



Directional control valves

Flexflow Series

According to ISO 5599/1, size 1-4

Catalogue 9127007622GB-ul



Contents

General

Flexflow, sizes 1-3	4
Flexflow, size 4	5

Flexflow, sizes 1-3

Multiple installation	6-7
Common data, ordering key	8
Pneumatically actuated 5/2 and 5/3 valves	9
Electrically actuated 5/2 and 5/3 valves	10-11
Electrically actuated 5/2 and 5/3 valves, CNOMO	12-13
Complete valves	16-18

Flexflow, size 4

Common data, ordering key	14
Handlever operated 5/2 and 5/3 valves	15
Pneumatically actuated 5/2 and 5/3 valves	15
Electrically actuated 5/2 and 5/3 valves	15

Complete valves

ISO size 1	16
ISO size 2	17
ISO size 3	18

Accessories

Solenoid valves	19
Cable heads	19
Electric installation	20
Valvetronic 110	21
Cable heads with cable	22
Extension cables	22
Manifolds, ISO-1	23-24
Manifolds, ISO-2	25-26
Manifolds, ISO-3	25
Manifolds, ISO-4	26

Dimensions

Flexflow, size 1	27
Flexflow, size 2	28
Flexflow, size 3	29-30
Flexflow, size 4	31
Manifolds, ISO-1 - ISO-3	32-34
Manifolds, ISO-4	35



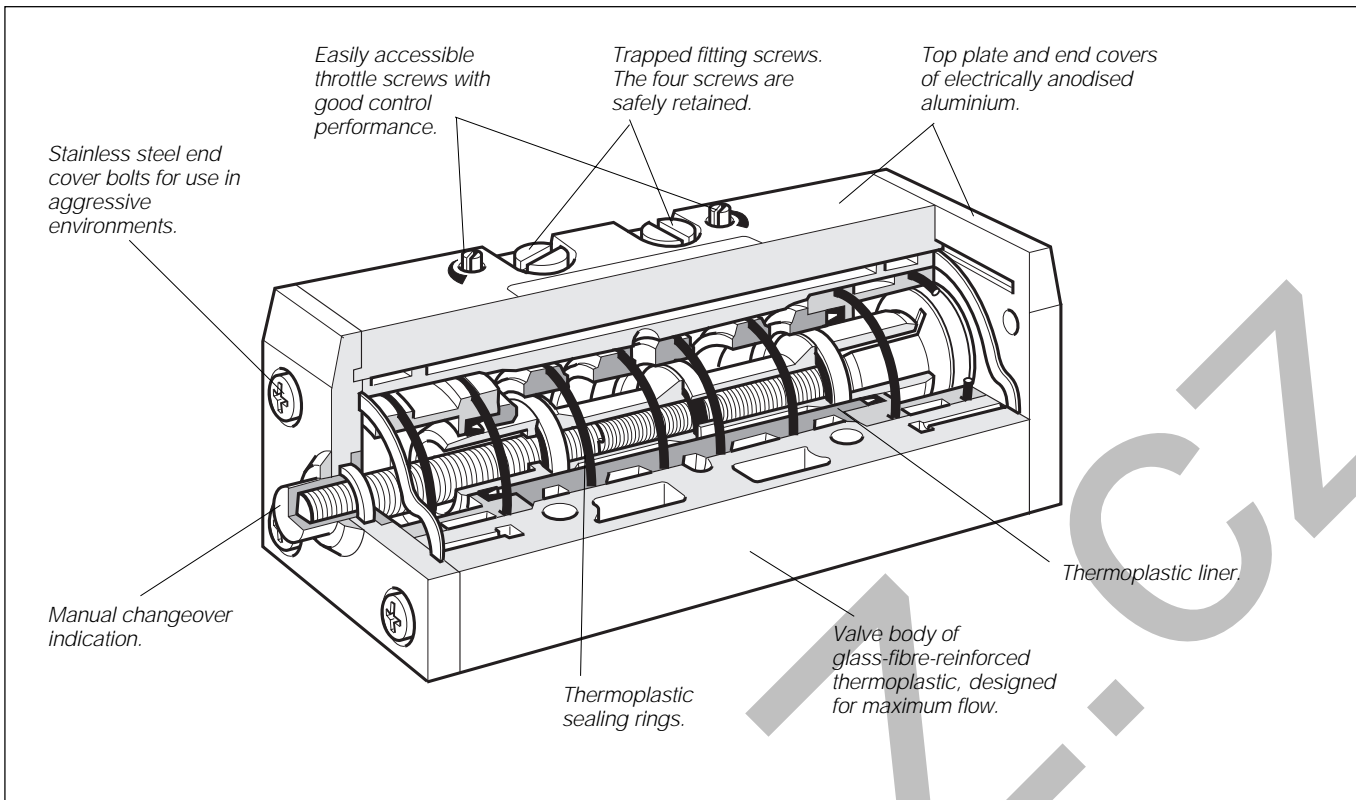
Important!

