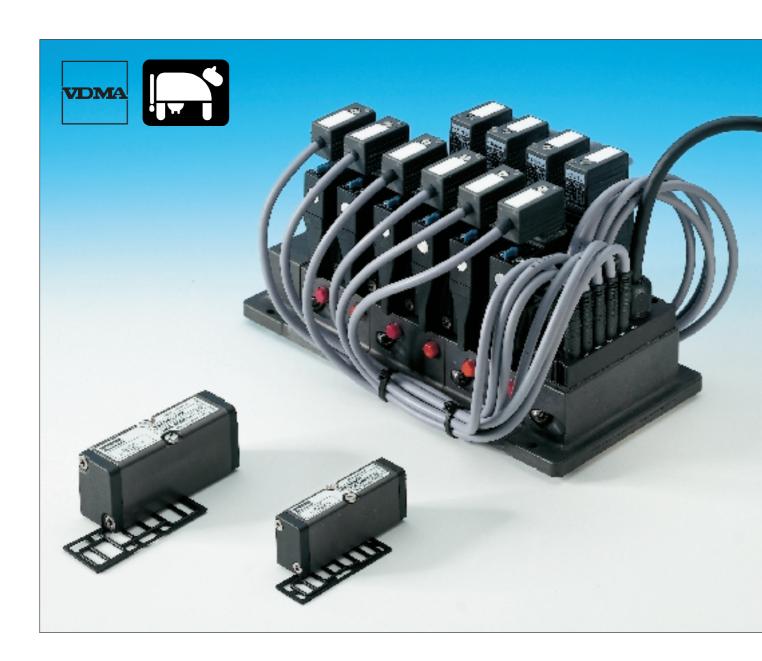


## Directional control valves

Series Flowstar VDMA 24563

Catalogue 9127007212GB-ul





FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

## SALE CONDITIONS

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered into by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).



Summary	Page
General information	4-6
Multiple mounting with bottom connection	7
Multiple manifold with side connection	8
Technical data	9
Order key	10-11
Main data, pneumatically actuated	12-13
Main data, electrically actuated	14-17
Accessories, subbase and multiple manifolds	18-24
Complete valves	24-25
Solenoid valves	26-30
Valvetronic 110	
Pre-wired solenoid connector	
Ready-to-use cable	32
Plug assembly instruction	35

## 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 blind connection blocks.



Products specially suitable for the food industry.

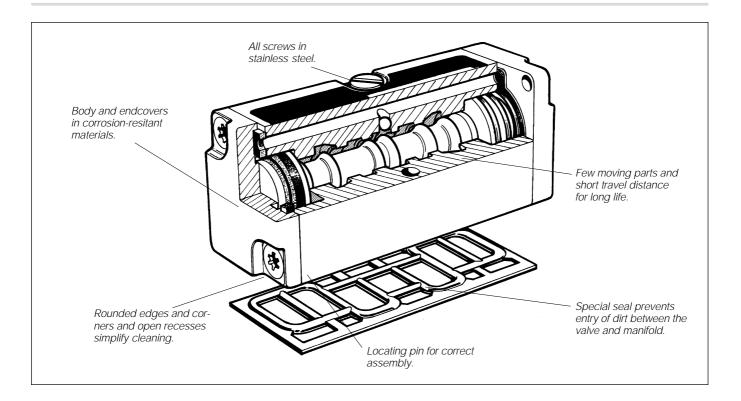
## NB!

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

## NB!

All technical data in this catalogue is typical only.





## The P2V-A/B valve range

## P2V-A, G1/8, 18 mm wide and P2V-B, G1/4, 26 mm wide, VDMA 24563

The P2V-A/B range of valves are 5-port directional control valves, complying with the 18 and 26 mm wide VDMA 24563 specification. The objective behind the development of this standard was to produce a valve concept in which the manifold was considerably narrower than that of ISO 5599/1, Size 1, suiting the needs of modern machines for more compact equipment. The range includes a large number of pneumatically or electrically operated 5/2 and 5/3 valves.

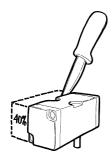
The pilot valve used for electrical control will shortly comply with a CNOMO standard. It has three ports in the connection plane: one for supply air, one for signal air and one for venting.

Manifolds are available for single mounting with side connections, as well as for multiple valves with bottom/ side connections.

## A standard to rely on

The P2V-A/B range provides full interchangeability with the German VDMA 24563 standard (18 mm and 26 mm). The pilot valves of the electrically activated valves comply with a new French CNOMO standard for the hole pattern of the connecting block which is being drafted. Connections for the cable connector comply with Form C of DIN 43650.

## Substantially smaller than ISO1 valves



The width of the manifold of P2V-A valves is about 60% less than that of normal ISO1 valves, while that of the P2V-B valves is about 40% less, which means that more valves can be accommodated in the same space.

## Extremely high flow capacity



Flow rates through P2V-B valves are about 10% higher than for the majority of ISO 1 valves (P2V-B C = 4.4 NI/s, bar). Flows through the valve itself are so high that it is the standardised hole connection pattern that prevents higher flow rates being achieved.

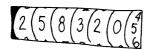
## Corrosion-resistant design



The materials in the valves and manifolds have been selected for extremely high performance in respect of corrosion resistance. Valve bodies and manifolds are anodised aluminium, end covers are thermoplastic and the use of stainless steel for all screws result in excellent durability.



## **High reliability**



The valves easily meet the requirements for component reliability in the EN 292-2 and EN 983 EU Machinery Directive.

Few moving parts and short travel distance for the valve spool result in high reliability and long life. Valves in the P2V-A/B range have also been designed to work with compressed air without additional lubrication. The valves operate on well-proven principles and have shown themselves to fulfil exceptionally high standards in respect of reliability and long life.

## Clean lines suitable for food industry applications



The P2V-A/B range has been designed in conjunction with several machine manufacturers and organisations in the food industry, with corrosion-resistant materials and smooth lines being important starting points. The valves and manifolds have been designed so that there are no gaps or crevices in which dirt could collect. The valves can therefore be installed in the splash area.

## Cleanliness and low noise



The exhaust air from the pilot valves is led down through the valve and out via the manifold, so that all exhausts can be made common. This is particularly important for applications requiring clean working conditions and low noise level. Collection of the exhaust air for silencing and cleaning fulfils sections 1.5.8 (Noise) and 1.5.14 (Emission of dust, gases etc.) of the EU Machine Directive.

## High electric protection class



The pilot valves are in protection class IP65, with a standard cable head. Cable heads with higher protection class raise the overall protection class to IP67.

## Several different types of cable head

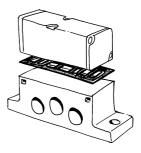
Cable heads are available with or without spark arrestors, LEDs and rectifiers, for connecting your own cable or using incapsulated cable. A large range of variants ensures all requirements to be met.

## Insensitive to dirty air



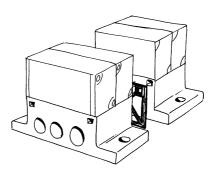
The use of high cross-sectional areas in the air channels, together with a 1.0 mm orifice in the pilot valves, means that P2V-A/B valves can be used in normal industrial environments without problems of blocking. However, the cleaner the air, the longer the life

## Seals between the valve and manifold



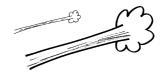
A specially designed seal between the valve and manifold, with a positive seal around the outer edge, prevents dirt from finding its way into the gap between the valve and manifold. The fully 'convex' contour guarantees a perfectly clean joint, with no possibility of dirt or bacteria build-up.

## Seals between multiple manifolds



Seals with the same positive sealing principle as described above are also standard between multiple manifolds, ensuring that no dirt can penetrate there either.

## Very low changeover pressure



Special models are available with double actuation pistons to reduce changeover pressure as much as possible (to about 2.0 bar for spring-return valves.

## Spares: simply replace the valve

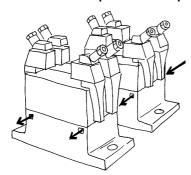
The valves' long life and low price mean that there is no need to hold stocks of special spare parts.



## Separate air feeds to pilot valves

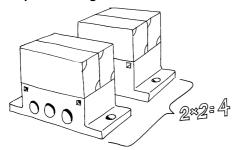
Other models are available with a separate supply of compressed air to the pilot valves where the valves are handling extremely low pressure or vacuum.

## Common separate feed of compressed air to pilot valves



Multiple manifolds have common through channels for separate supply of compressed air to the pilot valves and exhaust from them. Connections can be made to these channels at any connection block. The pilot valves can also be supplied and/or vented individually.

