas admission down to 10^{-5} mbar / 8 x 10^{-6} Torr. Suitable for pipeline or panel mounting.

Features and benefits

- Simple manual leak valve.

LV10K Dimension



Technical Data

	LV10K
Materials of construction	
Body	Aluminium HE30
Seat	Brass BS2784 C2112
Needle	Martensitic stainless steel EN56AM
Filter	Brass BS249
Max flow rate (approx)*	0.1 ls^{-1}
Max inlet pressure	2000 mbar/1500 Torr
Max leak rate, across seat	10^{-7} mbar ls^{-1}/8 x 10^{-8} Torr ls^{-1}
Max leak rate, across body	10^{-7} mbar ls^{-1}/8 x 10^{-8} Torr ls^{-1}
Vacuum connection	NW10
Weight (g/oz)	138 g/4.8 oz

*Flow rate relates to a pressure differential across valve of one bar.

LV10K

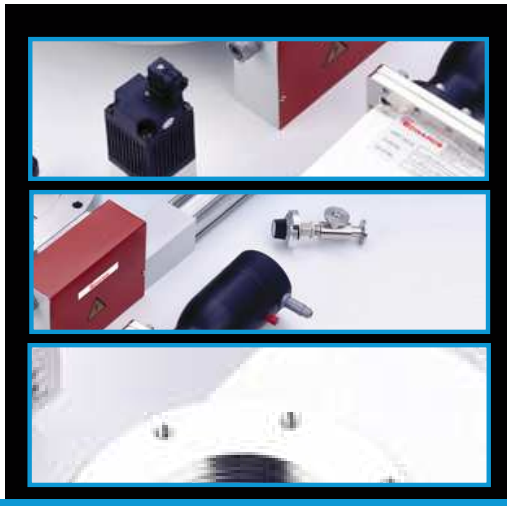
Ordering information

Product description	Order no:
LV10K Leak Valve NW10 Flanges	C37102000

Spares Kit

Product description	Order no:
Spares Kit Valve Seat	C37102812

ELECTROPNEUMATIC CONTROL VALVES

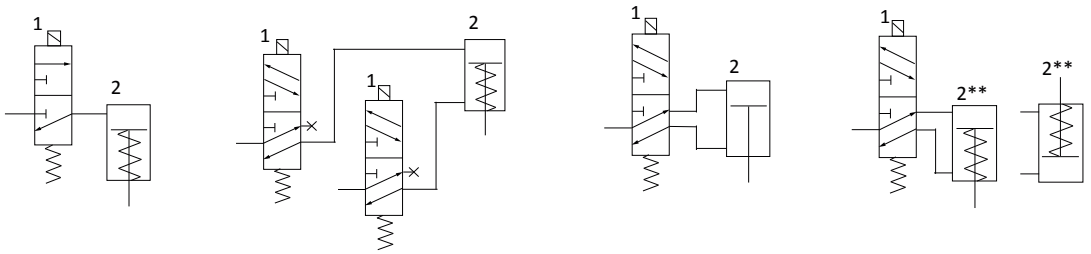


Electropneumatic control valves can be used to control the operation of pneumatically activated vacuum valves. Control valves are available with different electrical supply voltages and frequencies to suit your application.

Features and benefits

- Compatible with Edwards Pneumatic vacuum valves.

Electropneumatic Control Valve Dimensions



1 Pneumatic circuit for 3-port control valve
2 Pneumatic circuit for two 5-port lightweight control valves
3 Pneumatic circuit 5-port lightweight control valve
4 Pneumatic circuit for 5-port control valve

Technical Data

Valve	Valve Type	Recommend Control Valve Configuration	Schematic
GV gate valves	Double-acting cylinder with no spring return	1 x 5-port	3
PVPK pipeline valves soft start	Single-acting cylinder with spring return	1 x 3-port	1
BRV backing/ roughing valve	Double-acting cylinder with spring return to the mid-position (that is, isolated position)	2 x 5-port or (1 x 5-port)	2*(4†)
QSB63/100/160 quarter swing butterfly valves, Diffstak isolation-valves	Double-acting cylinder with no spring return	1 x 5-port	4
Supply pressure	3-port	5-port	
Bar gauge	2.1-8	3.4-4.8	
Psig	30-115	50-70	

* This configuration allows the use of the isolated position of the vacuum valve.
† This configuration only allows the use of the roughing and backing positions of the vacuum valve

Electropneumatic Control Valve

Ordering information

Product description	Order no:
3-Port, 24 V d.c, ⅛ Inch BSP	H06200124
3-Port, 24 V a.c, 50/60 Hz, ⅛ Inch BSP	H06200125
3-Port, 110 V a.c, 50/60 Hz, ⅛ Inch BSP	H06200126
3-Port, 230 V a.c, 50/60 Hz, ⅛ Inch BSP	H06200138
5-Port, 24 V d.c, 6 mm BSP	B28703055
5-Port, 24 V a.c, 50/60 Hz, 6 mm BSP	B28703030
5-Port, 110 V a.c, 50/60 Hz, 6 mm BSP	B28703031
5-Port, 230 V a.c, 50/60 Hz, 6 mm BSP	B28703032