

Valves and Valve Islands



HOERBIGER
ORIGA

The HOERBIGER-ORIGA Valves S9-G1/8 to G1/2 are also available for use in potentially explosive atmospheres. The valves are to the ATEX Certification 94/9/EG (ATEX 95) for Pneumatic Components.

For the different classifications and details please see the tables of characteristics and data for the specific series.

You will find further information on the ATEX Directives in our brochure A3P060E

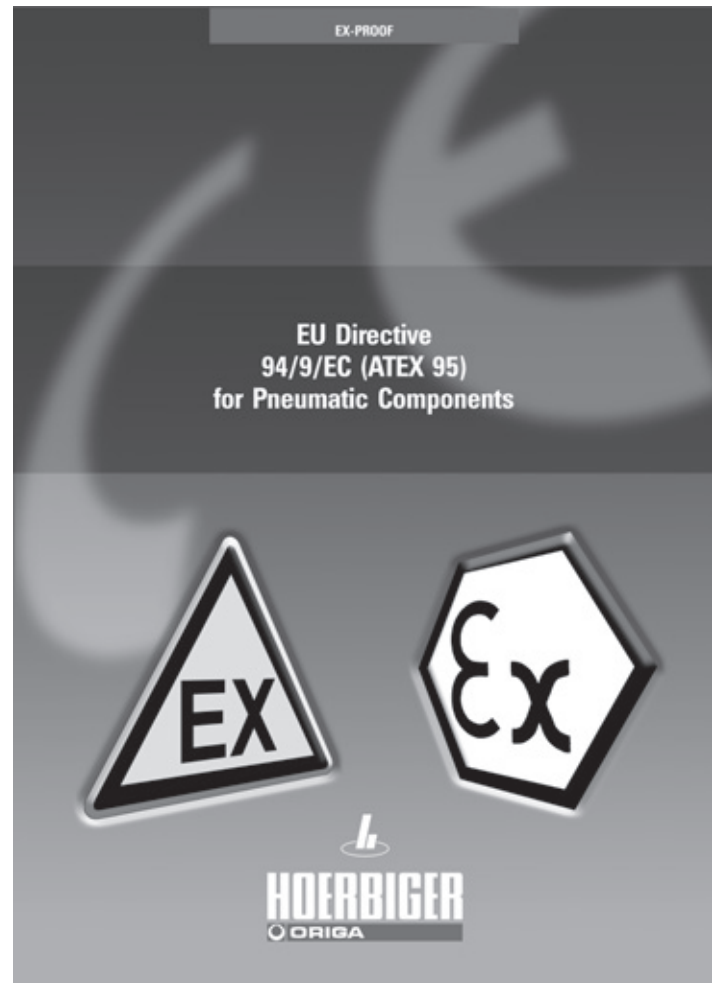
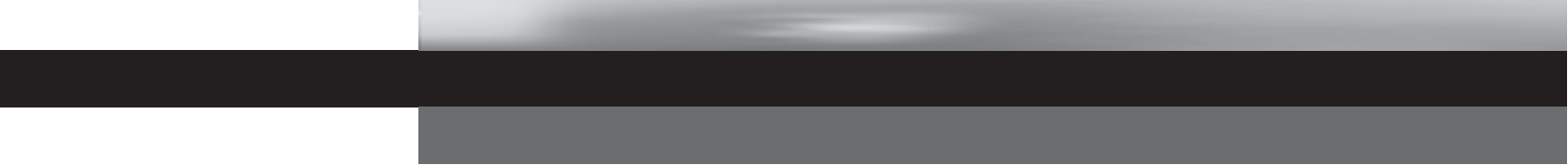


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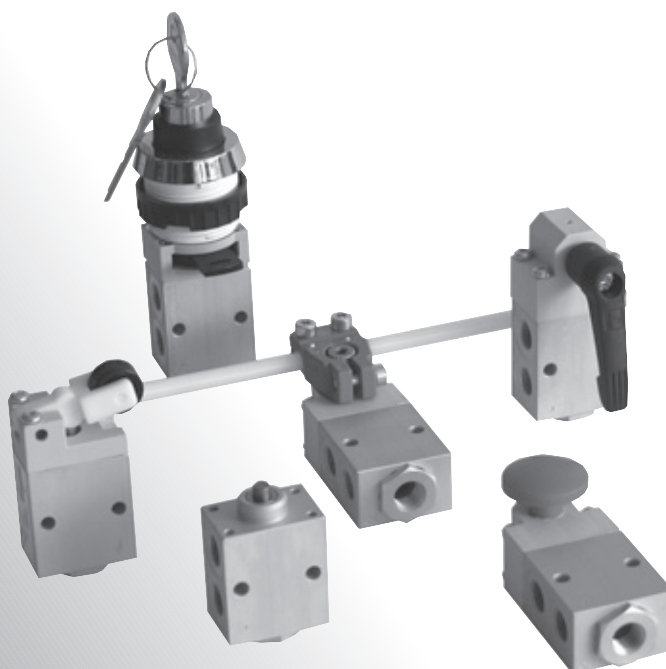
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	<p>Valve Islands * 75-83 Series IM-20, G1/8, G1/4 Version with Multipole Connection Version with Bus Connection * Neutral purchase order form for valve islands see page 129</p>				



Directional Control Valves – Series K9-G1/8

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Directional Control Valves – Series K9-G1/8

