



# **Flexflow**

## **ISO Valves**

### **ISO 5599-1, sizes 1 to 3**

*Catalogue PDE2596TCUK-ev*  
*Edition : July 2007*



# Summary

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## Flexflow

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### 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.



### WARNING

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**5599-1**



ISO 5599-1

### External electrical connection subbase valves

The ISO Standard 5599-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2 & 4 and pilot passages 12 & 14. The width of the pattern and location of the 4 bolt holes are also specified. There are no specifications for the type of external electrical connection used to control the valve.

**Size :** 1 2 3



**5599-2**



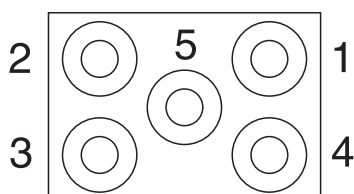
ISO 5599-2

### Body-to-base plug-in subbase valves

Same as 5599-1 for pneumatic pressure passages, 5599-2 standard also specifies a plug-in electrical connection.

**Sizes :** 1 2 3

**Electrical connector**



- 1 = 12 solenoid
- 2 = 14 solenoid
- 3 = 12 solenoid
- 4 = 14 solenoid
- 5 = Ground



**15407-1**

(VDMA 24563)



ISO 15407-1

### External electrical connection subbase valves

The ISO Standard 15407-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2 & 4 and pilot passages 12 & 14. The width of the pattern and location of the 4 bolt holes are also specified. There are no specifications for the type of external electrical connection used to control the valve.

**Size :** 02 01



**15407-2**



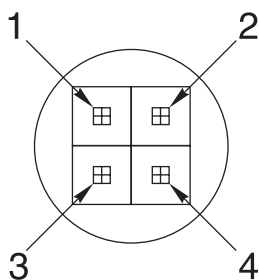
ISO 15407-2

### Body-to-base plug-in subbase valves

Same as 15407-1 for pneumatic pressure passages, 15407-2 standard also specifies a plug-in electrical connection.

**Size :** 01 02

**Electrical connector**



Pin 1 = 14 solenoid

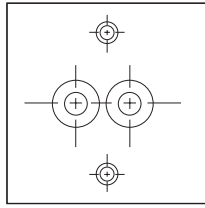
Pin 2 = 12 solenoid

Pin 3 = Ground +

Pin 4 = Common -

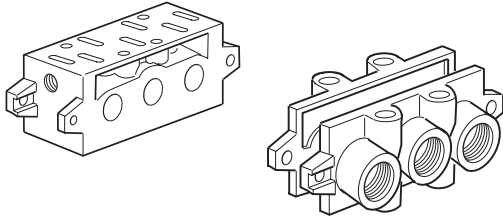
# ISO Specifications

## ISO Specifications



### CNOMO 06-05-01

The solenoid pilot interface often used with ISO 5599-1 valves is the CNOMO interface. The CNOMO interface specifies the pressure and actuator port, and the screw holes for the mounting of this solenoid pilot. It is commonly used in European automotive plants, and its usage is becoming more prevalent for industrial ISO 5599-1 valves.



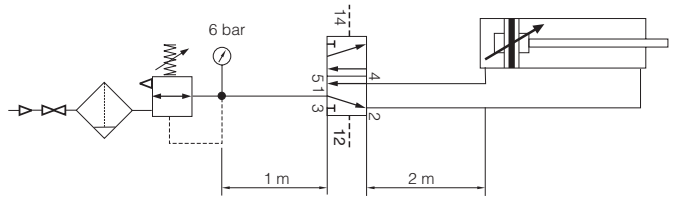
### VDMA 24345

The VDMA 24345 is a standard for Manifolds and Subbase specifying a common base mounting footprint in addition to ISO 5599-1 Interface standard. (VDMA is a German organisation - Verband Deutscher Maschinen und Anlagen-Bauer - which is translated to Federation of German Machine and Unit Builders.)

## Choice of components for air supply to cylinders

In the chart below can you 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	<Ø20	Ø20-32	Ø40-50	Ø63	Ø80	Ø100	Ø125	Ø160	Ø200
Cylinder port	M5	G1/8	G1/4	G3/8	G3/8	G1/2	G1/2	G3/4	G3/4
Tubing Ext / Int	4 / 2.7	6 / 4	8 / 6	10 / 7	10 / 7 12 / 9	12 / 9 14 / 11	14 / 11	18 / 15	20 / 18
Size 1	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4			
Size 2				G3/8	G3/8	G3/8	G3/8		
Size 3				G1/2	G1/2	G1/2	G1/2	G1/2	G1/2

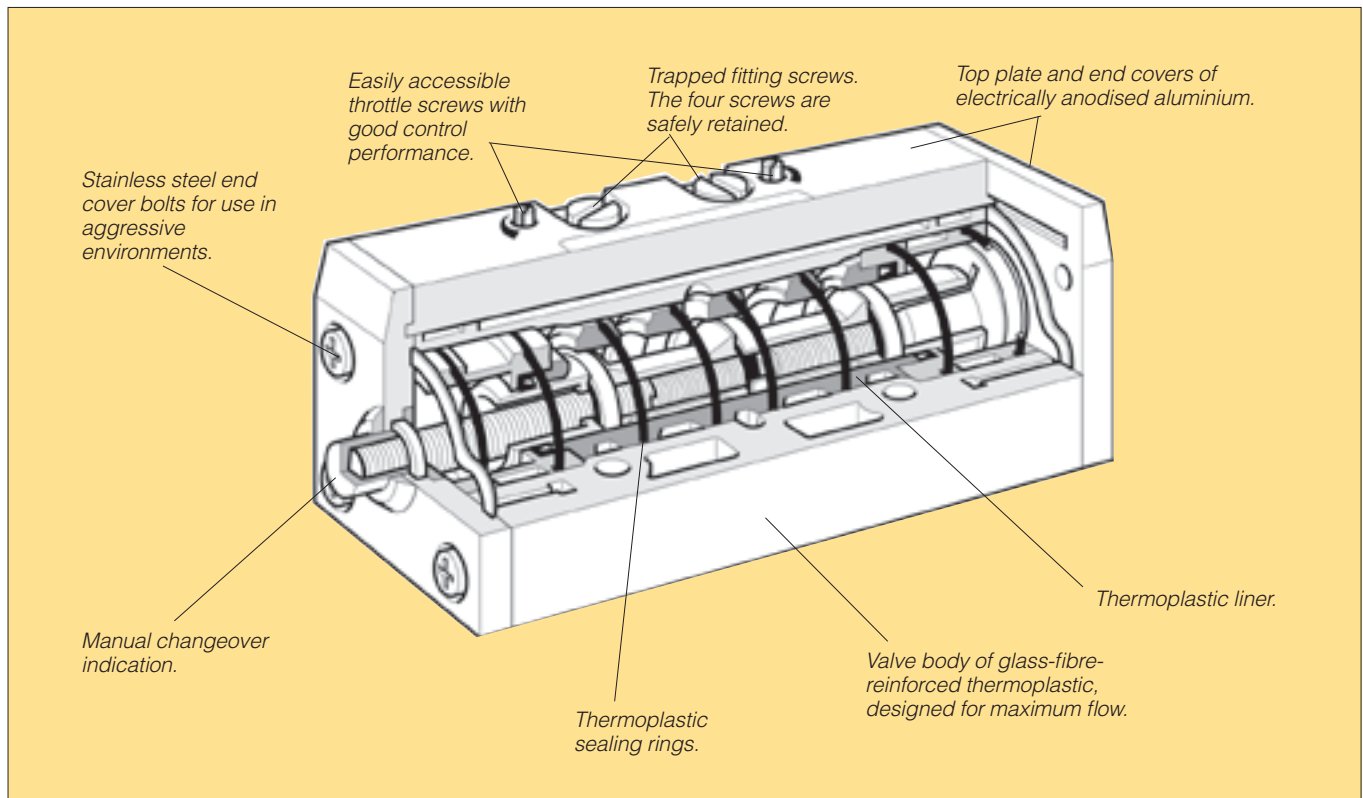
Cylinder speed < 0.5 m/s    
  Cylinder speed < 1 m/s    
  Cylinder speed > 1 m/s  
 Oversizing

# Highlight

## Flexflow - General Applications

### Market Application

- Automotive Handling
- Packaging
- Manufacturing
- General application



# Highlight

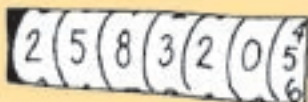
## International standard

The VG25, VG35 and VG45 are all fully interchangeable, in accordance with ISO 5599/1. The range includes electrically-operated valves for use as pilot valves that comply with the French CNOMO standard, and there are also standardised manifolds that comply with the German VDMA 24345.

## Compact, corrosion-resistant design

The valves combine high flow capacity with small size, while the smooth shape meets high hygiene requirements. Electrically anodised aluminium and stainless steel end cover bolts mean that the valves are suited for use in difficult environments as standard.

