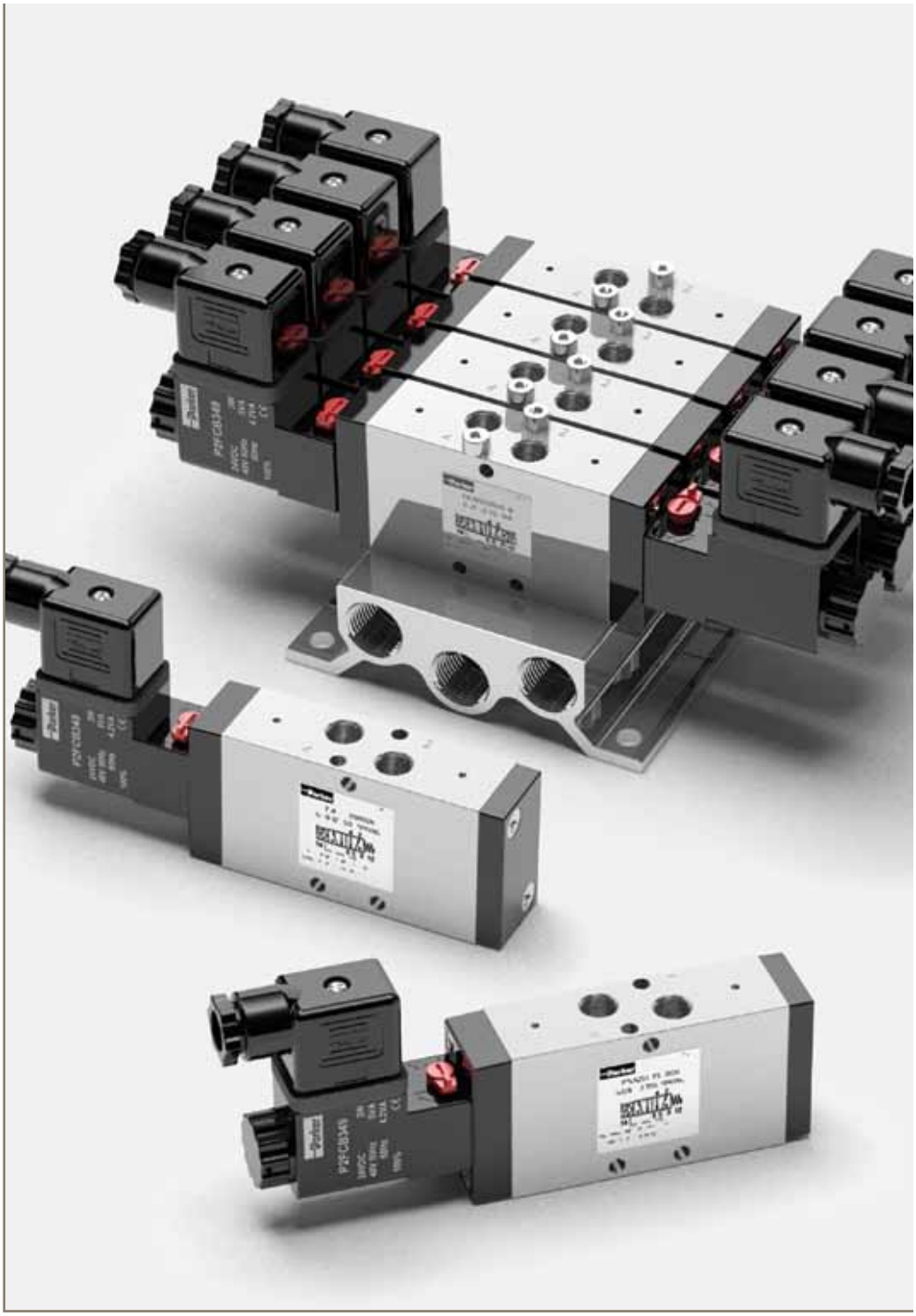
Pneumatic Valves Viking Lite Series

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



Important !
Before carrying out any service work, ensure that the valve and manifold have been vented.
Remove the primary supply air hose to ensure total disconnection of the air supply before dismantling valves or blank connection blocks.

NB !
All technical data in this catalogue is typical only.

The air quality is decisive for the valve life: see ISO 8573.

Viking Lite ...

robust, versatile high performance with long service life

The Viking Lite valve range is robust, versatile and combines high performance with compact installation dimensions. Large flow capacity, short change-over times and low change-over pressure are important characteristics of this valve range.

Designed to operate with pressures up to 10 bar in temperatures -10°C to + 50°C.