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.



Note!

All technical data in this catalogue is typical only. The air quality is decisive for the valve life: see ISO 8573.



Valve range

VG25, G1/4, ISO 5599/1, size 1

VG35, G3/8, ISO 5599/1, size 2

VG45, G1/2, ISO 5599/1, size 3

The VG valve range consists of 5-port working valves, conforming to ISO 5599/1, sizes 1, 2 and 3. The valves feature small dimensions and high performance for applications where high flow rates are required.

The range includes both 5/2 and 5/3 valves, for pneumatic or Electric operation. Two types of electrically operated pilot valves are available: the compact VE03 or the VG13 in accordance with CNOMO.

Three different manifold systems are available for the VG25 range: a compact ISO manifold, an ISO and VDMA 24345 manifold and a side-connection ISO manifold. For the VG35, there are ISO and VDMA manifolds and a side-connection ISO manifold, while for the VG45 there are ISO and VDMA manifolds.

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 flow capacity

The design principle - of a round spool and an injection-moulded thermoplastic valve body - has made it possible to provide large flow areas for maximum flow capacity.

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 changeover - indication

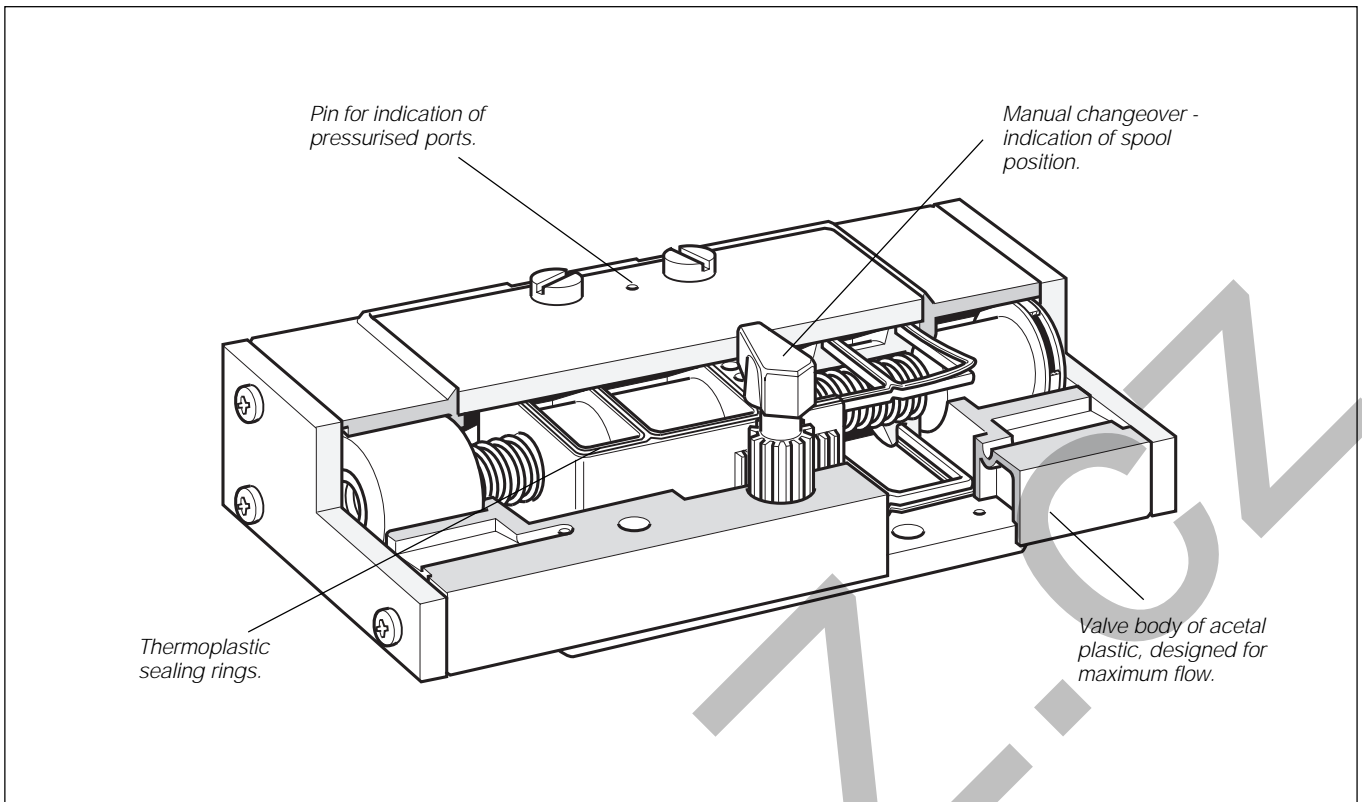
Commissioning and service are assisted by the incorporation of large, ergonomically designed pushbuttons for manual changeover as standard in all the valves in the range. This also makes it easy to see the position of the valve spools when fault-tracing.