## High reliability



Valves easily comply with the requirements for the component reliability in accordance with EU Machinery Directive standards EN292-2 and EN983.

## Lubrication and maintenance-free for long life

The use of high-molecular plastic with inherent lubricating properties means that the VG25, VG35 and VG45 are suitable for use with or without additional lubrication. In addition, the design principle ensures many years of reliable operation.

## Manual Override as standard

Solenoids are available with non-locking manual overrides so that valves can be operated when the electrical supply is turned off. Locking or no manual override as option.

## Solenoid valves, 22 mm solenoid or CNOMO interface



Standard valve is fitted with a 22 mm solenoid having Industrial connector for sizes 1, 2 and 3. CNOMO Interface also available for all sizes, as option.

## Integral speed control

Ports 3 and 5 incorporate throttle screws for control of cylinder operation speeds. The screws are accessibly mounted on the top of the valves. A wide control range in several steps ensures excellent speed control of both large and small cylinders.

## High electrical encapsulation class



The solenoid valves are protected to IP65 with the standard cable plug.

## Wide choice of solenoid connectors/cable plugs

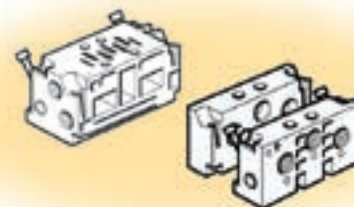


Solenoid connectors are available with or without LED and rectifier and may be selected fitted pre-wired with flying leads.

## Manual changeover - indication

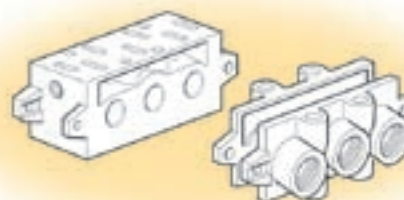
Commissioning and service are assisted by the incorporation of large, ergonomically designed pushbuttons for manual changeover as standard in all the valves in the range.

## Bottom or side ported manifold



Manifolds with common ducts for ports 1,3 and 5, outlet port 2 and 4, and supply port for 12 and 14 are available side or bottom ported.

## Subbase installation VDMA 25345



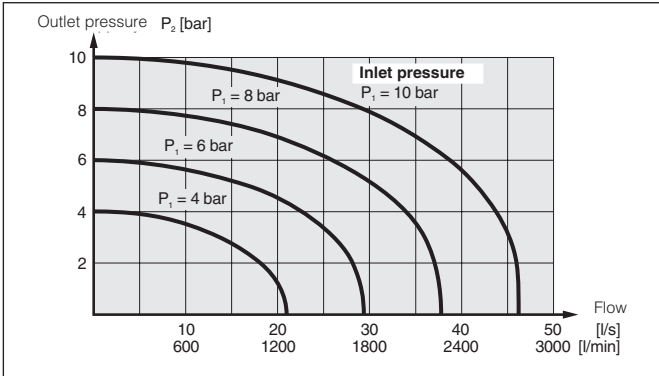
A large range of subbase, VDMA or not VDMA, bottom or side ported.

# Flow characteristics

## Flow Characteristics

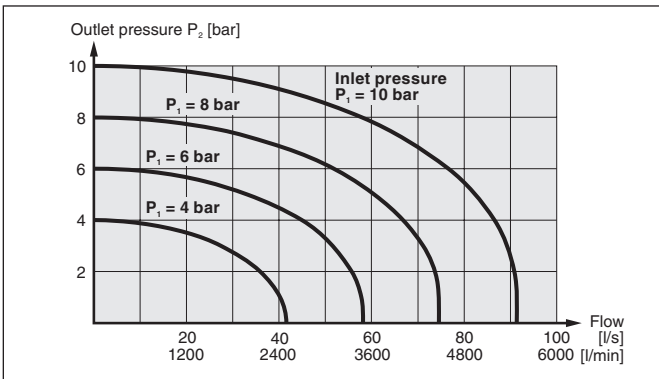
Flow capacities in accordance with ISO6358  
All pressures = effective pressure

### VG25 - ISO 1



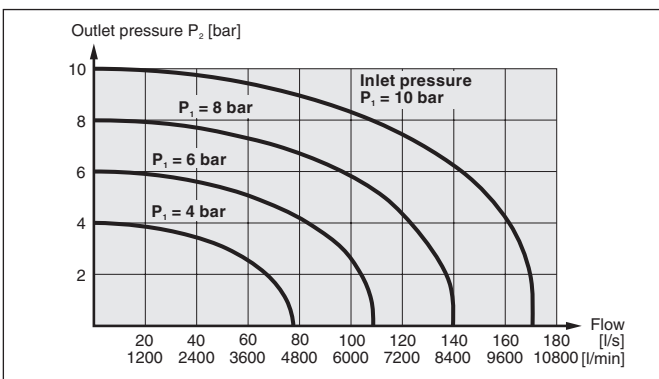
Operating pressure :	5/2 Spring return	3,5 - 10 bar
	5/2 Double solenoid	1,5 - 10 bar
Working temperature :	electrical	-10°C to + 60°C
	pneumatic	-20°C to + 70°C
Flow (acc. to ISO 6358)		c = 4,2 NI/s x bar b = 0,20 Qn = 17,0 l/s Qmax = 29,4 l/s

### VG35 - ISO 2



Operating pressure :	5/2 Spring return	3,5 - 10 bar
	5/2 Double solenoid	1,5 - 10 bar
Working temperature :	electrical	-10°C to + 60°C
	pneumatic	-20°C to + 70°C
Flow (acc. to ISO 6358)		c = 8,3 NI/s x bar b = 0,20 Qn = 33,0 l/s Qmax = 58,0 l/s

### VG45 - ISO 3



Operating pressure :	5/2 Spring return	2,0 - 10 bar
	5/2 Double solenoid	1,0 - 10 bar
Working temperature :	electrical	-10°C to + 60°C
	pneumatic	-20°C to + 70°C
Flow (acc. to ISO 6358)		c = 15,5 NI/s x bar b = 0,20 Qn = 62,0 l/s Qmax = 108,0 l/s



## Material Specification and Characteristics

### 5599

Valve body	Acetal plastic
Spool	Acetal plastic
Spool seal	High-molecular thermoplastic
U-rings, O-rings	Nitrile rubber, NBR
Sleeves	Thermoplastic
Piston	Acetal plastic
End covers	Electrically anodised aluminium
Top plate	Electrically anodised aluminium
End seals	Nitrile rubber, NBR
Seal, top plate	Nitrile rubber, NBR
Manual changeover push-button	Acetal plastic
Throttle screws	Galvanised brass
Throttle inserts	Acetal plastic
End cover bolts	Stainless steel
Mounting screws	Galvanised steel (standard)
Manifolds	Electrically anodised aluminium

## Characteristics

Fluid	Air or inert gas filtered 40u class 5 according to ISO 8573-1 dry class 4 according to ISO 8573-1 non-lubricated, or lubricated
Storage temperature	-20° to + 70°
Vibration	2G 2 to 150Hz according to IEC 68-2-6
Shock	15G 11ms according to IEC 68-2-7
Manual override	Non-locking, other type on request
Solenoid : please see pages 16 - 20	

## Certification

EMC / CE mark.	According to EN 61 000-6-2
Dust & water protection	IP65 according to EN 60529

## Flexflow - ISO 5599 - Size 1 / 2 / 3

















### Order chart

VG   
 25 - 
 ERER - 
 D   
 B   
 49

Size	
<b>25</b>	Size 1 (ISO 5599)
<b>35</b>	Size 2 (ISO 5599)
<b>45</b>	Size 3 (ISO 5599)

Voltage	
DC	
<b>49</b>	24 V

Blank valve without coil

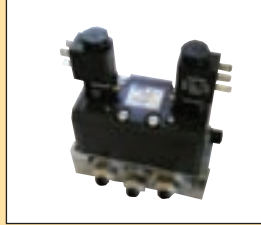
Valve type function		
Pneumatic pilot		
<b>AA</b>		5/2 double air
<b>AS</b>		5/2 spring return
<b>XAC</b>		5/3 double air vened centre
<b>AC</b>		5/3 double air closed centre
<b>YAC</b>		5/3 double air pressurised centre
Internal supply		
<b>ERER</b>		5/2 double solenoid
<b>ERS</b>		5/2 single solenoid spring return
<b>ERDR</b>		5/2 single solenoid, differential return
<b>ERC</b>		5/3 double solenoid vented centre
<b>XERC</b>		5/3 double solenoid closed centre
<b>YERC</b>		5/3 double solenoid pressurised center
External supply 14 & 12		
<b>EAEA</b>		5/2 double solenoid
<b>EAS</b>		5/2 single solenoid spring return
<b>EAC</b>		5/3 double solenoid vented centre
<b>XEAC</b>		5/3 double solenoid closed centre
<b>YEAC</b>		5/3 double solenoid pressurised centre

Solenoid enclosure	
<b>B</b>	22 mm 3-pin industrial
<b>N</b>	Solenoid less coil
<b>L</b>	CNOMO 3 -pin Din A


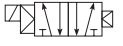

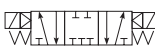
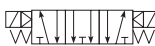
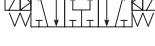
Overrides	
<b>A</b>	None
<b>B</b>	Flush non locking
<b>C</b>	Flush locking
<b>D</b>	Extended non locking

Shaded part numbers are standard







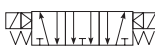
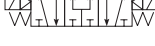
## Solenoid operated ISO valve fitted with 22 mm solenoid(s) 24 VDC

Solenoid plug/connector to be ordered separately. See page 19.