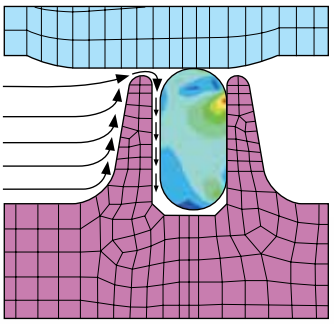
Viking Lite range

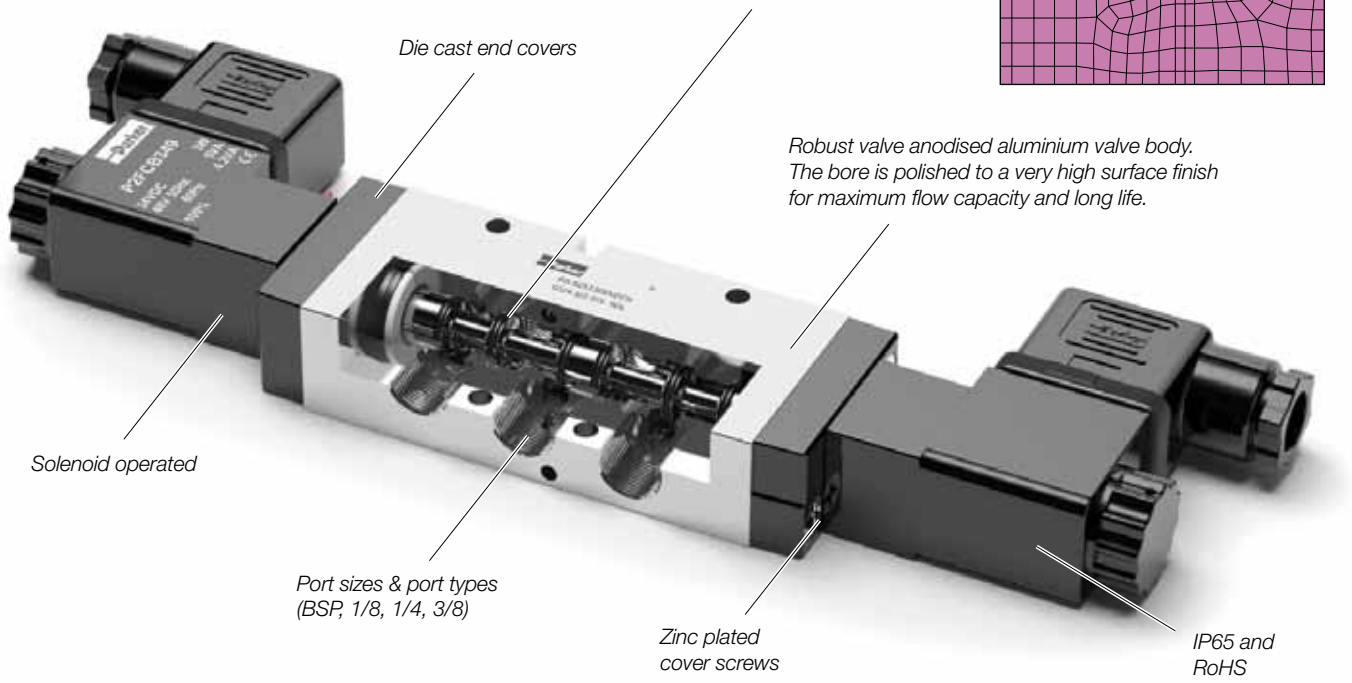
P2LAZ, G1/8 - Cv = 0,6
P2LBZ, G1/4 - Cv = 1,5
P2LCZ, G3/8 - Cv = 2,5

Wear compensating system

The Viking Lite valve range is robust, versatile and combines high performance with compact installation dimensions. The choice of G1/8, G14 or G3/8 port sizes provide large flow capacity, short change-over times. Low change-over pressure is also an important characteristic of this valve range.
Viking Lite valves are fitted with dynamic bi-directional spool seals suitable for pressures up to 10 bar, in ambient temperatures -10°C to + 50°C. Under pressure radial expansion of the seal occurs to maintain sealing contact with the valve bore.
This sealing method reduces friction gives lower pilot pressures, providing fast response and less wear. Valves do not require lubrication in operation but they can also be installed in systems that are lubricated.

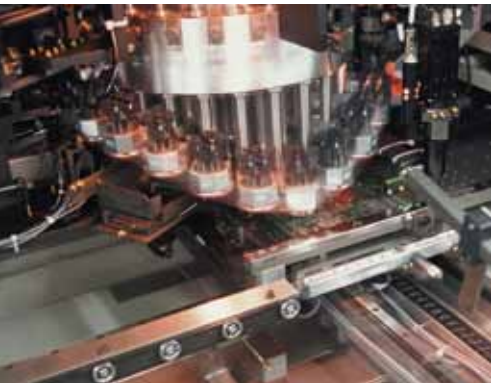
WCS
Wear Compensating System





Viking Lite ...

rust and corrosion resistant, high reliability with flexible installation



Rust and corrosion resistant designs.
Viking Lite valves are made of anodized aluminium, for good corrosion resistance. The smooth design, with no dirt-collecting pockets, makes the valve suitable for most environments.

High reliability
Viking Lite valves easily comply with the requirements for the component reliability in accordance with EU Machinery Directive standards EN292-2 and EN983. The valves are designed for use with or without supplementary lubrication.

Compact installation dimensions - flexible installation
Compact dimensions direct body porting and integral mounting holes are all features of the Viking Lite range.
In addition to single valve installation, the Viking Lite valves may be installed on manifolds so that the valves have a common supply and manifolded exhausts.

Manifold bar installation
A manifold bar, with common ducts for ports 1, 3 and 5 gives simple, time saving and easily serviced installation. Manifold bars are available in several different sizes, with space for between 2 and 14 valves.

Pressure bar installation
A pressure bar for common primary air supply gives a simple, robust, time saving and easily serviced installation. When pressure bars are used, restrictor-silencers can be installed in the exhaust ports of each valve, for individual adjustment of cylinder/air motor speed. Pressure bars are available in a number of different sizes, with space ranging from 2 to 10 valves.

Extreme applications
For extreme applications, -40 degrees and up to 16 bar pressure use **VikingXtreme valves** :
see catalogue PDE2569TCUK

Working medium, air quality

Working medium: Dry, filtered compressed air to ISO 8573-1 class 3.4.3.

Recommended air quality for valves

For best possible service life and trouble free operation, ISO 8573-1 quality class 3.4.3 should be used. This means 5µm filter (standard filter) dew point +3°C for indoor operation (a lower dew point should be selected for outdoor operation) and oil concentration 1.0 mg oil/m³, which is what a standard compressor with a standard filter gives.

ISO 8573-1 quality classes

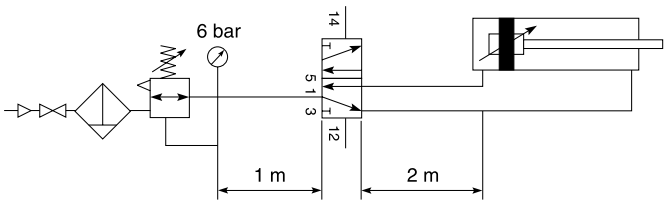
Quality class	Pollution particle size (µm)	Pollution max. concentration (mg/m³)	Water max. press. dew point (°C)	Oil max. concentration (mg/m³)
1	0,1	0,1	-70	0,01
2	1	1	-40	0,1
3	5	5	-20	1,0
4	15	8	+3	5,0
5	40	10	+7	25
6	-	-	+10	-

Typical cylinders speeds which can be achieved with Viking valves and different tube sizes.

In the chart below you can find the suitable valves, tubes etc. for each cylinder size. If you have a tube length over 2 m, choose one tube size larger than in the chart.