Characteristics

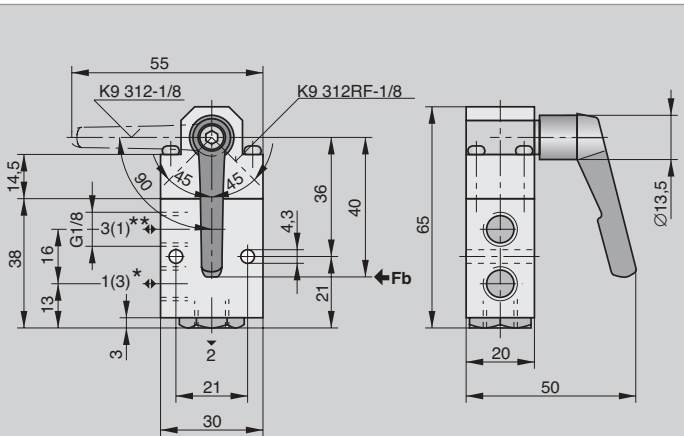
Characteristics – Series K9

Characteristics	Symbol	Unit	Description
General Features			
System			Poppet Valve
Mounting			2 Screws M4
Tube connection			Thread
Port size			G1/8
Weight (mass)		kg	see page 7
Installation			in any position
Ambient temperature range	$\vartheta_{\min/\max}$	°C	-10 to +55
Medium temperature range	$\vartheta_{\min/\max}$	°C	+5* to +60
Medium			filtered and lubricated or filtered and unlubricated air
Lubrication			none or oil mist lubrication
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	$p_{\min/\max}$	bar	0 – 10
Nominal flow	Q_N	l/min	350
Flow direction			1 → 2 normally closed 3 → 2 normally open
Actuation			
Actuation			manual and mechanical actuated (see page 7-10)
Stroke		mm	1,5 – 3
Actuation force	F_b	N	(see page 7)

* -10°C when using dry compressed air

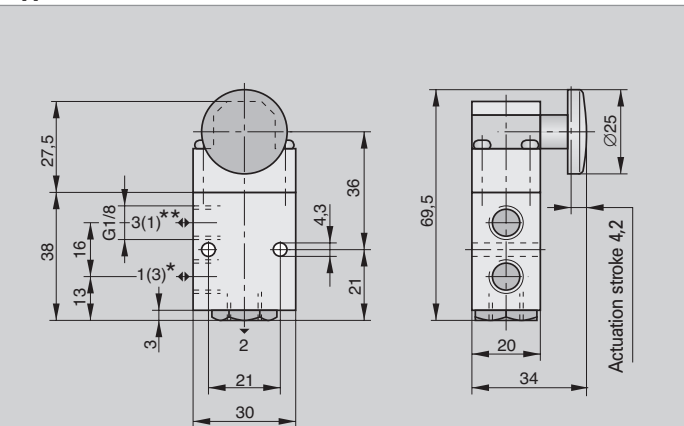
Dimensions

Rotary Lever Type: K9 312..-1/8



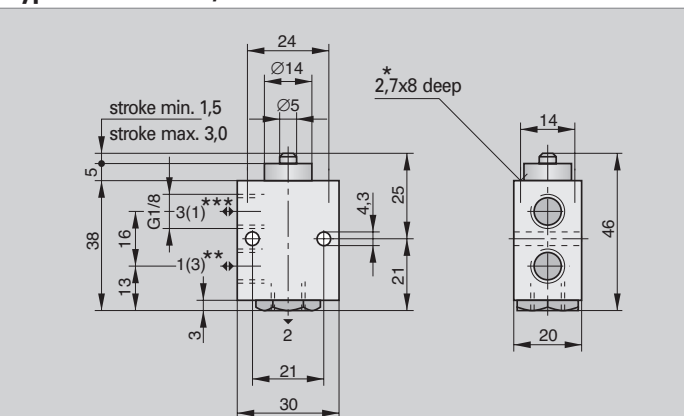
* = P when used as "normally closed"
** = P when used as "normally open"

Pushbutton Type: K9 314RF-1/8

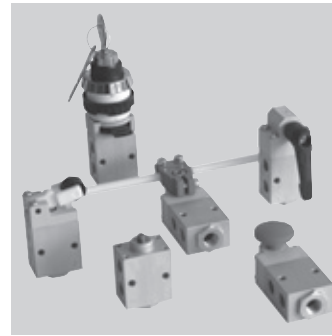


* = P when used as "normally closed"
** = P when used as "normally open"

Plunger Type: K9 323RF-1/8



* Use self-tapping screw CM 3x.. DIN 7500
** = P when used as "normally closed"
*** = P when used as "normally open"



3/2 Way Valves Series K9 G1/8

Actuation:

- Rotary lever, indexed
- Rotary lever, spring return
- Rotary lever, indexed, secured in two positions
- Pushbutton
- Cam operation
- Toggle cam operation
- Plunger operated
- Cam operated, free cam left or free cam right
- Pivoted lever
- Pedal
- Actuators for panel mounting

Versions:

For panel mounting, actuators correspond to internationally standardized mounting dimensions to DIN 43696 (Ø22, Ø30 mm)

Non-overlapping poppet valve with low actuating force and short response time. Applicable as normally closed or normally open valve (see drawing).

