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.

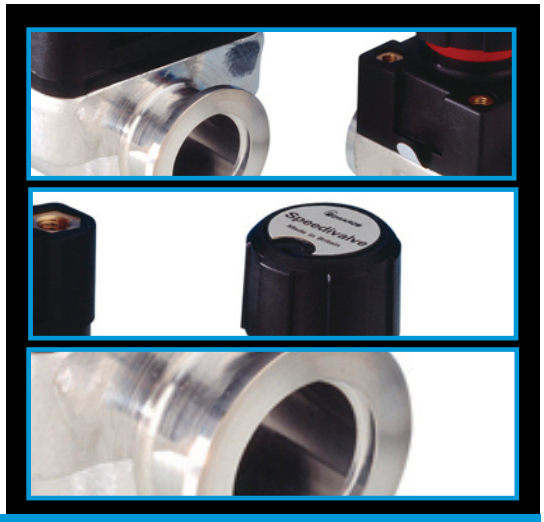
Once in production, all valves are subject to stringent quality control and are individually tested with a helium mass spectrometer leak detector. Bellows sealed pipeline valves are manufactured with 100% grease free O-rings exposed to vacuum delivering unrivalled low contamination levels.

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



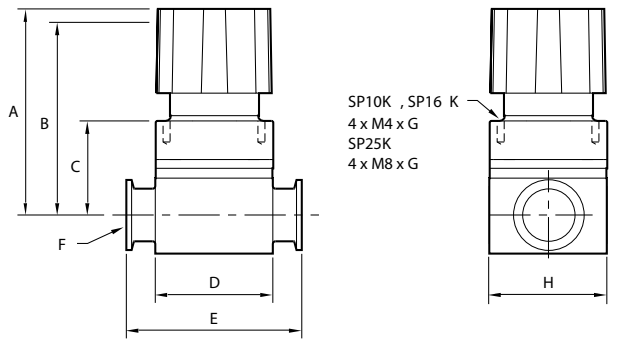
Edwards SP Speedivalves are diaphragm sealed in-line, isolation valves. The construction consists essentially of a flexible elastomeric diaphragm which is sealed onto a lightly polished seat by a screw thread mechanism. The mechanism is isolated from the system by the diaphragm resulting in an extremely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



	A	B	C	D	E	F	G	H
Model	Open	Closed						
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

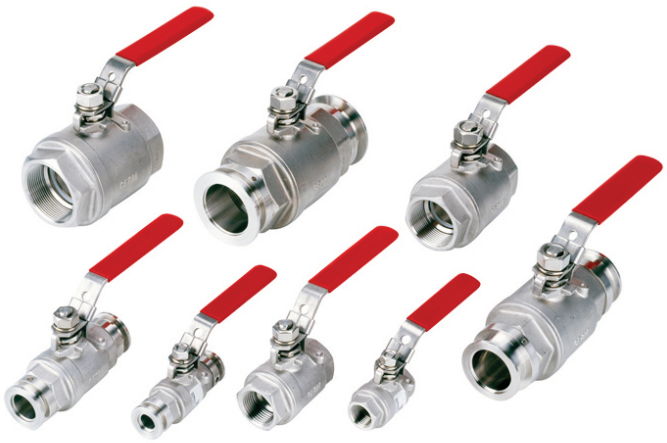
Ordering information

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



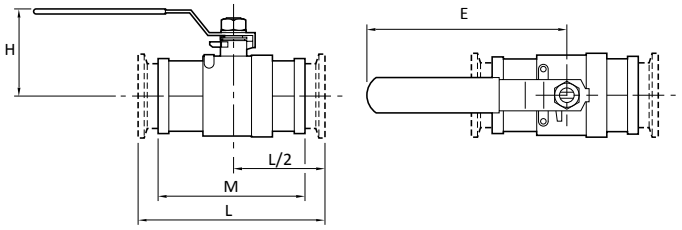
Ball valves are popular in applications where fast action and full bore pumping are needed.

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

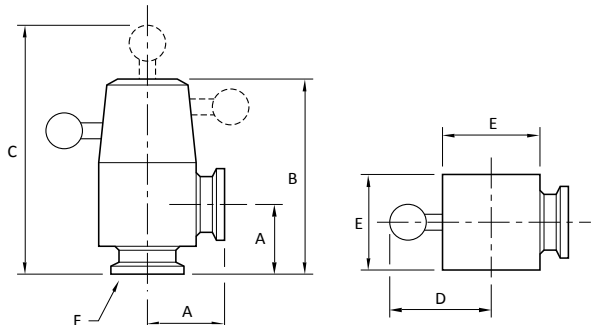
PVMK MANUAL OPERATION RIGHT ANGLE ISOLATION VALVES

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

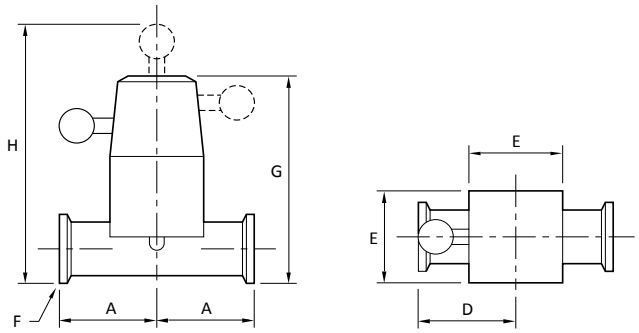
IPVMK MANUAL OPERATION IN-LINE ISOLATION VALVES

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} / $< 7.5 \times 10^{-10}$ 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.

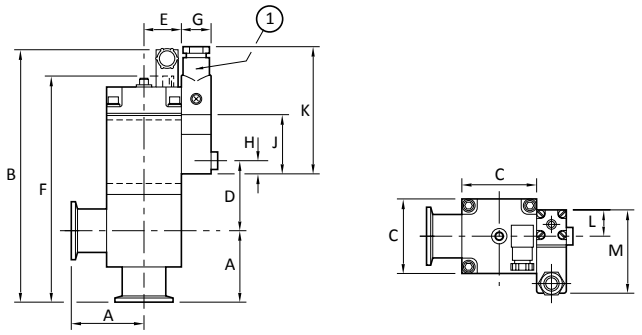
They are available with aluminium or stainless steel bodies with either O-ring (shaft seal Aluminium only) or bellows seal.

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

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

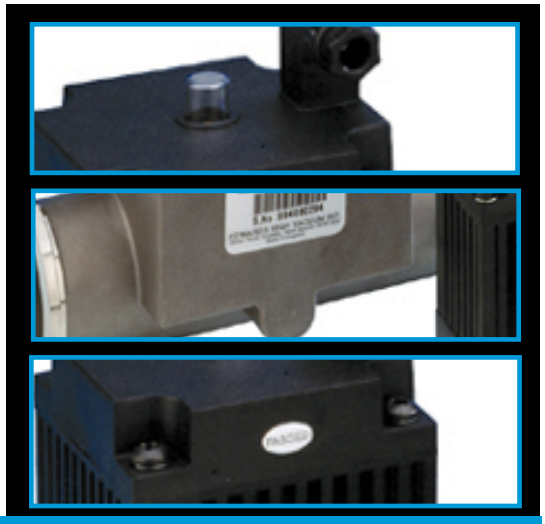
Valve body

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



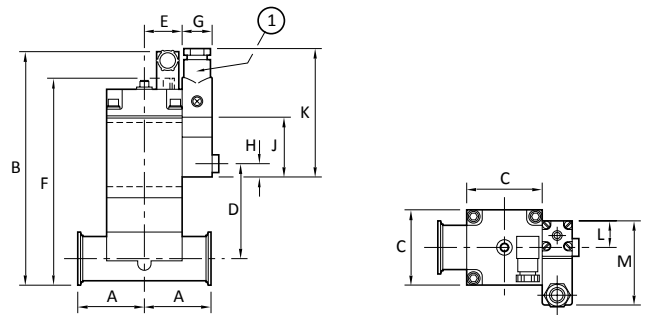
The Edwards range of in-line single acting cylinder, spring return pipeline valves are designed for high speed actuation from standard pneumatic lines, and are offered in sizes NW16, 25, 40 and 50. They are available with aluminium or stainless steel bodies with either O-ring (shaft seal, aluminium only)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

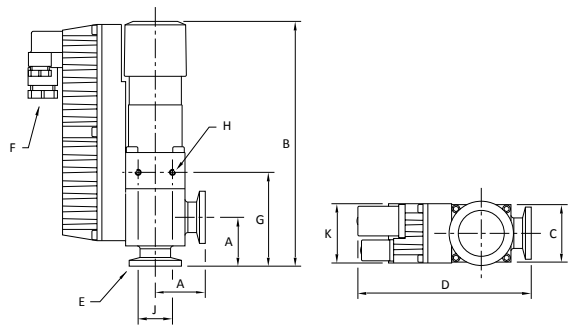
The Edwards PVEK series valves are compact, light-weight electromagnetic vacuum valves suitable for use in vacuum pipeline systems down to 1 x 10^{-9} mbar. A double wound coil combined with an electronic switching circuit ensures low energy consumption, low operating temperatures and extended operating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

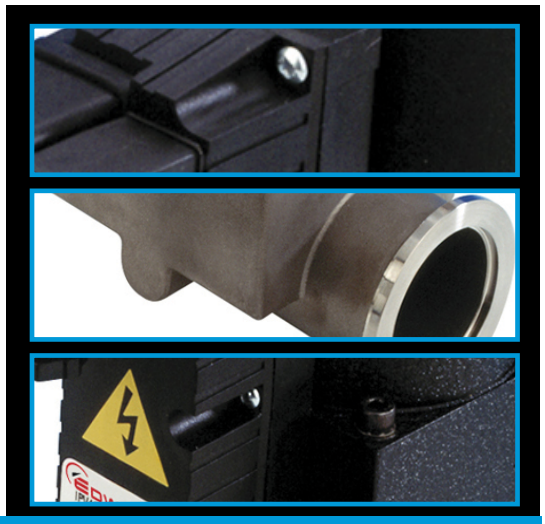
Moving Pole Assy

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



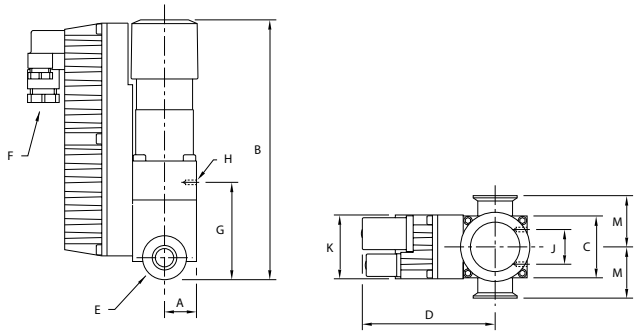
The Edwards IPVEK series valves are compact, light-weight electromagnetic vacuum valves suitable for use in vacuum pipeline systems down to 1 x 10^{-9} mbar. A double wound coil combined with an electronic switching circuit ensures low energy consumption, low operating temperatures and extended operating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

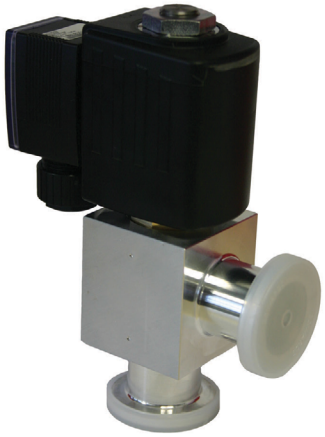
O-Ring kit

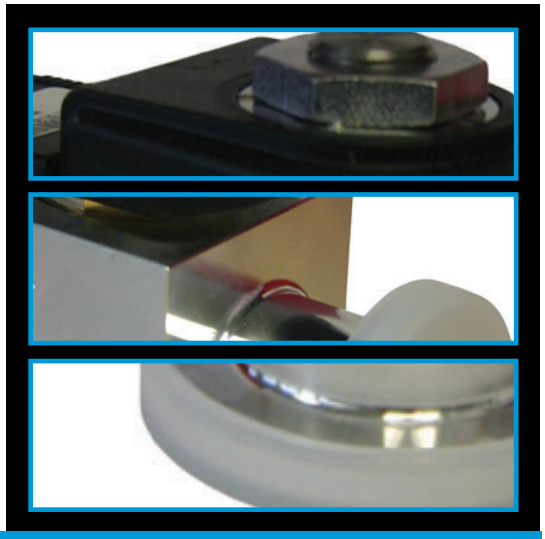
Product description	Order no:
PV10/16MK O-Ring Kit	C41101800
PV40MK O-Ring kit	C41401800
Spares Kit Pad & Body O-ring PV25EK	C41301800

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





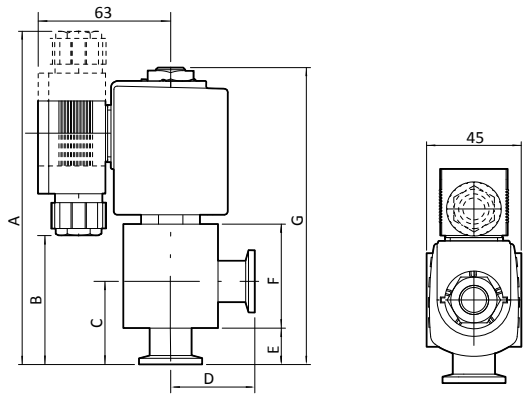
Edwards' aluminium LCPVEK valves are designed for vacuum applications which need a compact, simple, solenoid operation valve to control gas flow. These economical valves are ideal for a number of duties ranging from simple laboratory pump isolation to OEM vacuum system integration and design. The valve 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.

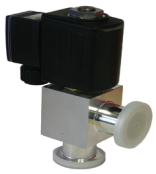
LCPVEK Dimension



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

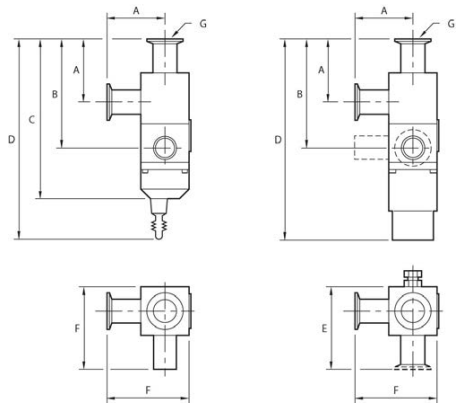
Edwards backing/roughing valves with ISO NW roughing and forepump terminations feature manual or pneumatic actuation. They combine the function of separate backing/roughing valves in one integral 3 port unit.

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

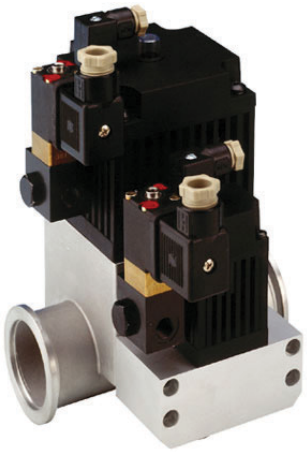
BRV Backing/Roughing Valve

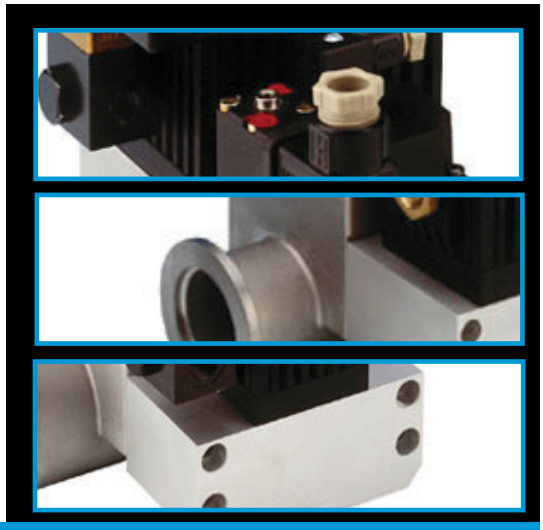
Ordering information

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

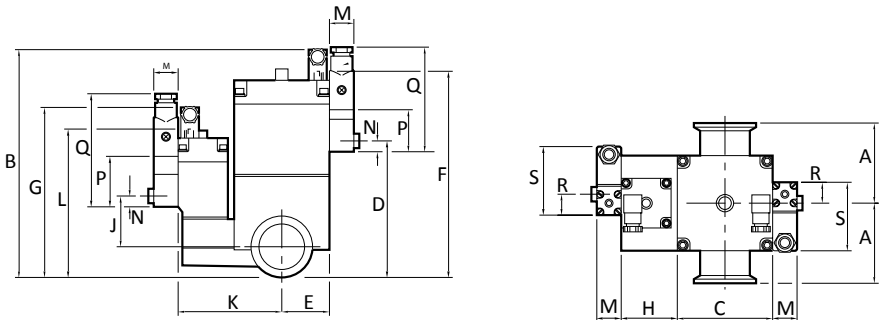
- MTTF of 5,000,000 cycles.
- Controlled pump down to match process.
- Aluminium bodies.
- Fast acting valves in the event of power failure.
- Supplied with 5 mm, 6 mm and 7 mm interchangeable orifices.