Following data is valid:

Supply pressure : min 7,0 bar
Regulator pressure setting : 6,0 bar
Pipe length between air treatment unit and valve : max 1 m
Pipe length between valve and cylinder : max 2 m



Cylinder bore	<20	20-32	40-50	63	80	100	125
Cylinder port	M5	G1/8	G1/4	G3/8	G3/8	G1/2	G1/2
Tubing Ext/Int	4/2.7	6/4	8/6	10/8	10/8	12/9	14/11
			6/4	8/6	12/9	14/11	
P2LAZ	G1/8	G1/8	G1/8	G1/8	G1/8		
P2LBZ	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4	
P2LCZ			G3/8	G3/8	G3/8	G3/8	G3/8

Cylinder speed < 0,5 m/s
Cylinder speed < 1 m/s
Oversized
Cylinder speed > 1 m/s

Material specification

P2LAZ

Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Spool	Aluminium
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Zinc plated steel
Springs	Stainless steel
Mounting screws for solenoid	Stainless steel
Spool seals	Nitrile

Accessories

Manifold bar	Anodised aluminium
Pressure bar	Anodised aluminium

P2LBZ

Valve

End cover sealings	Nitrile rubber
End cover screws	Zinc plated steel
Spool seals	Nitrile

Accessories

Manifold bar	Anodised aluminium
Pressure bar	Anodised aluminium

P2LCZ

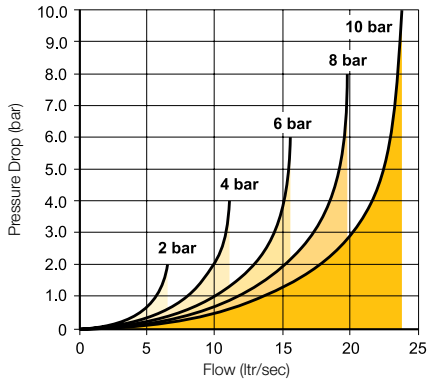
Valve

Valve body	Anodised aluminium
End covers	Anodised aluminium
Spool	Aluminium
Piston	Acetal plastic/ Anodised aluminium
End cover sealings	Nitrile rubber
End cover screws	Zinc plated steel
Springs	Stainless steel
Mounting screws for solenoid	Stainless steel
Spool seals	Nitrile

Flow characteristics

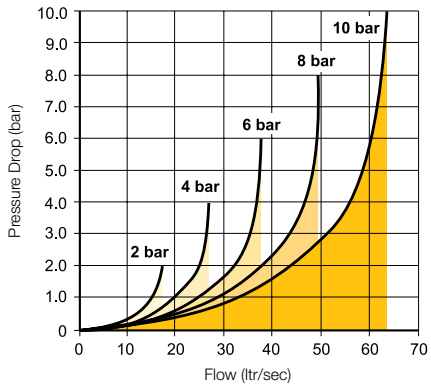
Flow capacities in accordance with ISO6358
All pressures = effective pressure
The curves in the diagram below are typical only

Technical Data P2LAZ



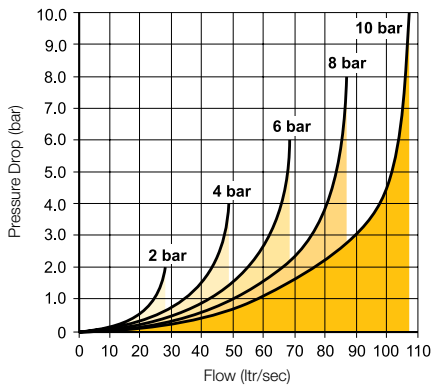
Port size	G1/8
Maximum Operating pressure	10 bar
Working temperature.	-10°C to + 50°C
Flow (acc. to ISO 6358)	c = 2,2 Nl/s x bar
	b = 0,3
	Qn = 10,1 l/s
	Qmax = 15,6 l/s
	Cv = 0,6

Technical Data P2LBZ



Port size	G1/4
Maximum Operating pressure	10 bar
Working temperature.	-10°C to + 50°C
Flow (acc. to ISO 6358)	c = 5,4 Nl/s x bar
	b = 0,3
	Qn = 24,6 l/s
	Qmax = 37,8 l/s
	Cv = 1,5

Technical Data P2LCZ

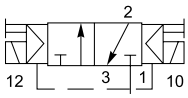
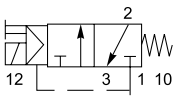


Port size	G3/8
Maximum Operating pressure	10 bar
Working temperature.	-10°C to + 50°C
Flow (acc. to ISO 6358)	c = 9,7 Nl/s x bar
	b = 0,3
	Qn = 41,5 l/s
	Qmax = 68,3 l/s
	Cv = 2,5

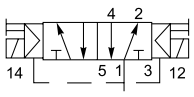
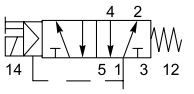
Solenoid operated directional control valves

Internal supply to solenoid valve(s) via port 1.

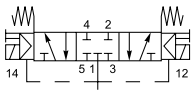
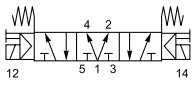
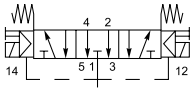
3/2 valves, internal air, standard temperature

Symbol	Size	Actuation	Return	Min Operating Pressure (bar)	Changeover time (ms) at 6 bar @20°C actua./return	Weight Kg	Order code Without coil	Order code With 24V DC (22mm coil)
	G1/8	Electric signal	Electric signal	1,5	10/10	0,18	**P2LAZ311EENDCN**	**P2LAZ311EENDCB49**
	G1/4			1,5	12/12	0,18	**P2LBZ312EENDCN**	**P2LBZ312EENDCB49**
	G3/8			1,5	17/17	0,36	**P2LCZ313EENDCN**	**P2LCZ313EENDCB49**
	G1/8	Electric signal	Spring	3,0	15/35	0,16	**P2LAZ311ESNDCN**	**P2LAZ311ESNDCB49**
	G1/4			3,0	18/45	0,16	**P2LBZ312ESNDCN**	**P2LBZ312ESNDCB49**
	G3/8			3,0	27/75	0,35	**P2LCZ313ESNDCN**	**P2LCZ313ESNDCB49**