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,

Common multiple mounting: VG25-VG35 and VG25-VG45

The use of adapter connectors between multiple manifolds for the different valve sizes makes it easy to assemble different valve sizes into a single valve block.



Valve range

VE45, G1/2 and G3/4, ISO 5599/1, size 4

The VE45 valve range consists of 5-port working valves, conforming to ISO 5599/1, size 4. The range includes both 5/2 and 5/3 valves, for pneumatic or Electric operation: both types can also be manually operated. Electrically operated pilot valves are from the VE13 range.

Manifolds are available as single manifolds and as two sizes of multiple mounting manifolds, for G1/2 and G3/4.

International standard

VE45 valves are fully interchangeable, in accordance with ISO 5599/1. In addition, G3/4 manifolds comply with the German VDMA 24345 standard.

Lubrication and maintenance-free for long life

The valves have a flat, symmetrical plastic spool, pressure-relieved and mounted between slider surfaces, ensuring certainty of operation and reliable starting even after long periods at rest. The sliding lubricant-loaded plastic seal reduces friction and eliminates the need for additional lubrication. This, coupled with the choice of materials, ensures a long life and reliable operation.

High flow capacity

The flat spool ensures minimum pressure loss, whether operating with compressed air or vacuum.

Manual changeover - indication

Commissioning and service are assisted by the ability to operate the valve manually by means of a knob. The position of the knob also indicates the position of the spool.

An indication pin shows which ports are pressurised.

Speed control

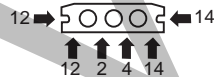
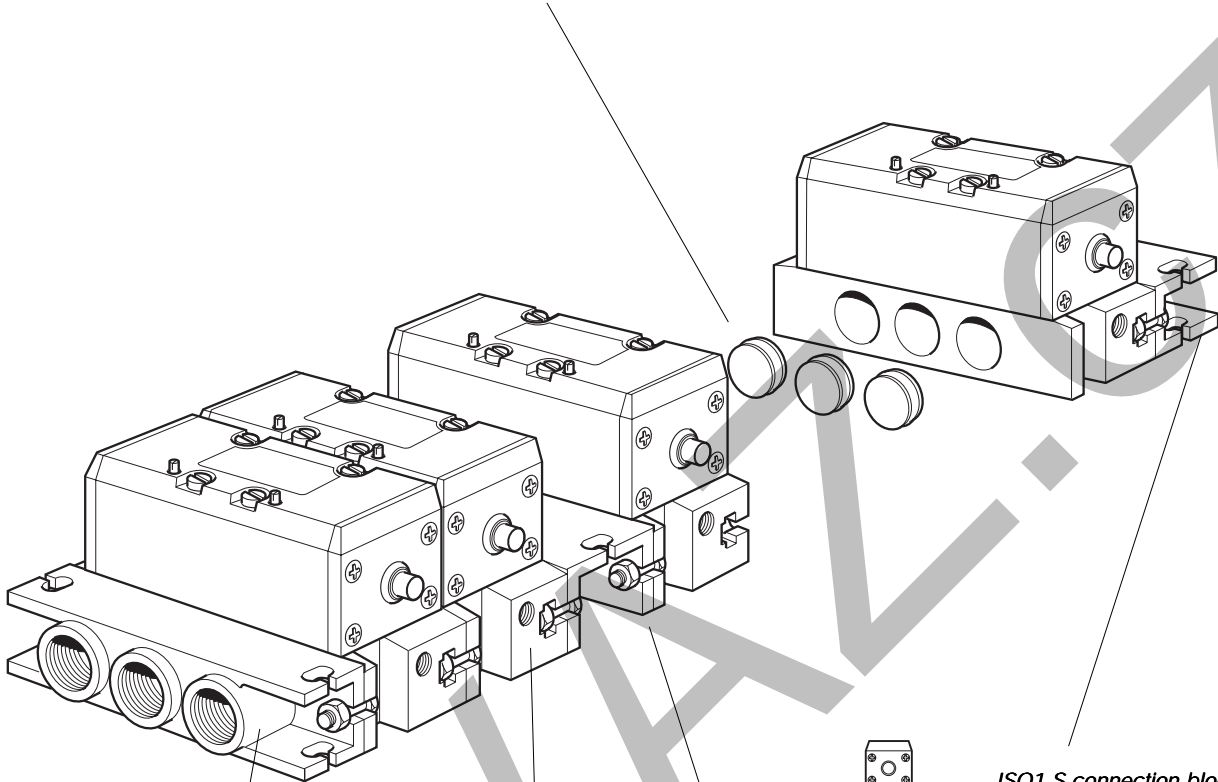
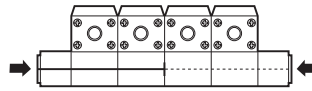
As standard, the compact G1/2 manifold incorporates easily accessible throttle valves in the exhaust ports. The G3/4 manifold conforms to VDMA 24345 and is designed for maximum flow rate.