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)	

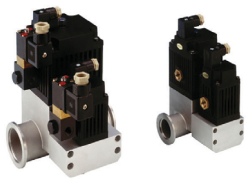
Technical Data

	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

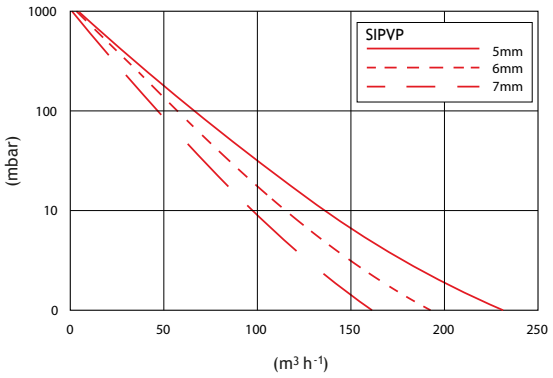
SIPVP

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



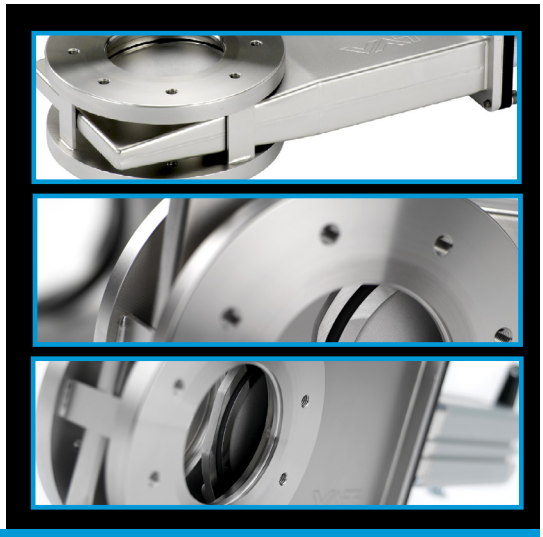
Ordering information

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:

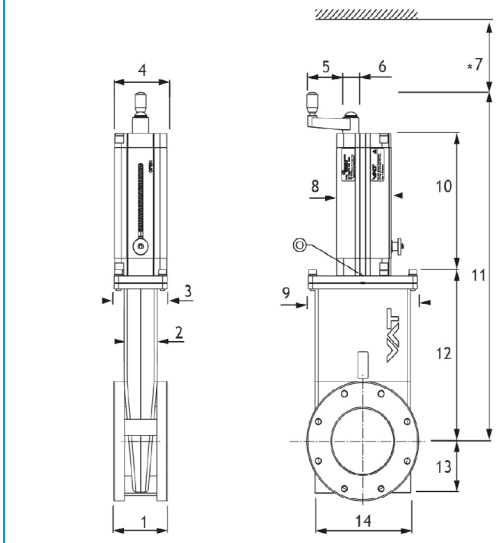
- No oil, grease or complex moving parts within the valve, removing the risk of damage to the mechanism due to contamination from process debris.
- PEEK gliders provide no metal-to-metal contact and act to control the compression of the O ring.
- As the gate closes the O ring brushes across the sealing 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:

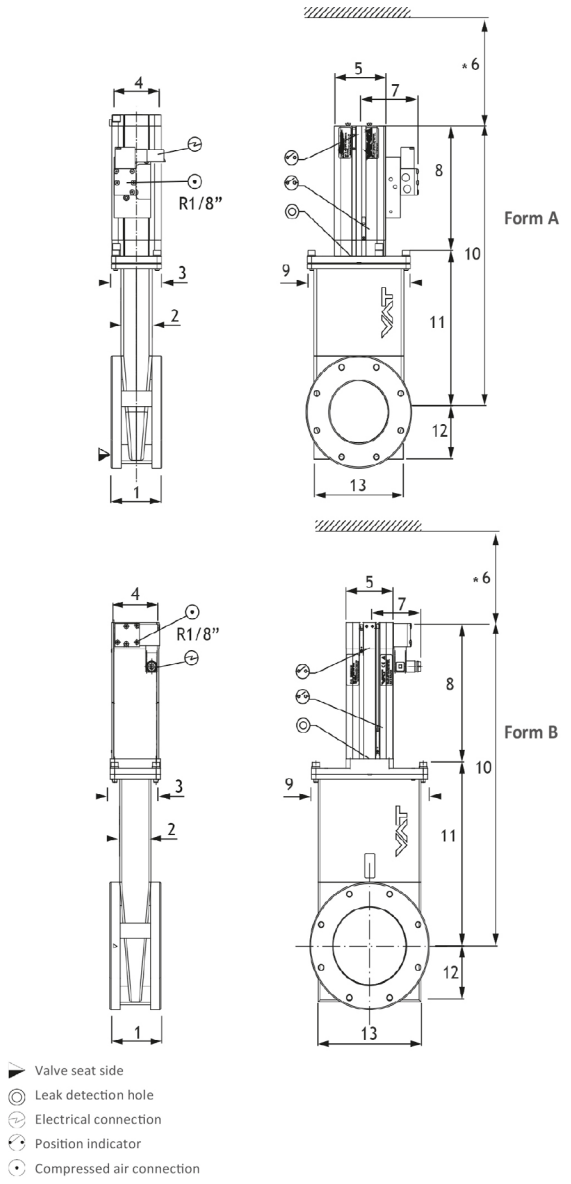
- No oil, grease or complex moving parts within the valve, removing the risk of damage to the mechanism due to contamination from process debris.
- PEEK gliders provide no metal-to-metal contact and act to control the compression of the O ring.
- As the gate closes the O ring brushes across the sealing 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

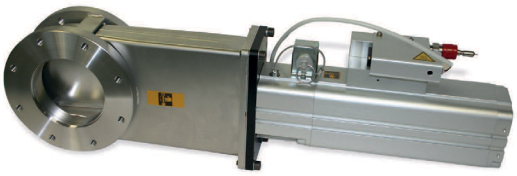
Product description	Order no:
Spare solenoid 24 V a.c./d.c.	B90000790

Interface Cable

Product description	Order no:
BGV Mk2 TIM interface cable	B90003388

BGV LOTO Pneumatic Gate Valves

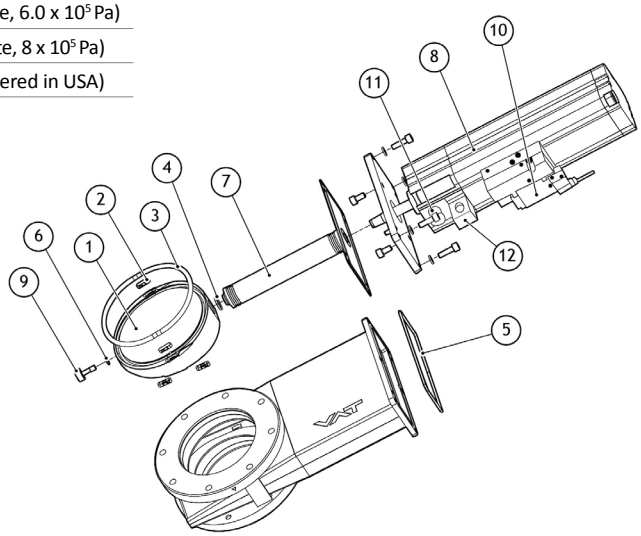
	BGV Pneumatic Gate Valves
Leak rate	
Body	< 1 x 10^{-9} mbar ls^{-1}
Valve seat	< 1 x 10^{-7} mbar ls^{-1}
Pressure range	1 x 10^{-9} mbar to 1.2 bara
Differential pressure on the gate	1.2 bar in either direction
Differential pressure at opening	1 bar
Cycles until first service	20, 0000
Maximum operating 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	R⅛ 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

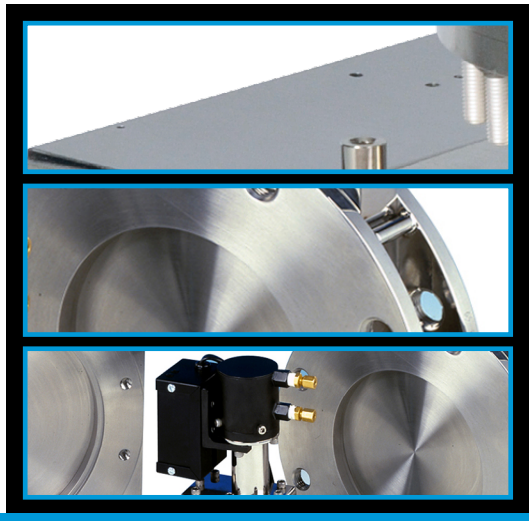
Product description	Order no:
Vacuum seals kit NW50	B90000595
Vacuum seal kit ISO63	B90000600
Vacuum seal kit ISO80	B90000605
Vacuum seal kit ISO100	B90000610
Vacuum seal kit ISO160	B90000620
Bellows feed-through NW50	B90000625
Bellows feed-through ISO63	B90000630
Bellows feed-through ISO80	B90000635
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 ls^{-1}/8 x 10^{-10} Torr ls^{-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

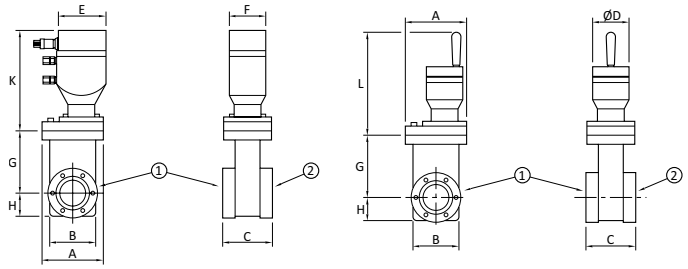
	GV Manual and Pneumatic Gate Valves
Bonnet:	
Metal sealed valves	OFHC
Other valves	Fluoroelastomer
Bakeout temperature:	
Valve body, valve open	150 ˚C (fluoroelastomer bonnet seal)
Valve body, valve open	250 ˚C (metal bonnet seal)
Valve closed	200 ˚C
Actuator, manual	200 ˚C
Actuator, pneumatic	100 ˚C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

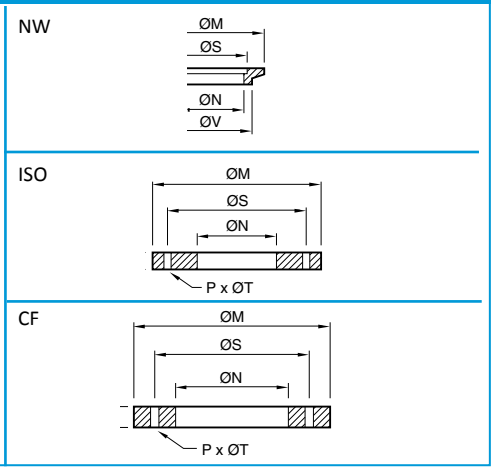
Flange Bore mm	Flange Bore in	Conductance in High Vacuum ls^{-1}	Pneumatic Valve minimum closing & opening time at 5 bar, seconds	Approx mm in Weight, kg
40	1.5	130	0.5	5
50	2	250	0.5	6
63	2.5	520	1	8
100	4	2000	1.5	15
160	6	6300	1.5	23
200	8	15000	2 (close)	34
			3 (open)	
250	10	23000	3 (close)	73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

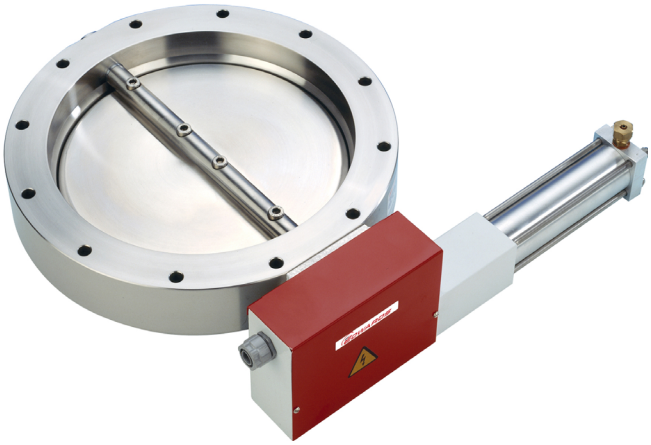
Ordering information

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



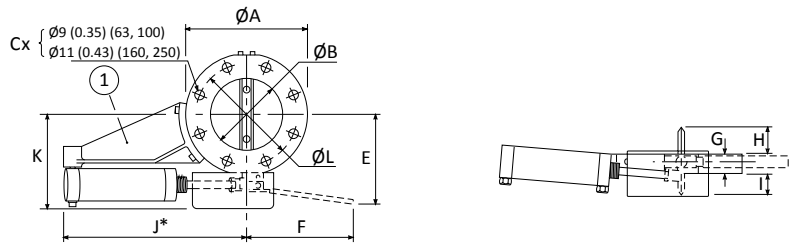
The QSB quarter swing valves are compact, quick acting, high conductance isolation valves. The QSB valves have a polished, stainless steel, ISO flanged body with fluoroelastomer 'O' ring sealed valve plate and shaft. The valve plate 'O' ring groove is vented to help maintain a stable high vacuum. The 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)

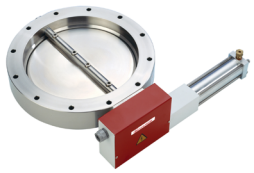
Technical Data

	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

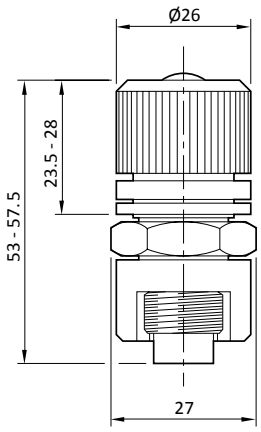
The AV5A is manufactured in aluminium alloy. It has a control knob attached to a screw-actuated plunger: turn the control knob clockwise to close the valve. A nitrile 'O' ring seals the plunger to the valve body.

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

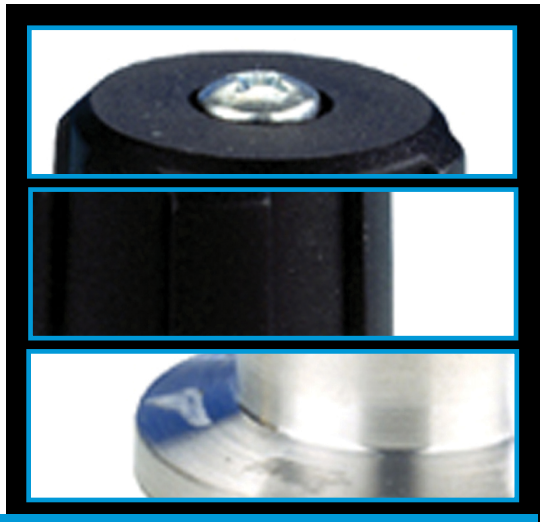
O Ring Nitrile

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



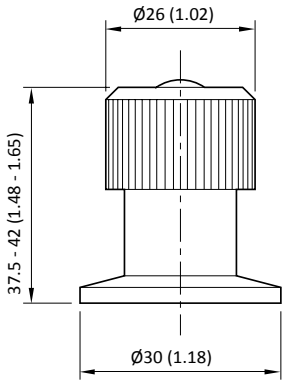
The AV10K is manufactured in aluminium alloy. It has a control knob attached to a screw-actuated plunger: turn the control knob clockwise to close the valve. A nitrile 'O' ring seals the plunger to the valve body.

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

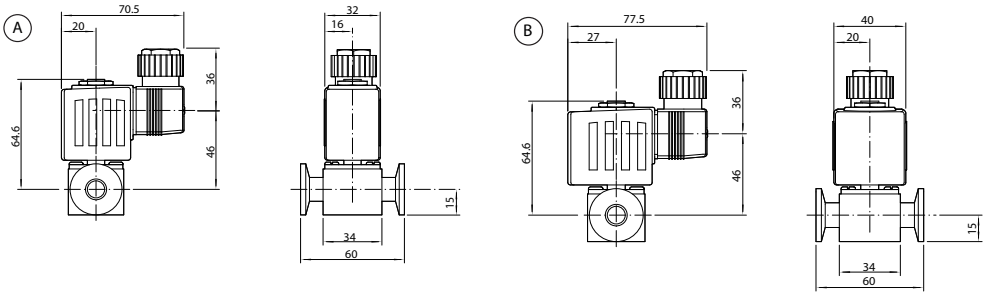
- Normally open or normally closed option.
- Small envelope.
- IP65 protection.
- MTTF 500,000 cycles.