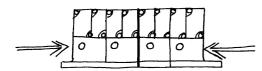
## Rational multiple mounting



Each multiple manifold is designed with two valve positions to save time and cost when mounting. Only two manifolds are required, for example, to mount four valves, as against four traditional manifolds. This halves the mounting time, while reducing the risk of leakage between manifolds as a result of fewer joints.

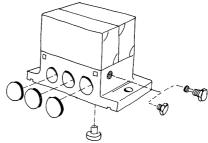
# 

## Flexible connections



Several variants of connecting blocks are available, allowing connection from the top. bottom or side. Plugs can be fitted to interrupt connections between multiple manifolds, allowing (for example) the two sides of the manifold to be supplied at different pressures.

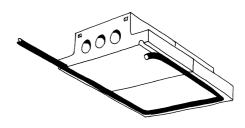
## Versatile multiple manifolds



The same multiple manifold can be used for all variants of P2V-A/B valves, whether pneumatically operated or electrically operated and with internal or separate air supply to the pilot valves.

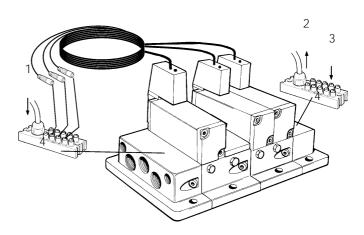
Block connections and applications can be modified to suit specific requirements by fitting or removal of plugs (supplied with the blocks).

## Sealing groove in multiple manifolds



The underside of the multiple manifolds contains a groove for an O-ring-type seal, enabling it to be fitted inside a valve cubicle so that only a single rectangular opening is required for all connections through the cubicle wall, while the seal maintains integrity of the cubicle enclosure in respect of external dust and moisture.

## Compatibility with control systems



- 1. Output signals from the control system
- 2. Input signals to the control system
- 3. Sensor signals to the Valvetronic unit
- 4. Valvetronic 110

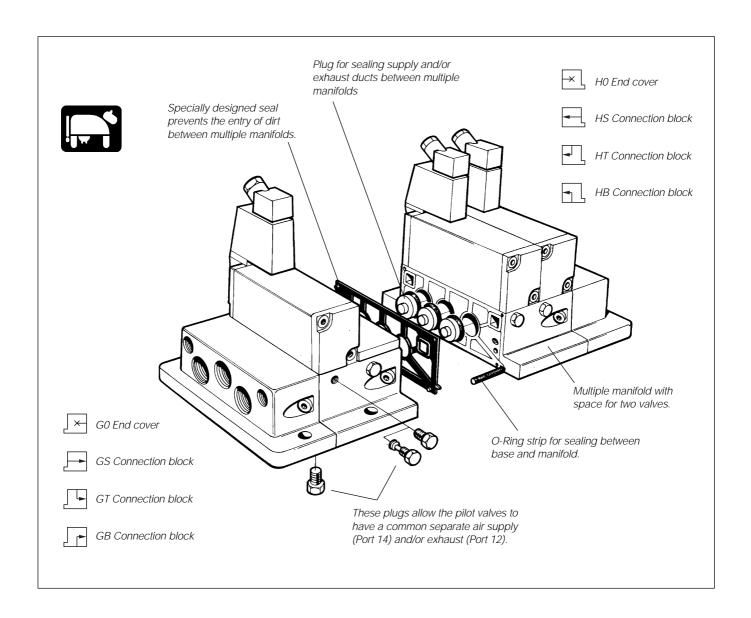
Used with the Valvetronic, the P2V-A/B valves provide a simple and easily-monitored electrical installation with high physical protection class.



## Multiple mounting with bottom connection

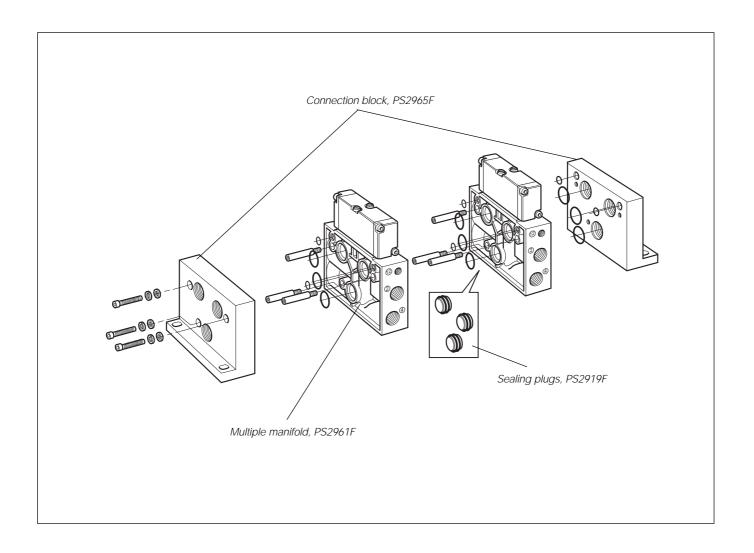
This system is suitable for use in applications with demanding requirements in respect of protection against dirt and ease of cleaning

Suitable for food industry and similar applications.



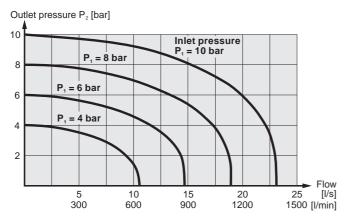
## Multiple manifold with side connections (P2V-A only)

This system is intended for use in applications requiring side connection of the manifold with as low a height as possible The manifolds allow air to the working unit from ports 2 and 4 to be connected to either or both sides. The manifolds are also suitable for fitting to a DIN mounting bar for speed and simlicity of installation. However, as there are no seals to prevent the entry of dirt between the manifolds, they should be installed in cabinets for food industry applications.



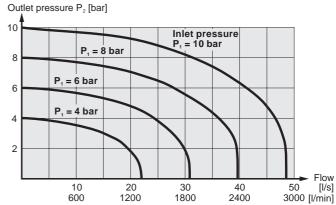
## Flow characteristics P2V-A

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



## Flow characteristics P2V-B

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



## Technical data P2V-A

Dimension Operating pressure, max Operating temperature range

Flow (Acc. to ISO 6358) (Valve flow measured on the valve including manifold) G1/8,VDMA 24563 18 mm wide 10 bar

-10 to +70 °C, pneum. actuated -10 to +60 °C, electr. actuated C=2.1 NI/s x bar

b=0,25 Qn=8,6 l/s Qmax=14,7 l/s Cv=0.51

## P2V-B

Dimension
Operating pressure, max
Operating temperature range

Flow (Acc. to ISO 6358) (Valve flow measured on the valve including manifold) G1/4,VDMA 24563 26 mm wide 10 bar

-20 to +70 °C, pneum. actuated -15 to +60 °C, electr. actuated

C=4,4 NI/s x bar b=0,25 On=18.1 I/s

Qmax=30,8 l/s Cv=1,08

## **Materials**

## Valve

Valve body Anodised aluminium
End covers Thermoplastic
End screws Stainless steel

Spool Aluminium and nitrile rubber

Piston Thermoplastic U-rings, seals Nitrile rubber

Springs Dacromet® - processed steel

Mounting screws Stainless steel

## Single manifold

Manifolds Anodised aluminium

## Multiple mounting with bottom connection

Manifolds Anodised aluminium

Connection blocks and

end covers

Anodised aluminium

Blind plate

Anodised aluminium

Plugs on multiple manifilds Red thermoplastic and stainless steel

Mounting screws Stainless steel

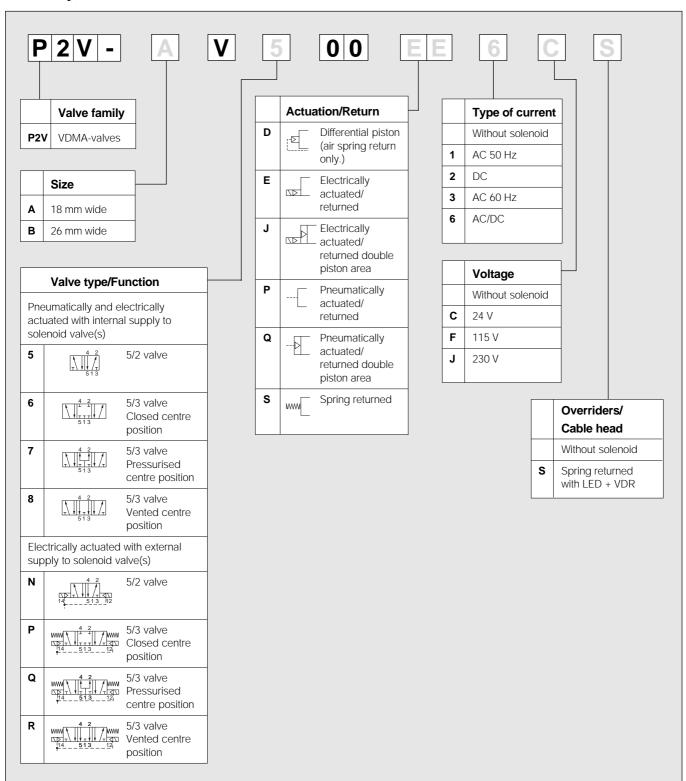
## Multiple mounting with side connection