Solenoid valves

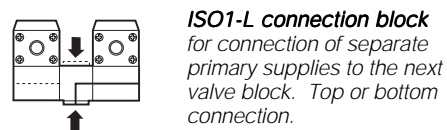
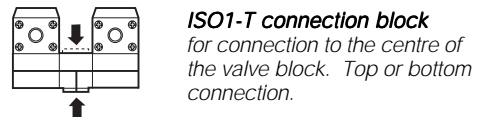
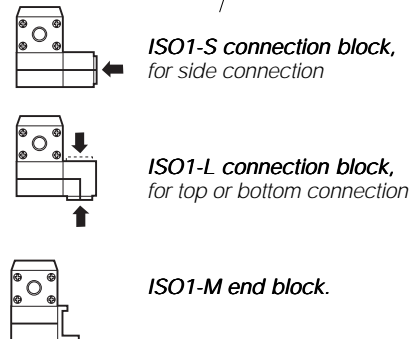
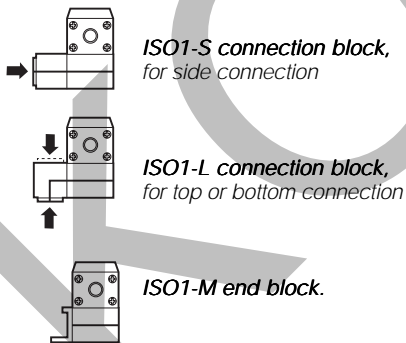
Solenoid valves and cable heads must be ordered separately. Use the VE13-E-S-6 as a pilot valve for the valves in this range. A pilot valve is required for each E in the valve order code. VE13 valves are available in standard (8 W) and low-power (2 W) versions.

Flexible multi-mounting, VG25

Isolation plugs
enable the use of two separate primary pressures in the same compact block.

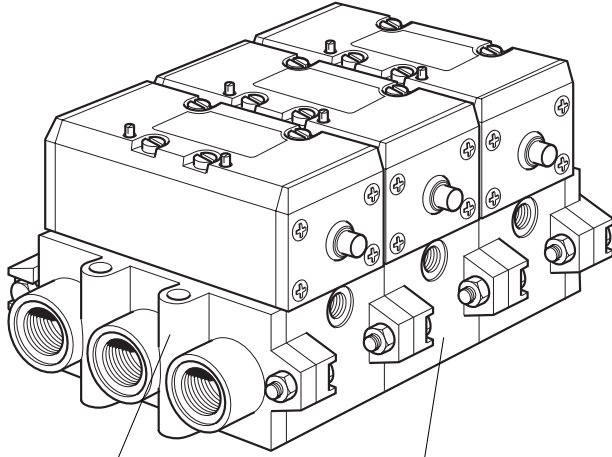


ISO1-M multiple manifold.
Parts 2 and 4 are connected from the bottom. Parts 12 and 14 can be connected from the side or from the bottom.