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

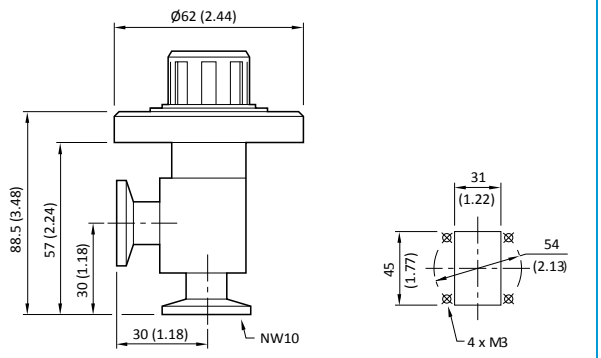
LV10K LEAK VALVE NW10 FLANGES

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

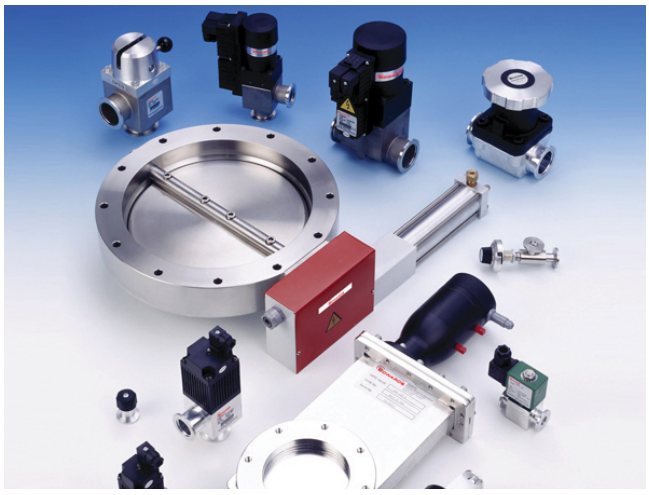
Ordering information

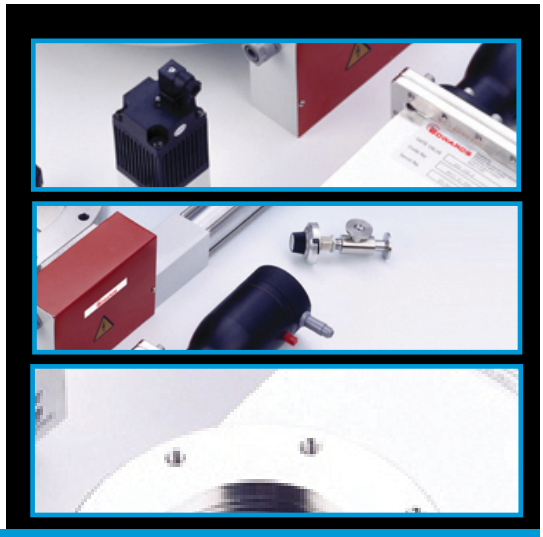
Product description	Order no:
LV10K Leak Valve NW10 Flanges	C37102000

Spares Kit

Product description	Order no:
Spares Kit Valve Seat	C37102812

ELECTROPNEUMATIC CONTROL VALVES



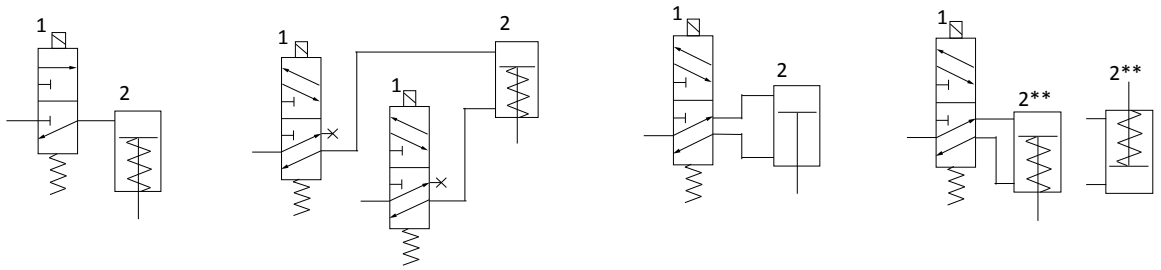


Electropneumatic control valves can be used to control the operation of pneumatically activated vacuum valves. Control valves are available with different electrical supply voltages and frequencies to suit your application.

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

VACUUM COMPONENTS AND FLANGE FITTINGS

When you buy vacuum pump components from Edwards, you can expect the quality and service that only a leading international supplier can provide. We understand that flanges and fittings are critical to the performance of your vacuum system, and supply only high quality products which meet the highest specification.

- **Convenience of supply:** Single source supplier, able to provide the complete system solution either online or via local supply centres.
- **High quality and reliability:** Precision material control ensures a dependable vacuum performance on sensitive or demanding applications.
- **Comprehensive choice:** Complete range for all common flange sizes in aluminium and stainless steel.

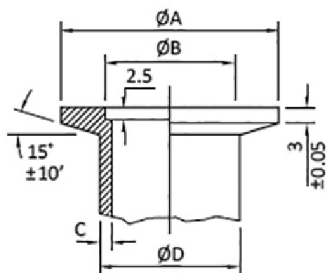
NW Flange Assembly

NW fittings, otherwise known as ISO-KF, are the industry standard for many applications in the low to high vacuum range. They are ideal for achieving dependable cost effective performance down to 10^{-7} mbar across a range of applications from light to harsh duty. A simple fastening method means that systems can be easily assembled and a leak tight vacuum seal is quickly achieved.

- Manufactured to ISO 2861 and DIN 28403 standards
- Nominal diameters 10 to 50 mm
- Use with either elastomer or formed aluminium seals
- Choice of clamp type depending on application, access, convenience and cost
- For use in high-vacuum applications: pressures > 10^{-8} mbar

NW Dimensions

NW Flange Assembly



	A	B	C	D
NW10	30	12.2	2	14
NW16	30	17.2	2	20
NW20	40	22.2	2	25
NW25	40	26.2	2	28
NW32	55	34.2	2	38
NW40	55	41.2	2	44.5
NW50	75	52.2	2	57

ISO Flange Assembly

ISO fittings provide high corrosion resistance in semiconductor processing and excellent repeatability across the range of low to high vacuum applications. The flanges are joined using either claw clamps or bolts with a fluoroelastomer or nitrile centring ring and O ring.

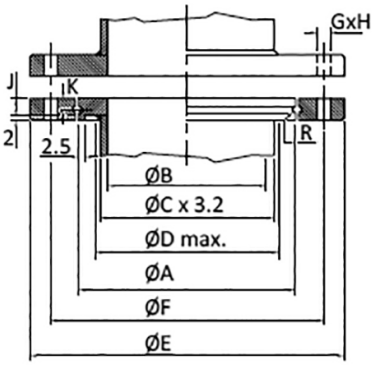
- Manufactured to ISO 1609 and DIN 28404 standards
- Nominal diameters 40-630 mm
- ISO-F flanges have fixed hole patterns
- ISO-K flanges are typically joined with claw clamps and can be converted/connected to ISO-F using a rotatable collar or half claws
- For use in high-vacuum applications: pressures > 10^{-8} mbar

Double claw clamps slot into a circular groove around the flange (ISO-K figure A) and secured to provide a simple but secure flange connection. The more conventional method is to use a range of bolt holes and nut/bolts with either a rotatable (ISO-F figure B) or fixed collar (figure C) flange.

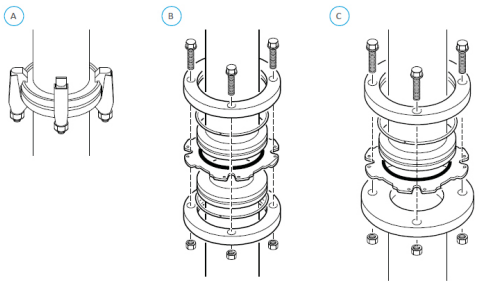
ISO Dimensions

ISO-K, ISO-F Dimensions

	A	B	C	D	E	F	G	H	J
ISO40	65	41	48.3	2.5	100	80	9	4	10
ISO63	95	70	76.1	80	130	110	9	4	10
ISO80	110	83	88.9	95	145	125	9	8	10
ISO100	130	102	114.3	115	165	145	9	8	10
ISO160	180	153	160.3	165	225	200	11	8	10
ISO200	240	213	219	225	275	260	11	12	10
ISO250	290	261	261	275	355	310	11	12	10
ISO320	370	318	318	355	425	395	14	12	15
ISO400	450	400	400	435	510	480	14	16	15
ISO500	550	501	501	535	610	580	14	16	15
ISO630	690	630	630	660	750	720	14	20	20



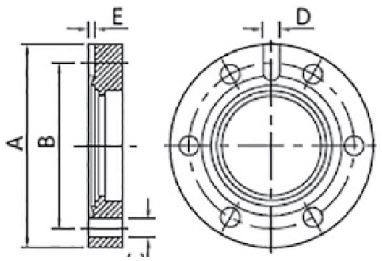
ISO Flange Assembly



A	Two fixed collar flanges with claw clamps
B	Two rotatable flanges
C	One fixed collar flange, with one rotatable flange

CF Flange name equivalents table					Flange OD	
					mm	inch
DN16CF	NW16	CF34	NW16CF	1⅓ inch	34.00	1.33
DN25CF			NW25CF	2⅛ inch	53.60	2.11
DN40CF	NW35	CF70	NW35CF	2¾ inch	70.00	2.73
DN50CF			NW50CF	3¾ inch	85.70	3.37
DN63CF	NW63	CF114	NW63CF	4½ inch	114.00	4.47
DN80CF			NW75CF	4⅝ inch	117.35	4.62
DN100CF	NW100	CF150	NW100CF	6 inch	152.00	5.97
DN125CF			NW130CF	6¾ inch	171.45	6.75
DN160CF	NW150	CF200	NW150CF	8 inch	202.00	7.97
DN200CF	NW200	CF250	NW200CF	10 inch	253.00	9.97
DN250CF	NW250	CF300	NW250CF	12 inch	306.00	13.25

CF Dimensions



Nominal	A (mm)	A (inch)	B	C	D	E	Bolt Holes
DN16CF	34	1 1/3	27	4.4	-	-	6
DN40CF	70	2 3/4	58.7	6.6	-	-	6
DN63CF	114	4 1/2	92.1	8.4	6	3	8
DN100CF	152	6	130.2	8.4	6	3	16
DN160CF	202	8	181	8.4	6	3	20
DN200CF	253	10	231.8	8.4	6	3	24
DN250CF	306	12	284	8.4	6	3	32

UHV ConFlat® Flange Assembly

CF fittings have a unique sealing system to achieve a leak tight joint. A copper seal is squeezed axially and radially between two CF flanges, where knife-edges force the copper to cold flow. This flow is severely limited by the vertical flange wall which generates high pressures and fills surface imperfections to prove an extremely tight metal to metal seal.

- Manufactured to ISO 3669 standard
- Nominal diameters 16-350 mm
- Used almost exclusively with copper ring metal seals
- Bakeable up to 450 °C
- Typically used in UHV systems: pressures < 10^{-8} mbar

Metric flanges, common in Europe and Asia, use metric tapped holes and bored holes in flanges suitable for metric tubing. Flanges specified in inches, more commonly used in the USA, use UNF flange threads and bored holes compatible with inch sized tube. We offer both options.

Vacuum components and fittings at a glance

	Description	NW	ISO	CF	Features and benefits
CLAMPS AND CLAMPING RINGS	Stainless Steel Clamping Ring	✓	-	-	- Low cost and compact - 304L Stainless Steel
	Polymer Clamp	✓	-	-	- Swing or quick release hinge options - Lightweight, compact and low cost with excellent strength to weight ratio - CX4 crystalline aryl polymer
	Aluminium Clamp	✓	-	-	- Swing or quick release hinge options - Ideal in rugged applications and high temperatures - Aluminium
	Clamp for Metal Seals	✓	-	-	- Suitable for aluminium and indium seals - Wide temperature range - 304L Stainless Steel
	Bulkhead Clamp	✓	-	-	- Secure connection to baseplates or flat chamber walls - Aluminium
	"C" Clamp	✓	-	-	- Secure connection to baseplates or flat chamber walls - 304L Stainless Steel or Nickel plated Brass
	Claw Clamps and Bolts	-	✓	✓	- Extensive range optimised for many applications - High strength CF bolts for UHV flanges - Rotatable and non-rotatable options - 304L Stainless Steel, Aluminium or Plated Mild Steel options
SEALS	co-seal - Aluminium	✓	-	-	- Eliminate crevices and trapped volumes to prevent gas burst and pump down issues - Fluoroelastomer and Nitrile versions - Suitable for vacuum and positive pressure applications (eg. pump exhaust) - Aluminium carrier
	co-seal - High-Tech Polymer	✓		-	- Eliminate crevices and trapped volumes to prevent gas burst and pump down issues - Fluoroelastomer and Nitrile versions - Suitable for vacuum and positive pressure applications (eg. pump exhaust) - CX2 crystalline aryl polymer
	Centring Ring with O Ring - Aluminium	✓	-	-	- Fluoroelastomer and Nitrile versions - Aluminium Carrier
	Centring Ring with O Ring - High-Tech Polymer	✓	-	-	- Fluoroelastomer and Nitrile versions - For temperatures up to 100 °C and is unaffected by most common solvents - CX2 crystalline aryl polymer
	Trapped O Rings	✓	✓	-	- ISO option in Aluminium - Fluoroelastomer - Suitable for vacuum and positive pressure applications (eg. pump exhaust) - NW option in 304L Stainless Steel and Aluminium
	Metal Seals	✓	-	✓	- Suitable for high temperature applications - Copper gaskets for UHV seals - Aluminium all metal seals
PIPELINE COMPONENTS	Aluminium Components	✓	✓	-	- Extensive range providing flexibility within your vacuum system - Aluminium
	Stainless Steel Components	✓	✓	✓	- Extensive range providing flexibility within your vacuum system - NW and ISO fittings in 316L Stainless Steel - CF fittings in 304L Stainless Steel
BELLOWS AND FLEXIBLE PIPELINES	Bellows	✓	✓	✓	- Suitable for minimising transfer of vibration from pump to vacuum system - NW and ISO fittings in 316L Stainless Steel - CF fittings in 304L Stainless Steel
	Flexible Pipelines and Braided Flexible Pipelines	✓	✓	✓	- To simplify the connection of two components or correct any misalignment - Use braided version for positive pressure applications (eg. pump exhaust) - NW and ISO fittings in 316L Stainless Steel - CF fittings in 304L Stainless Steel

Our components and flange fittings are designed to be leak-tight across the range of vacuum applications, and not intended to provide full structural support. When designing any vacuum system, it is essential that consideration is given to the static and dynamic loads imposed on each connection. If necessary, additional mechanical support should be provided and built into the design. Regular inspection including leak-checking and, where appropriate, periodic replacement of components should be considered to ensure system efficiencies and safety is maintained.

Technical Data

Operating Pressure Range (absolute):	Minimum	Maximum
Products are designed for vacuum applications however some will withstand a small over-pressure, this is indicated in the table below where appropriate.		
"C" clamp and centring ring	10^{-7} mbar	1 bar
Stainless steel clamping ring and co-seal	10^{-7} mbar	10 bar
Stainless steel clamp and metal seal	10^{-8} mbar	3 bar
Stainless steel clamp and co-seal (all sizes)	10^{-7} mbar	10 bar
Polymer and aluminium clamps and co-seal		
NW10 to NW25	10^{-7} mbar	10 bar
NW40 to NW50	10^{-7} mbar	10 bar
NW trapped O ring	10^{-7} mbar	10 bar
ISO trapped O ring	10^{-7} mbar	1 bar
O ring and centring-ring (vacuum use only)	10^{-7} mbar	1 bar
Bellows	10^{-7} mbar	1 bar
Flexible pipelines*	10^{-7} mbar	1.5 bar
Braided flexible pipelines*	10^{-7} mbar	10 bar

**Depends on size*

Operating Temperature:	
Products are designed for vacuum applications however some will withstand a small over-pressure, this is indicated in the table below where appropriate.	
Polymer co-seal	-10 to 80 °C
Aluminium co-seal and nitrile seal	-10 to 100 °C
Aluminium co-seal and fluoroelastomer seal	-10 to 150 °C
Polymer centring-ring and nitrile O-ring	-10 to 100 °C
Polymer centring-ring and fluoroelastomer seal	-10 to 125 °C
Nitrile O-ring	-10 to 100 °C
Fluoroelastomer O-ring	-10 to 200 °C
Constant vacuum use	-10 to 100 °C
Intermittent vacuum use	-10 to 125 °C
Stainless steel clamping ring	-10 to 125 °C
Aluminium swing/hinge clamp	-10 to 200 °C
Stainless steel clamp	-10 to 200 °C

The maximum temperature for continuous operation with fluoroelastomer is 150 °C. It may be intermittently baked to 200 °C.

Stainless Steel Equivalents:		
AISI Number	**DIN Standard**	**Composition**
304L	1.4306	X2 CrNi 19 10
316L	1.4404	X2 CrNiMo 17 13 2

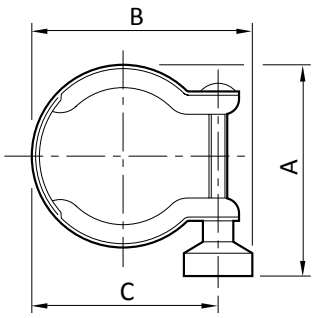
Chemical Resistance:		
Material	**Generally resistant to**	**Generally attacked by**
Nitrile Butadiene Acrylonitrile copolymer	Many hydrocarbons fats, oils greases, hydraulic fluids	Ozone, ketones, esters, aldehydes, chlorinated and nitro hydrocarbons
Neoprene Chloroprene polymer	Moderate chemicals and acids, ozone, oily fats, greases, many oils and solvents	Strong oxidizing acids and esters, ketones, chlorinated aromatic and nitro hydrocarbons
Fluoroelastomer Fluorocarbon polymer	All aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable fats	Ketones, low molecular weight esters and nitro containing compounds
Aluminium	Organic acids, fatty acids, freons, nitric acid	Strong acids, alkalis chlorinated solvents, mercury
Stainless Steel	Organic acids, alkalis, nitric acid. Sulphuric acid (10%)	Oxidizing chlorines, some organic acids, hydrochloric acid, hydrofluoric acid
Polymer Liquid crystal polymer	Organic acids, glycols, chlorinated solvents, ketones, mineral and oxidising acids, caustic solutions freons	Sodium hydroxide, sulphuric acid (70%)

This information is provided as a general guide only. Further guidance should be sought with respect to specific chemicals and their applications.