Symbol	Size	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	Weight kg	Order code		
<b>5/2 Valves</b>									
	1 - 43mm	Electrical signal	Spring	3,5	15/25	0.50	<b>VG25-ERS-DB49</b> <b>VG35-ERS-DB49</b> <b>VG45-ERS-DB49</b>		
	2 - 56mm			3,5	30/60	0.75			
	3 - 71mm			3,5	40/90	1.25			
	1 - 43mm	Electrical signal	Differential	3,5	15/25	0.50	<b>VG25-ERDR-DB49</b> <b>VG35-ERDR-DB49</b>		
	2 - 56mm			3,5	30/60	0.75			
	1 - 43mm	Electrical signal	Electrical signal	1,5/1,5	15/15	0.65	<b>VG25-ERER-DB49</b> <b>VG35-ERER-DB49</b> <b>VG45-ERER-DB49</b>		
	2 - 56mm			1,5/1,5	25/25	0.90			
	3 - 71mm			1,5/1,5	30/30	1.40			
<b>5/3 Valves</b>									
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.65	<b>VG25-ERC-DB49</b> <b>VG35-ERC-DB49</b> <b>VG45-ERC-DB49</b>		
	2 - 56mm			Closed center	Self centering	3,5		40/65	0.90
	3 - 71mm					3,5		50/100	1.40
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.65	<b>VG25-XERC-DB49</b> <b>VG35-XERC-DB49</b> <b>VG45-XERC-DB49</b>		
	2 - 56mm			Vented center	Self centering	3,5		40/65	0.90
	3 - 71mm					3,5		50/100	1.40
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.65	<b>VG25-YERC-DB49</b>		
		Pressure center	Self centering						



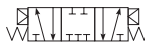
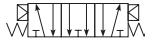
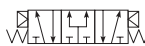
## Solenoid operated ISO valve fitted with 22 mm operator without coil


Coils, solenoid plug/connector to be ordered separately. See pages 18 and 19.

Symbol	Size	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	Weight kg	Order code		
<b>5/2 Valves</b>									
	1 - 43mm	Electrical signal	Spring	3,5	15/25	0.40	<b>VG25-ERS-DN</b> <b>VG35-ERS-DN</b> <b>VG45-ERS-DN</b>		
	2 - 56mm			3,5	30/60	0.65			
	3 - 71mm			3,5	40/90	1.15			
	1 - 43mm	Electrical signal	Differential	3,5	15/25	0.40	<b>VG25-ERDR-DN</b> <b>VG35-ERDR-DN</b>		
	2 - 56mm			3,5	30/60	0.65			
	1 - 43mm	Electrical signal	Electrical signal	1,5/1,5	15/15	0.55	<b>VG25-ERER-DN</b> <b>VG35-ERER-DN</b> <b>VG45-ERER-DN</b>		
	2 - 56mm			1,5/1,5	25/25	0.80			
	3 - 71mm			1,5/1,5	30/30	1.30			
<b>5/3 Valves</b>									
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.55	<b>VG25-ERC-DN</b> <b>VG35-ERC-DN</b> <b>VG45-ERC-DN</b>		
	2 - 56mm			Closed center	Self centering	3,5		40/65	0.80
	3 - 71mm					3,5		50/100	1.30
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.55	<b>VG25-XERC-DN</b> <b>VG35-XERC-DN</b> <b>VG45-XERC-DN</b>		
	2 - 56mm			Vented center	Self centering	3,5		40/65	0.80
	3 - 71mm					3,5		50/100	1.30
	1 - 43mm	Electrical signal	Electrical signal	3,5	25/30	0.55	<b>VG25-YERC-DN</b>		
		Pressure center	Self centering						

 Indicates stocked product.



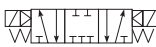
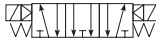
## Pneumatic operated ISO valve

Symbol	Size	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	Weight kg	Order code
<b>5/2 Valves</b>							
	1 - 43mm 2 - 56mm 3 - 71mm	Air signal	Spring	3,5/3,5 3,5/3,5 3,5/3,5	15/25 20/35 20/45	0.35 0.60 1.10	<b>VG25-AS</b> <b>VG35-AS</b> <b>VG45-AS</b>
	1 - 43mm 2 - 56mm 3 - 71mm	Air signal	Air signal	1,5/1,5 1,5/1,5 1,5/1,5	10/10 15/15 20/20	0.35 0.60 1.10	<b>VG25-AA</b> <b>VG35-AA</b> <b>VG45-AA</b>
<b>5/3 Valves</b>							
	1 - 43mm 2 - 56mm	Air signal Closed center	Air signal Self centering	3,5/3,5 3,5/3,5	15/25 20/30	0.35 0.60	<b>VG25-AC</b> <b>VG35-AC</b>
	1 - 43mm 2 - 56mm 3 - 71mm	Air signal Vented center	Air signal Self centering	3,5/3,5 3,5/3,5 3,5/3,5	15/25 20/30 20/35	0.35 0.60 1.10	<b>VG25-XAC</b> <b>VG35-XAC</b> <b>VG45-XAC</b>
	1 - 43mm	Air signal Pressure center	Air signal Self centering	3,5/3,5	15/25	0.35	<b>VG25-YAC</b>

 Indicates stocked product.



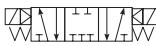
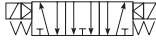
## Solenoid operated ISO valve fitted with CNOMO solenoid(s) 24 VDC

Solenoid plug/connector to be ordered separately. See page 19.

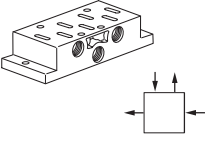
Symbol	Size	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	Weight kg	Order code
<b>5/2 Valves</b>							
	1 - 43mm	Electrical signal	Spring	3,5	15/25	0.50	<b>VG25-ERS-BL49</b>
	2 - 56mm			3,5	30/60	0.75	<b>VG35-ERS-BL49</b>
	3 - 71mm			3,5	40/90	1.25	<b>VG45-ERS-BL49</b>
	1 - 43mm	Electrical signal	Electrical signal	1,5/1,5	15/15	0.65	<b>VG25-ERER-BL49</b>
	2 - 56mm			1,5/1,5	25/25	0.90	<b>VG35-ERER-BL49</b>
	3 - 71mm			1,5/1,5	30/30	1.40	<b>VG45-ERER-BL49</b>
<b>5/3 Valves</b>							
	1 - 43mm	Electrical signal Closed center	Electrical signal Self centering	3,5	25/30	0.65	<b>VG25-ERC-BL49</b>
	2 - 56mm			3,5	40/65	0.90	<b>VG35-ERC-BL49</b>
	3 - 71mm			3,5	50/100	1.40	<b>VG45-ERC-BL49</b>
	1 - 43mm	Electrical signal Vented center	Electrical signal Self centering	3,5	25/30	0.65	<b>VG25-XERC-BL49</b>
	2 - 56mm			3,5	40/65	0.90	<b>VG35-XERC-BL49</b>
	3 - 71mm			3,5	50/100	1.40	<b>VG45-XERC-BL49</b>

## Solenoid operated ISO valve fitted with CNOMO operator without coil

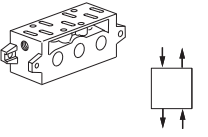
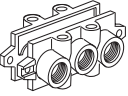
Coils, solenoid plug/connector to be ordered separately. See pages 18 et 19.