Actuation Forces, Rotation Angles and Weight

Description	Type	Actuation force (N)	Rotation angle	Weight mass (kg)
Rotary lever, indexed	K9 312-1/8	4.5	±45°, 90°	0.110
Rotary lever, spring return	K9 312RF-1/8	4.5	±45°, 90°	0.110
Rotary lever, indexed secured in both positions	K9 312S-1/8	4.5	±45°, 90°	0.110
Pushbutton	K9 314RF-1/8	25	-	0.075
Cam operation	K9 321RF-1/8	11	-	0.070
Toggle cam operation	K9 324RF-1/8	5	±40°	0.120
Plunger operated	K9 323RF-1/8	32	-	0.050
Cam operated free cam left	K9 325RF-1/8	5	±40°	0.120
Cam operated free cam right	K9 326RF-1/8	5	±40°	0.120
Pivoted lever	K9 329RF-1/8	2*	±40°	0.115
Pedal	K9 331RF-1/8	12	-	0.800
Basic valve for panel mounting actuators	K9 390RF-1/8	35	-	0.060

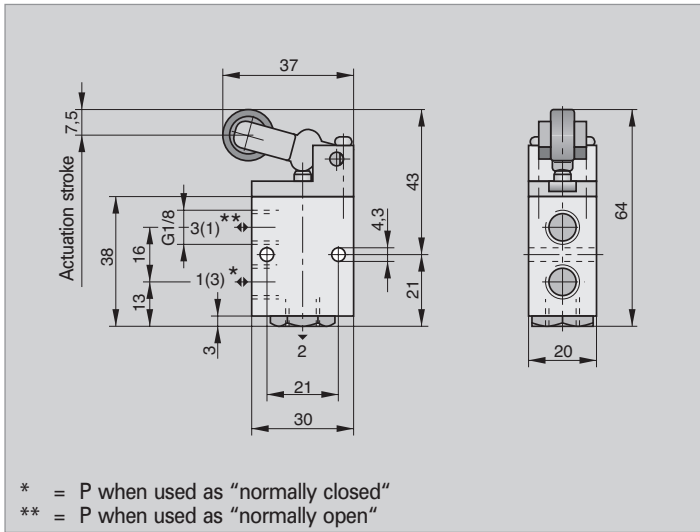
* at a distance of 100 mm from fulcrum

Order Instructions see page 11, Characteristics see page 6

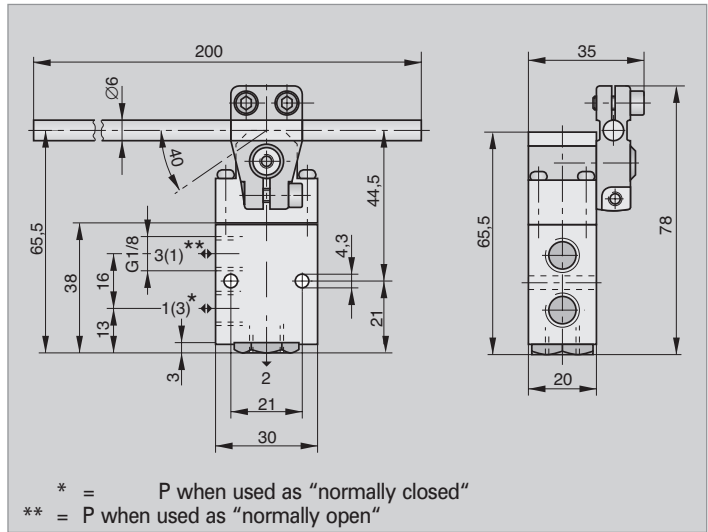
Directional Control Valves – Series K9-G1/8