5/2 valves, internal air, standard temperature

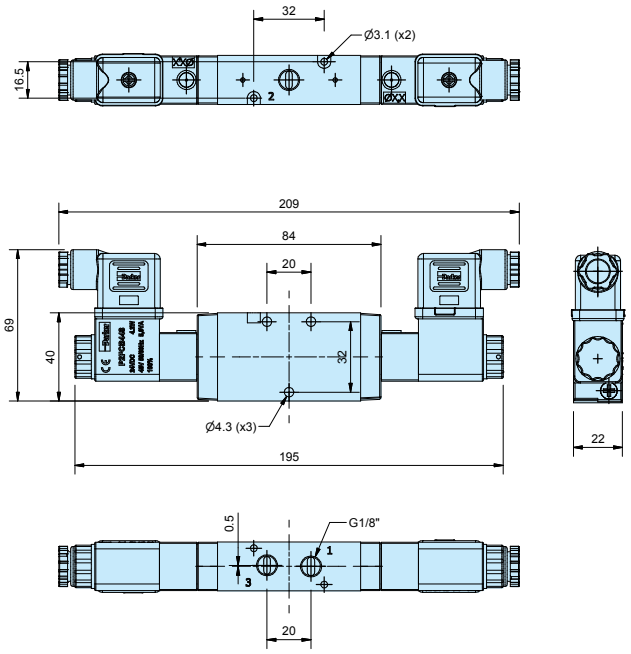
Symbol	Size	Actuation	Return	Min Operating Pressure (bar)	Changeover time (ms) at 6 bar @20°C actua./return	Weight Kg	Order code Without coil	Order code With 24V DC (22mm coil)
	G1/8	Electric signal	Electric signal	1,5	10/10	0,19	**P2LAZ511EENDCN**	**P2LAZ511EENDCB49**
	G1/4			1,5	12/12	0,21	**P2LBZ512EENDCN**	**P2LBZ512EENDCB49**
	G3/8			1,5	17/17	0,44	**P2LCZ513EENDCN**	**P2LCZ513EENDCB49**
	G1/8	Electric signal	Spring	3,0	15/35	0,17	**P2LAZ511ESNDCN**	**P2LAZ511ESNDCB49**
	G1/4			3,0	18/45	0,20	**P2LBZ512ESNDCN**	**P2LBZ512ESNDCB49**
	G3/8			3,0	27/75	0,43	**P2LCZ513ESNDCN**	**P2LCZ513ESNDCB49**

5/3 valves, internal air, standard temperature

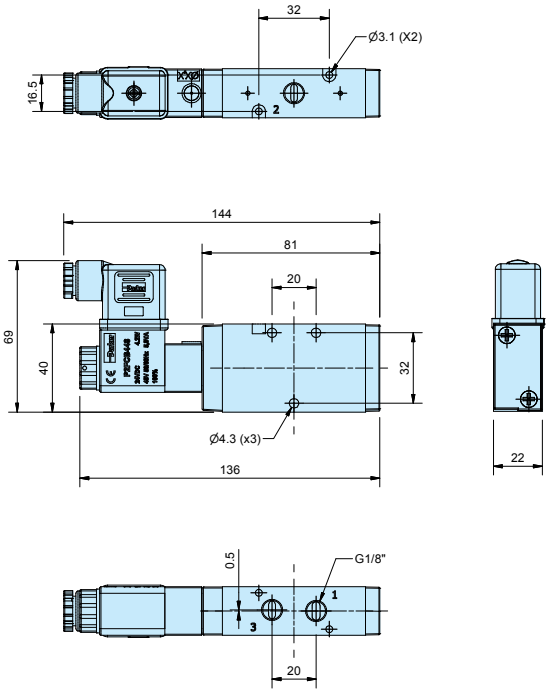
Symbol	Size	Actuation		Min Operating Pressure (bar)	Changeover time (ms) at 6 bar @20°C actua./return	Weight Kg	Order code Without coil	Order code With 24V DC (22mm coil)
	G1/8		Self centring	3,0	18/40	0,26	**P2LAZ611EENDCN**	**P2LAZ611EENDCB49**
	G1/4	Electric/Electric	Closed	3,0	22/55	0,28	**P2LBZ612EENDCN**	**P2LBZ612EENDCB49**
	G3/8		Centre	3,0	30/90	0,60	**P2LCZ613EENDCN**	**P2LCZ613EENDCB49**
	G1/8		Self centring	3,0	18/40	0,26	**P2LAZ711EENDCN**	**P2LAZ711EENDCB49**
	G1/4	Electric/Electric	Presurised	3,0	22/45	0,28	**P2LBZ712EENDCN**	**P2LBZ712EENDCB49**
	G3/8		Centre	3,0	30/90	0,60	**P2LCZ713EENDCN**	**P2LCZ713EENDCB49**
	G1/8		Self centring	3,0	18/40	0,26	**P2LAZ811EENDCN**	**P2LAZ811EENDCB49**
	G1/4	Electric/Electric	Vented	3,0	22/45	0,28	**P2LBZ812EENDCN**	**P2LBZ812EENDCB49**
	G3/8		Centre	3,0	30/90	0,60	**P2LCZ813EENDCN**	**P2LCZ813EENDCB49**