Multiple mounting with bottom connection
VG25, VG35 and VG45 to VDMA 24345

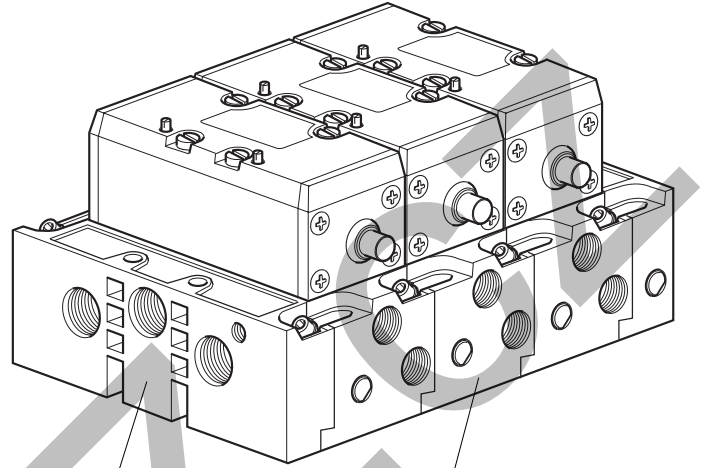
Multiple mounting with side connection
VG25 and VG35 to VDMA 24345



ISO-D connection set
 for side connection*

ISO-C multiple manifold
 Ports 2 and 4 connected
 from the bottom:
 ports 12 and 14 connected
 from the side.*

*
 1 for VG25
 2 for VG35
 3 for VG45



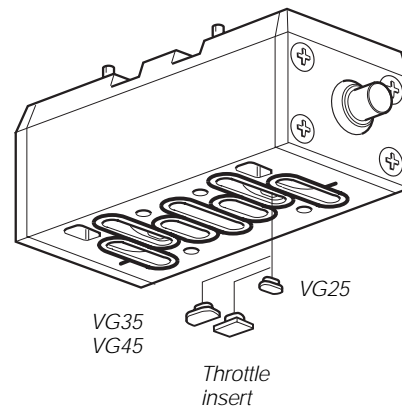
*Connection set
 P2N-EM513ES (VG25)
 P2N-FM514ES (VG35)
 For side connection*

*Multiple manifold
 P2N-EM512MD (VG25)
 P2N-FM513MD (VG35)
 Ports 2 and 4, as well as 12
 and 14, connected from the
 side.*

Throttle inserts

Fitting throttle inserts in exhaust ports 3 and 5 provides several stages of cylinder speed control.

Valve	Throttle insert	Flow as % of maximum flow
VG25	With throttle insert	0-60%
	Without throttle insert	-100%
VG35, VG45	With whole throttle insert	0-50%
	With half throttle insert	-80%
	Without throttle insert	-100%



*NB:
 The throttle
 inserts must be
 removed for
 maximum flow
 capacity.*

- High flow rates, rapid changeover
- Compact, corrosion-resistant low-weight design
- Integral speed control
- Manual spool changeover
- Wide range of manifolds (low-profile and VDMA)

Material specification

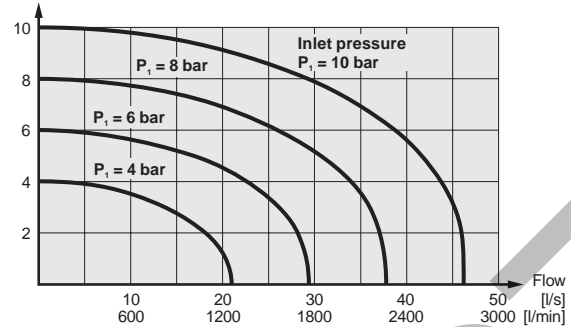
Valve body	Acetal plastic
Spool	Acetal plastic
Spool seal	High-molecular thermoplastic
U-rings, O-rings	Nitrile rubber, NBR
Sleeves	Thermoplastic
Piston	Acetal plastic
End covers	Electrically anodised aluminium
Top plate	Electrically anodised aluminium
End seals	Nitrile rubber, NBR
Seal, top plate	Nitrile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