Multiple manifold, P2V-A-1 Reinforced thermoplastic

Threaded inserts Brass

Tie rods Surface-treated steel
O-rings Nitrile rubber
Connection sets Anodised aluminium

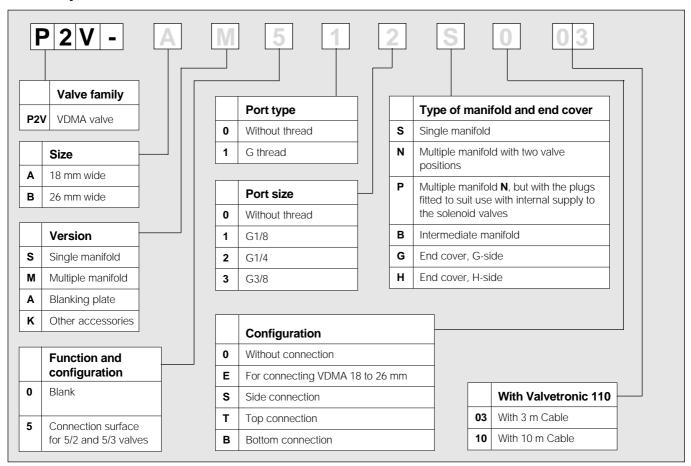
## Order key, basic valves



## Possible combinations

See pages 12, 14 and 16

## Order key, manifolds and accessories



## Possible combinations

See pages 18 and 19

Accessories on page 23 do not follow this order key!

## Main data directional control valves

	Symbol	VDMA size (mm)	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	<b>Weight</b> (kg)	Order code
Pneumation	cally actuated 5/	2 and 5/3	valves					
	14 2	18 26	Air signal	Air signal	1,5/1,5	10/10	0,07 0,15	P2V-AV500PP P2V-BV500PP
0		18 26	Air signal Double piston	Air signal	1,2/1,5	10/14	0,08 0,18	P2V-AV500QP P2V-BV500QP
		18 26	Air signal	Spring	3,5/-	13/28	0,07 0,15	P2V-AV500PS P2V-BV500PS
		18 26	Air signal Double piston	Spring	2,0/-	13/39	0,08 0,18	P2V-AV500QS P2V-BV500QS
	$\frac{\text{NM}}{14} \sqrt{\frac{\frac{4}{1}}{\frac{2}{11}}} \sqrt{\frac{\text{NVM}}{12}}$	18 26	Air signal Closed centre position	Air signal Self centring	3,5/3,5	19/40	0,10 0,15	P2V-AV600PP P2V-BV600PP
	14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Air signal Double piston Closed centre position	Air signal Double piston Self centring	2,0/2,0	19/55	0,21	P2V-BV600QQ
	MM 14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 26	Air signal Vented centre position	Air signal Self centring	3,5/3,5	19/40	0,10 0,15	P2V-AV800PP P2V-BV800PP
	14 2 12 12 12 12 12 12 12 12 12 12 12 12 1	26	Air signal Double piston Vented centre position	Air signal Double piston Self centring	2,0/2,0	19/55	0,21	P2V-BV800QQ
	14 513 12	18 26	Air signal Pressurised centre position	Air signal Self centring	3,5/3,5	19/40	0,10 0,15	P2V-AV700PP P2V-BV700PP
	MM 14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Air signal Double piston Pressurised centre position	Air signal Double piston Self centring	2,0/2,0	19/55	0,21	P2V-BV700QQ

Q in the valve type number (e.g. P2V-AV500QS) indicates a double piston with lower changeover pressure.

**Manifolds and multiple mounting** See pages 18 to 24.

Pneumatically actuated 5/2 and 5/3 valves

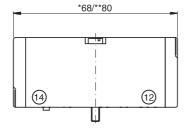
\*P2V-AV500PP \*P2V-AV500PS \*\*P2V-BV500PP

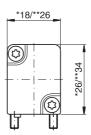
\*\*P2V-BV500PS

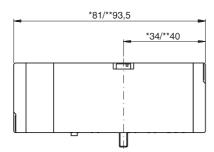
\*\*P2V-BV600PP

\*\*P2V-BV800PP

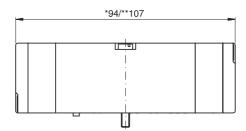
\*\*P2V-BV700PP







\*P2V-AV500QP \*P2V-AV500QS \*\*P2V-BV500QP \*\*P2V-BV500QS



\*P2V-AV600PP \*P2V-AV800PP \*P2V-AV700PP

\*\*P2V-BV600QQ

\*\*P2V-BV800QQ

\*\*P2V-BV700QQ

## Main data directional control valves

Symbol	VDMA size (mm)	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	<b>Weight</b> (kg)	Order code
actuated 5/2 va		a port 1					
14 513 12	18 26	Electric signal	Electric signal	1,5/1,5	20/20	0,08 0,16	P2V-AV500EE P2V-BV500EE
14 513 12	18 26	Electric signal	Spring	3,5/-	20/30	0,08 0,15	P2V-AV500ES P2V-BV500ES
4 2 14 5 3 12	18 26	Electric signal Double piston	Air spring	3,5/-	15/30	0,08 0,15	P2V-AV500JD P2V-BV500JD
14 2 www 513 12	18 26	Electric signal Double piston	Spring	2,0/-	22/42	0,09 0,18	P2V-AV500JS P2V-BV500JS
actuated 5/2 va		ia port 14 *					
14 2 513 12	18 26	Electric signal	Electric signal	1,5/1,5	20/20	0,08 0,16	P2V-AVN00EE P2V-BVN00EE
14 513 12	18 26	Electric signal	Spring	3,5/-	20/30	0,08 0,16	P2V-AVN00ES P2V-BVN00ES
4 2 14 513 12	18 26	Electric signal Double piston	Air spring	3,5/-	15/30	0,08 0,16	P2V-AVN00JD P2V-BVN00JD
14 5 1 3 12	18 26	Electric signal Double piston	Spring	2,0/-	19/55	0,09 0,19	P2V-AVN00JS P2V-BVN00JS

<sup>\*</sup>Or through a common air channel in the manifold (14) for separate supply. The solenoid valves are vented through a common channel (12) in the manifold. J in the valve order code 500JS and N00JS indicates a double piston with lower changeover pressure.

## Solenoid valves

Solenoid valves and cable heads must be ordered separately. Use P2E-•V as pilot valves in the above valves. A pilot valve is required for each E or J in the valve order code.