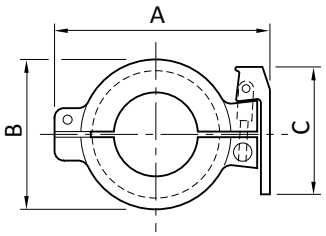
Description		Semiconductor	Scientific	R & D	Industrial	Features
Clamps						
	Clamping Ring	–	●	●	●	Low cost, compact Stainless steel
	Polymer Clamp	–	●	●	●	Low cost, lightweight Neat appearance
	Aluminium Clamp	●	●	●	●	Rugged Pneurop standard Competitive price
	Metal Clamp	–	–	●	●	Suitable for aluminium and indium seals Wide temperature range
	Claw Clamps and Bolts	●	●	●	●	Wide range optimised for many applications High strength CF bolts for UHV flanges
Seals						
	Polymer Centring Ring	–	●	●	●	Low cost Gas vents – no gas bursts Resistant to solvents
	Trapped O-Rings	●	●	●	●	No gas bursts
	Polymer co-seal	–	●	●	●	No gas bursts Suitable for up to 10 bar
	Metal Centring Ring	●	●	●	●	Stainless steel and aluminium carrier Pneurop standard Fluoroelastomer and nitrile versions
	Metal Seal	–	●	●	●	Aluminium all metal seals Copper gaskets for UHV seals
Pipeline Components						
	Aluminium	–	●	●	●	NW10 to NW50 components
	Stainless Steel	●	●	●	●	NW10 to NW50 components NW and ISO fittings in 316L for corrosion CF fittings in 304L for cost effectiveness resistance
Bellows and Flexible Pipelines						
	Bellows	●	●	●	●	NW and ISO fittings in 316L, CF fittings in 304L Suitable for minimising transfer of vibration from pump to vacuum systems
	Flexible Pipelines	–	●	●	●	Use to simplify connection of two components or correct misalignment Use braided versions for positive pressure applications (like dry pump exhausts)

NW Fittings

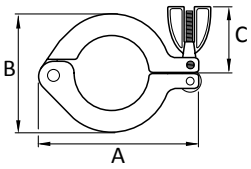
Size	A	B	C	Order no:	Clamping Ring
Stainless steel (red wing nut)					
NW10/16	44	46	34	C10512401	
NW20/25	60	60	48	C10514401	
NW32/40	73	75	63	C10516401	
NW50	90	96	84	C10517401	
Copper free (black wing nut)					
NW10/16	44	46	34	C10512501	
NW20/25	60	60	48	C10514501	
NW32/40	73	75	63	C10516501	
NW50	90	96	84	C10517501	

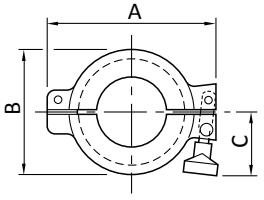


Size	A	B	C	Order no:	Hinged Clamp
Aluminium					
NW10/16	68	40	57	C10512402	
NW20/25	80	50	57	C10514402	
NW32/40	95	66	57	C10516402	
Polymer					
NW10/16	68	40	57	C10512303	
NW20/25	80	50	57	C10514303	
NW32/40	95	66	57	C10516303	



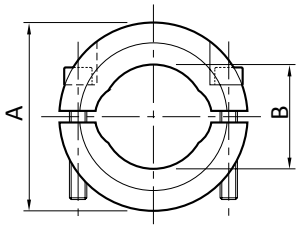
Size	A	B	C	Order no:	Swing Clamp
Aluminium					
NW10/16	62	40	35	C10512403	
NW20/25	75	50	35	C10514403	
NW32/40	90	66	35	C10516403	
NW50	120	86	35	C10517403	
Polymer					
NW10/16	62	40	35	C10512304	
NW20/25	75	50	35	C10514304	
NW32/40	90	66	35	C10516304	
NW50	120	86	35	C10517304	



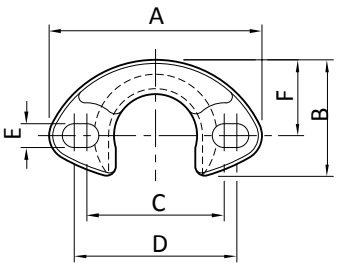


Size	A	B	Order no:	Clamp for Metal Seals
Stainless steel				
NW10/16	54	22	C10512404	
NW20/25	64	32	C10514404	
NW32/40	82	47	C10516404	
NW50	112	62	C10517404	

We recommend the use of thread lubricant, 1764 00030.



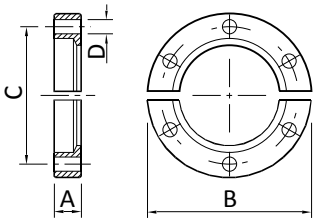
"C" Clamp



Size	A	B	C	D	E	F	Order no:
Nickel plated brass including screw pack							
NW10/16	59	35	38	45	6.3	22	C11002340
NW25	70	44	54	54[†]	8.3	25.4	C11004340
NW40*	100	73.5	79	81	8.3	50	C11005340

Stainless steel; [†] Non slotted

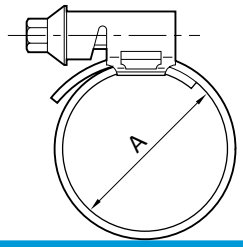
Bulkhead Clamp



Size	A	B	C	D	Order no:	
Aluminium					Europe	N.America
NW10/16	9.2	50.8	38.1	5.1	C10512007	C90512007
NW25	9.8	60.3	48.0	5.1	C10514007	C90514007
NW40	9.3	74.6	62.0	5.1	C10516007	C90516007
NW50	10.3	95.2	83.0	5.1	C10517007	C90517007

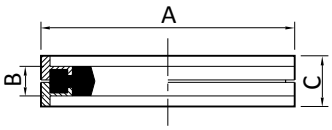
All sizes supplied with
6 x 10-32 UNF x ⅜" hex head stainless steel bolts
6 x 10-32 UNF stainless steel plain washers

PVC Hose Clamp



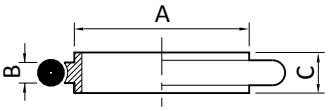
Size	A	Order no:
Stainless steel		
NW10/16	25	C10512408
NW25	36	C10514408
NW40	50	C10516408
NW50	60	C10517408

co-seal

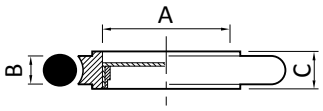


Size	A	B	C	Order no:
Nitrile/aluminium carrier				
NW10/16	32	3.9	7	B27158480
NW20/25	42	3.9	7	B27158490
NW32/40	57	3.9	7	B27158500
Nitrile/polymer carrier				
NW10/16	32	3.9	7	B27158426
NW20/25	42	3.9	7	B27158447
NW32/40	57	3.9	7	B27158454
NW50	77.5	3.9	7	B27158467
Fluoroelastomer/aluminium carrier				
NW10/16	32	3.9	7	B27158481
NW20/25	42	3.9	7	B27158491
NW32/40	57	3.9	7	B27158501
Fluoroelastomer/polymer carrier				
NW10/16	32	3.9	7	B27158427
NW20/25	42	3.9	7	B27158448
NW32/40	57	3.9	7	B27158453
NW50	77.5	3.9	7	B27158466

Size	A	B	C	Order no:	Centring Ring with O-Ring
Fluoroelastomer/stainless steel carrier					
NW10	12	3.9	8	C10511395	
NW16	17	3.9	8	C10512395	
NW25	26	3.9	8	C10514395	
NW40	41	3.9	8	C10516395	
NW50	52	3.9	8	C10517395	
Fluoroelastomer/aluminium carrier					
NW10	12	3.9	8	C10511397	
NW16	17	3.9	8	C10512397	
NW25	26	3.9	8	C10514397	
NW40	41	3.9	8	C10516397	
Fluoroelastomer/polymer carrier					
NW10	12	3.9	8	C10511394	
NW16	17	3.9	8	C10512394	
NW25	26	3.9	8	C10514394	
NW40	41	3.9	8	C10516394	
Nitrile/stainless steel carrier					
NW10	12	3.9	8	C10511396	
NW16	17	3.9	8	C10512396	
NW25	26	3.9	8	C10514396	
NW40	41	3.9	8	C10516396	
NW50	52	3.9	8	C10517396	
Nitrile/aluminium carrier					
NW10	12	3.9	8	C10511398	
NW16	17	3.9	8	C10512398	
NW25	26	3.9	8	C10514398	
NW40	41	3.9	8	C10516398	
Nitrile/polymer carrier					
NW10	12	3.9	8	C10511393	
NW16	17	3.9	8	C10512393	
NW25	26	3.9	8	C10514393	
NW40	41	3.9	8	C10516393	

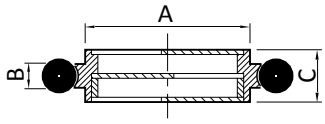


Centring Ring with Screen



Size	A	B	C	Order no:
Fluoroelastomer/Stainless Steel AISI 316L DIN 1.4404 Stainless Steel wire Ø0.5 Aperture size 1 mm²				
NW16	9.5	3.9	8	C10512085
NW25	19.5	3.9	8	C10514085
NW40	32	3.9	8	C10516085
NW50	43	3.9	8	C10517085

Centring Ring with Optical Baffle

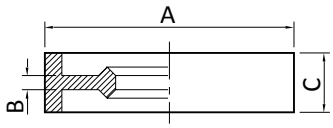


Size	A	B	C	Order no:
Fluoroelastomer/stainless steel AISI 304L DIN 1.4301				
NW25	26	3.9	8.5	D02110000

Centring Ring Sintered Filter

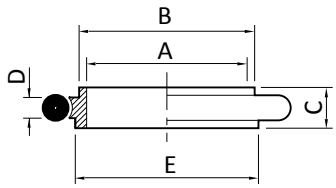
Size	Order no:
NW10	D02158020

Metal Seals



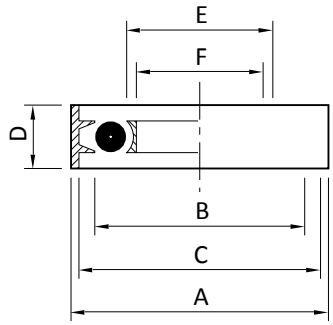
Size	A	B	C	Order no:
Aluminium Use with clamps (metal seals) C105-XX-404.				
NW10/16	32	2.0	7	C27159004
NW20/25	42	2.0	7	C27159005
NW32/40	57	2.0	7	C27159006
NW50	77	2.0	7	C27159007

Adapting Centring Ring with O-Ring



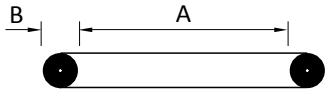
Size	A	B	C	D	E	Order no:
Nitrile						
NW10/16 stainless steel	10	12	8	3.9	17	C10512346
NW10/16 polymer	10	12	8	3.9	17	C10512349
Fluoroelastomer						
NW10/16 stainless steel	10	12	8	3.9	17	C10512345
NW10/16 polymer	10	12	8	3.9	17	C10512350

NW Trapped O-Ring

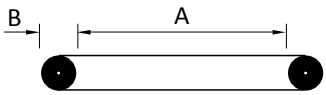


Size	A	B	C	D	E	F	Order no:
Fluoroelastomer/stainless steel/aluminium							
NW10/16	32.5	27.5	30.2	7	18.5	16	C10512490
NW25	42.5	37.5	40.2	7	28.5	25	C10514490
NW40	57.5	52.0	55.2	7	43	40	C10516490
NW50	77.5	64.5	75.2	7	55.5	50	C10517490

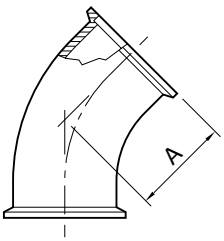
Size	A	B	Order no:	O-Ring (Pack of 5)
Fluoroelastomer				
NW10	15	5	H02124032	
NW16	18	5	H02124033	
NW25	28	5	H02124035	
NW40	42	5	H02124037	
NW50	50	5	H02124038	



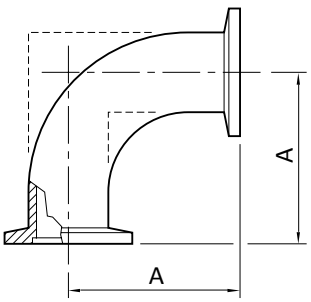
Size	A	B	Order no:	O-Ring (Pack of 10)
Nitrile				
NW10	15	5	H02124012	
NW16	18	5	H02124013	
NW25	28	5	H02124015	
NW40	42	5	H02124017	
NW50	50	5	H02124018	



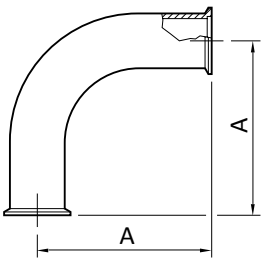
Size	A	Order no:	Elbow 45°
Stainless Steel AISI 316L DIN 1.4404			
NW16	23.2	C10512405	
NW25	28.5	C10514405	
NW40	42.7	C10516405	
NW50	50.6	C10517405	

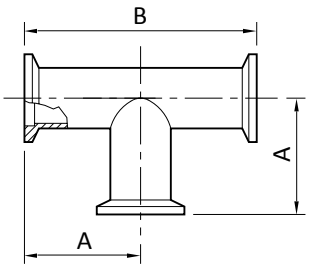


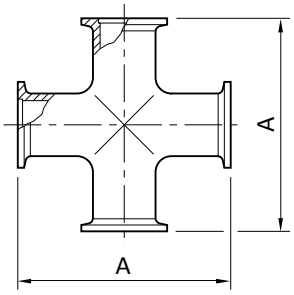
Size	A	Order no:	Elbow 90°
Aluminium BS LM25 DIN 3.2371			
NW10	30	C10511410	
NW16	40	C10512410	
NW25	50	C10514410	
NW40	65	C10516410	
Stainless Steel AISI 316L DIN 1.4404			
NW10	30	C10511420	
NW16	40	C10512420	
NW25	50	C10514420	
NW40	65	C10516420	
NW50	70	C10517420	

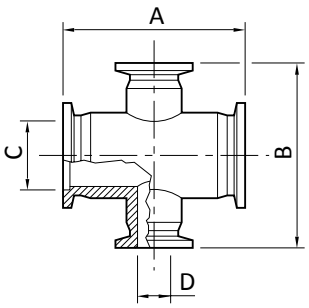


Size	A	Order no:	Long Radius Elbow
Stainless Steel AISI 316L DIN 1.4404			
NW40	130	C10516406	
NW50	140	C10517406	

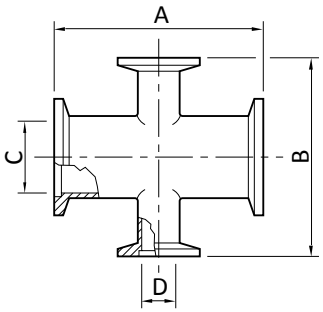


T-Piece	Size	A	B	Order no:
	Aluminium BS LM25 DIN 3.2371			
	NW10	30	60	C10511411
	NW16	40	80	C10512411
	NW25	50	100	C10514411
	NW40	65	130	C10516411
	Stainless Steel AISI 316L DIN 1.4404			
	NW10	30	60	C10511421
	NW16	40	80	C10512421
	NW25	50	100	C10514421
	NW40	65	130	C10516421
	NW50	70	140	C10517421

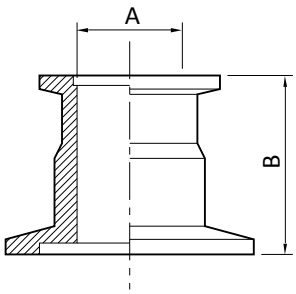
Cross Piece	Size	A	Order no:
	Aluminium BS LM25 DIN 3.2371		
	NW10 60	60	C10511412
	NW16	80	C10512412
	NW25	100	C10514412
	NW40	130	C10516412
	Stainless Steel AISI 316L DIN 1.4404		
	NW10	60	C10511422
	NW16	80	C10512422
	NW25	100	C10514422
	NW40	130	C10516422
	NW50	140	C10517422

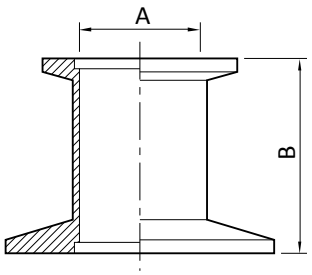
Reducing Cross	Size	A	B	C	D	Order no:
	Aluminium ISO 6082 DIN 3.2315					
	NW25/10	70	70	26.2	12.2	C10514413
	NW40/10	80	90	41.2	12.2	C10516413

Size	A	B	C	D	Order no:	Reducing Cross
Stainless Steel AISI 316L DIN 1.4404						
NW25/10	70	70	26.2	12.2	C10514423	
NW25/16	100	80	26.2	17.2	C10514424	
NW40/16	130	80	41.2	17.2	C10516424	
NW40/25	130	100	41.2	26.2	C10516425	
NW50/25	140	100	52.2	26.2	C10517425	

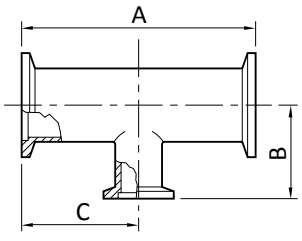


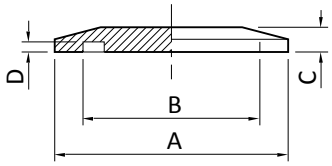
Size	A	B	Order no:	Reducing Piece
Aluminium ISO 6082 DIN 3.2315				
NW25/10	10	40	C10514436	
NW25/16	16	40	C10514437	
NW40/25	24	40	C10516439	
NW40/16	16	40	C10516438	
NW50/16	16	40	C10517040	
NW50/25	24	40	C10517043	
NW50/40	41	40	C10517041	
Stainless Steel AISI 316L DIN 1.4404				
NW25/10	10	40	C10514446	
NW25/16	16	28	C10514447	
NW40/16	16	28	C10516448	
NW40/25	24	28	C10516449	
NW50/16	16	28	C10517450	
NW50/25	24	40	C10517051	
NW50/40	40	28	C10517452	