Dimensions

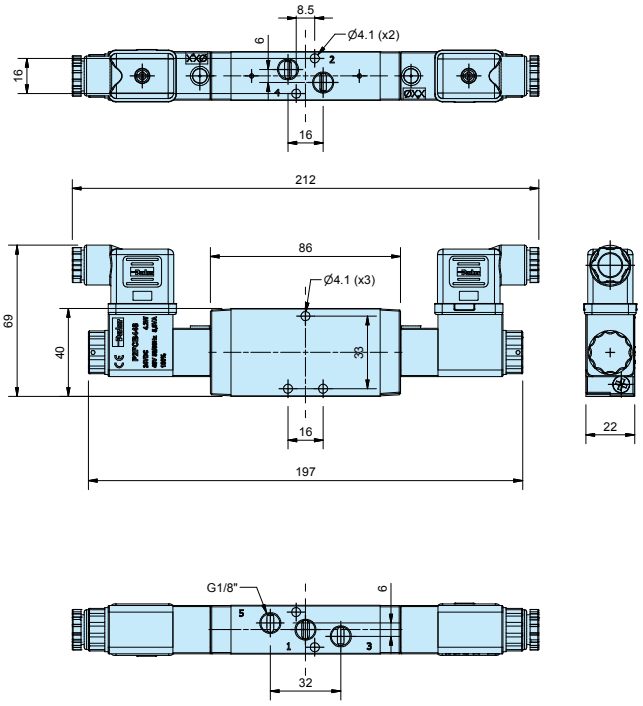
P2LAZ 3/2
Solenoid / Solenoid



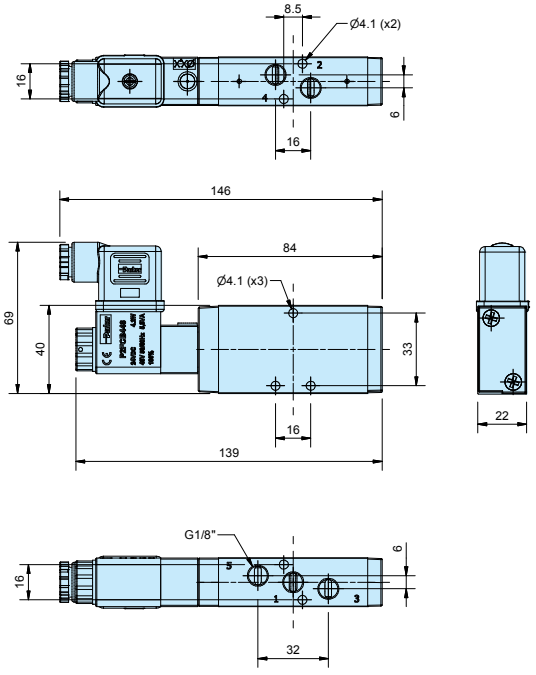
P2LAZ 3/2
Solenoid / Spring



P2LAZ 5/2
Solenoid / Solenoid



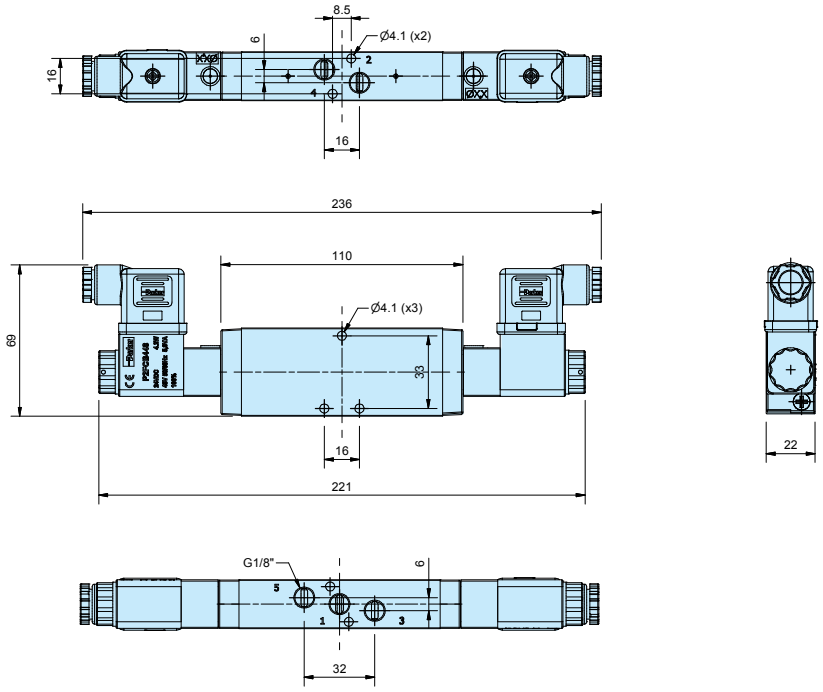
P2LAZ 5/2
Solenoid / Spring



Solenoid valves
Solenoid valves and cable plugs must be ordered separately. One pilot valve is required for each E (NDCN only) in the valve order code.

Dimensions

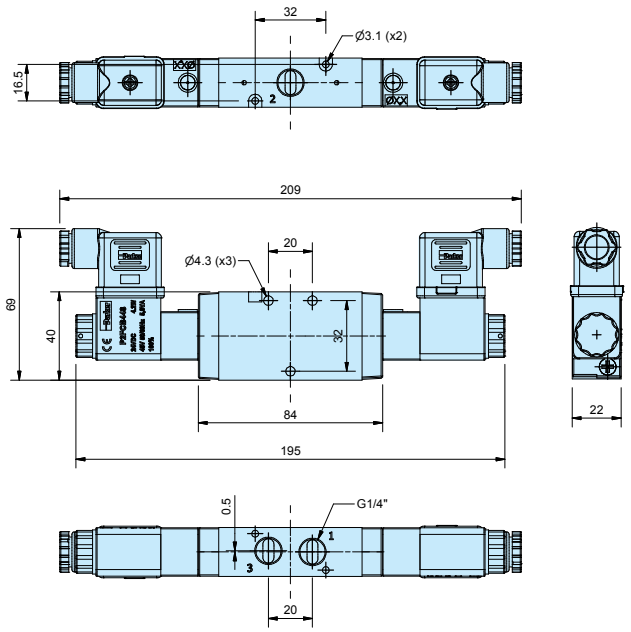
P2LAZ 5/3
Solenoid / Solenoid



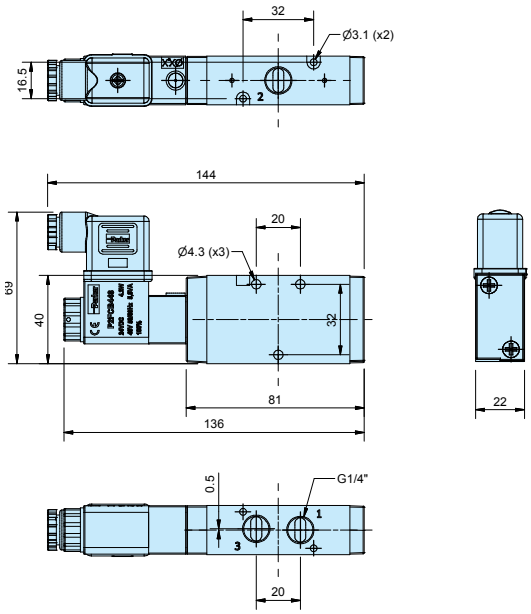
Solenoid valves
Solenoid valves and cable plugs must be ordered separately. One pilot valve is required for each E (NDCN only) in the valve order code.