Flow characteristic

Flow capacity to ISO 6358. All pressures = effective pressure

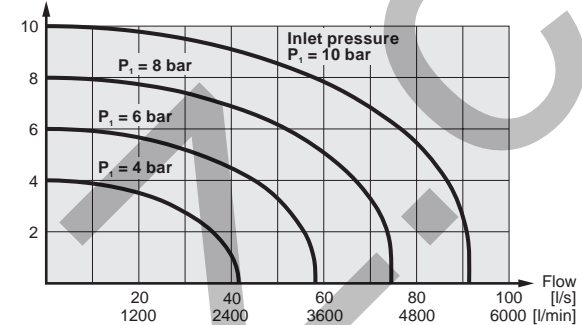
VG25

Outlet pressure P_2 [bar]



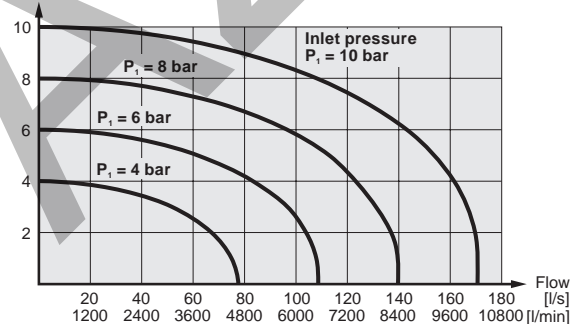
VG35

Outlet pressure P_2 [bar]



VG45











Outlet pressure P_2 [bar]



Ordering key

VG25-	A	X	ERER	2	C	Q	
ISO size	Centre position	Actuator / return	Voltage	Connector			
VG25- ISO size 1	Closed	AA External air	C 24 V	None			
VG35- ISO size 2	X Vented	AS External air/Spring	E 110 V	Q Connector with LED + VDR or diode			
VG45- ISO size 3	Y Pressurised	AC External air, self-centring	H 220 V				
	Z Closed/pressurised	ERS Electric, internal air/Spring	K 240 V				
	Solenoid	ERDR Electric, internal air/Differential air return					
	Mini solenoid	ERER Electric, internal air					
A CNOMO solenoid		ERC Electric, internal air, self-centring	Current				
		EAS Electric, external air/Spring	2 DC	Possible combinations: see pages 9 - 13.			
		EAEA Electric, external air	4 50/60 Hz				
		EAC Electric, external air, self-centring					

Data	VG25	VG35	VG45
Dimension	ISO 1	ISO 2	ISO 3
Operating pressure, max	10 bar	10 bar	10 bar
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Flow (acc. to ISO 6358)	C=4,2 NI/s x bar b=0,2 Qn=17 l/s Qmax=29,4 l/s Cv=1,04	C=8,3 NI/s x bar b=0,2 Qn=33 l/s Qmax=58,0 l/s Cv=2,02	C=15,5 NI/s x bar b=0,2 Qn=62 l/s Qmax=108,5 l/s Cv=3,80

	Symbol	ISO size	Actuator	Return	Signal pressure min, bar at 6 bar activ./return	Changeover time, ms at 6 bar activ./return	Port nominal size	Weight Kg	Order code
Pneumatically actuated 5/2 and 5/3 valves									
		1	Air signal	Air signal	1,5/1,5	10/10	G1/4	0,26	VG25-AA
		2			1,5/1,5	12/12	G3/8	0,48	VG35-AA
		3			1,5/1,5	15/15	G1/2	0,95	VG45-AA
		1	Air signal	Spring	3,5/-	15/25	G1/4	0,26	VG25-AS
		2			3,5/-	17/35	G3/8	0,48	VG35-AS
		3			3,5/-	20/45	G1/2	0,95	VG45-AS
		1	Air signal closed centre position	Air signal self-centring	3,5/3,5	15/20	G1/4	0,26	VG25-AC
		2			3,5/3,5	17/28	G3/8	0,48	VG35-AC
		3			3,5/3,5	18/35	G1/2	0,95	VG45-AC
		1	Air signal vented centre position	Air signal self-centring	3,5/3,5	15/20	G1/4	0,26	VG25-XAC
		2			3,5/3,5	17/28	G3/8	0,48	VG35-XAC
		3			3,5/3,5	18/35	G1/2	0,95	VG45-XAC
		1	Air signal pressurised centre position	Air signal self-centring	3,5/3,5	15/20	G1/4	0,26	VG25-YAC
		2			3,5/3,5	17/28	G3/8	0,48	VG35-YAC















Manifolds must be ordered separately: see pages 23-26.
Dimensions: see pages 27-30.