Symbol	Size	Actuation	Return	Signal pressure min. (bar) at 6 bar actua./return	Changeover time (ms) at 6 bar actua./return	Weight kg	Order code
<b>5/2 Valves</b>							
	1 - 43mm	Electrical signal	Spring	3,5	15/25	0.40	<b>VG25-ERS-BN</b>
	2 - 56mm			3,5	30/60	0.65	<b>VG35-ERS-BN</b>
	3 - 71mm			3,5	40/90	1.15	<b>VG45-ERS-BN</b>
	1 - 43mm	Electrical signal	Electrical signal	1,5/1,5	15/25	0.55	<b>VG25-ERER-BN</b>
	2 - 56mm			1,5/1,5	25/25	0.80	<b>VG35-ERER-BN</b>
	3 - 71mm			1,5/1,5	30/30	1.30	<b>VG45-ERER-BN</b>
<b>5/3 Valves</b>							
	1 - 43mm	Electrical signal Closed center	Electrical signal Self centering	3,5	25/30	0.55	<b>VG25-ERC-BN</b>
	2 - 56mm			3,5	40/65	0.80	<b>VG35-ERC-BN</b>
	3 - 71mm			3,5	50/100	1.30	<b>VG45-ERC-BN</b>
	1 - 43mm	Electrical signal Vented center	Electrical signal Self centering	3,5	25/30	0.55	<b>VG25-XRC-BN</b>
	2 - 56mm			3,5	40/65	0.80	<b>VG35-XRC-BN</b>
	3 - 71mm			3,5	50/100	1.30	<b>VG45-XRC-BN</b>

## VDMA Side Ported Subbases


Description	Size	Port size	Weight kg	Order code
 <p><b>Subbase VDMA</b> Side port according to VDMA</p>	1 - 43mm	G1/4	0.16	<b>P2N-VS512SD</b>
	2 - 56mm	G3/8	0.28	<b>P2N-WS513SD</b>
	3 - 71mm	G1/2	0.35	<b>P2N-YS514SD</b>

## VDMA Bottom Ported Manifold

Description	Size	Port size	Weight kg	Order code
 <p><b>Subbase VDMA Form C</b> Bottom port according to VDMA</p>	1 - 43mm	G1/4	0.24	<b>P2N-VM512MB</b>
	2 - 56mm	G3/8	0.36	<b>P2N-WM513MB</b>
	3 - 71mm	G1/2	0.70	<b>P2N-YM514MB</b>
<p><b>VDMA Transition plate</b> Size 1 to Size 3 <b>Kit includes:</b> Transition plate only</p>	1 to 3	G1/4		<b>P2N-VM500AK</b>
 <p><b>VDMA Form D - End plate</b> According to VDMA</p>	1 - 43mm	G3/8	0.21	<b>P2N-VM513ES</b>
	2 - 56mm	G1/2	0.36	<b>P2N-WM514ES</b>
	3 - 71mm	G1	0.68	<b>P2N-YM518ES</b>
<p><b>VDMA Isolation - Main galley</b> According to VDMA</p> <p><b>For use with 2 different pressures.</b></p>	1 - 43mm 2 - 56mm 3 - 71mm			<b>P2N-VK0P</b> <b>P2N-WK0P</b> <b>P2N-YK0P</b>

## Accessories


Description	Size	Port size	Weight kg	Order code
 <p><b>Blanking plate</b> <b>Kit includes:</b> 1 Blanking plate, Gasket and 4 Mounting bolts</p>	1 - 43mm	G1/4	0.10	<b>P2N-AA5B</b>
	2 - 56mm	G3/8	0.15	<b>P2N-BA5B</b>
	3 - 71mm	G1/2	0.20	<b>P2N-CA5B</b>

 Indicates stocked product.

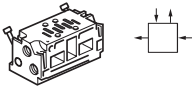
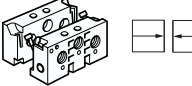
## Side ported subbases

Description	Size	Port size	Weight kg	Order code BSP	Order code NPT
 <b>Single subbase with side ports</b> 1 3 5 2 4 ports & 12 14	1 - 43mm	G1/4	0.16	<b>PL1-1/4-70</b>	<b>PL1-1/4-80</b>
	1 - 43mm	G3/8	0.16	<b>PL1-3/8-70</b>	
	2 - 56mm	G3/8	0.28	<b>PL2-3/8-70</b>	<b>PL2-3/8-80</b>
	2 - 56mm	G1/2		<b>P2N-HS514SS</b>	
	3 - 71mm	G1/2		<b>PL3-1/2-70</b>	<b>PL3-1/2-80</b>
	3 - 71mm	G3/4		<b>P2N-JS516SD</b>	

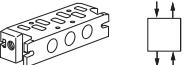

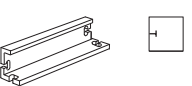
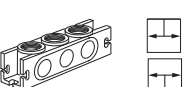

## Bottom ported subbases


Description	Size	Port size	Weight kg	Order code BSP	Order code NPT
 <b>Single subbase with bottom ports</b> 1 3 5 2 4 ports & 12 14	1 - 43mm	G1/4	0.37	<b>PD1-1/4-70</b>	<b>PD1-1/4-80</b>
	2 - 56mm	G3/8	0.59	<b>PD2-3/8-70</b>	<b>PD2-3/8-80</b>
	3 - 71mm	G1/2	0.59	<b>PD3-1/2-70</b>	

## Sizes 1 & 2 side ported manifold

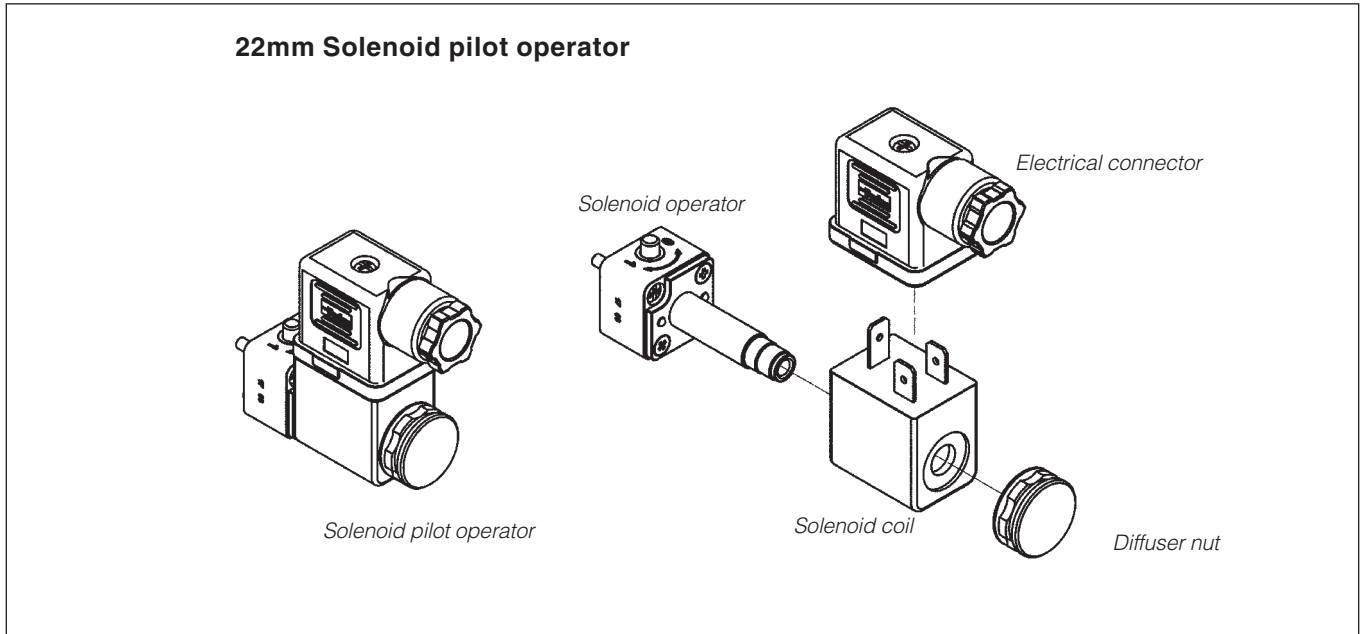
Description	Size	Port size	Weight kg	Order code
 <b>Manifold</b> Manifold with side port	1 - 43mm	G1/4	0.24	<b>P2N-EM512MD</b>
	2 - 56mm	G3/8	0.21	<b>P2N-FM513MD</b>
 <b>End</b> Side ported connecting kit for above manifold with side ports	1 - 43mm	G3/8	0.36	<b>P2N-EM513ES</b>
	2 - 56mm	G1/2	0.29	<b>P2N-FM514ES</b>

## Size 1 bottom ported manifold

Description	Size	Port size	Weight kg	Order code
 <b>Manifold</b> with bottom ports low profile	1 - 43mm	G1/4	0.20	<b>P2N-AM512MB</b>
	 <b>Connecting block</b> Top or bottom ported connecting block for above manifold "low profile"	1 - 43mm	G3/8	0.15
 <b>End</b> End piece for above manifold "low profile"		1 - 43mm	no	0.06
	 <b>Intermediate supply</b> Top or bottom ported intermediate supply for above manifold "low profile"	1 - 43mm	G3/8	0.14
 <b>Isolation plugs</b> Isolating seal for above manifold "low profile"		1 - 43mm		0.07
	<b>For use with 2 different pressures</b>			

 Indicates stocked product.

## 22 mm and CNOMO Solenoid pilot



## 22 mm and CNOMO Solenoid pilot

3/2 solenoid pilot operators are designed for piloting pneumatic control valves with compressed air or other inert gases. The P2F P operator is available for Normal operating pressures up to 10 bar having an outlet orifice 1.3mm and exhaust orifice 1.5 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.