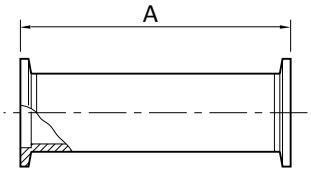


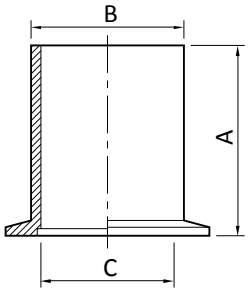


Size	A	B	C	Order no:	Reducing T-Piece
Stainless Steel AISI 316L DIN 1.4404					
NW25/16	100	40	50	C10514427	
NW40/16	130	40	65	C10516428	
NW40/25	130	50	65	C10516429	
NW50/16	140	50	70	C10517430	
NW50/25	140	65	70	C10517431	

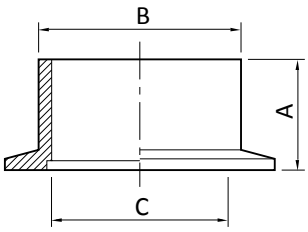


Blanking Flange	Size	A	B	C	D	Order no:
	Aluminium BS LM 25 DIN 3.2371					
	NW10	30	12.2	6	2.5	C10511368
	NW16	30	17.2	6	2.5	C10512368
	NW25	40	26.2	6	2.5	C10514368
	NW40	55	41.2	6	2.5	C10516368
	Stainless Steel AISI 316L DIN 1.4404					
	NW10	30	12.2	6	2.5	C10511366
	NW16	30	17.2	6	2.5	C10512366
	NW25	40	26.2	6	2.5	C10514366
	NW40	55	41.2	6	2.5	C10516366
	NW50	75	52.2	6	2.5	C10517366

Full Nipple	Size	A	Order no:
	Aluminium BS LM 25 DIN 3.2371		
	NW10	60	C10511409
	NW16	80	C10512409
	NW25	100	C10514409
	NW40	130	C10516409
	Stainless Steel AISI 316L DIN 1.4404		
	NW10	60	C10511433
	NW16	80	C10512433
	NW25	100	C10514433
	NW40	130	C10516433
	NW50	140	C10517433

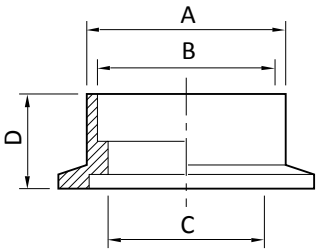
Long Flange Weld Stub	Size	A	B	C	D	Order no:
	Stainless Steel AISI 316L DIN 1.4404					
	For metric tube					
	NW10	70	15	10		C10511316
	NW16	70	20	16		C10512316
	NW25	70	28	24		C10514316
	NW40	70	44.5	41		C10516616
	NW50	70	57	51		C10517316
	For inch tube					
	NW10	40	12.7	9.3	½	C10504080
	NW16	40	19.1	15.7	¾	C10504101
	NW25	40	25.4	22	1	C10504223
	NW40	40	38.1	34.7	1½	C10504324
	NW50	40	50.8	47.4	2	C10504351
	For inch tube: D= tube OD					

Size	A	B	C	D	Order no:	Short Flange Weld Stub
Stainless Steel AISI 316L DIN 1.4404						
For metric tube						
NW10	30	15	10		C10511311	
NW16	30	20	16		C10512311	
NW25	30	28	24		C10514311	
NW40	30	44.5	41		C10516611	
NW50	30	57	51		C10517311	
For inch tube						
NW10	12.7	12.7	9.3	½	C10504079	
NW16	12.7	19.1	15.7	¾	C10504100	
NW25	12.7	25.4	22	1	C10504222	
NW40	19.1	38.1	34.7	1½	C10504323	
NW50	19.1	50.8	47.4	2	C10504350	



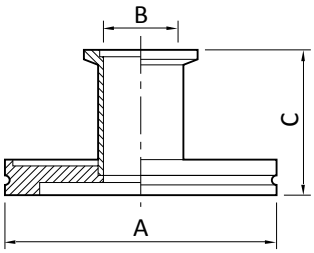
For inch tube: D= tube OD

Size	A	B	C	D	E	F	Order no:	Weld Socket Flange for Inch Tube
Stainless Steel AISI 316L DIN 1.4404								
NW10	15.5	13	11.4	12.7	12.7	½	C10504102	
NW16	22.1	19.3	17.3	12.7	19.1	¾	C10504103	
NW25	28.6	25.9	22.1	12.7	25.4	1	C10504224	
NW40	44.5	38.6	34.9	12.7	38.1	1½	C10504325	
NW50	57.2	51.3	47.5	12.7	50.8	2	C10504353	

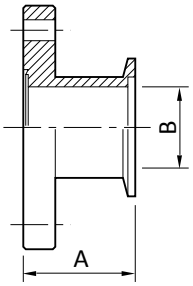


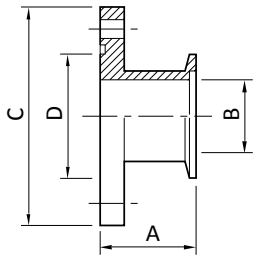
E= tube OD, mm
F= tube OD, inches

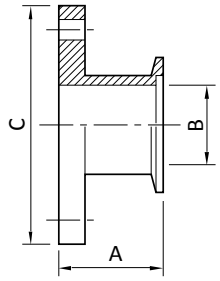
Size	A	B	C	Order no:	Adaptor NW/ISO
Stainless Steel AISI 316L DIN 1.4404					
NW25/ISO63	95	25	50	C10007115	
NW40/ISO63	95	40	50	C10007116	
NW40/ISO80	110	40	118	C10008002	
NW40/ISO100	130	40	50	C10009122	
NW50/ISO63	95	50	50	C10007118	
NW50/ISO80	110	50	118	C10008003	
NW50/ISO100	130	50	50	C10009123	

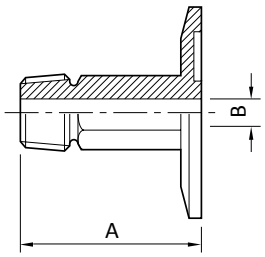


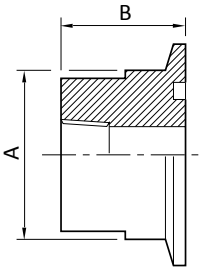
Size	A	B	Order no:	Adaptor NW/CF
Stainless Steel AISI 316L DIN 1.4404				
NW16/DN16CF/1⅓	52.7	15.8	C10503104	
NW16/DN40CF/2¾	45.3	15.8	C10503105	
NW25/DN40CF/2¾	45.3	22	C10503207	
NW40/DN40CF/2¾	45.3	40	C10503305	
NW50/DN63CF/4½	49.5	50	C10503405	



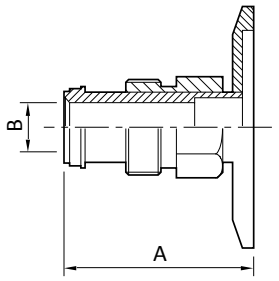
Adaptor NW/ASA with O-Ring Groove	Size	A	B	C	D	Order no:
	Stainless Steel AISI 316L DIN 1.4404					
	NW40/2 inch ASA	46	40	152	86.9	C10503310
	NW40/3 inch ASA	46	40	190	118	C10503311
	NW50/2 inch ASA	46	50	152	86.9	C10503410

Adaptor NW/ASA without O-Ring Groove	Size	A	B	C	Order no:
	Stainless Steel AISI 316L DIN 1.4404				
	NW40/1½ inch ASA	46	40	127	C10503303
	NW40/2 inch ASA	46	40	152	C10503300
	NW50/2 inch ASA	46	50	152	C10503400

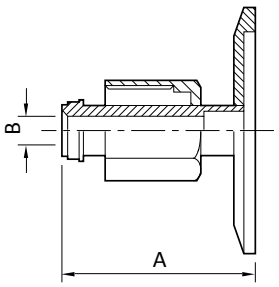
Adaptor NW/NPT Threaded Pipe Male	Size	A	B	Order no:
	Stainless Steel AISI 316L DIN 1.4404			
	NW16/⅛ inch NPT male	40	4.7	C10501102
	NW16/¼ inch NPT male	50	7.1	C10501103
	NW25/⅛ inch NPT male	40	4.7	C10501217
	NW25/¼ inch NPT male	50	7.1	C10501218
	NW25/½ inch NPT male	75	11.9	C10501219
	NW25/¾ inch NPT male	75	15.9	C10501220
	NW40/¼ inch NPT male	50	7.1	C10501303
	NW40/½ inch NPT male	75	11.9	C10501304
	NW40/¾ inch NPT male	75	15.9	C10501305
	NW40/1 inch NPT male	75	22.2	C10501306
	NW50/½ inch NPT male	75	11.9	C10501501
	NW50/1 inch NPT male	75	22.2	C10501503

Adaptor NW/NPT Threaded Pipe Female	Size	A	B	Order no:
	Aluminium ISO 6082 DIN 3.2315			
	NW10/⅛ inch NPT female	15.8	19.1	C10501070
	NW16/⅛ inch NPT female	15.8	19.1	C10501104
	NW25/⅛ inch NPT female	22.4	19.1	C10501221
	NW40/⅛ inch NPT female	31.8	25.4	C10501307
	NW10/¼ inch NPT female	15.8	19.1	C10501071
	NW16/¼ inch NPT female	15.8	19.1	C10501105
	NW25/¼ inch NPT female	22.4	19.1	C10501222
	NW40/¼ inch NPT female	31.8	25.4	C10501308
	Stainless Steel AISI 316L DIN 1.4404			
	NW10/⅛ inch NPT female	15.8	19.1	C10501072
	NW16/⅛ inch NPT female	15.8	19.1	C10501106
	NW25/⅛ inch NPT female	22.4	19.1	C10501223
	NW40/⅛ inch NPT female	31.8	25.4	C10501309
	NW10/¼ inch NPT female	15.8	19.1	C10501073
	NW16/¼ inch NPT female	15.8	19.1	C10501107
	NW25/¼ inch NPT female	22.4	19.1	C10501224
	NW40/¼ inch NPT female	31.8	25.4	C10501310

Size	A	B	Order no:	Adaptor NW/VCR Male
Stainless Steel AISI 316L DIN 1.4404				
NW16/¼ inch VCR male	35.6	4.8	C10501108	
NW16/½ inch VCR male	41.4	10.4	C10501110	
NW25/¼ inch VCR male	35.6	4.8	C10501225	
NW25/½ inch VCR male	40.6	10.4	C10501227	
NW40/¼ inch VCR male	35.6	4.8	C10501311	
NW40/½ inch VCR male	40.6	10.4	C10501313	
NW50/¼ inch VCR male	35.6	4.8	C10501508	

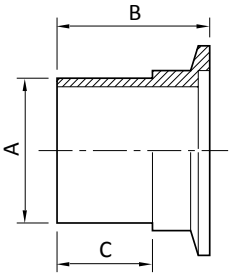


Size	A	B	Order no:	Adaptor NW/VCR Female
Stainless Steel AISI 316L DIN 1.4404				
NW16/¼ inch VCR female	35.6	4.8	C10501109	
NW16/½ inch VCR female	41.4	10.4	C10501111	
NW25/¼ inch VCR female	35.6	4.8	C10501226	
NW25/½ inch VCR female	40.6	10.4	C10501228	
NW25/¾ inch VCR female	54.4	15.7	C10501230	
NW40/¼ inch VCR female	35.6	4.8	C10501312	
NW40/½ inch VCR female	40.6	10.4	C10501314	

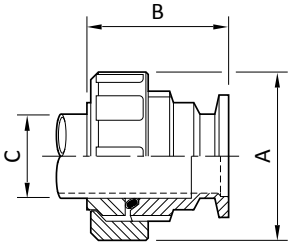


Size	A	B	C	D	Order no:	Adaptor PVC Hose
Stainless Steel AISI 316L DIN 1.4404						
NW10/½ inch hose	12.7	32	20	12.7	C10504081	
NW16/½ inch hose	12.7	32	20	12.7	C10504104	
NW16/¾ inch hose	19.1	32	20	19.1	C10504105	
NW25/¾ inch hose	19.1	38.1	26	19.1	C10504266	
NW25/1 inch hose	25.4	38.1	26	25.4	C10504225	
NW40/1½ inch hose	38.1	50	38.1	38.1	C10504326	
NW50/2 inch hose	47.4	55	41	50.8	C10504352	

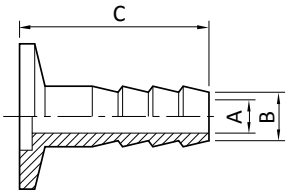
D= hose internal diameter



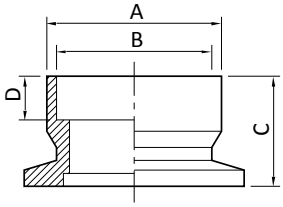
Size	A	B	C	Order no:	Compression Fitting
Aluminium					
NW10	44	43	14/15	C10520050	



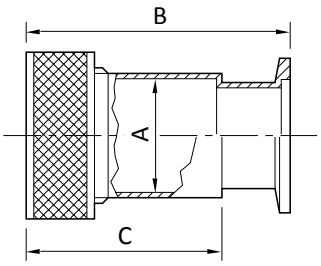
Size	A	B	C	Order no:	Nozzle
Aluminium ISO 6082 DIN 3.2315					
NW10	7	12	40	C10511645	
NW25	7	12	40	C10514645	
NW40	7	12	40	C10516645	



Size	A	B	C	D	Order no:	Coupling Body Brass
NW10	18	15.2	13	6	C10511328	
NW25	32	28.2	20	8	C10514328	
NW40	46	42.2	18	8	C10516628	



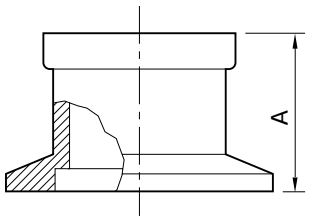
Gauge Tube Adaptor and Compression O-Ring



Size	A	B	C	D	E	Order no:
Stainless Steel AISI 316L DIN 1.4404 Fluoroelastomer O-ring						
NW10	13.1	50	33	12.7	½	C10502001
NW16	6.7	32	–	6.4	¼	C10502101
NW16	13.1	50	33	12.7	½	C10502102
NW16	19.4	56	40	19.1	¾	C10502103
NW25	13.1	50	33	12.7	½	C10502201
NW25	19.4	58	40	19.1	¾	C10502202
NW25	25.8	62	46	25.4	1	C10502203
NW40	13.1	58	33	12.7	½	C10502300
NW40	19.4	63.5	40	19.1	¾	C10502301
NW40	25.8	71	46	25.4	1	C10502302
NW40	29	74	49	28.6	1⅛	C10502303
NW40	38.4	84	63.5	38.1	1½	C10502304
NW50	19.4	63.5	40	19.1	¾	C10502400
NW50	25.8	71	46	25.4	1	C10502401
NW50	51.1	87	66	50.8	2	C10502404

D= tube od in mm
E= tube OD in inches

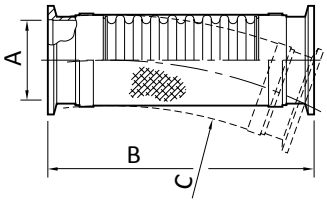
NW Optical Viewpoint



Size	A	Order no:
Body: Stainless Steel AISI 316L DIN 1.4404; Mounting: Nilo K; Glass: Borosilicate (8250 Schott)		
NW40	23.6	C10516407
NW50	31.8	C10517407

Temperature range -40 to 380 ˚C
Temperature gradient <3 ˚C min^{-1}

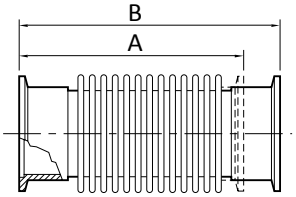
Braided Flexible Exhaust Pipeline



Size	A	B	C	D	E	Order no:
Stainless Steel AISI 316L DIN 1.4404						
NW25	26.2	135	50	320	10.0	C10514294
NW40	41.2	135	80	400	10.0	C10516294
NW50	52.2	135	100	450	10.0	C10517294
NW25	26.2	250	50	320	10.0	C10514295
NW40	41.2	250	80	400	10.0	C10516295
NW50	52.2	250	100	450	10.0	C10517295
NW25	26.2	500	50	320	10.0	C10514296
NW40	41.2	500	80	400	10.0	C10516296
NW50	52.2	500	100	450	10.0	C10517296
NW25	26.2	1000	50	320	10.0	C10514297
NW40	41.2	1000	80	400	10.0	C10516297
NW50	52.2	1000	100	450	10.0	C10517297

C= minimum bend radius, static
D= minimum bend radius, dynamic
E= maximum operating pressure, bar absolute