## Complete valves

See pages 24 and 25

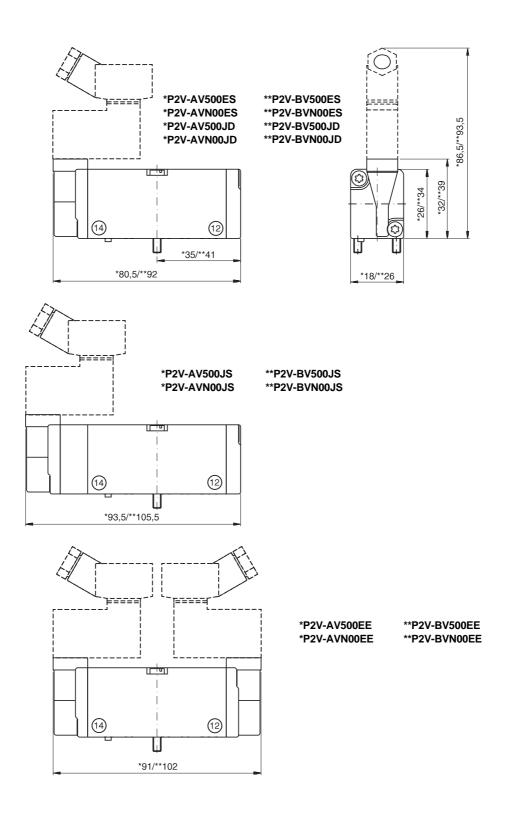
## Manifolds and multiple mounting

See pages 18 to 24

## Solenoid valves

See page 26

## Electrically actuated 5/2 valve



## Main data directional control valves

	Symbol	VDMA size (mm)	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	<b>Weight</b> (kg)	Order code
	actuated 5/3 val		a port 1					
	WWW 2 2 WWW 75 T 1 1 2 12	18 26	Electric signal Closed centre position	Electric signal Spring Self centring	3,5/-	37/40	0,10 0,16	P2V-AV600EE P2V-BV600EE
	14 513 12	26	Electric signal Double piston Closed centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BV600JJ
	MW 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 26	Electric signal Vented centre position	Electric signal Self centring	3,5/-	37/40	0,10 0,16	P2V-AV800EE P2V-BV800EE
	14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Electric signal Double piston Vented centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BV800JJ
	WWW 1 4 2 WWW 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 26	Electric signal Pressurised centre position	Electric signal Self centring	3,5/-	37/40	0,10 0,16	P2V-AV700EE P2V-BV700EE
	WWW 125 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Electric signal Double piston Pressurised centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BV700JJ
-	actuated 5/3 value		·	Ü				
	WW 4 2 / WW 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 26	Electric signal Closed centre position	Electric signal Self centring	3,5/-	37/40	0,10 0,16	P2V-AVP00EE P2V-BVP00EE
	14 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Electric signal Double piston Closed centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BVP00JJ
	4 2 WWW 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	18 26	Electric signal Vented centre position	Electric signal Self centring	3,5/-	37/40	0,10 0,16	P2V-AVR00EE P2V-BVR00EE
	WW 1 2 WW 30 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	26	Electric signal Double piston Vented centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BVR00JJ
	WW 2 / WW 1 / WW	18 26	Electric signal Pressurised centre position	Electric signal Self centring	3,5/-	37/40	0,10 0,16	P2V-AVQ00EE P2V-BVQ00EE
	14 5 13 12 1	26	Electric signal Double piston Pressurised centre position	Electric signal Double piston Self centring	2,0/-	37/55	0,21	P2V-BVQ00JJ

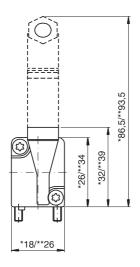
\*Or through a common air channel in the manifold (14) for separate supply. The solenoid valves are vented through a common channel (12) in the manifold. J in the valve order code P2V-BV600JJ for example indicates a double piston with lower changeover pressure.

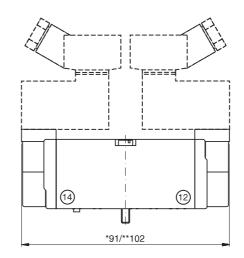
## Solenoid valves

Solenoid valves and cable heads must be ordered separately. Use P2E-•V as pilot valves in the above valves. A pilot valve is required for each E or J in the valve order code.



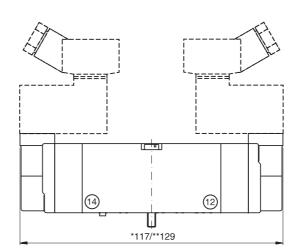
## Electrically actuated 5/3 valve





- \*\*P2V-BV600EE
- \*\*P2V-BVP00EE
- \*\*P2V-BV800EE
- \*\*P2V-BVR00EE
- \*\*P2V-BV700EE
- \*\*P2V-BVQ00EE

- \*P2V-AV600EE \*P2V-AVP00EE \*P2V-AV800EE \*P2V-AVR00EE \*P2V-AV700EE \*P2V-AVQ00EE
- \*\*P2V-BV600JJ
- \*\*P2V-BVP00JJ
- \*\*P2V-BV800JJ
- \*\*P2V-BVR00JJ
- \*\*P2V-BVR00JJ
- \*\*P2V-BVQ00JJ



## **Complete valves**

See pages 24 and 25

## Manifolds and multiple mounting

See pages 18 to 24

## Solenoid valves

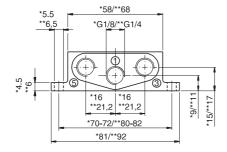
See page 26

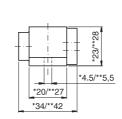
Accessories	Designation	Weight (kg)	Order code (P2V-A, 18 mm)	Weight (kg)	Order code (P2V-B, 26 mm)	
600	<b>Manifold</b> with side connections	0,07	P2V-AS511SS	0,12	P2V-BS512SS	
	Multiple manifold Including seal, fitting screws and plugs. Ports 2, 4, and 14 are bottom-connected. Fit plugs as required to provide common supply of operating air and common exhausts for solenoid valves. Plug assembly instruction, see page 35.	0,20	P2V-AM511NB	0,40	P2V-BM512NB	
	<b>Multiple manifold</b> Multiple manifold as above, but with the plugs fitted to suit use with valves with internal supply to solenoid.	0,20	P2V-AM511PB	0,40	P2V-BM512PB	
1000	Intermediate manifold, 18 to 26 mm Including seals and fitting screws. For connecting P2V-AM511NB/PB multiple manifolds to P2V-BM511NB/PB multiple manifolds.	0,33	P2V-AM500BE	0,33	P2V-AM500BE	
	Connection block G-side, including seal and fitting screws. For side connection.	0,18	P2V-AM512GS	0,21	P2V-BM513GS	
	Connection block H-side. For side connection.	0,18	P2V-AM512HS	0,21	P2V-BM513HS	
	Connection block with Valvetronic 110 H-side. For side connection. with 3 m cable with 10 m cable	0,50 1,33	P2V-AM512HS03 P2V-AM512HS10	0,53 1,36	P2V-BM513HS03 P2V-BM513HS10	
	Connection block G-side, including seal and fitting screws. For top connection.	0,18	P2V-AM512GT	0,21	P2V-BM513GT	
	Connection block H-side. For top connection.	0,18	P2V-AM512HT	0,21	P2V-BM513HT	
	Connection block G-side, including seal and fitting screws. For bottom connection.	0,18	P2V-AM512GB	0,22	P2V-BM513GB	
	Connection block H-side. For bottom connection.	0,18	P2V-AM512HB	0,22	P2V-BM513HB	
	Connection block with Valvetronic 110 H-side. For bottom connection. with 3 m cable	0,50	P2V-AM512HB03	0,53	P2V-BM513HB03	

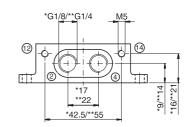
Accessories	Designation	Weight (kg)	Order code (P2V-A, 18 mm)	Weight (kg)	Order code (P2V-B, 26 mm)
×	<b>End cover</b> G-side, including seal and fitting screws.	0,19	P2V-AM500G0	0,24	P2V-BM500G0
	End cover H-side	0,19	P2V-AM500H0	0,24	P2V-BM500H0
	End cover with Valvetronic 110 H-side				
X	with 3 m cable with 10 m cable	0,51 1,34	P2V-AM500H003 P2V-AM500H010	0,54 1,37	P2V-BM500H003 P2V-BM500H010
	Blanking plate Including seal and fitting screws.	0,02	PS2973F	0,05	P2V-BA5B
<u> </u>	<b>Plug</b> For sealing supply and exhaust air ducts between multiple manifolds with different primary supply pressures.	0,004	P2V-AK0P	0,01	P2V-BK0P
	Angle mounting set  For raising multiple manifolds so that angle connections can be fitted to the underside. The parts are designed so that the entire manifold can be angled to simplify connection of the pipes. The set consists of four mounts, complete with all necessary screws and nuts.	0,14	P2V-AK0M	0,14	P2V-AK0M
	O-ring strip seal For sealing between bases and multiple manifolds. 3.53 mm diameter, Supplied in 5 m lengths.	0,07	9304331543	0,07	9304331543

## Dimensions Manifold

## \*P2V-AS511SS \*\*P2V-BS512SS

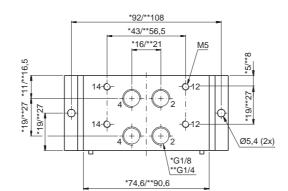


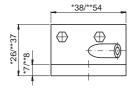


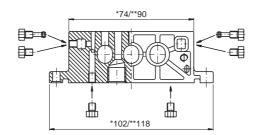


Multiple manifold

\*P2V-AM511NB, P2V-AM511PB \*\*P2V-BM512NB, P2V-BM512PB

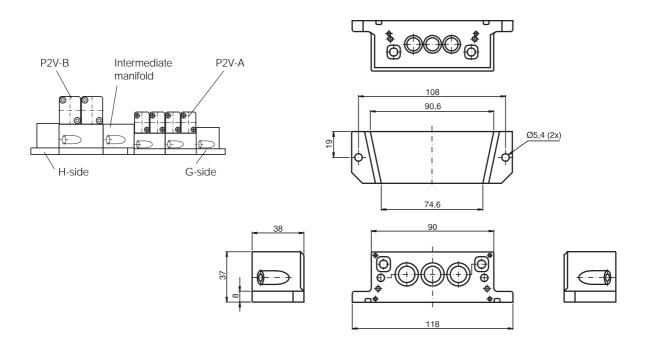








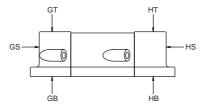
## Intermediate manifold 18 to 26 mm P2V-AM500BE



## Connection blocks and end covers

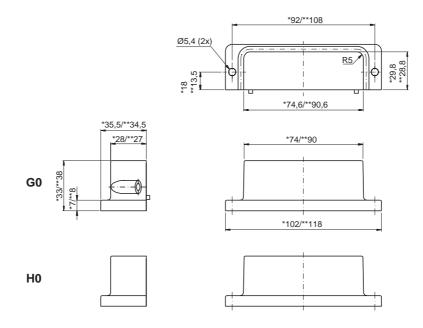
The schematic diagram (right) shows how the connections are positioed on GS, GT, GB, HS, HT and HB connection blocks. Blanking end pieces G0 and H0 (below) have no connection ports

Se also overwiew page 22.