Dimensions

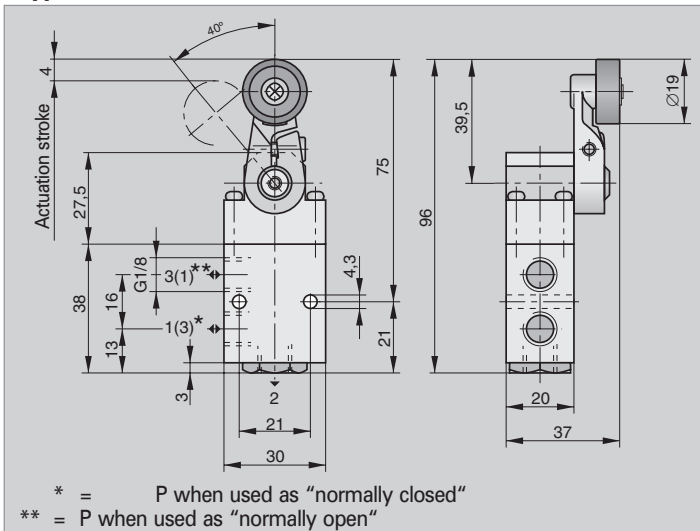
Cam operation
Type: K9 321RF-1/8



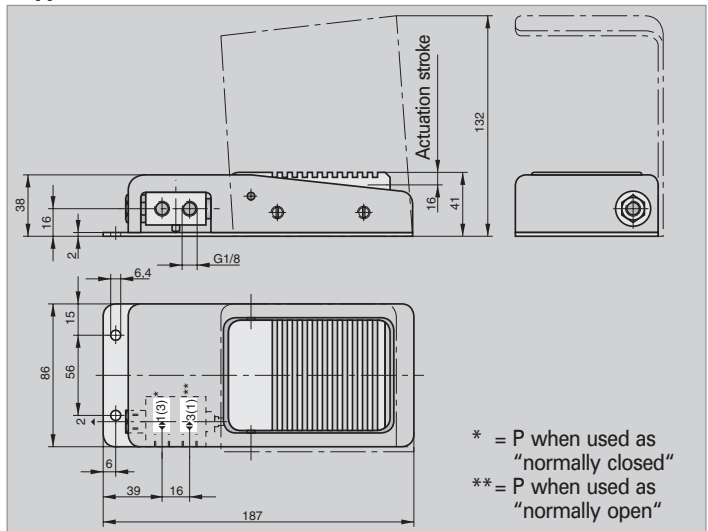
Pivoted lever
Type: K9 329RF-1/8



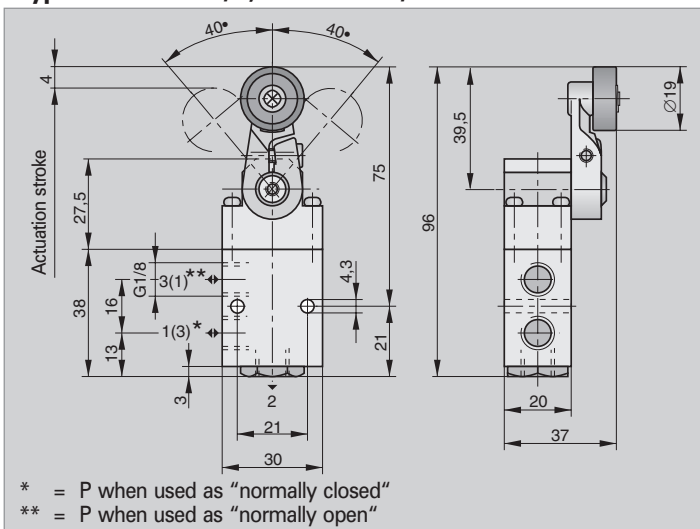
Toggle cam operated
Type: K9 324RF-1/8



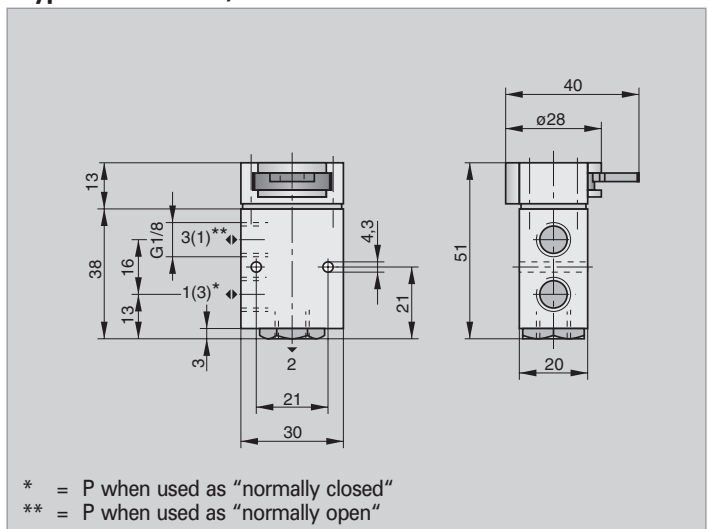
Pedal
Type: K9 331RF-1/8



Cam operated, free cam left and free cam right
Type: K9 325RF-1/8, K9 326RF-1/8



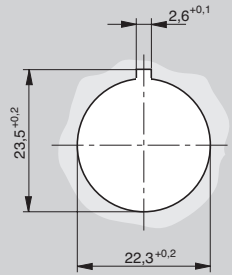
Basic valve with adaptor for panel mounting
Type: K9 390RF-1/8



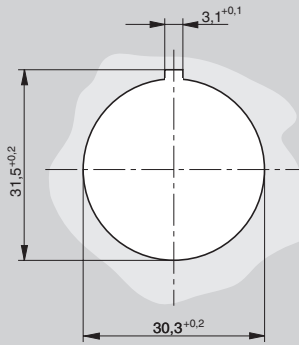
Order Instructions see page 11, Characteristics see page 6