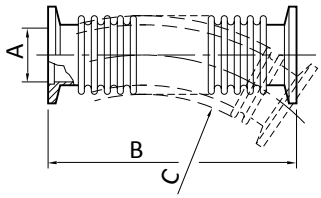
Flexible Bellows



Size	A	B	C	Order no:
Stainless Steel AISI 316L DIN 1.4404				
NW10	102	123	1.2	C10511670
NW16	102	123	1.2	C10512670
NW25	102	123	1.2	C10514670
NW40	102	123	1.2	C10516670
NW50	102	123	1.2	C10517670

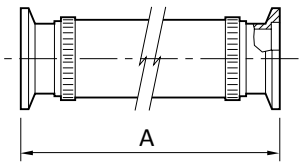
C= maximum operating pressure, bar absolute

Size	A	B	C	D	E	Order no:	Flexible Pipelines
Stainless Steel AISI 316L DIN 1.4404							
NW10	12.2	250	30	100	1.5	C10511285	
NW16	17.2	250	30	130	1.5	C10512285	
NW25	26.2	250	50	210	1.5	C10514285	
NW40	41.2	250	80	260	1.5	C10516285	
NW50	52.2	250	100	320	1.5	C10517285	
NW10	12.2	500	30	100	1.5	C10511286	
NW16	17.2	500	30	130	1.5	C10512286	
NW25	26.2	500	50	210	1.5	C10514286	
NW40	41.2	500	80	260	1.5	C10516286	
NW50	52.2	500	100	320	1.5	C10517286	
NW10	12.2	750	30	100	1.5	C10511300	
NW16	17.2	750	30	130	1.5	C10512300	
NW25	26.2	750	50	210	1.5	C10514300	
NW40	41.2	750	80	260	1.5	C10516300	
NW50	52.2	750	100	320	1.5	C10517300	
NW10	12.2	1000	30	100	1.5	C10511287	
NW16	17.2	1000	30	130	1.5	C10512287	
NW25	26.2	1000	50	210	1.5	C10514287	
NW40	41.2	1000	80	260	1.5	C10516287	
NW50	52.2	1000	100	320	1.5	C10517287	

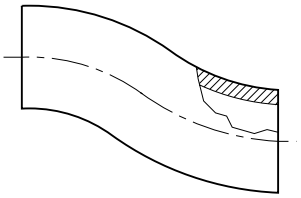


C= minimum bend radius, static
D= minimum bend radius, dynamic
E= maximum operating pressure, bar absolute

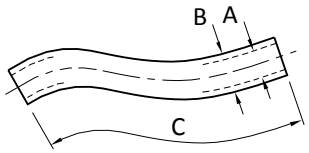
Size	A	Order no:	Reinforced PVC Tube with NW Flanges and Hose Clamps
Stainless Steel AISI 316L DIN 1.4404			
NW10	500	C10511055	
NW16	500	C10512055	
NW25	500	C10514055	
NW40	500	C10516055	
NW50	500	C10517055	
NW10	1000	C10511155	
NW16	1000	C10512155	
NW25	1000	C10514155	
NW40	1000	C10516155	
NW50	1000	C10517155	

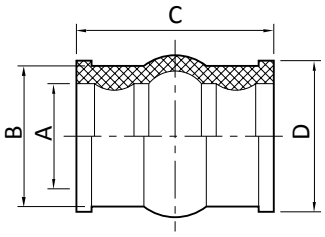


Maximum operating pressure 1 bar absolute, Temperature 5 to 60 ˚C

Reinforced PVC Tube	Size	Order no:	
		Europe	N. America
	½ inch ID tube	N/A	A63012220
	¾ inch ID tube	H02100016	U30002173
	1 inch ID tube	H02100017	A63012343
	1⅓ inch ID tube	H02100018	U30000484
	2 inch ID tube	H02100019	U30003837

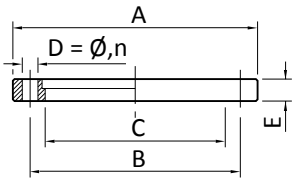
Maximum operating pressure 1 bar absolute, Temperature 5 to 60 ˚C
Note: Europe 1 metre, N. America 1 foot

Neoprene Rubber Tube	Size	A	B	C	Order no:
	5 × 19 mm	5	19	1000	H02100002
	7 × 17 mm	7	17	1000	H02100003
	9 × 25 mm	9	25	1000	H02100004
	12 × 28 mm	12	28	1000	H02100005
	20 mm × 34 mm	20	34	1000	H02100006
	Reinforced hose	25	32	305	C06600025

Moulded Sleeve	Size	A	B	C	D	Order no:
	Neoprene					
	NW10	13	21	38	23	C26501002
	NW25	27	36	55	38	C26501004

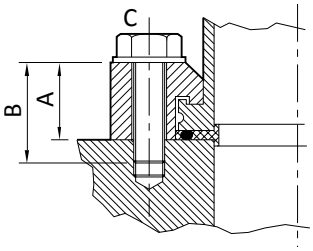
ISO Fittings

Size	A	B	C	D	E	Order no:	Rotatable Flange with Fitting Kit
Mild steel nickel plated							
ISO63	130	110	95.5	Ø9, 4	12	C10007010	
ISO80	145	125	110	Ø9, 8	12	C10008012	
ISO100	165	145	130.5	Ø9, 8	12	C10009010	
ISO160	225	200	180.7	Ø11,8	16	C10011010	
ISO200	285	260	240.7	Ø11,12	16	C10012010	
ISO250	335	310	290.7	Ø11,12	16	C10013010	
ISO320	425	395	371	Ø14,12	20	C10014012	



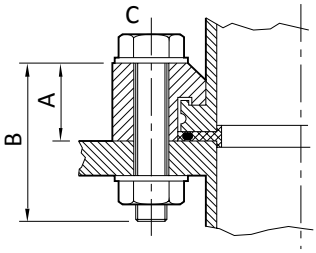
n= number of holes

Size	A	B	C	D	Order no:	Half Claw Clamp for use with Centring Ring (Tapped Holes)
Nickel plated mild steel body, stainless steel bolt						
ISO63	22.5	35	M8	4	C10007151	
ISO100	22.5	35	M8	8	C10007151	
ISO160	23	40	M10	8	C10011151	
ISO200	23	40	M10	12	C10011151	
ISO250	23	45	M10	12	C10011151	
ISO320	36.5	60	M12	12	C10014151	
ISO400	36.5	60	M12	16	C10014151	
ISO500	36.5	60	M12	16	C10014151	



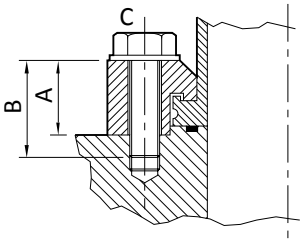
D= number required

Size	A	B	C	D	Order no:	Half Claw Clamp for use with Centring Ring (Clear Holes)
Nickel plated mild steel body, stainless steel bolt						
ISO63	22.5	35	M8	4	C10007150	
ISO100	22.5	35	M8	8	C10007150	
ISO160	23	40	M10	8	C10011150	
ISO200	23	40	M10	12	C10011150	
ISO250	23	45	M10	12	C10011150	
ISO320	30.5	60	M12	12	C10014150	
ISO400	30.5	60	M12	16	C10014150	
ISO500	30.5	60	M12	16	C10014150	

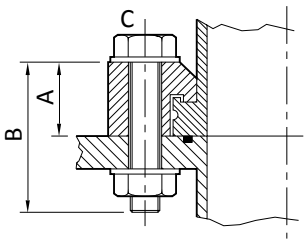


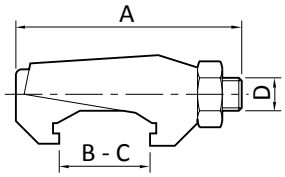
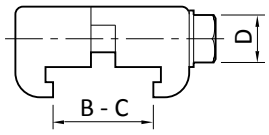
D= number required

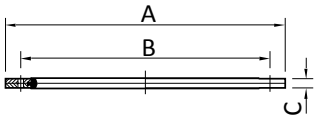
Size	A	B	C	D	Order no:	Half Claw Clamp for use with O-ring groove (tapped holes)
Nickel plated mild steel body, stainless steel bolt						
ISO63	18.6	35	M8	4	C10007093	
ISO100	18.6	35	M8	8	C10007093	
ISO160	19	40	M10	8	C10011093	
ISO200	19	40	M10	12	C10011093	
ISO250	19	40	M10	12	C10011093	
ISO320	31	50	M12	12	C10014093	
ISO400	31	50	M12	16	C10014093	
ISO500	31	50	M12	16	C10014093	

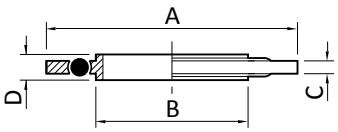


D= number required

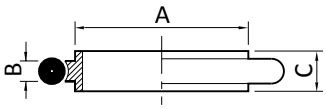
Half Claw Clamp for use with O-ring Groove (Clear Holes)	Size	A	B	C	D	Order no:
	Nickel plated mild steel body, stainless steel bolt					
	ISO63	18.6	45	M8	4	C10007149
	ISO100	18.6	45	M8	8	C10007149
	D= number required					

Claw Clamps	Size	A	B	C	D	Order no:
	Nickel plated 1.1181 steel					
	ISO63/ISO250	60	17	27	M10	C10007090
	ISO320/ISO500	75	28	39	M12	C10014090
	ISO63 requires 4 clamps; ISO80-160 requires 4-8 clamps; ISO200-320 requires 6-12 clamps; ISO400-500 requires 8-16 clamps					
	Aluminium					
	ISO63/100	–	22	33	M8	C10007156
	ISO160/250	–	24	38	M10	C10011094
	ISO320/500	–	35	56	M12	C10014094

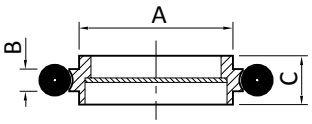
co-seal	Size	A	B	C	Order no:
	Nylon, nitrile				
	ISO40	101	80	4.2	B27158458
	ISO63	116	110	4.2	B27158063
	ISO100	151	145	4.2	B27158070
	ISO160	200	190	5.7	B27158073
	Fluoroelastomer				
	ISO40	101	80	4.2	B27158457
	ISO63	116	110	4.2	B27158064
	ISO100	151	145	4.2	B27158071
	ISO160	200	190	5.7	B27158074
	Use ISO polymer co-seals only for high vacuum applications <10-6 mbar). In other applications, use the trapped O-ring seal; O-ring seals have higher mechanical strength.				

Trapped O-Ring	Size	A	B	C	D	Order no:
	Aluminium centring-ring, aluminium outer ring					
	Fluoroelastomer					
	ISO63	95	70	3.9	8	C10521001
	ISO100	128	102	3.9	8	C10523001
	ISO160	179	153	3.9	8	C10524001

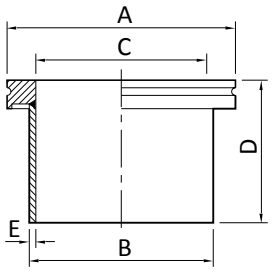
Size	A	B	C	Order no:	Centring-ring with O-Ring
Stainless steel AISI 316L centring-ring					
Nitrile					
ISO63	70	3.9	8	C10007173	
ISO80	83	3.9	8	C10008173	
ISO100	102	3.9	8	C10009173	
ISO160	153	3.9	8	C10011173	
ISO200	213	3.9	8	C10012173	
ISO250	261	3.9	8	C10013173	
ISO320	318	5.6	14	C10014173	
ISO400	400	5.6	14	C10015173	
ISO500	501	5.6	14	C10016173	
Fluoroelastomer					
ISO63	70	3.9	8	C10007174	
ISO80	83	3.9	8	C10008174	
ISO100	102	3.9	8	C10009174	
ISO160	153	3.9	8	C10011174	
ISO200	213	3.9	8	C10012174	
ISO250	261	3.9	8	C10013174	
ISO320	318	5.6	14	C10014174	
ISO400	400	5.6	14	C10015174	
ISO500	501	5.6	14	C10016174	

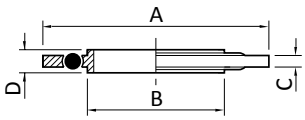


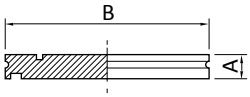
Size	A	B	C	Order no:	Centring-ring and Screen
Stainless steel AISI 316l DIN 1.4404 Mesh Ø3.3 mm aperture, Ø0.9 mm wire Fluoroelastomer O-ring					
ISO63	70	3.9	8	C10521085	
ISO80	83	3.9	8	C10522085	
ISO100	102	3.9	8	C10523085	
ISO160	153	3.9	8	C10524085	

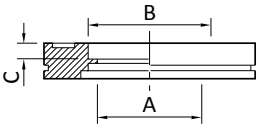


Size	A	B	C	D	E	Order no:	Collar Weld Stub
Stainless steel AISI 316L DIN 1.4404							
ISO63	95	76	70	100	3.2	C10007032	
ISO80	110	76	83	100	3.2	C10008013	
ISO100	130	108	102	100	3.2	C10009032	
ISO160	180	159	153	100	3.2	C10011032	
ISO200	240	219.1	213	100	3.2	C10012032	
ISO250	290	267	261	100	3.2	C10013032	

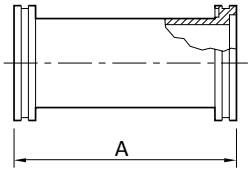


Trapped O-Ring	Size	A	B	C	D	Order no:
	Stainless steel AISI 316L centring ring with aluminium outer ring					
	Nitrile					
	ISO40	63	41	3.9	8	B27158175
	ISO63	95	70	3.9	8	B27158176
	ISO80	109	83	3.9	8	B27158169
	ISO100	128	102	3.9	8	B27158177
	ISO160	179	153	3.9	8	B27158178
	ISO200	239	213	3.9	8	B27158080
	ISO250	287	261	3.9	8	B27158180
	ISO320	358	318	5.6	14	B27158182
	ISO400	440	400	5.6	14	B27158183
	ISO500	541	501	5.6	14	B27158184
	Fluoroelastomer					
	ISO40	63	41	3.9	8	B27158165
	ISO63	95	70	3.9	8	B27158170
	ISO80	109	83	3.9	8	B27158181
	ISO100	128	102	3.9	8	B27158171
	ISO160	179	153	3.9	8	B27158172
	ISO200	239	213	3.9	8	B27158081
	ISO250	287	261	3.9	8	B27158143
	ISO320	358	318	5.6	14	B27158166
	ISO400	440	400	5.6	14	B27158167
	ISO500	541	501	5.6	14	B27158168

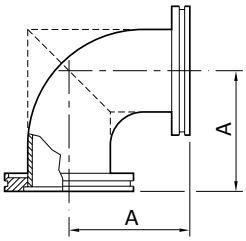
Blanking Flange for use with Collar Flange	Size	A	B	Order no:
	Stainless steel AISI 316L DIN 1.4404			
	ISO63	12	95	C10007049
	ISO80	12	110	C10008015
	ISO100	12	130	C10009049
	ISO160	12	180	C10011049
	ISO200	12	240	C10012049
	ISO250	12	290	C10013049
	ISO320	17	370	C10014003
	ISO500	17	550	C10016003

Bored Flange	Size	A	B	C	Order no:
	Stainless steel AISI 316L DIN 1.4404				
	ISO63	60.2	63.5	5.5	C10007138
	ISO100	98.3	102	5.5	C10009157
	ISO160	148	152	5.5	C10011068
	ISO200	197	203	5.5	C10012053
	ISO250	248	254	5.5	C10013059

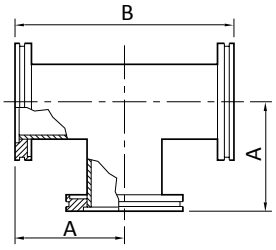
Size	A	Order no:	Nipple
Stainless steel AISI 316L DIN 1.4404			
ISO63	176	C10007140	
ISO100	216	C10009160	
ISO160	276	C10011071	
ISO200	356	C10012054	
ISO250	416	C10013060	



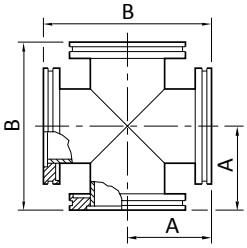
Size	A	Order no:	Elbow 90°
Stainless steel AISI 316l DIN 1.4404			
ISO63	88	C10007203	
ISO100	108	C10009203	
ISO1601	138	C10011203	
ISO2001	178	C10012203	
ISO2501	208	C10013203	



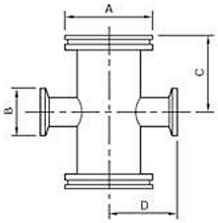
Size	A	B	Order no:	T-piece
Stainless steel AISI 316L DIN 1.4404				
ISO63	88	176	C10007207	
ISO100	108	216	C10009207	
ISO160	138	276	C10011207	
ISO200	178	356	C10012207	



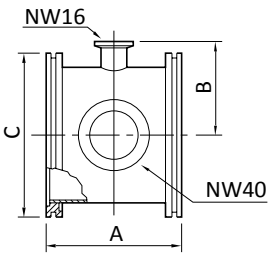
Size	A	B	Order no:	Cross Piece
Stainless steel AISI 316L DIN 1.4404				
ISO63	88	176	C10007211	
ISO100	108	216	C10009211	