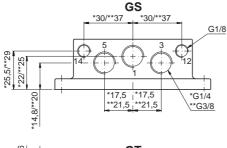


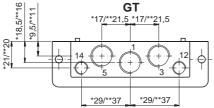
## End cover \*P2V-AM512

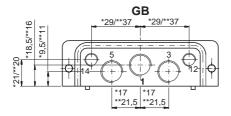




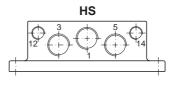
## Connection block \*P2V-AM512GS/GT/GB \*\*P2V-BM512GS/GT/GB

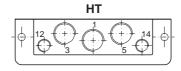


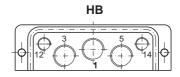




## \*P2V-AM512HS/HT/HB \*\*P2V-BM512HS/HT/HB

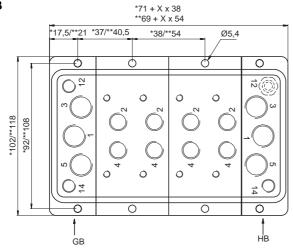


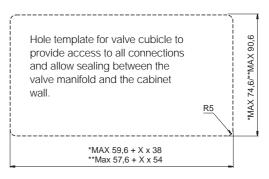




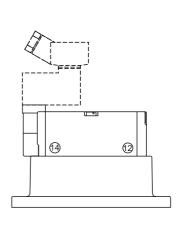
Multiple mounting

\*P2V-A \*\*P2V-B

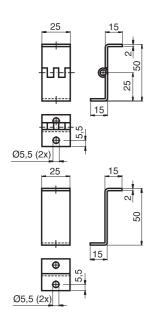


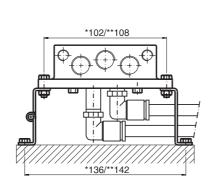


block and the valve cabinet.

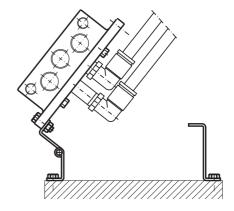


## Angle mounting set

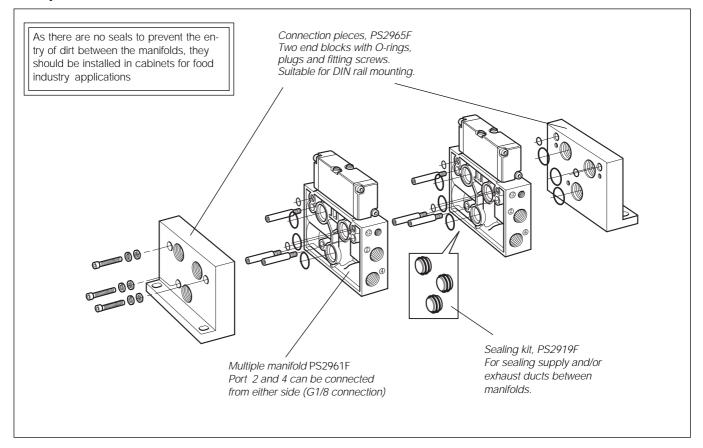




Seal between the manifold

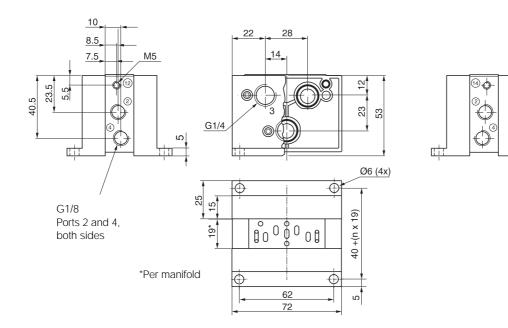


## Multiple manifolds with side connection



Accessories	<b>Designation</b> (kg)	Weight (kg)	Order code
	Multiple manifold Including O-rings and tie rods. Ports 2, 4, 12 and 14 are brought out to the sides	0,10	PS2961F
	Connection pieces Two end blocks with O-rings, plugs and fitting screws.	0,31	PS2965F
	<b>DIN mounting set</b> For direct mounting.	0,01	PS2970F
99	Sealing set Three plugs with O-rings, for sealing supply and exhaust air ducts between multiple manifolds with different primary supply pressures.	0,02	PS2919F
	Blanking plate Including seal and fitting screws.	0,02	PS2973F

## Multiple manifolds with side connection



## **Complete valves**

with solenoids without base

P2V-AV500E	
18 mm wide	



P2V-BV500ES 26 mm wide 14



Voltage	Order code	Voltage	Order code			
24 V AC/DC	P2V-AV500ES6CS Consisting of: 1 Valve P2V-AV500ES 1 Solenoid P2E-QV32C3 1 Connector P8C-H36C, LED+VDR+REC	24 V AC/DC	P2V-BV500ES6CS Consisting of: 1 Valve P2V-BV500ES 1 Solenoid P2E-QV32C3 1 Connector P8C-H36C, LED+VDR+REC			
110-120 V AC	P2V-AV500ES1FS Consisting of: 1 Valve P2V-AV500ES 1 Solenoid P2E-QV31F3 1 Connector P8C-H21E, LED+VDR	110-120 V AC	P2V-BV500ES1FS Consisting of: 1 Valve P2V-BV500ES 1 Solenoid P2E-QV31F3 1 Connector P8C-H21E, LED+VDR			
220-240 V AC	P2V-AV500ES1JS Consisting of: 1 Valve P2V-AV500ES 1 Solenoid P2E-QV32C3 1 Connector P8C-H21G, LED+VDR	220-240 V AC	P2V-BV500ES1JS Consisting of: 1 Valve P2V-BV500ES 1 Solenoid P2E-QV32C3 1 Connector P8C-H21G, LED+VDR			

## **Complete valves**

with solenoids without base

P2V-AV500EE 8 mm wide	4 2 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	P2V-BV500EE 26 mm wide	4 2 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Voltage	Order code	Voltage	Order code
24 V AC/DC	P2V-AV500EE6CS Consisting of: 1 Valve P2V-AV500EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC	24 V AC/DC	P2V-BV500EE6CS Consisting of: 1 Valve P2V-BV500EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC
110-120 V AC	P2V-AV500EE1FS Consisting of: 1 Valve P2V-AV500EE 2 Solenoids P2E-QV31F3 2 Connectors P8C-H21E, LED+VDR	110-120 V AC	P2V-BV500EE1FS Consisting of: 1 Valve P2V-BV500EE 2 Solenoids P2E-QV31F3 2 Connectors P8C-H21E, LED+VDR
220-240 V AC	P2V-AV500EE1JS Consisting of: 1 Valve P2V-AV500EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H21G, LED+VDR	220-240 V AC	P2V-BV500EE1JS Consisting of: 1 Valve P2V-BV500EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H21G, LED+VDR

## **Complete valves**

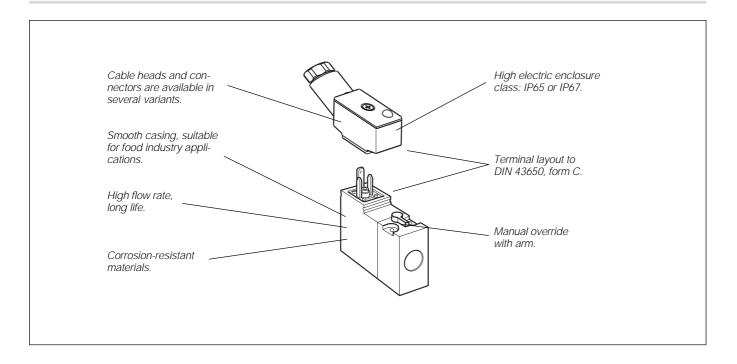
with solenoids without base

## P2V-AV600EE/700EE/800EE

8 mm wide		26 mm wide	26 mm wide				
Voltage	Order code	Voltage	Order code				
24 V AC/DC	P2V-AV600EE6CS Consisting of: 1 Valve P2V-AV600EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC	24 V AC/DC	P2V-BV600EE66CS Consisting of: 1 Valve P2V-BV600EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC				
24 V AC/DC	P2V-AV800EE6CS Consisting of: 1 Valve P2V-AV800EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC	24 V AC/DC	P2V-BV800EE6CS Consisting of: 1 Valve P2V-BV800EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC				
24 V AC/DC	P2V-AV700EE6CS Consisting of: 1 Valve P2V-AV700EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC	24 V AC/DC	P2V-BV700EE6CS Consisting of: 1 Valve P2V-BV700EE 2 Solenoids P2E-QV32C3 2 Connectors P8C-H36C, LED+VDR+REC				

P2V-BV600EE/700EE/800EE





## The P2E-•V solenoid valve range

The P2E-QV range of valves are normally closed (NC) 3/2 solenoid valves, with exceedingly compact dimensions in relation to their capacity.