### 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.

### Coils

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

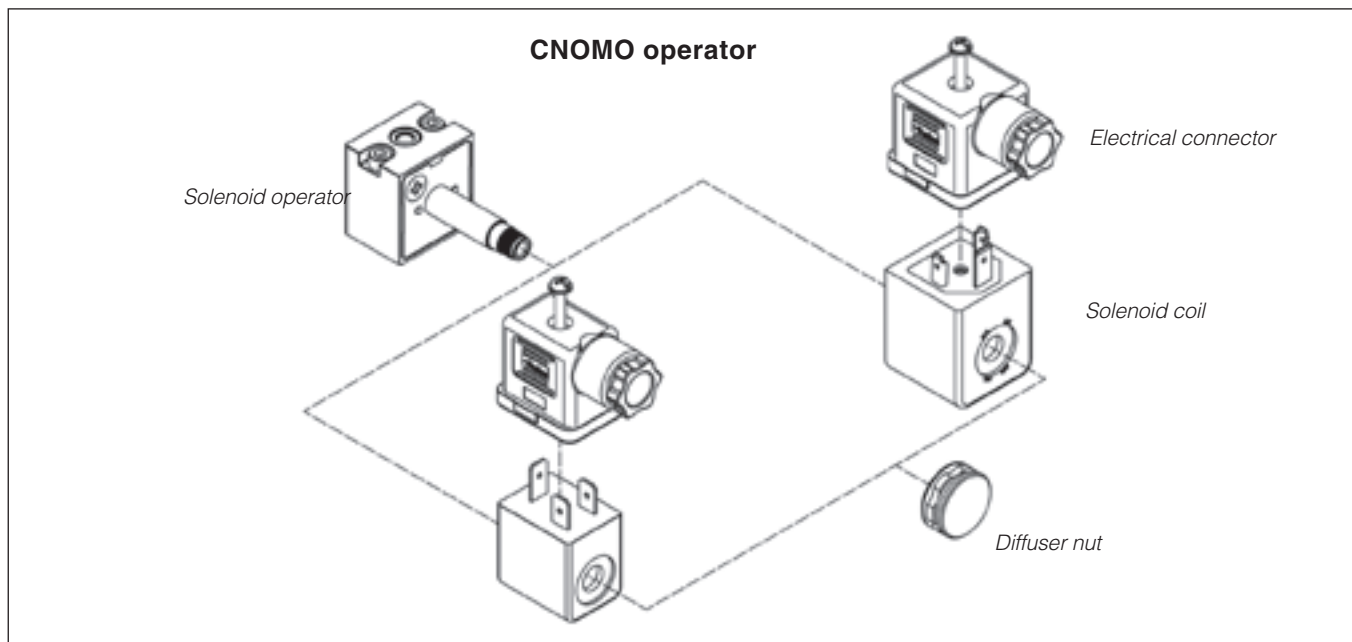
### Manual Override options

The pilot operators can be supplied with or without manual override. The standard manual override is the monostable (spring return) extended brass override. Alternatively the bistable (locking) override can be specified as an alternative for the Normal duty 10 bar option.

### Spares

Solenoid operators are available as spares complete with mounting screws and seals. Coils and connectors should be ordered separately.





## Common technical data

	<b>NC 22 mm operator</b> with 20 x 30 standard coil	<b>NC CNOMO operator</b> with 30 x 30 standard coil	<b>NC CNOMO operator</b> with 22 x 30 standard coil
Working pressure	0 to 10 bar	0 to 10 bar	0 to 10 bar
Ambient temperature	-10 °C to +50 °C	-10 °C to +60 °C (1)	-10 °C to +60 °C (1)
Port	1.3/1.5mm	1.3/1.5mm	1.3/1.5mm
Flow Qn at 6 bar input 1 bar press drop. 1-2 l/m	55	50	50
Flow Qn at 6 bar input 1 bar press drop. 2-3 l/m	70	70	70
Power, hold (DC)	4.8W	2.7W	4.8W
Power, surge (AC)	8.5VA	4.9VA	8.5VA
Voltage tolerance (Standard)	+/- 10%	+/- 10%	+/- 10%
Duty cycle	100%	100%	100%
Insulation class	F	F	F
Electric connection	Industrial	Din A	Industrial
Protection	IP65	IP65	IP65
Shock & Vibration	-	1g	1g
Approval	CSA/UL	CSA/UL (optional)	-
Working media	All neutral media such as compressed air and inert gases.		

(1) limited to 50°C if use with 100% duty cycle

## 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 (varistors). All connectors/cable plugs with LED's listed on page 34 include this type of circuit protection.

## Materials

### Pilot Valve

Body	Polyamide
Armature tube	Brass
Plunger & core	Corrosion resistant Cr-Ni steel
Seals	FKM (Viton™)
Screws	Stainless steel

### Coil

Encapsulation material	Thermoplastic
------------------------	---------------

## Solenoid coils with Din A or Industrial connection

Voltage	Order code Din A 30 x 30	Weight (kg) Standard	Order code Din A 30 x 30	Weight (kg) Mobile	Order code Industrial standard 22 x 30	Weight (kg)
Direct current						
12V DC	<b>P2FCA445</b>	0.105	<b>P2FCA447</b>	0.105	<b>P2FCB445</b>	0.093
24V DC	<b>P2FCA449</b>	0.105	<b>P2FCA448</b>	0.105	<b>P2FCB449</b>	0.093
48V DC	<b>P2FCA453*</b>	0.105	<b>P2FCA474</b>	0.105	<b>P2FCB451</b>	0.093
72V DC			<b>P2FCA470</b>	0.105		
96V DC			<b>P2FCA471</b>	0.105		
110V DC			<b>P2FCA472</b>	0.105		
Alternative current						
12V 50/60Hz	<b>P2FCA440</b>	0.105			<b>P2FCB440</b>	0.093
24V 50/60Hz	<b>P2FCA442</b>	0.105			<b>P2FCB442</b>	0.093
48V 50/60Hz	<b>P2FCA469#</b>	0.105				
110V 50Hz, 120V 60Hz	<b>P2FCA453</b>	0.105			<b>P2FCB453</b>	0.093
230V 50Hz, 230V 60Hz	<b>P2FCA457</b>	0.105			<b>P2FCB457</b>	0.093

\* P2FCA453 is compatible with 110 V AC and 48 V DC

# P2FCA469 is 24 V DC 6.8W or 48 V 50Hz 9.9 VA

## Solenoid coils with M12 connection

Voltage	Order code 30 x 30	Weight (kg)	Order code 22 x 30	Weight (kg)
Direct current				
24V DC	<b>P2FC6419</b>	0.065	<b>P2FC7419</b>	0.065

## Spare Solenoid Nuts

Valves requiring captured exhaust should be fitted with plastic knurled nut

Order code
<b>P2FNP</b>

Valves with vented exhaust are fitted with diffuser plastic nut

Order code
<b>P2FND</b>

## Spare Solenoid Operators


### Solenoid pilot operator NC

Description	Order code No manual override	Weight (kg)	Order code Non-lock manual override	Weight (kg)	Order code Locking manual override	Weight (kg)
22 mm			<b>P2FP13N4D</b>		<b>P2FP13N4C</b>	
CNOMO	<b>P2FP23N4A</b>	0.065	<b>P2FP23N4B</b>	0.065	<b>P2FP23N4C</b>	0.065

#### Note.




Solenoid pilot operators are fitted to the valve range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings.

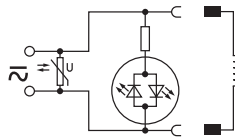
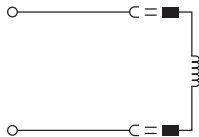
**Coils and connectors must be ordered separately.**

 Indicates stocked product.