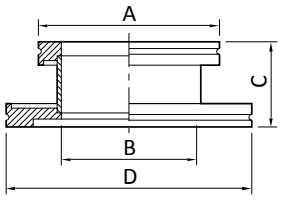


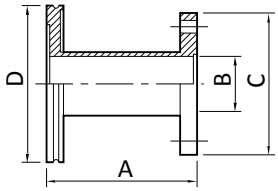
Size	A	B	C	D	Order no:	ISO to NW Reducing Cross
Stainless steel AISI 316L DIN 1.4404						
ISO63/NW40	95	55	102	76	C10007232	
ISO100/NW25	130	40	130	98	C10009231	
ISO160/NW40	180	55	160	121	C10011232	

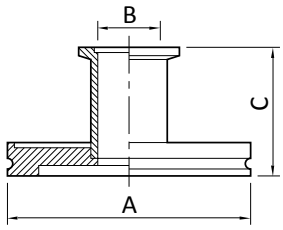


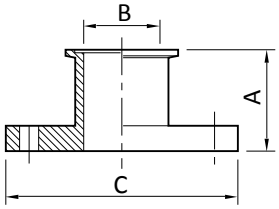
Size	A	B	C	Order no:	Connector with Two Lateral Flanges
Stainless steel AISI 316L DIN 1.4404					
ISO63	88	60	95	C10007215	
ISO100	108	75	130	C10009215	
ISO160	138	100	180	C10011215	

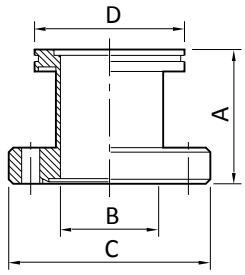


ISO/ISO Adapting Piece	Size	A	B	C	D	E	Order no:
	Stainless steel AISI 316L DIN 1.4404						
	ISO80/ISO63	95	60	105	110	95	C10008021
	ISO80/ISO100	110	73	105	130	110	C10009158
	ISO100/ISO63	95	70	50	130	95	C10009111
	ISO160/ISO63	95	70	50	180	95	C10011110
	ISO160/ISO80	110	73	242	180	110	C10011069
	ISO160/ISO100	130	102	50	180	130	C10011111

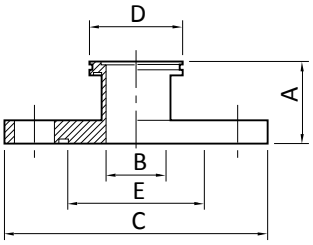
Adaptor ISO Bolted/ISO Collar	Size	A	B	C	D	Order no:
	Stainless steel AISI 316L DIN 1.4404					
	ISO40 bolted/ISO63	106	41	100	95	C10007087
	ISO63 bolted/ISO63	160	70	130	95	C10007155
	Supplied with bolts for tapped holes and bolts plus nuts and washers for plain holes					

Adaptor ISO/NW	Size	A	B	C	Order no:
	Stainless steel AISI 316L DIN 1.4404				
	ISO63/NW25	95	25	50	C10007115
	ISO63/NW40	95	40	50	C10007116
	ISO100/NW40	130	40	50	C10009122
	ISO63/NW50	95	50	50	C10007118
	ISO80/NW50	110	50	118	C10008003
	ISO100/NW50	130	50	50	C10009123
	ISO80/NW40	110	40	118	C10008002

Adaptor ISO Bolted/NW	Size	A	B	C		Order no:	
	Stainless steel AISI 316L DIN 1.4404					Europe	N. America
	ISO40 bolted/NW50*	50	41	100		C10005080	C10005080
	ISO40 bolted/NW40	69	40	100	No bolts supplied	N/A	A1516
	ISO63 bolted/NW50	50	50	130	No bolts supplied	N/A	A1509
	ISO63 bolted/NW40	68	40	130	No bolts supplied	N/A	A1448
	ISO63 bolted/NW40	50	40	130	No bolts supplied	N/A	A1574
	ISO40/ISO63 bolt kit for clear and tapped holes					N/A	NGV515000
	* Supplied with bolts for tapped holes and bolts plus nuts and washers for plain holes						

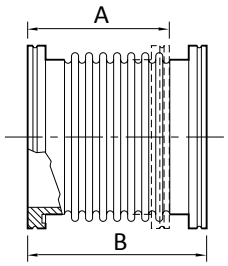
Adaptor ISO/CF	Size	A	B	C	D	Order no:
	Stainless steel AISI 316L DIN 1.4404					
	ISO63/DN63CF/4½	110	60	114	95	C10007130
	ISO100/DN100CF/6	111	98	152	130	C10009149
	ISO100/DN160CF/8	113	148	203	180	C10011063

Size	A	B	C	D	E	Order no:	Adaptor ISO/ASA
Stainless steel AISI 316L DIN 1.4404							
Without O-ring groove							
ISO63/2 inch ASA	106	60.2	152	95		C10007131	
ISO80/3 inch ASA	106	72.9	190	110		C10008011	
ISO100/3 inch ASA	106	98.3	190	130		C10009152	
ISO100/4 inch ASA	106	98.3	229	130		C10009154	
ISO160/6 inch ASA	112	148	279	180		C10011066	
With O-ring groove							
ISO63/2 inch ASA	106	60.2	152	95	88.5	C10007132	
ISO63/3 inch ASA	106	60.2	190	95	114.5	C10007134	



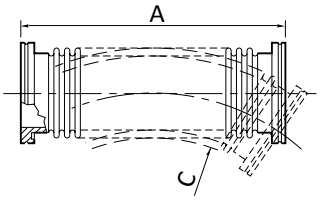
Size	A	B	C		Order no:	Flexible Bellows
Stainless steel AISI 316L DIN 1.4404						
ISO63	106	127	1.5		C10007670	
ISO80	106	127	1.5		C10008028	
ISO100	107	127	1.5		C10009670	
ISO160	170	220	1.5		C10011670	
ISO200	170	220	1.5		C10012670	
ISO250	170	220	1.5		C10013670	

C= maximum pressure, bar absolute



Size	A	B	C	D		Order no:	Flexible Pipelines
Stainless steel AISI 316L DIN 1.4404							
ISO63	250	140	360	1.4		C10007285	
ISO100	250	200	550	1.3		C10009285	
ISO63	500	140	360	1.4		C10007286	
ISO100	500	200	550	1.3		C10009286	
ISO63	750	140	360	1.4		C10007288	
ISO80	750	160	420	1.4		C10008024	
ISO100	750	200	550	1.3		C10009288	
ISO63	1000	140	360	1.4		C10007287	
ISO100	1000	200	550	1.3		C10009287	

C= minimum band radius, static
D= minimum band radius, dynamic
E= maximum pressure, bar absolute

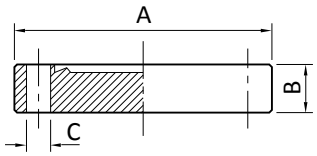


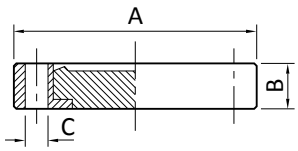
Product Description	Order no:
ISO63 Straight entry, no Gate Valve	KIT710063
ISO100 Straight entry, no Gate Valve	KIT710100
ISO63 Straight entry with test port, BGV Mk2 Pneumatic Gate Valve	KIT712064
ISO100 Straight entry with test port, BGV Mk2 Pneumatic Gate Valve	KIT712101
ISO100 Deadleg entry with test port, BGV Mk2 Pneumatic Gate Valve	KIT713101
ISO100 Inlet Catchpot with test port, BGV Mk2 Pneumatic Gate Valve	KIT714101
ISO100 Deadleg entry with test port, BGV Mk2 Pneumatic Gate Valve, water cooled trap at exhaust	KIT715101

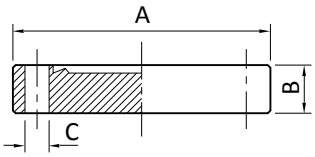
Pump Hook-Up Kits

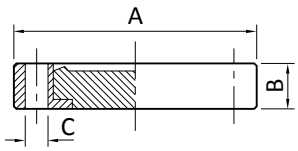
- We offer a number of standard hook-up kits to simplify the installation of your dry vacuum pump.
- Each kit has the required components, bellows, seals and claw-clamps for direct connection of the pump to the appropriate size foreline. All exhaust lines include NW40 brained flexible pipelines.
- Kits are available with BGV pneumatic gate valves and can include a dead leg to reduce particulates from falling directly into the pump inlet. For greater protection KIT714101 includes an ITO catchpot.
- KIT715101 can be used with (but does not include) a Water Cooled Trap.
- For more information on the safe installation of your vacuum pump and equipment contact Edwards.

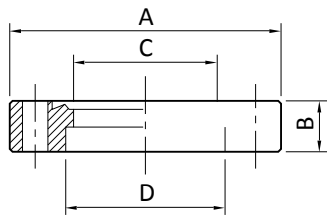
CF Fittings

Blank Flange Non-Rotatable Clear	Size		A	B	C	D		Order no:
	Stainless steel AISI 304L DIN 1.4306							
	Metric	Inch						
	DN16CF	1⅓	34	7.6	4.3	6		C10001200
	DN40CF	2¾	70	12.7	6.7	6		C10005200
	DN63CF	4½	114	17.4	8.3	8		C10007400
	DN100CF	6	152	19.9	8.3	16		C10009400
	DN160CF	8	203	22.3	8.3	20		C10011300
	DN200CF	10	254	24.6	8.3	24		C10012300
	D number of bolts							

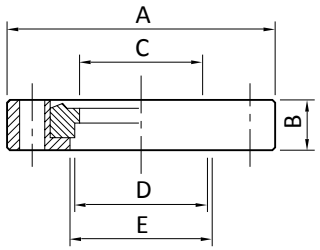
Blank Flange Rotatable Clear	Size		A	B	C	D		Order no:
	Stainless steel AISI 304L DIN 1.4306							
	Metric	Inch						
	DN16CF	1⅓	34	7.6	4.3	6		C10001201
	DN40CF	2¾	70	12.7	6.7	6		C10005201
	DN100CF	6	152	19.9	8.3	16		C10009401
	D number of bolts							

Blank Flange Non-Rotatable Tapped	Size		A	B	C	D	E	Order no:
	Stainless steel AISI 304L DIN 1.4306							
	Metric	Inch						
	DN16CF	1⅓	34	7.6	4.3	6	M4	C10001202
	DN40CF	2¾	70	12.7	6.7	6	M6	C10005202
	DN63CF	4½	114	17.4	8.3	8	M8	C10007402
	DN100CF	6	152	19.9	8.3	16	M8	C10009402
	D – number of bolts, E – size of bolts							

Blank Flange Rotatable Tapped	Size		A	B	C	D	E	Order no:
	Stainless steel AISI 304L DIN 1.4306							
	Metric	Inch						
	DN100CF	6	152	19.9	8.3	16	M8	C10009403
	DN160CF	8	203	22.3	8.3	20	M8	C10011303
	D – number of bolts, E – size of bolts							

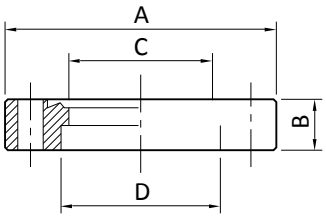
Bored Weld Flange Non-Rotatable Clear	Size		A	B	C	D	E	Order no:
	Stainless steel AISI 304L DIN 1.4306							
	For metric tube							
	Metric	Inch						
	DN40CF	2¾	70	12.7	36.9	38.2		C10005207
	DN40CF	2¾	70	12.7	40.1	41.3		C10005208
	DN63CF	4½	114	17.4	49.6	51.1		C10007405
	DN100CF	6	152	19.9	99.4	101.9		C10009405
	DN200CF	10	254	24.6	200.4	203.5		C10012305
	For inch tube							
	Metric	Inch						
	DN63CF	4½	114	17.4	1.875	2.01	2	C10007405
	DN100CF	6	152	19.9	3.81	4.01	4	C10009405
	DN200CF	10	254	24.6	7.812	8.02	8	C10012305
	For inch tube: C,D,E – dimensions in inches For inch tube: E – tube OD							

Size		A	B	C	D	E	F	Order no:	Bored Weld Flange Rotatable Clear
Stainless steel AISI 304L DIN 1.4306									
For metric tube									
Metric	Inch								
DN40CF	2¾	70	12.7	36.9	38.2	38.7		C10005213	
DN63CF	4½	114	17.4	49.6	51.1	68.0		C10007407	
DN63CF	4½	114	17.4	61.2	63.6	68.0		C10007408	
For inch tube									
Metric	Inch								
DN40CF	2¾	70	12.7	1.375	1.51	38.7	1½	C10005213	
DN63CF	4½	114	17.4	1.875	2.01	68.0	2	C10007407	
DN63CF	4½	114	17.4	2.375	2.51	68.0	2½	C10007408	



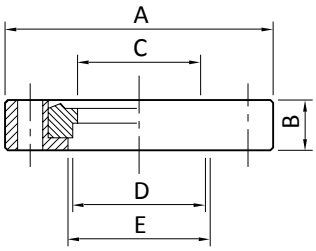
For inch tube: C, D, F – dimensions in inches
For inch tube: F – tube OD

Size		A	B	C	D	E		Order no:	Bored Weld Flange Non-Rotatable Tapped
Stainless steel AISI 304L DIN 1.4306									
For metric tube									
Metric	Inch								
DN16CF	1⅓	34	7.6	12.7	12.7	M4		C10001218	
DN40CF	2¾	70	12.7	36.9	38.2	M6		C10005219	
DN40CF	2¾	70	12.7	40.1	41.3	M6		C10005220	
DN63CF	4½	114	17.4	49.6	51.1	M8		C10007409	
DN100CF	6	152	19.9	99.4	101.9	M8		C10009407	
DN160CF	8	203	22.3	149.7	152.6	M8		C10011307	



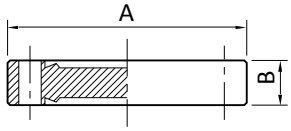
For inch tube: C,D,F – dimensions in inches
E – size of bolts
For inch tube: F – tube OD

Size		A	B	C	D	E	F	Order no:	Bored Weld Flange Rotatable Tapped
Stainless steel AISI 304L DIN 1.4306									
For metric tube									
Metric	Inch								
DN40CF	2¾	70	12.7	36.9	38.2	38.7	M6	C10005227	
DN63CF	4½	114	17.4	61.2	63.6	68.0	M8	C10007414	
For inch tube									
Metric	Inch								
DN63CF	4½	114	17.4	1.875	2.01	68.0	5⁄16-24	C10007415	
DN100CF	6	152	19.9	3.81	4.01	104.9	5⁄16-24	C10009410	

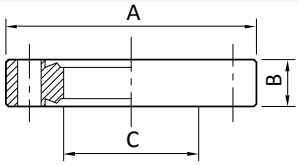


For inch tube: C,D – dimensions in inches
F – size of bolts
Dimensions of suitable inch tube are shown in the table for non-rotatable tapped flanges (above)

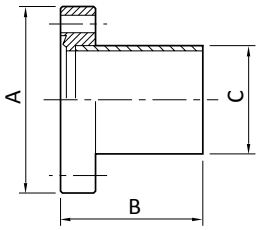
Size		A	B					Order no:	Double-Sided Blank Flange Clear
Stainless steel AISI 304L DIN 1.4306									
Metric	Inch								
DN16CF	1⅓	34	7.6					C10001233	
DN40CF	2¾	70	12.7					C10005233	



Size		A	B	C				Order no:	Double-Sided Bored Flange Clear
Stainless steel AISI 304L DIN 1.4306									
Metric	Inch								
DN100CF	6	152	19.8	99.4				C10009412	

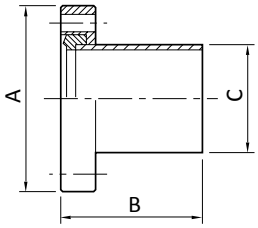


Half-Nipple Non-Rotatable Clear



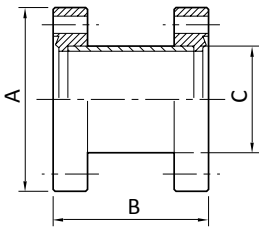
Size		A	B	C	Order no:
Stainless steel AISI 304L DIN 1.4306					
Metric	Inch				
DN16CF	1⅓	34	38	19	C10001250
DN40CF	2¾	70	63	38	C10005250
DN63CF	4½	114	105	64	C10007450
DN100CF	6	152	135	102	C10009450
DN160CF	8	203	167	152	C10011450

Half-Nipple Rotatable Clear



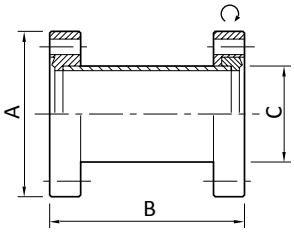
Size		A	B	C	Order no:
Stainless steel AISI 304L DIN 1.4306					
Metric	Inch				
DN40CF	2¾	70	63	38	C10005251
DN63CF	4½	114	105	64	C10007451
DN100CF	6	152	135	102	C10009451
DN160CF	8	203	167	152	C10011451

Full-Nipple Non-Rotatable Clear



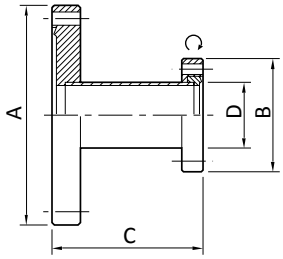
Size		A	B	C	Order no:
Stainless steel AISI 304L DIN 1.4306					
Metric	Inch				
DN40CF	2¾	70	126	38	C10005260