Dimensions

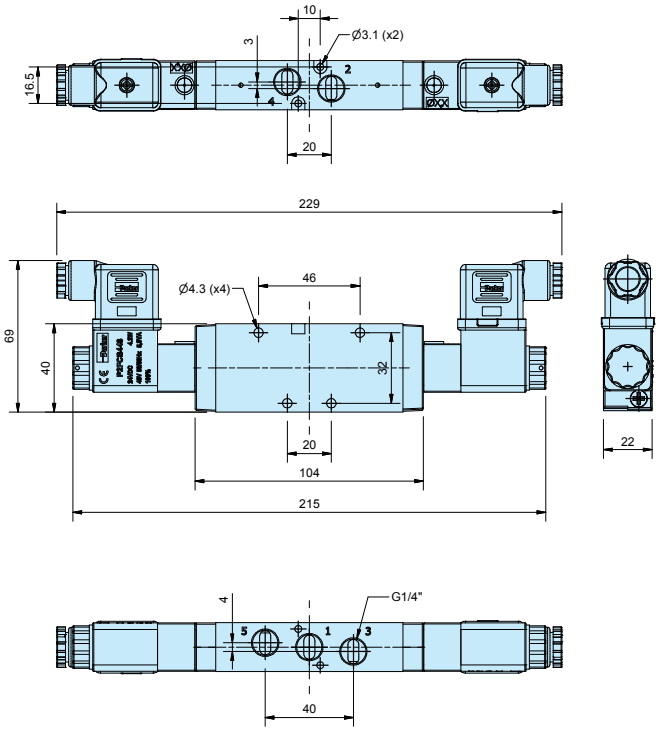
P2LBZ 3/2
Solenoid / Solenoid



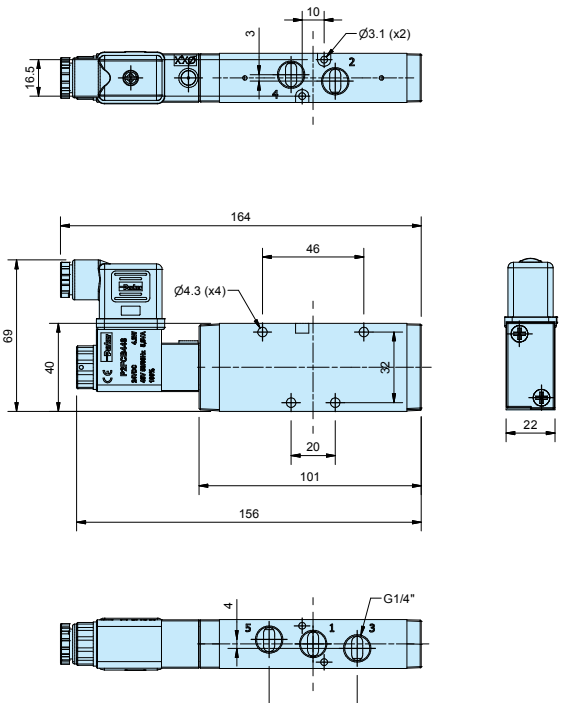
P2LBZ 3/2
Solenoid / Spring



P2LBZ 5/2
Solenoid / Solenoid



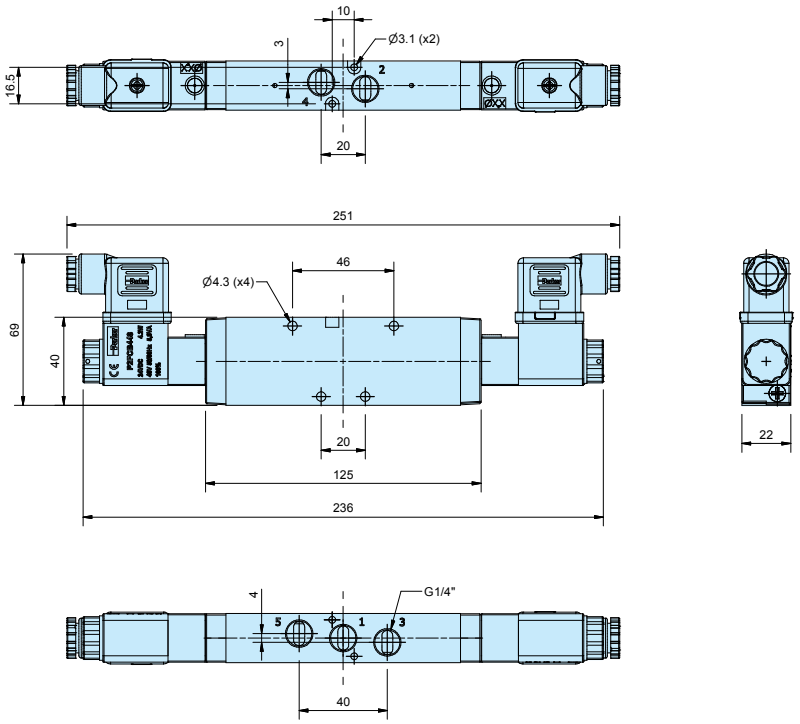
P2LBZ 5/2
Solenoid / Spring



Solenoid valves
Solenoid valves and cable plugs must be ordered separately. One pilot valve is required for each E (NDCN only) in the valve order code.