## International standard

The port connection pattern complies with a new French CNOMO standard (in process of drafting), with cable head connections in accordance with DIN 43650, Form C.

## Compact design

Overall dimensions of the P2E-•V valve are substantially less than those of earlier generations of solenoid valves.

## **High flow capacity**

High flow capacity relative to the electrical operating power as a result of optimised internal flow paths.

## Corrosion-resistant design

The valve is made of thermoplastic material and stainless steel, with  $Viton^{TM}$  and nitrile rubber seals for excellent corrosion resistance.

## Clean lines suitable for food industry applications

The valve has been designed in conjunction with several machine manufacturers and organisations in the food industry, with corrosion-resistant materials and smooth lines being important starting points. The valve and its accessories have been designed so that there are no gaps or crevices in which dirt could collect.

## No external exhaust from the valve

The exhaust air from the pilot valves is led down through the valve and out via the manifold, so that all exhausts can be made common. This is particularly important for applications requiring clean working conditions and low noise level.

## **High reliability**

Few moving parts result in high reliability, rapid changeover and very long life.

## Low power demand

The valves have a power demand of 1.2 W at 24 V DC and 1.6 VA at 24 V AC, 115 V AC and 230 V AC.

## High enclosure class

The enclosure class is IP 67 when connected using the cable head with a moulded cable. Enclosure class is IP 65 when using the standard cable head for fitting by the user, while the bare valve, with Fast on connectors, has an enclosure class of IP 20.

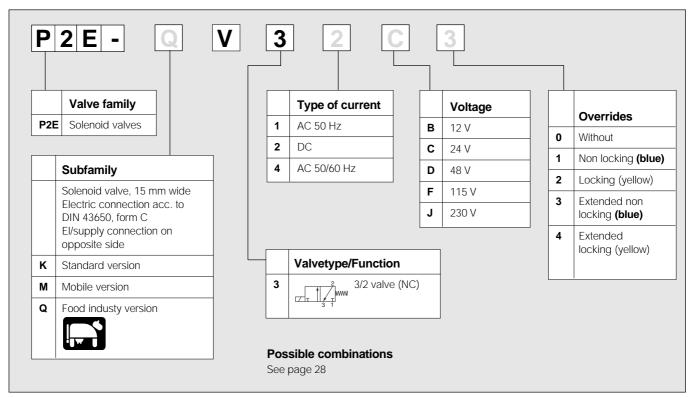
## Insensitive to dirty air

The use of generously sized flow paths (1.0 mm diameter) means that the valve can be used in normal industrial environments without problems of blocking.

## Manual changeover as standard

The valves incorporate a manual override function, operated by a spring-return or lockable arm.

## Order key, solenoid valves



## **Technical data**

NC, Standard NC, Food\* NC, Mobile Working pressure 0 to 10 bar 0 to 10 bar 0 to 10 bar -15 °C to +60 °C Working temperature -15 °C to +60 °C -15 °C to +60 °C Orifice 1.0 mm 1.0 mm 1.0 mm 22 NI/min FlowQmax 33 NI/min 33 NI/min DC 1,2 W / AC 1,6 VA DC 1,2 W / AC 1,6 VA DC 1 W Power, hold DC 1,2 W / AC 3,5 VA DC 1,2 W / AC 3,5 VA DC 1 W Power, inrush Connection time 100% 100% 100% +25%/-30% +10%/-15% +10%/-15% Voltage tolerance

Electric connection: DIN 43650 form C

Port pattern: To future CNOMO standard

Protection: IP 65 - IP 67, depending on type of cable head

Approval: Some valves are UL-approved and marked with the following symbol Working media: All neutral media, such as compressed air, water, hydraulic oil and many gases.

\* Design: Completely smooth exterior, suitable for food industry.

## **Transients**

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavourable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (VDR). All cable heads having a yellow LED also incorporate such protection.

## Life

With compressed air at 6 bar, 20  $^{\circ}$ C and complying with the requirements for compressed air quality as set out in the EU Machine Directive, the valves should have a life of at least 50 million operations.

## **Materials**

Valve

Body, coil casing Thermoplastic Internal metal parts Steel Screws Stainless steel Bottom plug Thermoplastic

Sealing materials FPM (Viton™) and nitrile rubber

Cable head
Sheath Thermoplastic
Retaining screw Stainless steel

## Solenoids 15 mm NC, standard

(Note! mounting screws included in basic valve P2V-A/B...)

		Voltage	<b>Weight</b> Kg	Order code Without manua override	I	<b>Weight</b> Kg	Order code Override, blue, non locking flush	<b>Weight</b> Kg	Order code Override, yello locking flush	W,
Ø <sub>2</sub> 2	2	12 VDC	0,038	P2E-KV32B0	4	0,038	P2E-KV32B1 <sup>(l)</sup>	0,038	P2E-KV32B2	<u>(L)</u>
	- 1 / Imm	24 VDC	0,038	P2E-KV32C0	4	0,038	P2E-KV32C1	0,038	P2E-KV32C2	4
	3 1	48 VDC	0,038	P2E-KV32D0	(L)	0,038	P2E-KV32D1 <sup>(l)</sup>	0,038	P2E-KV32D2	4
1 1 21 1		24 VAC 50Hz	0,038	P2E-KV31C0	(L)	0,038	P2E-KV31C1 <sup>(l)</sup>	0,038	P2E-KV31C2	<b>(L)</b>
		48 VAC 50/60Hz	0,038	P2E-KV34D0	4	0,038	P2E-KV34D1 <sup>®</sup>	0,038	P2E-KV34D2	4
		115 VAC 50Hz/	0,038	P2E-KV31F0	(L)	0,038	P2E-KV31F1 <sup>(l)</sup>	0,038	P2E-KV31F2	4
		120 VAC 60Hz								
		230 VAC 50Hz/	0,038	P2E-KV31J0	4	0,038	P2E-KV31J1 <sup>(l)</sup>	0,038	P2E-KV31J2	(L)
		240 VAC 60Hz								

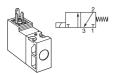


Voltage	<b>Weight</b> Kg	Order code Override, extended non locking flush, blue	<b>Weight</b> Kg	Order code Override, extended locking flush, yellow
24 VDC	0,038	P2E-KV32C3 (9)	0,038	P2E-KV32C4 (9)
24 VAC 50Hz	0,038	P2E-KV31C3 (9)	0,038	P2E-KV31C4 <sup>(l)</sup>

## Solenoid 15 mm NC, mobile

(Note! mounting screws included in basic valve P2V-A/B...)

		Voltage	<b>Weight</b> Kg	Order code Without manual override	<b>Weight</b> Kg	Order code Override, blue, non locking flush	
e <sub>a</sub>	2	12 VDC	0,038	P2E-MV32B0	0,038	P2E-MV32B1	
		24 VDC	0,038	P2E-MV32C0	0,038	P2E-MV32C1	
	3 1						



## Solenoid 15 mm NC, food industry version

(Note! mounting screws included in basic valve P2V-A/B...)