Data	VG25	VG35	VG45
Dimension	ISO 1	ISO 2	ISO 3
Operating pressure, max	10 bar	10 bar	10 bar
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Flow (acc. to ISO 6358)	C=4,2 NI/s x bar b=0,2 Qn=17 l/s Qmax=29,4 l/s Cv=1,04	C=8,3 NI/s x bar b=0,2 Qn=33 l/s Qmax=58,0 l/s Cv=2,02	C=15,5 NI/s x bar b=0,2 Qn=62 l/s Qmax=108,5 l/s Cv=3,80

Symbol	ISO size	Actuator	Return	Signal pressure min, bar at 6 bar activ./return	Changeover time, ms at 6 bar activ./return	Port nominal size	Weight Kg	Order code
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Electrically actuated 5/2 and 5/3 valves

Internal air supply to solenoid valve(s) via port 1 for VE03 miniature solenoid valve.

		1	Electric	Spring	3,5/-	15/25	G1/4	0,26	VG25-ERS
					3,5/-	28/58	G3/8	0,48	VG35-ERS
					3,5/-	40/90	G1/2	0,95	VG45-ERS
		1	Electric	Differential air signal	3,5/-	15/25	G1/4	0,26	VG25-ERDR
					3,5/-	28/58	G3/8	0,48	VG35-ERDR
					3,5/-	40/90	G1/2	0,95	VG45-ERDR
		1	Electric	Electric	1,5/1,5	15/15	G1/4	0,26	VG25-ERER
					1,5/1,5	22/22	G3/8	0,48	VG35-ERER
					1,5/1,5	28/28	G1/2	0,95	VG45-ERER
		1	Electric closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-ERC
					3,5/-	38/65	G3/8	0,48	VG35-ERC
					3,5/-	50/100	G1/2	0,95	VG45-ERC
		1	Electric vented centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-XERC
					3,5/-	38/65	G3/8	0,48	VG35-XERC
					3,5/-	50/100	G1/2	0,95	VG45-XERC
		1	Electric pressurised centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-YERC
					3,5/-	38/65	G3/8	0,48	VG35-YERC
		1	Electric pressurised/ closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-ZERC
					3,5/-	38/65	G3/8	0,48	VG35-ZERC
					3,5/-	50/100	G1/2	0,95	VG45-ZERC

Data	VG25	VG35	VG45
Dimension	ISO 1	ISO 2	ISO 3
Operating pressure, max	10 bar	10 bar	10 bar
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Flow (acc. to ISO 6358)	C=4,2 NI/s x bar b=0,2 Qn=17 l/s Qmax=29,4 l/s Cv=1,04	C=8,3 NI/s x bar b=0,2 Qn=33 l/s Qmax=58,0 l/s Cv=2,02	C=15,5 NI/s x bar b=0,2 Qn=62 l/s Qmax=108,5 l/s Cv=3,80

Symbol	ISO size	Actuator	Return	Signal pressure min, bar at 6 bar activ./return	Changeover time, ms at 6 bar activ./return	Port nominal size	Weight Kg	Order code
Electrically actuated 5/2 and 5/3 valves								
External air supply to solenoid valve(s) via port 14, or ports 14 and 12, for VE03 miniature solenoid valve.								
	1	Electric	Spring	3,5/-	15/25	G1/4	0,26	VG25-EAS
	2			3,5/-	28/58	G3/8	0,48	VG35-EAS
	3			3,5/-	40/90	G1/2	0,95	VG45-EAS
	1	Electric	Electric	1,5/1,5	15/15	G1/4	0,26	VG25-EAEA
	2			1,5/1,5	22/22	G3/8	0,48	VG35-EAEA
	3			1,5/1,5	28/28	G1/2	0,95	VG45-EAEA
	1	Electric closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-EAC
	2			3,5/-	38/65	G3/8	0,48	VG35-EAC
	1	Electric vented centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-XEAC
	2			3,5/-	38/65	G3/8	0,48	VG35-XEAC
	1	Electric pressurised/closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-ZEAC
	2			3,5/-	38/65	G3/8	0,48	VG35-ZEAC
	3			3,5/-	50/100	G1/2	0,95	VG45-ZEAC

Solenoid valves must be ordered separately: see page 19.
 Manifolds must be ordered separately: see pages 23-26.
 Complete valves: see pages 16-18.
 Dimensions: see pages 27-30.