Full-Nipple Rotatable Clear



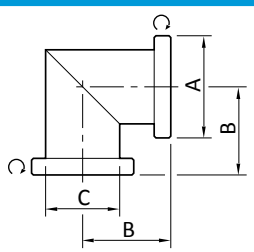
Size		A	B	C	Order no:
Stainless steel AISI 304L DIN 1.4306					
Metric	Inch				
DN40CF	2¾	70	126	38	C10005261
DN63CF	4½	114	210	64	C10007461
DN100CF	6	152	270	102	C10009461

Reducing Nipple Rotatable Clear



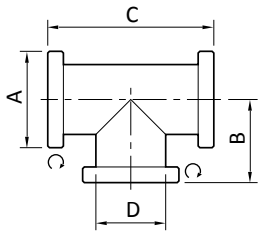
Size		A	B	C	D	Order no:
Stainless steel AISI 304L DIN 1.4306						
Metric	Inch					
DN40/16CF	2¾/1⅓	70	34	70	19	C10005370
DN63/40CF	4½/2¾	114	70	70	38	C10007570
DN100/40CF	6 /2¾	152	70	70	38	C10009570

Elbow 90 ° Rotatable

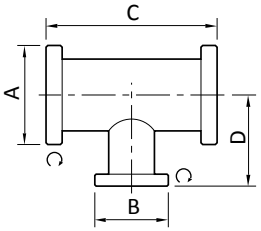


Size		A	B	C	Order no:
Stainless steel AISI 304L DIN 1.4306					
Metric	Inch				
DN16CF	1⅓	34	38	19	C10001300
DN40CF	2¾	70	63	38	C10005300
DN63CF	4½	114	105	64	C10007500

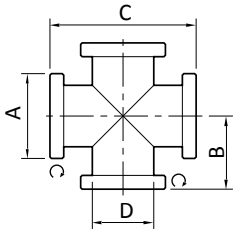
Size		A	B	C	D	Order no:	Tee Rotatable
Stainless steel AISI 304L DIN 1.4306							
Metric	Inch						
DN40CF	2¾	70	63	126	38	C10005310	
DN63CF	4½	114	105	210	64	C10007510	



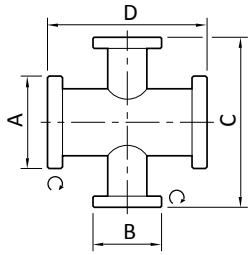
Size		A	B	C	D	Order no:	Reducing Tee Rotatable
Stainless steel AISI 304L DIN 1.4306							
Metric	Inch						
DN40/16CF	2¾/1⅓	70	34	126	60	C10005350	
DN63/40CF	4½/2¾	114	70	210	77	C10007551	
DN100/40CF	6/2¾	152	70	270	95	C10009551	
DN160/63CF	8/4½	203	114	334	120	C10011552	



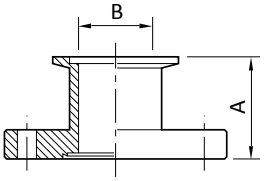
Size		A	B	C	D	Order no:	4-Way Cross Rotatable
Stainless steel AISI 304L DIN 1.4306							
Metric	Inch						
DN40CF	2¾	70	63	126	38	C10005320	



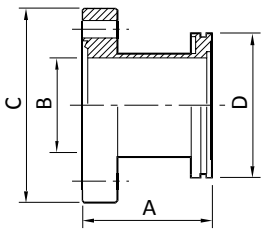
Size		A	B	C	D	Order no:	Reducing Cross Rotatable
Stainless steel AISI 304L DIN 1.4306							
Metric	Inch						
DN40/16CF	2¾/1⅓	70	34	120	126	C10005360	
DN100/40CF	6/2¾	152	70	190	270	C10009561	

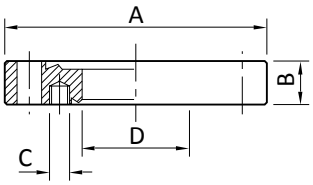


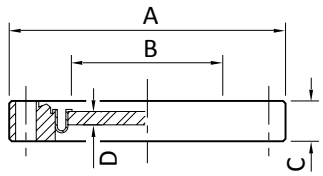
Size		A	B			Order no:	Adaptors NW/CF
Stainless steel AISI 316L DIN 1.4404							
Metric	Inch						
NW16/DN16CF	1⅓	52.7	15.8			C10503104	
NW16/DN40CF	2¾	45.3	15.8			C10503105	
NW25/DN40CF	2¾	45.3	22			C10503207	
NW40/DN40CF	2¾	45.3	40			C10503305	
NW50/DN63CF	4½	49.5	50			C10503405	



Size		A	B	C	D	Order no:	Adaptors ISO/CF
Stainless steel AISI 316L DIN 1.4404							
Metric	Inch						
ISO63/DN63CF	4½	110	60	114	95	C10007130	
ISO100/DN100CF	6	111	98	152	130	C10009149	
ISO160/DN160CF	8	113	148	203	180	C10011063	

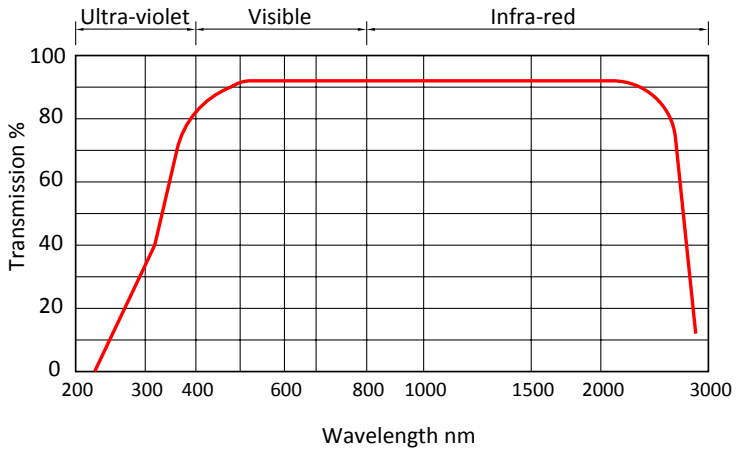


Zero Length Adaptor Major Clear /Minor Tapped	Size		A	B	C	D	Order no:
	Stainless steel AISI 304L DIN 1.4306						
	Metric	Inch					
	DN40/16CF	2¾/1⅓	70	12.7	M4	13.2	C10005240
	DN63/40CF	4½/2¾	114	17.5	M6	36.9	C10007440
	DN100/40CF	6/2¾	152	19.9	M6	36.9	C10009440
	DN100/63CF	6/4½	152	19.9	M8	61.2	C10009441
	DN63/40CF	4½/2¾	114	17.5	¼-28	36.9	C10007441

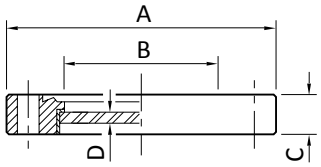
Zero Length Kodial Viewport	Size		A	B	C	D	Order no:
	Stainless steel AISI 304L DIN 1.4306						
	Metric	Inch					
	DN16CF	1⅓	34	16	12.7	1	C10001600
	DN40CF	2¾	70	38	12.7	2.5	C10005600
	DN63CF	4½	114	63	17.4	3	C10007600
	DN100CF	6	152	89	19.9	4	C10009600
	DN160CF	8	203	136	22.3	6.5	C10011600

Bakeable to 350 ˚C, at no greater than 2 to 3 ˚C per minute. Use annealed copper gaskets.

Kodial transmission curve

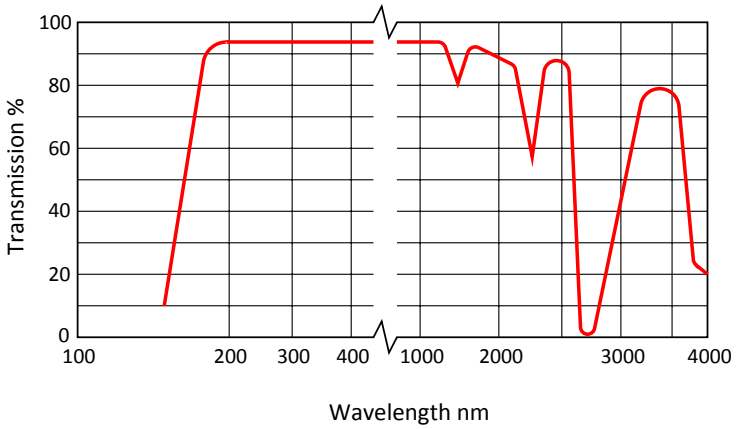


Size		A	B	C	D	Order no:	Zero Length Quartz Viewport
Stainless steel AISI 304L DIN 1.4306							
Metric	Inch						
DN40CF	2¾	70	29.5	12.7	4	C10005610	
DN63CF	4½	114	60	17.3	5	C10007610	



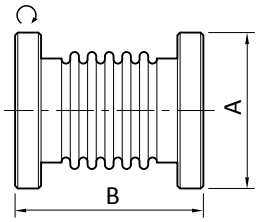
Bakeable to 200 ˚C, at no greater than 2 to 3 ˚C per minute. Use annealed copper gaskets.

Quartz transmission curve



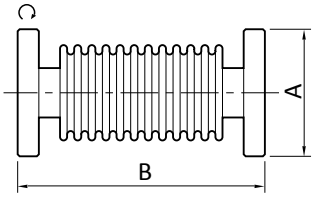
Size		A	B	C	Order no:	Hydroformed Bellows Rotatable
Stainless steel AISI 304L DIN 1.4306						
Metric	Inch					
DN16CF	1⅓	34	110	1.2	C10001340	
DN40CF	2¾	70	160	1.2	C10005340	

C – maximum pressure, bar absolute

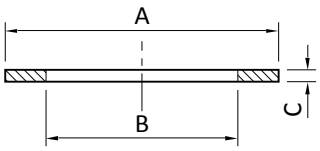


Size		A	B	C	D	E	Order no:	Flexible Pipeline Rotatable
Stainless steel AISI 304L DIN 1.4306								
Metric	Inch							
DN40CF	2¾	70	250	80	260	1.5	C10005330	
DN63CF	4½	114	250	140	360	1.5	C10007530	
DN16CF	1⅓	34	500	30	130	1.5	C10001331	
DN40CF	2¾	70	500	80	260	1.5	C10005331	
DN63CF	4½	114	500	140	360	1.5	C10007531	
DN100CF	6	152	750	200	550	1.5	C10009532	
DN40CF	2¾	70	1000	80	260	1.5	C10005333	
DN63CF	4½	114	1000	140	360	1.5	C10007533	

C – Minimum bend radius, static
D – Minimum bend radius, dynamic
E – Maximum pressure, bar absolute



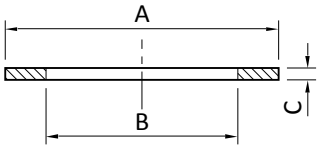
Copper Gaskets



Size		A	B	C	D	E	F	Order no:
Metric	Inch							
DN16CF	1⅓	21	16	2	34	1.33	10	C10001290
DN40CF	2¾	48	37	2	70	2.75	10	C10005290
DN63CF	4½	82	63	2	114	4.5	10	C10007490
DN100CF	6	120	101	2	152	6	10	C10009290
DN160CF	8	171	152	2	203	8	5	C10011290
DN200CF	10	222	203	2	254	10	5	C10012290
DN250CF	12	270	254	2	304	12	5	C10013290

D – For flange OD, mm; E – For flange OD, inch
F – Number per pack

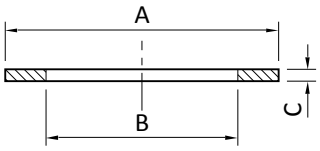
Annealed Copper Gaskets



Size		A	B	C	D	E	F	Order no:
Metric	Inch							
DN16CF	1⅓	21	16	2	34	1.33	5	C10001270
DN40CF	2¾	48	37	2	70	2.75	5	C10005270
DN63CF	4½	82	63	2	114	4.5	5	C10007270
DN100CF	6	120	101	2	152	6	5	C10009270
DN160CF	8	171	152	2	203	8	5	C10011270
DN200CF	10	222	203	2	254	10	5	C10012270
DN250CF	12	270	254	2	304	12	5	C10013270

D – For flange OD, mm; E – For flange OD, inch
F – Number per pack

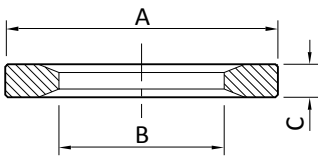
Silver Plated Copper Gaskets



Size		A	B	C	D	E	F	Order no:
Metric	Inch							
DN16CF	1⅓	21	16	2	34	1.33	5	C10001280
DN40CF	2¾	48	37	2	70	2.75	5	C10005280
DN63CF	4½	82	63	2	114	4.5	5	C10007280
DN100CF	6	120	101	2	152	6	5	C10009280
DN160CF	8	171	152	2	203	8	5	C10011280
DN200CF	10	222	203	2	254	10	5	C10012280

D – For flange OD, mm; E – For flange OD, inch
F – Number per pack

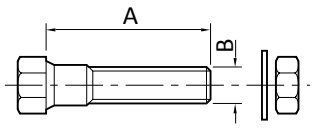
Fluoroelastomer Gaskets



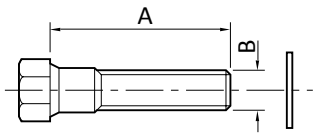
Size		A	B	C	D	E	F	Order no:
Metric	Inch							
DN16CF	1⅓	29	19	2	34	1.33	2	C10001620
DN40CF	2¾	50	38	3	70	2.75	2	C10005620
DN63CF	4½	76	64	3	114	4.5	2	C10007620
DN100CF	6	112	100	3	152	6	2	C10009620
DN160CF	8	162	150	3	203	8	2	C10011620

D – For flange OD, mm; E – For flange OD, inch
F – Number per pack

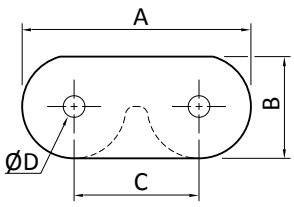
Size		A	B	C	Order no:	HEX Head Nut, Bolt and Washers for Clear Hole CF Flanges
Standard						
Metric	Inch					
DN16CF	1⅓	20	M4	25	C10001630	
DN40CF	2¾	35	M6	25	C10005630	
DN63CF	4½	45	M8	25	C10007630	
DN100CF	6	50	M8	25	C10009630	
DN160CF	8	60	M8	25	C10011630	
DN200CF	10	60	M8	25	C10012630	
DN40CF	2¾	35	¼-28	25	C10005640	
DN200CF	10	60	5⁄16-24	25	C10012640	
Silver Plated						
Metric Inch						
DN40CF	2¾	35	M6	25	C10005650	
DN63CF	4½	45	M8	25	C10007650	
DN100CF	6	50	M8	25	C10009650	
DN160CF	8	60	M8	25	C10011650	
DN200CF	10	60	M8	25	C10012650	
C – number per pack						



Size		A	B	C	Order no:	HEX Head Bolt and Washers for Tapped Hole CF Flanges
Standard						
Metric	Inch					
DN40CF	2¾	25	M6	25	C10005670	
DN63CF	4½	30	M8	25	C10007730	
Silver Plated						
Metric	Inch					
DN40CF	2¾	25	M6	25	C10005690	
DN63CF	4½	30	M8	25	C10007690	
DN100CF	6	35	M8	25	C10009690	
C – number per pack						



Size		A	B	C	D	E	Order no:	Plate Nuts
Metric	Inch							
DN40CF	2¾	41	11	29	M6	25	C10005710	
DN63CF	4½	51	12	35	M8	25	C10007710	
DN40CF	2¾	41	11	29	¼-28	25	C10005720	
E – number per pack								



CORD AND TUBING

Lubrication All O-rings, nitrile rubber extruded cord and sheet used in low vacuum applications should be lubricated with either vapour pump fluid, Fomblin® vacuum grease or Apiezon® grease M.
Lubrication will prolong the life of the material and facilitate sealing.

Apply the **oil or grease** very sparingly and evenly, coating the seal to give it no more than a shining surface with no visible smears.

Excessive lubrication may cause leaks. In general, but with certain exceptions dictated by common sense, seals used in high vacuum applications should be lubricated, but even more sparingly, using vapour pump fluid.

Cleaning The only necessary and recommended method of cleaning O-rings and nitrile rubber extruded cord or sheet is by wiping with a dry, lint free, soft cloth. Most solvent fluids are liable to be absorbed by fluoroelastomer and nitrile rubber, swelling these materials and subsequently outgassing into the system.

Nitrile Rubber Cord

Nitrile cord should be cut perfectly square and to a length which is 5% above the mean circumference of the groove in which it is laid. Compression and sealing of the butt joint is thereby assured.

Vacuum Tubing

This high quality neoprene rubber vacuum tubing is suitable for use down to approximately 10^{-4} mbar.
We recommend that you use the shortest length possible.

Product Description	Order no:
Nitrile rubber cord	
0.275 inch (7 mm) diameter	H02101008
0.312 inch (8 mm) diameter	H02101009
0.500 inch (12.7 mm) diameter	H02101015
State exact length required (per metre).	

Product Description	Order no:
Rubber vacuum tube, 1 m lengths	
5 mm bore, 19 mm external diameter	H02100002
7 mm bore, 17 mm external diameter	H02100003
9 mm bore, 25 mm external diameter	H02100004
12 mm bore, 28 mm external diameter	H02100005
20 mm bore, 34 mm external diameter	H02100006
Flexible hose connection	C06600025
Neoprene, steel reinforced, 12 inch (305 mm) long, to suit 1⅛ inch external diameter tube	

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