	Voltage	<b>Weight</b> Kg	Order code Without manua override	nl	<b>Weight</b> Kg	Order code Override, blue, non locking flush	<b>Weight</b> Kg	Order code Override, yellow locking flush	Ν,
	24 VDC	0,038	P2E-QV32C0	4	0,038	P2E-QV32C1 (9)	0,038	P2E-QV32C2	<u>(L)</u>
7 7 2 WW	24 VAC 50Hz	0,038	P2E-QV31C0	<u>(II)</u>	0,038	P2E-QV31C1 (4)	0,038	P2E-QV31C2	(4)
7 3 1	48 VDC	0,038	P2E-QV32D0	<u>(L)</u>	0,038	P2E-QV32D1 (l)	0,038	P2E-QV32D2	<u>(h)</u>
	48 VAC 50/60Hz	0,038	P2E-QV34D0	(l)	0,038	P2E-QV34D1 (4)	0,038	P2E-QV34D2	(4)
$\setminus$ $ O $	115 V 50Hz/	0,038	P2E-QV31F0	<u>(l)</u>	0,038	P2E-QV31F1 <sup>®</sup>	0,038	P2E-QV31F2	4
	120 V 60Hz								
	230 VAC 50Hz/	0,038	P2E-QV31J0	4	0,038	P2E-QV31J1 <sup>(1)</sup>	0,038	P2E-QV31J2	(L)
	240 VAC 60Hz								
<b>S</b> n	Voltage				Weight	Order code	Weight	Order code	
					Kg	Override, extended	Kg	Override, exter	nded



Voltage	Weight	Order code	Weight	Order code
	Kg	Override, extended non locking flush, blue	Kg	Override, extended locking flush, yellow
24 VDC	0,038	P2E-QV32C3 (9)	0,038	P2E-QV32C4 49
24 VAC 50Hz	0,038	P2E-QV31C3 <sup>®</sup>	0,038	P2E-QV31C4 <sup>(l)</sup>
115 VAC 50 Hz	0,038	P2E-QV31F3 <sup>®</sup>	0,038	P2E-QV31F4 <sup>(l)</sup>
230 VAC 50 Hz	0,038	P2E-QV31J3 <sup>(l)</sup>	0,038	P2E-QV31J4 <sup>(l)</sup>



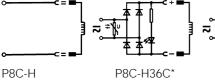
In accordance with the EU Machine Directive, EN 983, solenoid valves with manual override should have spring-return operating arms for safety.

@= UL-approved



## Cable plugs DIN 43650, form C (Cable plug with cable and round connector see page 32)

	Description	Weight	Order code
		kg	
Electrical connection through top cover Stainless steel screw	Standard IP 65	0.02	P8C-H
$\sim$	24 VAC/DC	0.02	P8C-H36C
	VDR + LED + REC IP65*		
	24 VAC/DC	0.02	P8C-H26C
	VDR + LED IP65		
	110-120 VAC/DC	0.02	P8C-H21E
	VDR + LED IP65		
	220-240 VAC/DC	0.02	P8C-H21G
	VDR + LED IP65		
With cable and stainless steel screw	24 VAC/DC	0.13	P8L-H236C
	VDR + LED + REC, 2 m cable PVC IP67*		
	24 VAC/DC	0.58	P8L-HA36C
	VDR + LED + REC, 10 m cable PVC IP67*		
1900			
With large headed screw suitable for	Standard IP 65	0,02	P8C-C
mounting in inaccessible or	041/100	0.05	D00 0000
recess position	24 VDC	0,02	P8C-C26C
	VDR+ LED IP65		
	110 VAC	0,02	P8C-C21E
	VDR + LED IP65		
With standard screw	Standard IP 65	0,02	P8C-D
	24 VDC	0,02	P8C-D26C
	VDR+ LED IP65		
	110 VAC	0,02	P8C-D21E
	VDR + LED IP65		
With cable	Standard with 2 m cable IP 65	0,13	P8L-C2
	Standard with 5 m cable IP 65	0,30	P8L-C5
	24 VAC/DC, 2 m cable	0,13	P8L-C226C
	VDR + LED IP65		
	24 VAC/DC, 5 m cable	0,30	P8L-C526C
	VDR + LED IP65	•	
	24 VAC/DC, 10 m cable	0,58	P8L-CA26C
	VDR + LED IP65		
	110 VAC/DC, 2 m cable	0,13	P8L-C221E
	VDR + LED IP65		
	110 VAC/DC, 5 m cable	0,30	P8L-C521E
	VDR + LED IP65		

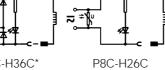


P8C-C

P8C-D

P8L-C2

P8L-C5



P8C-H21E

P8C-H21G

P8C-C26C P8C-C21E P8C-D26C P8C-D21E P8L-C226C P8L-C526C P8L-CA26C P8L-C221E P8L-C521E \* NB!

The cable plug with integral rectifier (REC) can be used for both AC and DC supplies to valves intended for DC operation.

## Spare mounting screws (package of 10)

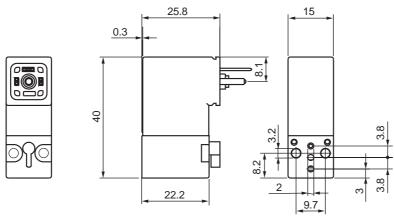
P8L-H236C\*

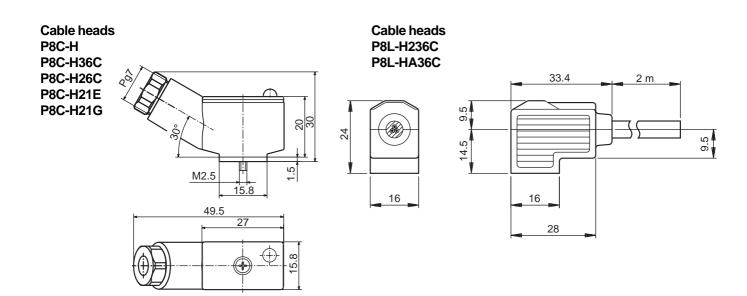
P8L-HA36C\*

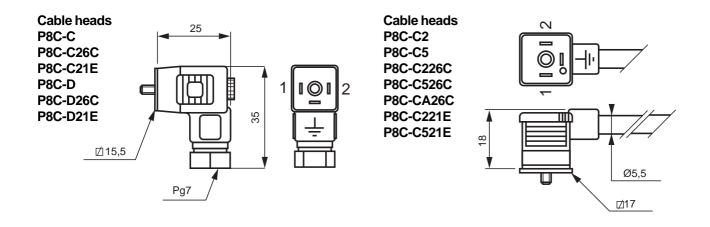
	Туре	Material	Ø mm	<b>Length</b> mm	<b>Weight</b> Kg	Order code
<b>Ommuna</b>	Self tapping	Stainless steel	3	26	0,04	P2E-KD027SS3

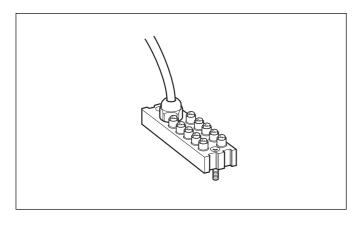


## Solenoid valves P2E-•V...









## The Valvetronic 110 connection block

The Valvetronic 110 is a connection block that can be used for collecting signals from sensors at various points on a machine and connecting them to the control system via a multicore cable. It can also be used as a central point for connecting a multicore cable to the outputs of a control system, to provide a common point from where the output signals can be connected. The block has ten 8 mm snap-in round contacts and a 3 or 10 m multicore cable. The connections on the block are numbered from 1 to 10. Blanking plugs are available for unused connections, as labels for marking the connections of each block.

## Valvetronic 110

Designation	Order code	<b>Weight</b> kg
Valvetronic 110 with 3 m cable	9121719001	0,32
Valvetronic 110 with 10 m cable	9121719002	0,95
Blanking plugs (pack of 10)	9121719003	0,02
Labels (pack of 10)	9121719004	0,02

## **Dimensions and wiring diagrams**

## Technical data, Valvetronic 110

## **Connections:**

Ten 3-pole numbered 8 mm round snap-in female contacts
Input block

2 3 ( ) 1 Pin 1 Common, +24 VDC Pin 2 Input signal Pin 3 Common, 0V

2 3 @ 1 Output block
Pin 1 Common, GND
Pin 2 Output signal

Pin 3 Common, 0V

Note!

When using reed contact, a special adapter cable has to be used. Order code 9121717030.

## Mechanical data

Enclosure IP 67, DIN 40050 with fitted contacts and/or blanking plugs.

Temperature -20 to +70 °C

### Material

Body PA 6,6 VD according to UL 94
Contact holder PBTP
Snap-in ring LDPE
Moulding mass Epoxy
Seal NBR

Plated steel

## Screws Cable:

Length 3 m or 10 m
Type of cable LifYY11Y
Conductor 12
Area 0.34 mm²

Colour marking According to DIN 47 100

## Electrical data:

Voltage 24 VDC (max. 60 V AC/75 V DC) Insulation group according to DIN 0110 class C Load max. 1 A per connection total max. 3 A

## Industrial durability

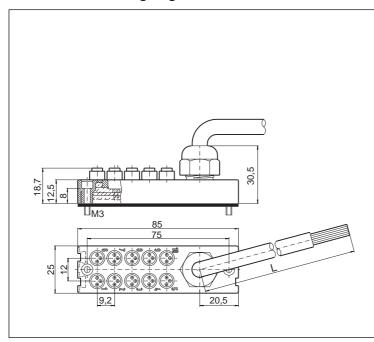
Good chemical and oil resistance. Tests should be performed in aggressive environments.