**Mounting holes
for mounting diameters 22 and 30 mm**

Mounting diameter 22 mm

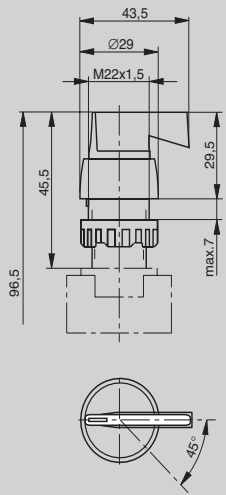


Mounting diameter 30 mm

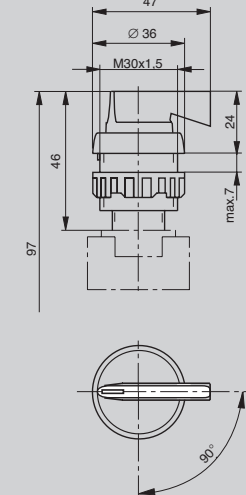


**Rotary lever, indexed
Type: 12T-22, 12T-30**

Mounting diameter 22 mm

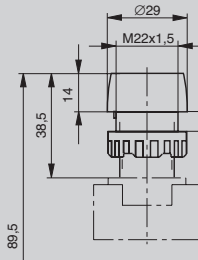


Mounting diameter 30 mm

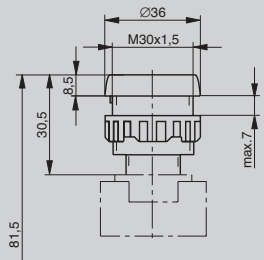


**Pushbutton
Type: 13T-RF-22, 13T-RF-30**

Mounting diameter 22 mm

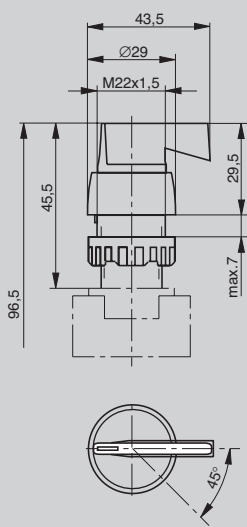


Mounting diameter 30 mm

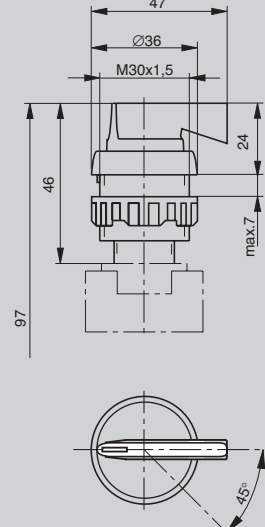


**Rotary lever with spring return
Type: 12T-RF-22, 12T-RF-30**

Mounting diameter 22 mm

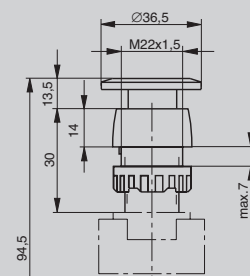


Mounting diameter 30 mm

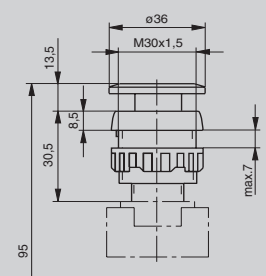


**Mushroom pushbutton
Type: 15T-RF-22, 15T-RF-30**

Mounting diameter 22 mm



Mounting diameter 30 mm

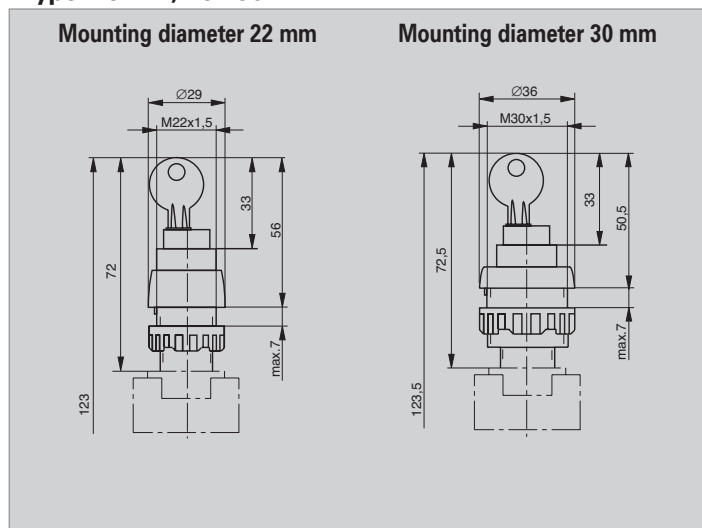


Order Instructions see page 11, Characteristics see page 6

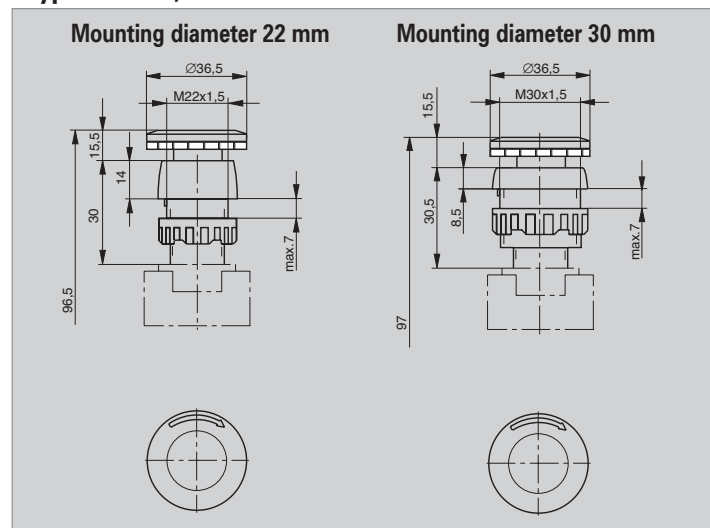
Directional Control Valves – Series K9-G1/8

Dimensions

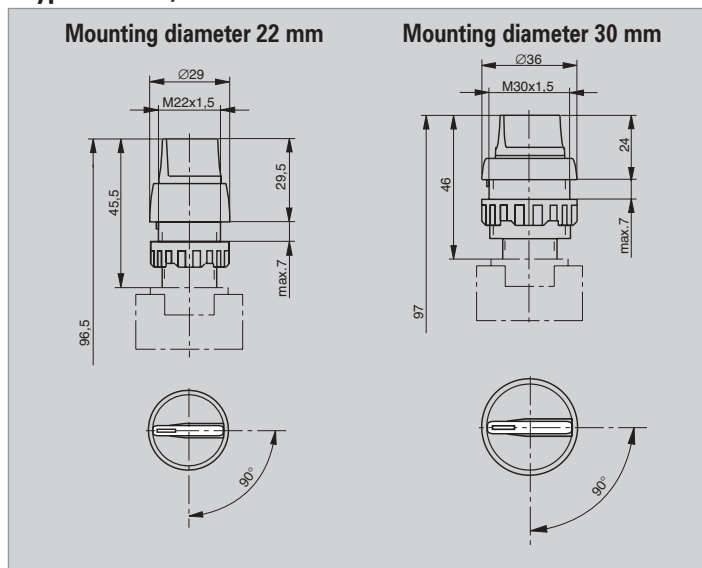
Locking switch
Type: 16T-22, 16T-30



Mushroom switch (EMERGENCY SHUTDOWN)
Type: 18T-22, 18T-30



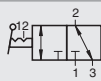
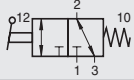
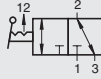
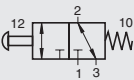
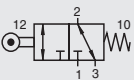
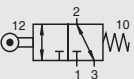
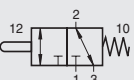
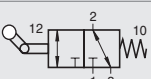