# Connectors


## Solenoid Connectors / Cable Plugs EN175301-803

	Description	Order code 15mm Form C/ISO15217	Order code 22mm Industrial Form B	Order code 30mm Form A/ISO4400
With large headed screw suitable for mounting in inaccessible or recess position 	Standard IP65 without cable	<b>P8C-C</b>		
	24V DC LED and protection IP65	<b>P8C-C26C</b>		
	110V AC LED and protection IP65	<b>P8C-C21E</b>		
With standard screw 	Standard IP65 without flying lead	<b>P8C-D</b>	<b>3EV10V10</b>	<b>3EV290V10</b>
	With LED and protection 24V AC/DC	<b>P8C-D26C</b>	<b>3EV10V20-24</b>	<b>3EV290V20-24</b>
	With LED and protection 110V AC	<b>P8C-D21E</b>	<b>3EV10V20-110</b>	<b>3EV290V20-110</b>
	With LED and protection 230V AC		<b>3EV10V20-230</b>	<b>3EV290V20-230</b>
With cable 	Standard with 2m cable IP65	<b>P8L-C2</b>		
	Standard with 5m cable IP65	<b>P8L-C5</b>		
	24V AC/DC, 2m cable LED and protection IP65	<b>P8L-C226C</b>		
	24V AC/DC, 5m cable LED and protection IP65	<b>P8L-C526C</b>	<b>3EV10V20-24L5</b>	<b>3EV290V20-24L5</b>
	24V AC/DC, 10m cable LED and protection IP65	<b>P8L-CA26C</b>		
	110V AC/DC, 2m cable LED and protection IP65	<b>P8L-C221E</b>		
	110V AC/DC, 5m cable LED and protection IP65	<b>P8L-C521E</b>	<b>3EV10V20-110L5</b>	<b>3EV290V20-110L5</b>
	230V AC, 5m cable LED and protection IP65		<b>3EV10V20-230L5</b>	<b>3EV290V20-230L5</b>



<b>P8C-C</b>
<b>P8C-D</b>
<b>P8L-C2</b>
<b>P8L-C5</b>
<b>3EV10V10</b>
<b>3EV290V10</b>

<b>P8C-D26C</b>	<b>P8L-C226C</b>
<b>P8C-D21E</b>	<b>P8L-C526C</b>
<b>P8C-C26C</b>	<b>P8L-CA26C</b>
<b>P8C-C21E</b>	<b>P8L-C221E</b>
	<b>P8L-C521E</b>
<b>3EV10V20-24</b>	<b>3EV10V20-24L5</b>
<b>3EV10V20-110</b>	<b>3EV10V20-110L5</b>
<b>3EV10V20-230</b>	<b>3EV10V20-230L5</b>

 Indicates stocked product.

# Dimensions (mm)

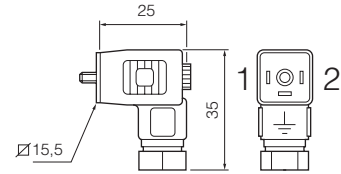
## Cable Plug Dimensions

Solenoid operators P2F - CNOMO - 22 x 30mm



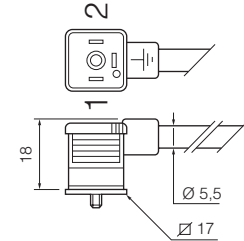
Cable plugs Form C

P8L-C2
P8L-C5
P8L-C226C
P8L-C526C
P8L-CA26C
P8L-C221E
P8L-C521E



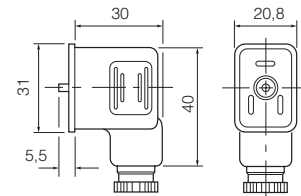
Cable plugs Form C with moulded cable

P8C-C
P8C-C26C
P8C-C21E
P8C-D
P8C-D26C
P8C-D21E



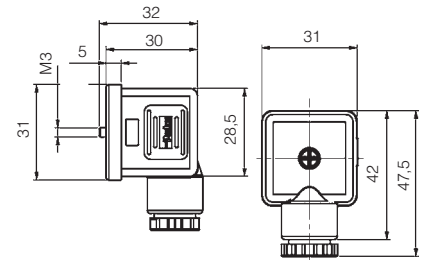
Cable plugs Form B

3EV10V10
3EV10V20-110
3EV10V20-230



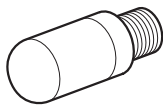
Cable plugs Form A

3EV290V10
3EV290V20-24



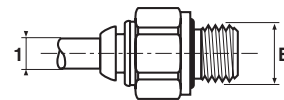
## Accessories

### Silencers



Port	Order code	Pack Qty
G1/8	P6M-PAB1	10
G1/4	P6M-PAB2	10
G3/8	P6M-PAB3	10
G1/2	P6M-PAB4	10

### Fittings

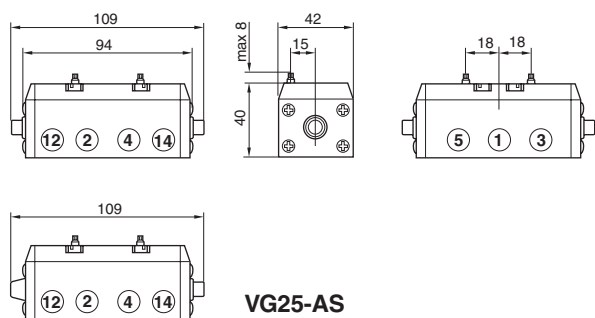


Male connector - BSPP

Tube dia 1	Thread B	Order code	Box Qty
4	1/8	F4PMB4-1/8	20
4	1/8	F4PMB4-1/8	20
6	1/8	F4PMB6-1/8	30
8	1/8	F4PB8-1/8	40
6	1/4	F4PMB6-1/4	30
8	1/4	F4PB8-1/4	30
10	1/4	F4PB10-1/4	20
12	1/4	F4PB12-1/4	10
8	3/8	F4PB8-3/8	20
10	3/8	F4PB10-3/8	20
12	3/8	F4PB12-3/8	10
14	3/8	F4PB14-3/8	10
10	1/2	F4PB10-1/2	10
12	1/2	F4PB12-1/2	10
14	1/2	F4PB14-1/2	10

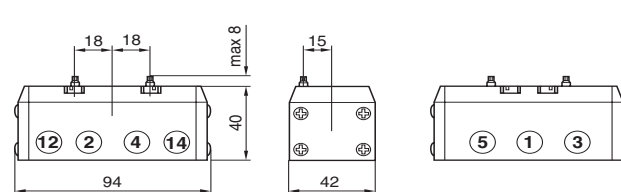
 Indicates stocked product.

## VG25-AA

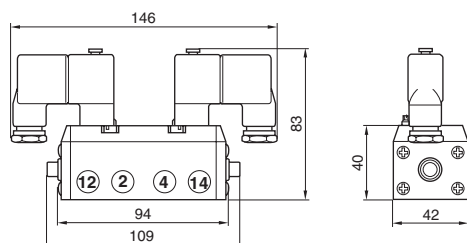


VG25-AS

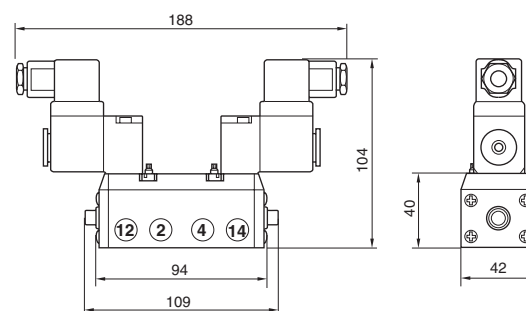
## VG25-AC, VG25-XAC, VG25-YAC



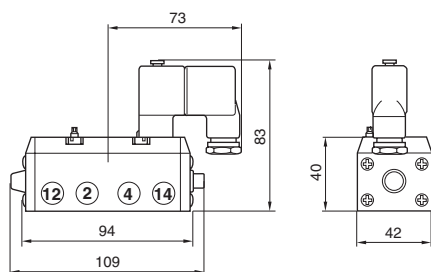
## VG25-ERER, VG25-EAEA



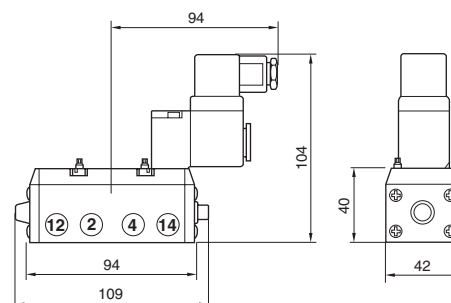
## VG25-RER, VG25-AEA with CNOMO



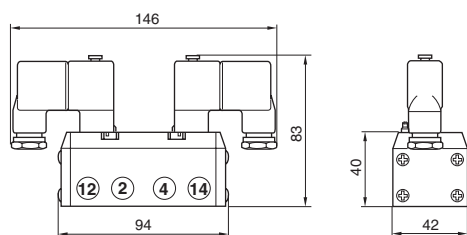
## VG25-ERS, VG25-EAS



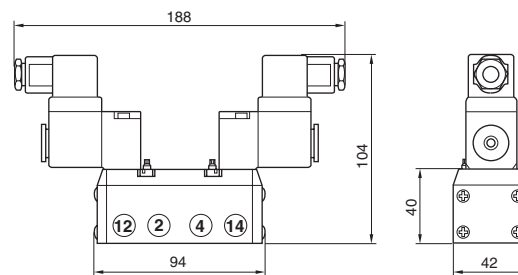
## VG25-ERS, VG25-EAS with CNOMO



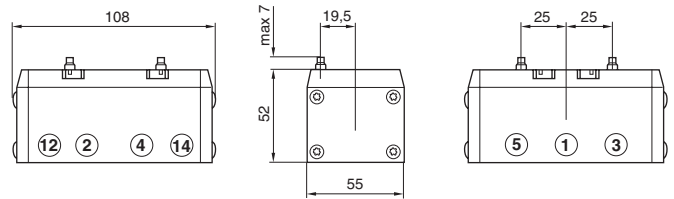
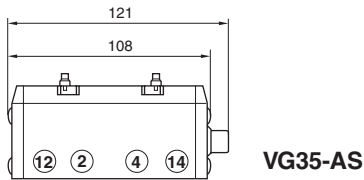
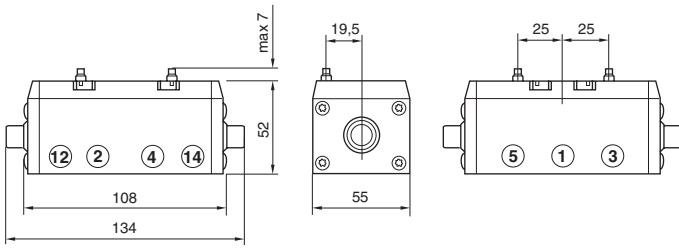
## VG25-(X,Y)ERC, VG25-(X)EAC