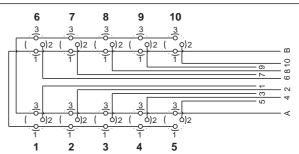


Use **blanking plugs** to close unused connections.

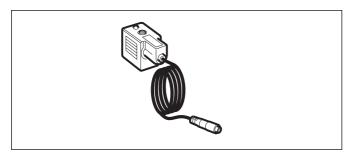


**White labels** to insert in grooves on the side of the connection





Conductor	Colour	Input	Output
1	Pink	Signal 1	Signal 1
2	Grey	Signal 2	Signal 2
3	Yellow	Signal 3	Signal 3
4	Green	Signal 4	Signal 4
5	White	Signal 5	Signal 5
6	Red	Signal 6	Signal 6
7	Black	Signal 7	Signal 7
8	Violet	Signal 8	Signal 8
9	Grey-Pink	Signal 9	Signal 9
10	Red-Blue	Signal 10	Signal 10
Α	Blue	0 V	0 V
В	Brown	+24 V	PE



## **Technical data**

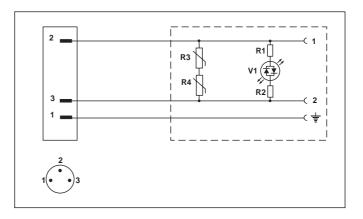
Voltage 24 VDC
Indication LED, yellow
Transient protection VDR
Load, max. 4 A
Enclosure IP65

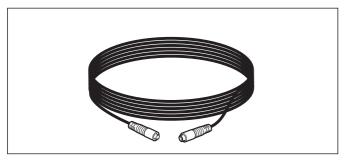
## Pre-wired solenoid connector

Cable head with a moulded cable and 8 mm snap-in round contact for connection of conventional solenoid valves to the Valvetronic system. The cable head incorporates an LED for status indication and a surge suppressor. When need for longer cables arise, use extension cables below.

## Cable head according to DIN 43650

Designation	Order code	<b>Weight</b> kg
Form C Length of cable 0,3 m Length of cable 0,6 m	9121719035 9121719036	0,07 0,09





## **Technical data**

## Contacts

Mould-fitted 8 mm snap-in male/female contacts.

Enclosure IP67

## Cable

Conductor 3x0,25 mm<sup>2</sup> (32x0,10 mm<sup>2</sup>)

Sheath PVC/PUR Colour Black

## Ready-to-use cables

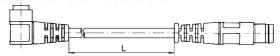
Cables with mould-fitted 8 mm snap-in round contacts in both ends, The cables are available in two types, one with a straight male and female connectors respectively., and one with a straight 3-pole male connector in one end and an angled 3-pole female connector in the other end

Cables with mould-fitted 8 mm snap-in round contacts in both ends, straight male and female connectors respectively.



Designation	Order code	<b>Weight</b> kg
Cable with straight contacts, 0,2 m	9121717014	0,02
Cable with straight contacts, 0,3 m	9121717015	0,02
Cable with straight contacts, 0,5 m	9121717016	0,03
Cable with straight contacts, 1,0 m	9121717017	0,03
Cable with straight contacts, 2,0 m	9121717018	0,05
Cable with straight contacts, 3,0 m	9121717019	0,07
Cable with straight contacts, 5,0 m	9121717020	0,12
Cable with straight contacts, 10 m	9121717021	0,23

Cables with a straight 3-pole male connector in one end and an angled 3-pole female connector in the other end.

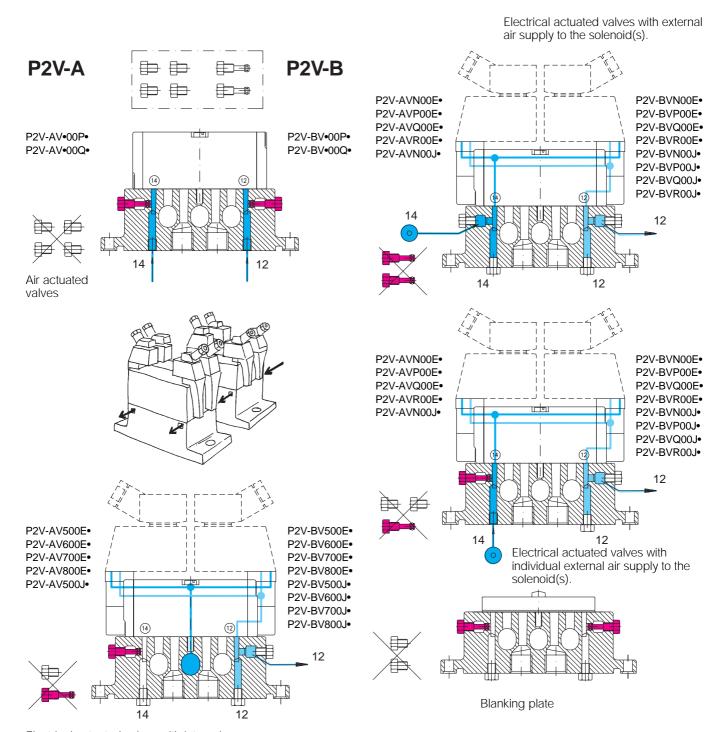


Designation	Order code	<b>Weight</b> kg
Cable with:		
straight and angled connectors, 0,2 m	9121717022	0,02
straight and angled connectors, 0,3 m	9121717023	0,02
straight and angled connectors, 0,5 m	9121717024	0,03
straight and angled connectors, 1,0 m	9121717025	0,03
straight and angled connectors, 2,0 m	9121717026	0,05
straight and angled connectors, 3,0 m	9121717027	0,07
straight and angled connectors, 5,0 m	9121717028	0,12
straight and angled connectors, 10 m	9121717029	0,23



## Plug assembly instruction

The multiple manifolds can be programmed for different functions with help of the plugs



Electrical actuated valves with internal air supply to the solenoid(s).

## Pneumatic Division Sales Offices

Austria - Wr.Neustadt

Tel: +43 2622 23501-970 Fax: +43 2622 23501-977

**Belgium - Nivelles** 

Tel: +32 67 280 900 Fax: +32 67 280 999

Czech and Slovak Republics - Prague

Tel: +4202 830 852 24 Fax: +4202 830 853 60

Ballerup - Denmark

Tel: +45 43 560 400 Fax: +45 43 733 107

Finland - Vantaa

Tel: +358 9 4767 31 Fax: +358 9 4767 3201

France - Evreux

Tel: +33 820 825 239 Fax: +33 820 029 870

**Germany - Mettmann** 

Tel: +49 2104 137 0 Fax: +49 2104 137 500

**Greece - Athens** 

Tel: +30 210 933 6450 Fax: +30 210 933 6451

**Hungary - Budapest** 

Tel: +36 1 220 4155 Fax: +36 1 422 1525

Italy - Corsico, Milan

Tel: +39 02 4519 21 Fax: +39 02 4479 340

Netherlands - Oldenzaal

Tel: +31 541 585 000 Fax: +31 541 585 459 Norway - Langhus

Tel: +47 6491 1000 Fax: +47 6491 1090

Poland - Warsaw

Tel: +48 22 8634 942 Fax: +48 22 8634 944

Portugal - Leça da Palmeira

Tel: +351 22 999 7360 Fax: +351 22 996 1527

Romania - Bucharest

Tel: +40 21 252 3382 Fax: +40 21 252 3381

Russia - Moscow

Tel: +7 095 234 0054 Fax: +7 095 234 0528

Slovenia - Novo mesto

Tel: +386 7337 6650 Fax: +386 7337 6651

Spain - Madrid

Tel: +34 91 675 7300 Fax: +34 91 675 7711

Sweden - Spånga

Tel: +46 (0) 8 5979 5000 Fax: +46 (0) 8 5979 5110

Switzerland - Beil

Tel: +41 32 3653 711 Fax: +41 32 3653 730

UK - Cannock

Tel: +44 1543 456 000 Fax: +44 1543 456 001

Ukraine - Kiev

Tel: +380 44 220 7432 Fax: +380 44 220 6534



Parker Hannifin plc Pneumatic Division Walkmill Lane, Bridgtown, Cannock, Staffs. WS11 0LR. U.K.

We reserve the right to make alterations without prior notification. Edition 07.04