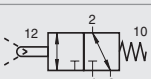
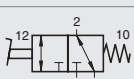








Rotary switch
Type: 17T-22, 17T-30

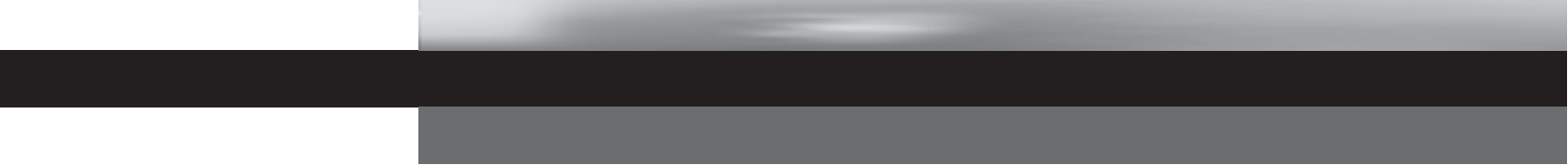


Order Instructions see page 11, Characteristics see page 6

Overview and Order Instructions

3/2 Way Poppet Valves – Series K9

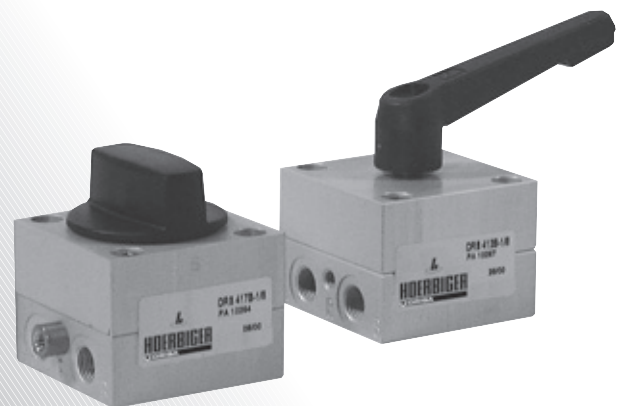
Actuation	Symbol	Mounting ø (mm)	Order Instructions Type	Order No.	Page
Rotary lever, indexed			K9312-1/8	PA 10269	7
Rotary lever, spring return			K9312RF-1/8	PA 10270	7
Rotary lever, indexed secured in both positions			K9312S-1/8	PA 10349	7
Pushbutton			K9314RF-1/8	PA 10271	7
Cam operation			K9321RF-1/8	PA 10272	8
Toggle cam operation			K9324RF-1/8	PA 10273	8
Plunger operated			K9323RF-1/8	PA 10235	7
Cam operated free cam left			K9325RF-1/8	PA 10274	8
Cam operated free cam right			K9326RF-1/8	PA 10275	8
Pivoted lever			K9329RF-1/8	PA 10276	8
Pedal			K9331RF-1/8	PA 10277	8
Panel mounting valve with adaptor, interchangeable actuation as follows:			K9390RF-1/8	PA 10278	8
Rotary lever, indexed for panel mounting		22 30	12T-22 12T-30	KX 9355 KX 9314	9
Rotary lever, spring return for panel mounting		22 30	12T-RF-22 12T-RF-30	KX 9356 KX 9315	9
Pushbutton for panel mounting		22 30	13T-RF-22 13T-RF-30	KX 9357 KX 9316	9
Mushroom pushbutton for panel mounting		22 30	15T-RF-22 15T-RF-30	KX 9358 KX 9317	9
Locking switch for panel mounting		22 30	16T-22 16T-30	KX 9359 KX 9318	10
Rotary switch for panel mounting		22 30	17T-22 17T-30	KX 9360 KX 9319	10
Mushroom switch EMERGENCY SHUTDOWN for panel mounting		22 30	18T-22 18T-30	KX 9361 KX 9320	10



Directional Control Valves – Series DRS-G1/8

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Directional Control Valves – Series DRS-G1/8

Characteristics, Dimensions

4/3 Way Flat Slide Valves Series DRS G1/8

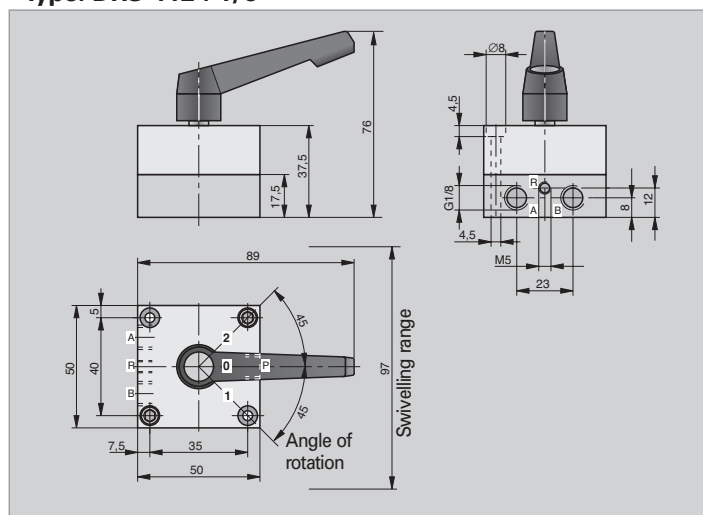
Actuation:
– Rotary lever
– Rotary switch