Data	VG25	VG35	VG45
Dimension	ISO 1	ISO 2	ISO 3
Operating pressure, max	10 bar	10 bar	10 bar
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Flow (acc. to ISO 6358)	C=4,2 NI/s x bar b=0,2 Qn=17 l/s Qmax=29,4 l/s Cv=1,04	C=8,3 NI/s x bar b=0,2 Qn=33 l/s Qmax=58,0 l/s Cv=2,02	C=15,5 NI/s x bar b=0,2 Qn=62 l/s Qmax=108,5 l/s Cv=3,80

Symbol	ISO size	Actuator	Return	Signal pressure min, bar at 6 bar activ./return	Changeover time, ms at 6 bar activ./return	Port nominal size	Weight Kg	Order code
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Electrically actuated 5/2 and 5/3 valves

Internal air supply to solenoid valve(s) via port 1 for VG13 CNOMO solenoid valve.

		1	Electric	Spring	3,5/-	15/15	G1/4	0,26	VG25-AERS
		2			3,5/-	22/22	G3/8	0,48	VG35-AERS
		3			3,5/-	40/90	G1/2	0,95	VG45-AERS
		1	Electric	Electric	1,5/1,5	15/15	G1/4	0,26	VG25-AERER
		2			1,5/1,5	22/22	G3/8	0,48	VG35-AERER
		3			1,5/1,5	28/28	G1/2	0,95	VG45-AERER
		1	Electric closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,26	VG25-AERC
		2			3,5/-	38/65	G3/8	0,48	VG35-AERC
		3			3,5/-	50/100	G1/2	0,95	VG45-AERC
		1	Electric vented centre position	Electric self-centring	3,5/-	25/30	G1/4	0,25	VG25-AXERC
		2			3,5/-	38/65	G3/8	0,48	VG35-AXERC
		3			3,5/-	50/100	G1/2	0,95	VG45-AXERC









Solenoid valves must be ordered separately: see page 19.
Manifolds must be ordered separately: see pages 23-26.
Complete valves: see pages 16-18.
Dimensions: see pages 27-30.

Data	VG25	VG35	VG45
Dimension	ISO 1	ISO 2	ISO 3
Operating pressure, max	10 bar	10 bar	10 bar
Operating temperature	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C
Flow (acc. to ISO 6358)	C=4,2 NI/s x bar b=0,2 Qn=17 l/s Qmax=29,4 l/s Cv=1,04	C=8,3 NI/s x bar b=0,2 Qn=33 l/s Qmax=58,0 l/s Cv=2,02	C=15,5 NI/s x bar b=0,2 Qn=62 l/s Qmax=108,5 l/s Cv=3,80

Symbol	ISO size	Actuator	Return	Signal pressure min, bar at 6 bar activ./return	Changeover time, ms at 6 bar activ./return	Port nominal size	Weight Kg	Order code
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Electrically actuated 5/2 and 5/3 valves

External air supply to solenoid valve(s) via port 14, or ports 14 and 12, for VG13 CNOMO solenoid valve.

		1	Electric	Spring	3,5/-	15/15	G1/4	0,26	VG25-AEAS
		2			3,5/-	22/22	G3/8	0,48	VG35-AEAS
		3			3,5/-	40/90	G1/2	0,95	VG45-AEAS
		1	Electric	Electric	1,5/1,5	15/15	G1/4	0,26	VG25-AEAEA
		2			1,5/1,5	22/22	G3/8	0,48	VG35-AEAEA
		3			1,5/1,5	28/28	G1/2	0,95	VG45-AEAEA
		1	Electric closed centre position	Electric self-centring	3,5/-	25/30	G1/4	0,25	VG25-AEAC
		2			3,5/-	38/65	G3/8	0,48	VG35-AEAC
		1	Electric vented centre position	Electric self-centring	3,5/-	25/30	G1/4	0,25	VG25-AXEAC
		2			3,5/-	25/30	G3/8	0,48	VG35-AXEAC

Solenoid valves must be ordered separately: see page 19.
Manifolds must be ordered separately: see pages 23-26.
Complete valves: see pages 16-18.
Dimensions: see pages 27-30.