Dimensions

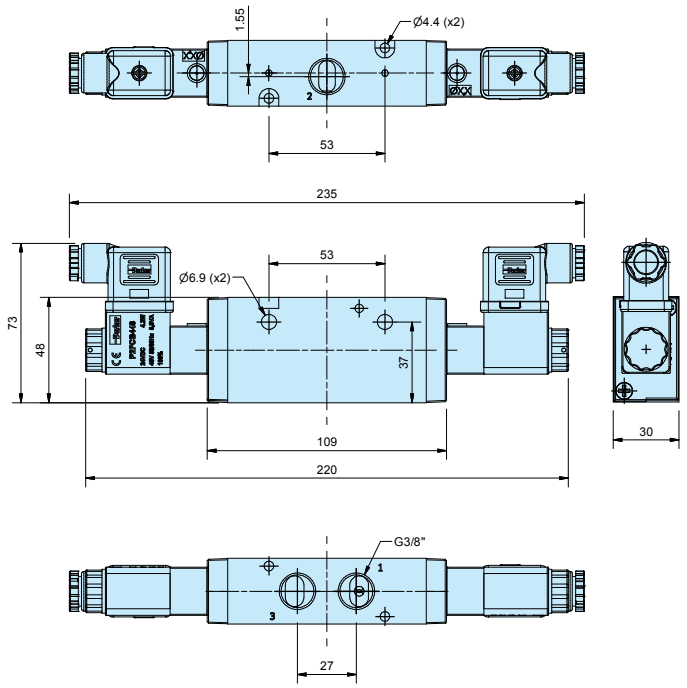
P2LBZ 5/3
Solenoid / Solenoid



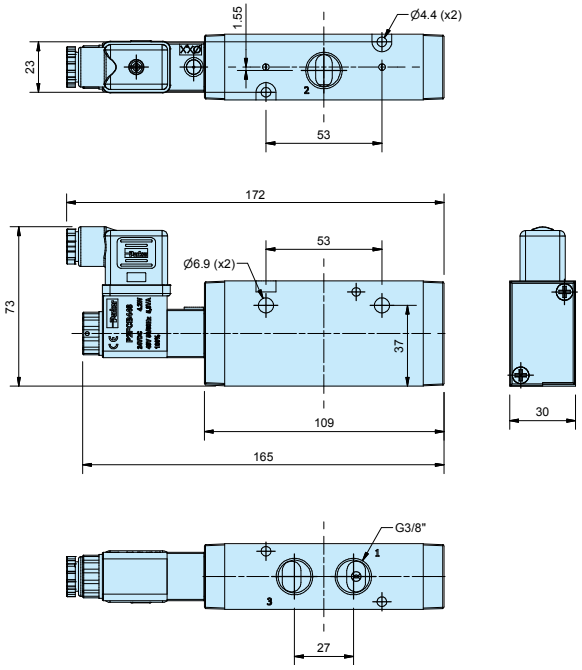
Solenoid valves
Solenoid valves and cable plugs must be ordered separately. One pilot valve is required for each E (NDCN only) in the valve order code.