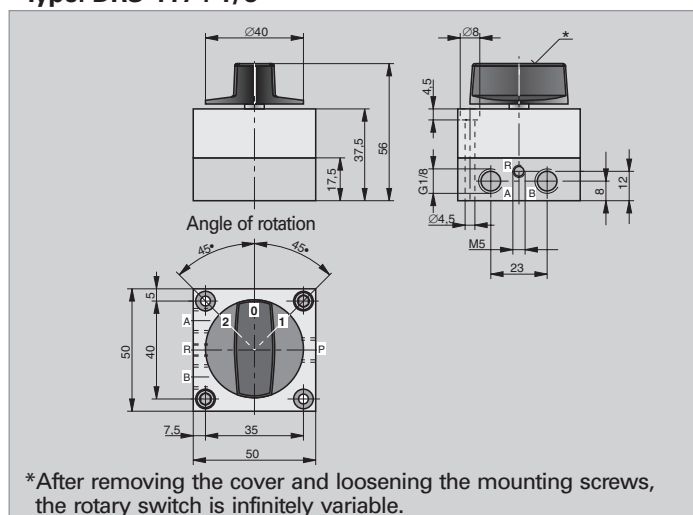
Characteristics – Series DRS

Characteristics	Symbol	Unit	Description
General Features			
System			Flat slide valve without automatic return to neutral position
Mounting			2 screws M4
Tube connection			Thread
Port size			Port P, A, B: G1/8 Port R: M5
Weight (mass)		kg	0.500
Installation			in any position
Ambient temperature range	$\vartheta_{\min/\max}$	°C	-10 to +55
Medium temperature range	$\vartheta_{\min/\max}$	°C	-10 to +60
Medium			filtered compressed air
Lubrication			Oil mist lubrication compatible with Buna N
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	$p_{\min/\max}$	bar	0 – 10
Nominal flow	Q_N	l/min	350
Actuation			
Manual control			direct
Actuation force	F_b	N	ca. 6

Rotary lever Type: DRS 412 .-1/8



Rotary switch Type: DRS 417 .-1/8

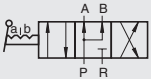
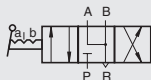
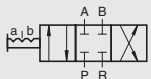
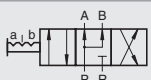
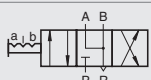
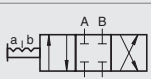


Port identification:

- A = 4 Outlet
- B = 2 Outlet
- R = 5 Exhaust
- P = 1 Pressure supply

Order Instructions

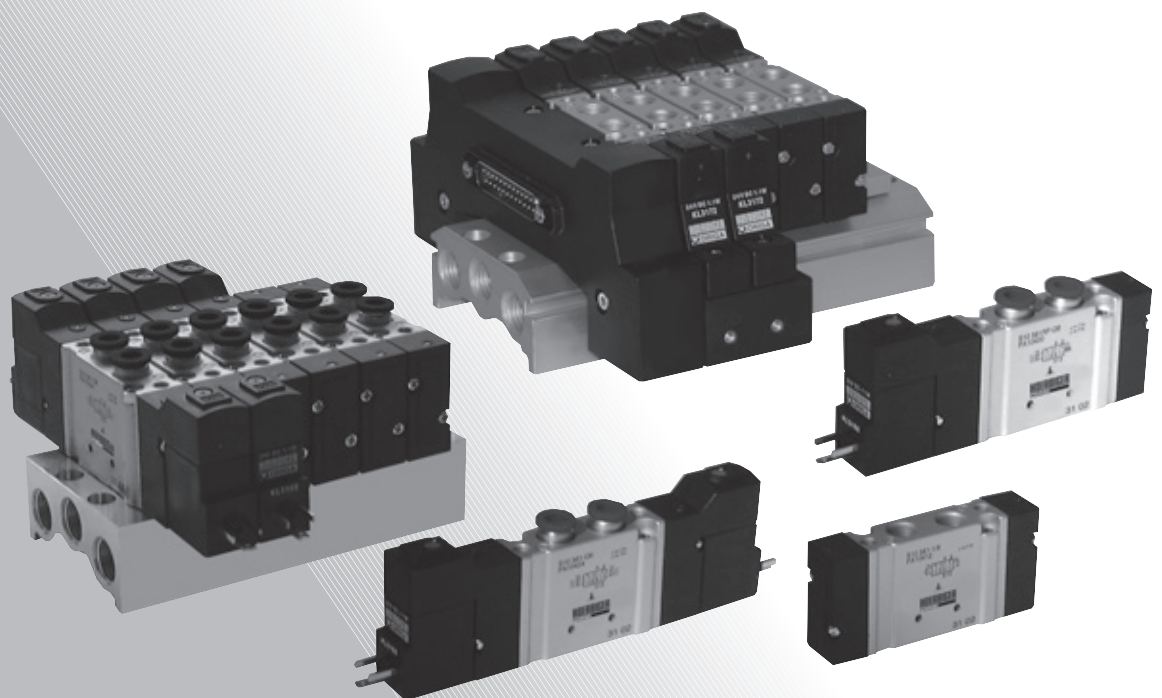
4/3 Way Flat Slide Valves – Series DRS

Actuation	Symbol	Order Instructions Type	Order No.
Rotary lever Middle position pressurized		DRS 412 B-1/8	PA 10267
Rotary lever Middle position vented		DRS 412 E-1/8	PA 10266
Rotary lever Middle position closed		DRS 412G-1/8	PA 10268
Rotary switch Middle position pressurized		DRS 417 B-1/8	PA 10264
Rotary switch Middle position vented		DRS 417 E-1/8	PA 10263
Rotary switch Middle position closed		DRS 417 G-1/8	PA 10265