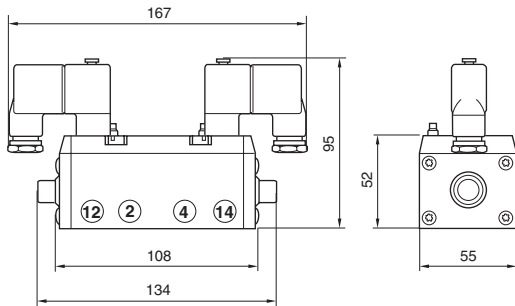
## VG25-A(X)ERC, VG25-(X)EAC with CNOMO



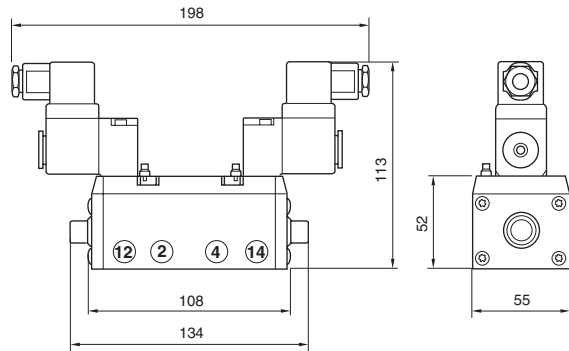
**VG35-AA**  
**VG35-AC, VG35-XAC, VG35-YAC**



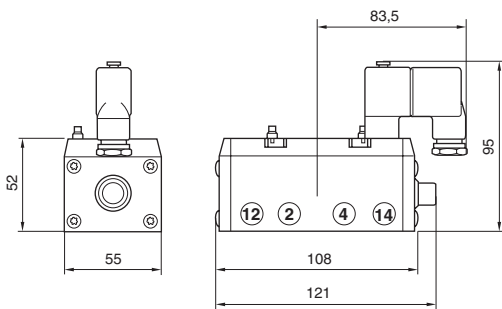
**VG35-ERER, VG35-EAEA**



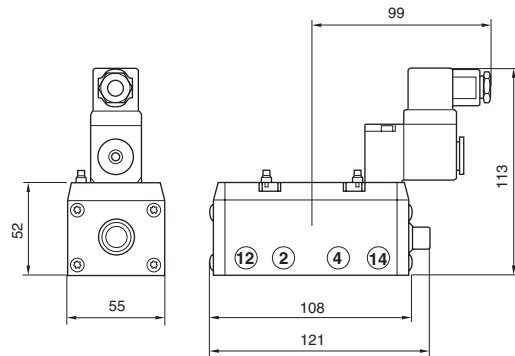
**VG35-RER, VG35-AEA with CNOMO**



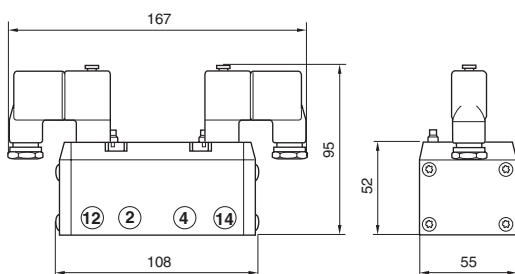
**VG35-ERS, VG35-ERDR, VG35-EAS**



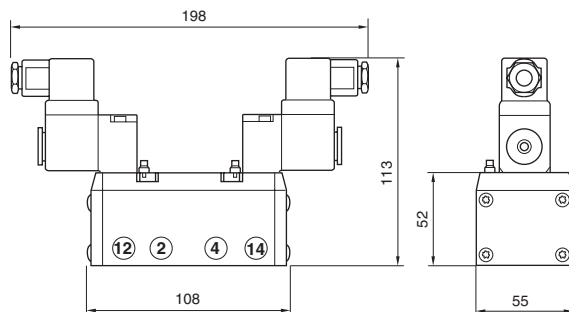
**VG35-ERS, VG35-EAS with CNOMO**



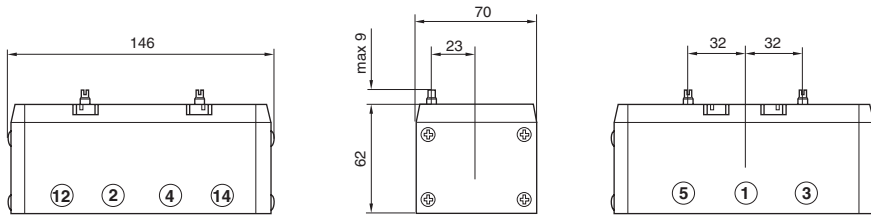
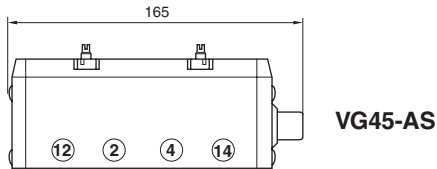
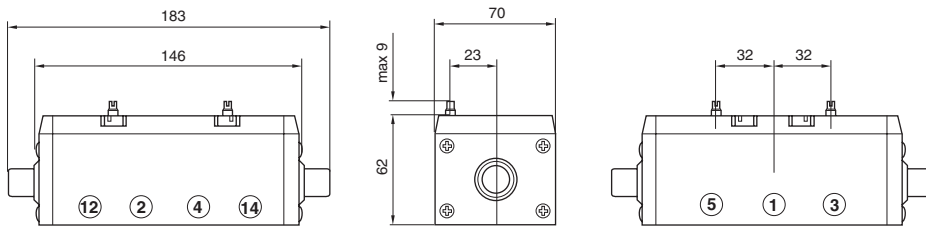
**VG35-(X,Y)ERC, VG35-(X)EAC**