Dimensions

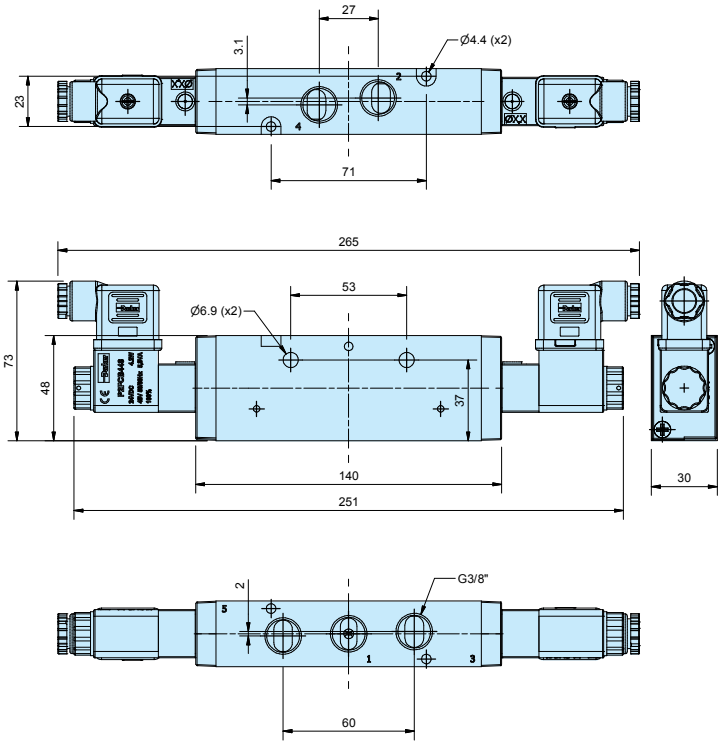
P2LCZ 3/2
Solenoid / Solenoid



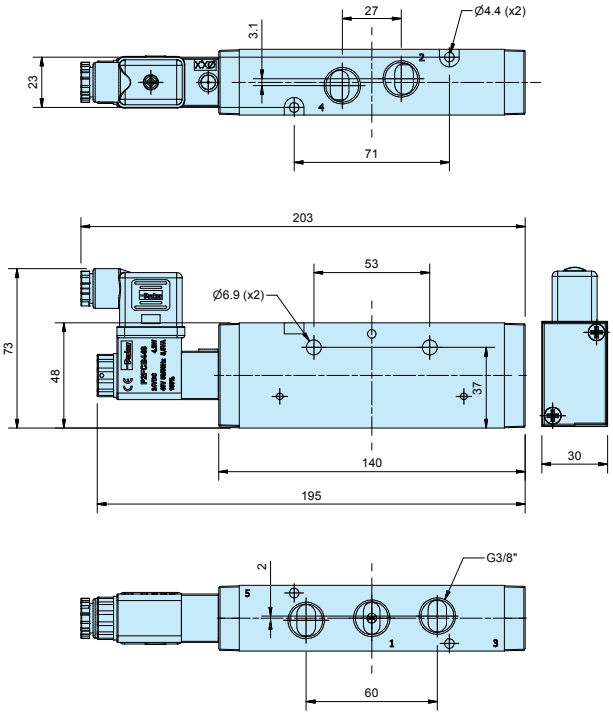
P2LCZ 3/2
Solenoid / Spring



P2LCZ 5/2
Solenoid / Solenoid

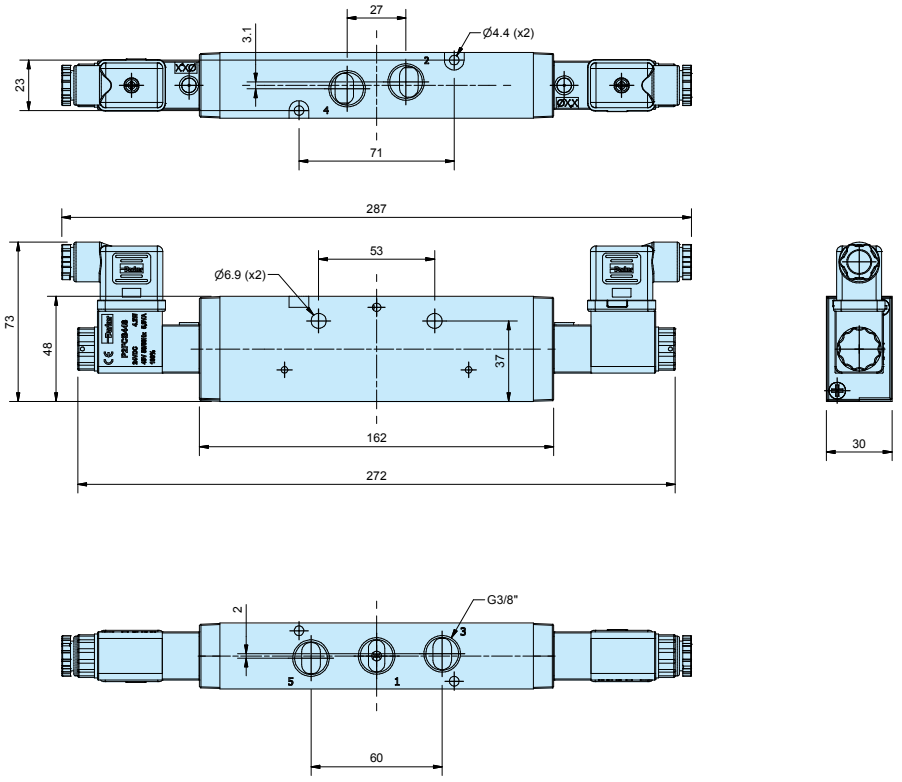


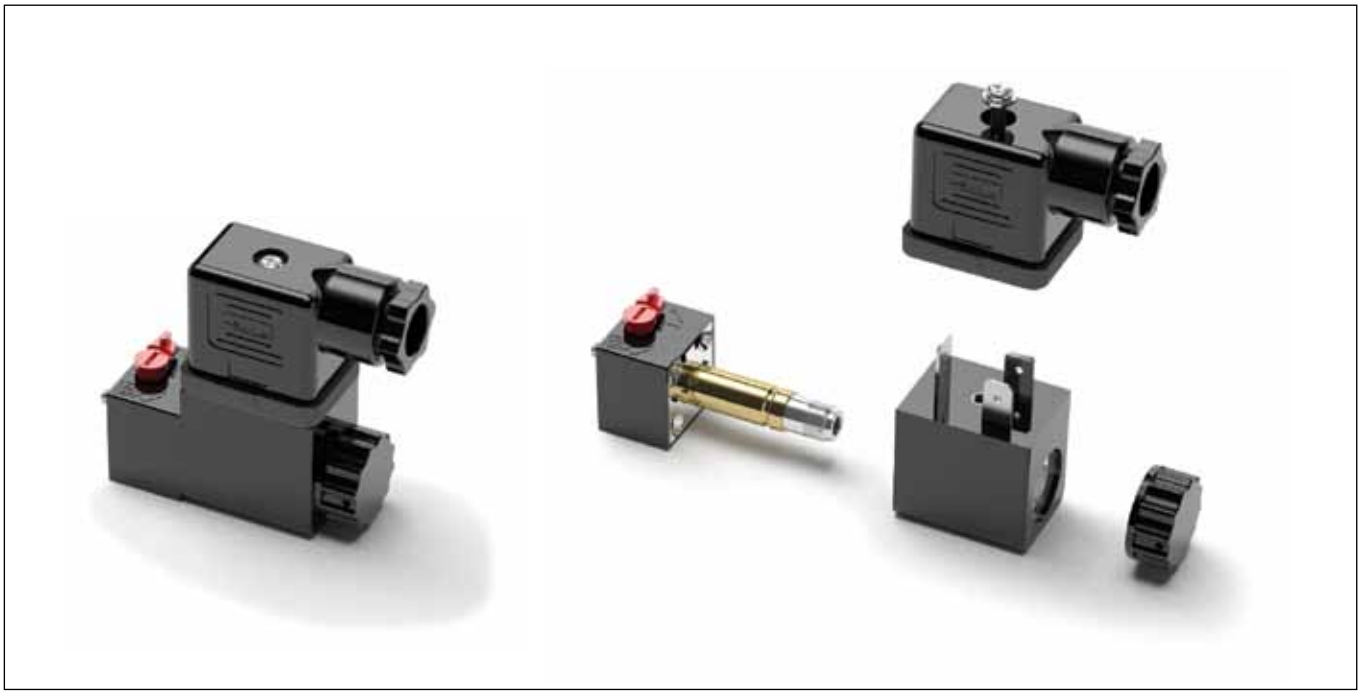
P2LCZ 5/2
Solenoid / Spring



Dimensions

P2LCZ 5/3
Solenoid / Solenoid





22mm Solenoid pilot options

The solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases.

The operator is available for Normal operating pressures up to10 bar having an outlet orifice 1.2 mm and exhaust orifice 1.45 mm.

Corrosion resistant design

The pilot operator body is manufactured in thermoplastic PA 6 material and the core tube brass/stainless steel. The plunger/core is made from stainless steel and the valve seats from FKM.

Coils

Coils are wound with enameled copper wire, having temperature index 180^{0}C with class F insulation (155^{0}C) and are encapsulated in Thermoplastic resin.
When fitted with suitable connector and correct gasket they give protection to IP65.

Solenoid Pilot Exhaust

These operators all exhaust out of the top of the core tube which is tapped M5. The standard solenoid nut fitted to the core tube is the Diffuser nut which allows the exhaust to escape to atmosphere. This nut also minimises ingress of dirt into the valve through this port. The alternative plastic knurled nut can be specified (refer to part number system) if the exhaust air needs to be captured and piped away using the M5 tapped port.

Manual Override options

The standard manual override is the bi-stable twist lock, extended plastic override.

22mm solenoid operator part numbers and spares

Solenoid coils for 22mm solenoid operators

Voltage	Weight (Kg)	Order code Form B
12V 60Hz	0.093	**P2FCB440**
24V 50/60Hz	0.093	**P2FCB442**
12V DC	0.093	**P2FCB445**
24V DC	0.093	**P2FCB449**
48V DC	0.093	**P2FCB451**
110V/50Hz, 120V/60Hz	0.093	**P2FCB453**
230V/50Hz, 230V/60Hz	0.093	**P2FCB457**

Spare Solenoid Nuts

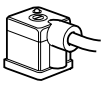
Valves requiring captured exhaust should be fitted with plastic knurled nut

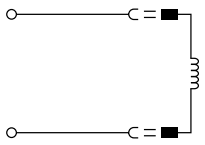
Order code
P2FNP

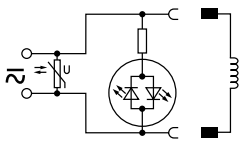
Valves with vented exhaust are fitted with diffuser plastic nut

Order Code
P2FND

Solenoid Connectors / Cable Plugs EN175301-803

	Description	Order code 22mm Industrial Form B
With standard screw 	Standard IP65 without flying lead	**3EV10V10**
	With LED and protection 24V AC/DC	**3EV10V20-24**
	With LED and protection 110V AC	**3EV10V20-110**
	With LED and protection 230V AC	**3EV10V20-230**
With cable 	24V AC/DC, 5m cable LED and protection IP65	**3EV10V20-24L5**
	110V AC/DC, 5m cable LED and protection IP65	**3EV10V20-110L5**
	230V AC, 5m cable LED and protection IP65	**3EV10V20-230L5**





3EV10V10

3EV10V20-24	**3EV10V20-24L5**
3EV10V20-110	**3EV10V20-110L5**
3EV10V20-230	**3EV10V20-230L5**

Cable Plug Dimensions (mm)