**VG35-(X)ERC, VG35-EAC with CNOMO**

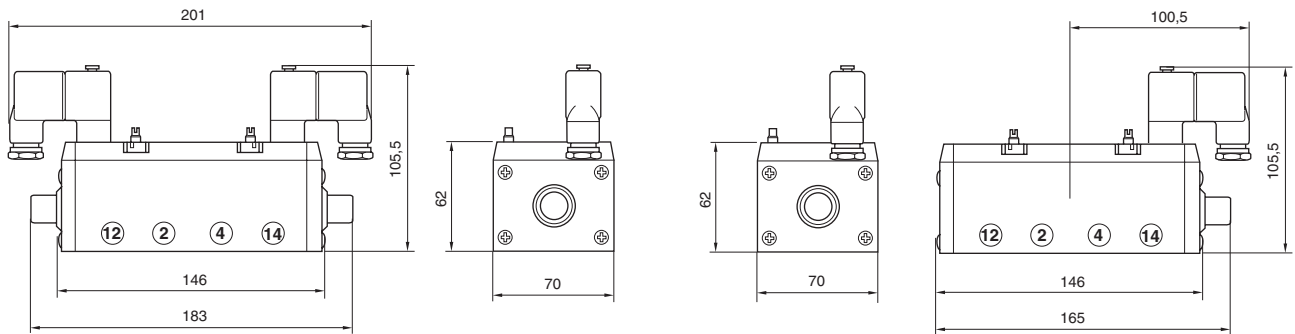


**VG45-AA**  
**VG45-AC, VG45-XAC**

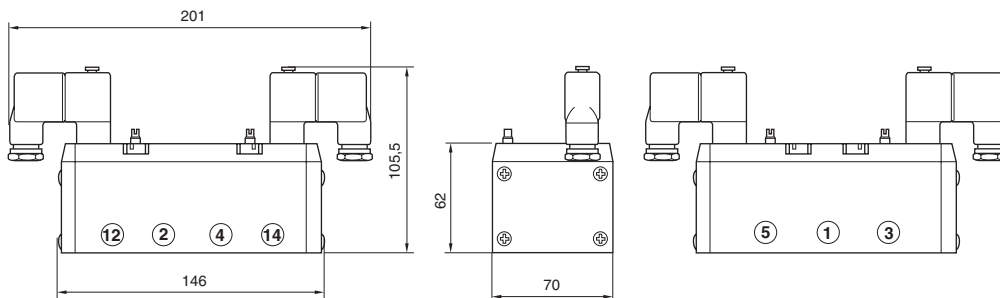


**VG45-ERER, VG45-EAEA**

**VG45-ERS, VG45-EAS**

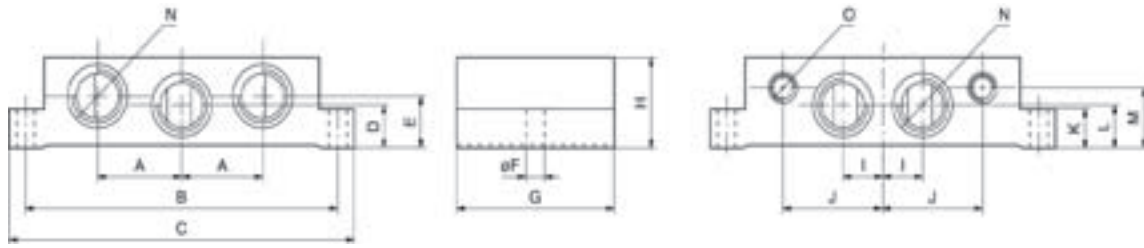


**VG45-ERC, VG45-XERC**



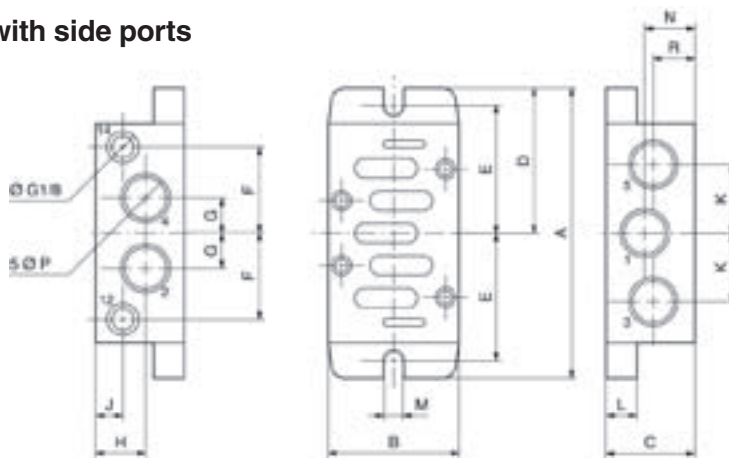
# Dimensions (mm)

## Single subbase with side ports according to VDMA



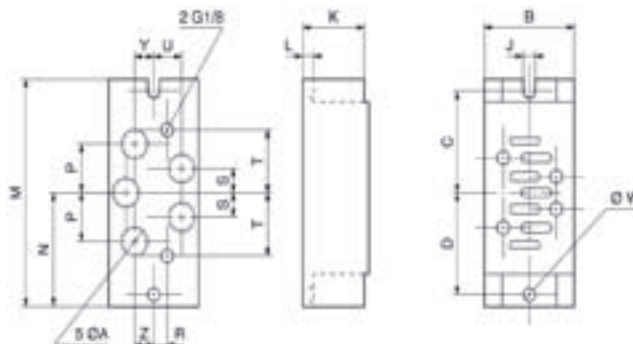
Order code	Size ISO	Port Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P2N-VS512SD	1	G1/4	21,5	98	110	11	20	5,5	48	32	12	29	10	11	23	G1/4	G1/8
P2N-WS513S	2	G3/8	28	112	124	14	26	6,6	56	40	15	37	13	14	30	G3/8	G1/8
P2N-YS514SD	3	G1/2	34	136	149	17	17	6,6	71	32	16	45	18	17	22	G1/2	G1/8

## Single subbase with side ports



Order code	ISO Size	ØP	A	B	C	D	E	F	G	H	J	K	L	M	N	R
PL1-1/4-70	1	G1/4	110	46	29	55	49	30	11	17,75	17,75	22	6	5,5	17,75	17,75
PL2-3/8-70	2	G3/8	124	56	37	62	55	37	14,5	22,5	14	28	6	5,5	22,5	14,5
P2N-JS516SD	3	G3/4	149	71	60	74,5	68	45	21	33	10	40	18	6,6	37,5	22,5

## Single subbase with bottom ports

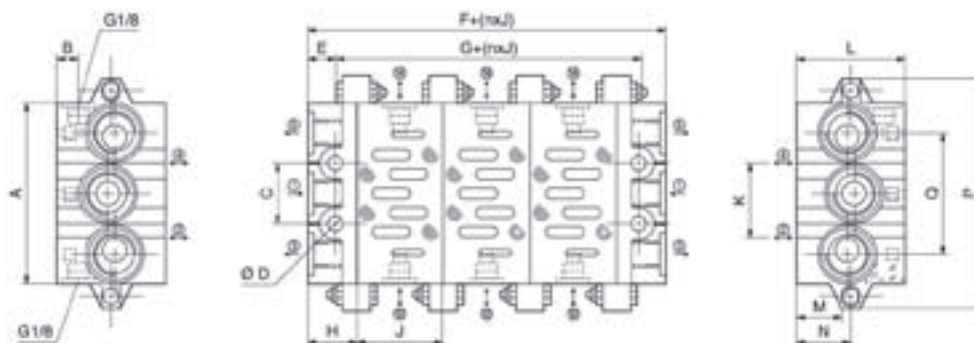


Order code	A	B	C	D	J	K	L	M	N	P	R	S	T	U	W	Y	Z
PD1-1/4-70	G1/4	46	49	49	5,5	29	6	110	55	22	10	11	30	10	5,5	10	10
PD2-3/8-70	G3/8	56	55	55	5,5	37	6	124	62	29	10	14,5	37	12,5	5,5	12,5	12,5
PD3-1/2-70	G1/2	77	68	68	6,6	32	18	149	74,5	34	10	17	45	17	6,5	17	17



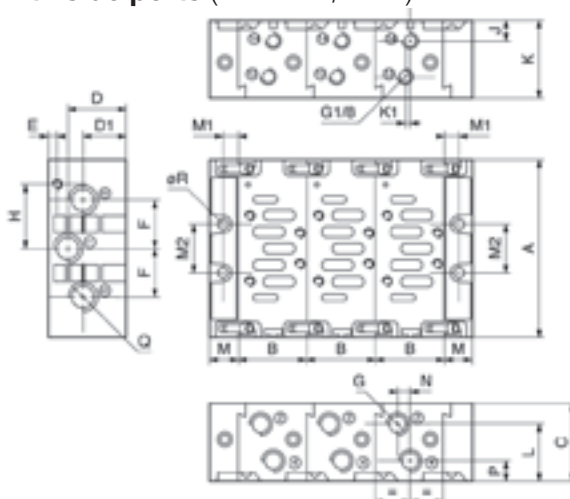
# Dimensions (mm)

## Manifold and end plates according to VDMA (P2N-VM / WM / YM)



ISO Size	Port 1, 3, 5	Port 2, 4	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
1	G3/8	G1/4	85	8,5	28	7	11	44	22	22	43	26	46	21	24	56	110
2	G1/2	G3/8	100	9	35	9	13	52	26	26	56	30	47	22	24	68	135
3	G1	G1/2	140	10	52	12	15	60	30	30	71	38	56	31	34	104	190

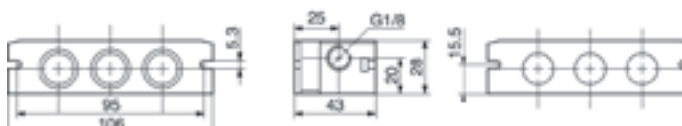
## Manifold and end plates with side ports (P2N-EM / FM..)



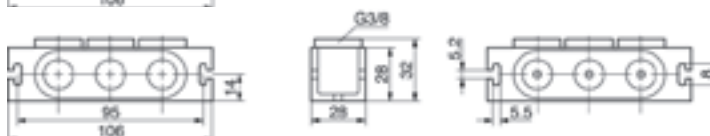
Order code	A	B	C	D	D1	E	F	G	H	J	K	K1	L	M	M1	M2	N	P	Q	R
P2N-EM ...	110	43	48	35,5	26,5	5,5	28	G1/4	36	15,5	35	3	32	20	11	28	12	12,5	G3/8	6
P2N-FM ...	129	56	60	44,5	35,5	6	34,5	G3/8	45	16	41,5	3	41	24	13	35	12,5	16	G1/2	8

## Manifold and end plates with bottom ports "low profile" (P2N-AM..)

Manifold P2N-AM512MB



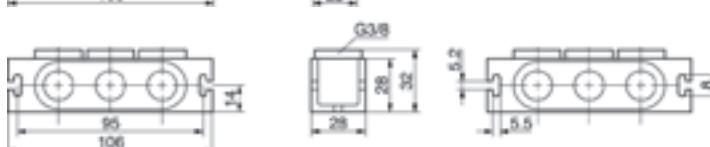
Connecting block P2N-AM513GT



End piece P2N-AM500J



Intermediate supply P2N-AM513BT







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