Compact Valves Series S10..-1/8 and S10..-Q6

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	electric	19	23, 24	27
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Valve Islands		19	31, 32	33
RPS Manifolds			34	34
Accessories			35, 36	35, 36



Compact Valves with Threaded Ports or Push-In Connections

Series S10 – Overview

Overview

Description	Actuation	Versions Standard	Middle Position Functions				
			With biased position	With external pilot air	closed	Vented	Pressurized
2x3/2 Way Valves normally closed normally open	pneumatic permanent signal ¹	■	–	–	–	–	–
	pneumatic permanent signal ¹	■	–	■	–	–	–
5/2 Way Valves	pneumatic permanent signal ²	■	–	–	–	–	–
	pneumatic impulse	■	■	–	–	–	–
	electric permanent signal ²	■	–	■	–	–	–
	electric impulse	■	■	■	–	–	–
5/3 Way Valves	pneumatic permanent signal	■	–	–	■	■	■
	electric permanent signal	■	–	■	■	■	■

¹ air spring return

² return by either mechanical spring or air spring (see Order Instructions, page 26, 27)

Note:

**S10 Series valves are normally supplied without connector
– please include in Order Code or order separately (see Order Instructions)**

Characteristics for Single Valves and Valve Islands

Characteristics – Series S10 (Single Valves) and IM10 (Valve Islands)

Characteristics	Symbol	Unit	Description	
Version			With threaded ports	With push-in connections (version Q6)
General				
Actuation			Pneumatic	electrically pilot actuated
Type			Spool valve	
Mounting			2 screws M3	
Port connections			Threaded ports	Threaded ports and push-in connections
Size			G1/8	Port 5, 1, 3: G1/8, Port 4, 2: push-in connection OD 6 mm
Nominal diameter		mm	6	
Weight (mass)		kg	See page 20, 22	
Installation			In any position	
Ambient temperature range	$\vartheta_{\min./\max.}$	°C	-5 to +50	Note: for use below freezing point please consult us
Medium temperature range	$\vartheta_{\min./\max.}$	°C	0 to +50	
Vibration resistance/Vibration		G	max. 5	
Impact strength/Shock		G	max. 30	
Medium			Filtered compressed air (5µm)	
Lubrication			With or without oil mist lubrication (we recommend mineral oil type VG 32 to ISO 3448)	
Pneumatic Characteristics				
Nominal pressure	$p_{\min./\max.}$	bar	6	
Operating pressure range				
– Permanent signal version	$p_{\min./\max.}$	bar	2 – 8 (5/2 way version), 3 – 8 (5/3 and 2x3/2 way version)	
– Impulse version	$p_{\min./\max.}$	bar	1.5 – 8 (5/2 way version)	
– with external pilot air	$p_{\min./\max.}$	bar	-0.9 – 8 (5/2 way version), -0.9 – 8 (5/3 and 2x3/2 way version)	
Nominal flow	Q_N	l/min	5/2 way version 650, 5/3 way version 550, 2x3/2 way version 400	
Actuation				
Pneumatic			Direct	
Actuation pressure range				
– Permanent signal version	$p_{st \min./\max.}$	bar	2 – 8 (5/2 way version), 3 – 8 (5/3- and 2x3/2 way version)	
– Impulse version	$p_{st \min./\max.}$	bar	1.5 – 8 (5/2 way version)	
Electrical – Single Valves S10				
Voltage types			Alternating current (50/60Hz)	Direct current
Nominal voltage				
– standard version	U_n	V	230, 110, 48 ±10%	24, 12 ±10% other voltages available on request
Power consumption, switching				
– standard version		VA (W)	ca. 2.8	1.1
Power consumption, holding				
– standard version		VA (W)	ca. 2	1.1
Duty cycle	ED	%	100	
Electrical protection		IP	IP 65 to DIN 40050 (applies only to solenoid with plug)	
Connection			Connector to DIN EN 175301-803 form C ⁽¹⁾	
Electrical – Valve Islands IM10				
Voltage types			Direct current	
Nominal voltage	U_n	V	24, 12	
Power consumption, switching		VA (W)	1.1	
Power consumption, holding		VA (W)	1.1	
Duty cycle	ED	%	100	
Electrical protection		IP	IP 65 to DIN 40050 (applies only to the electrically part in combination with sub-D connector; IP 65)	
Connection			D-Sub connector 25pin	
Switching indicator			LED	
Number of outputs			max. 22, max. 18 (monostable)	

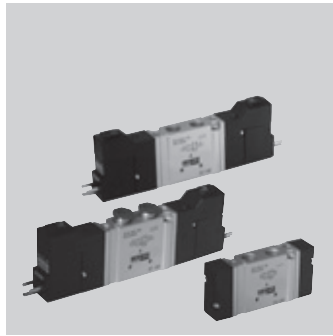
⁽¹⁾ Solenoid also available with cable (length 1m) – see Order Instructions

Compact Valves with Threaded Ports or Push-In Connections

Series S10..-1/8 and S10..-Q6

2 x 3/2 Way Valves Series S10 G1/8 and Push-In Connections OD Ø 6 mm

Actuation systems:
– pneumatic
– electrical, pilot actuated

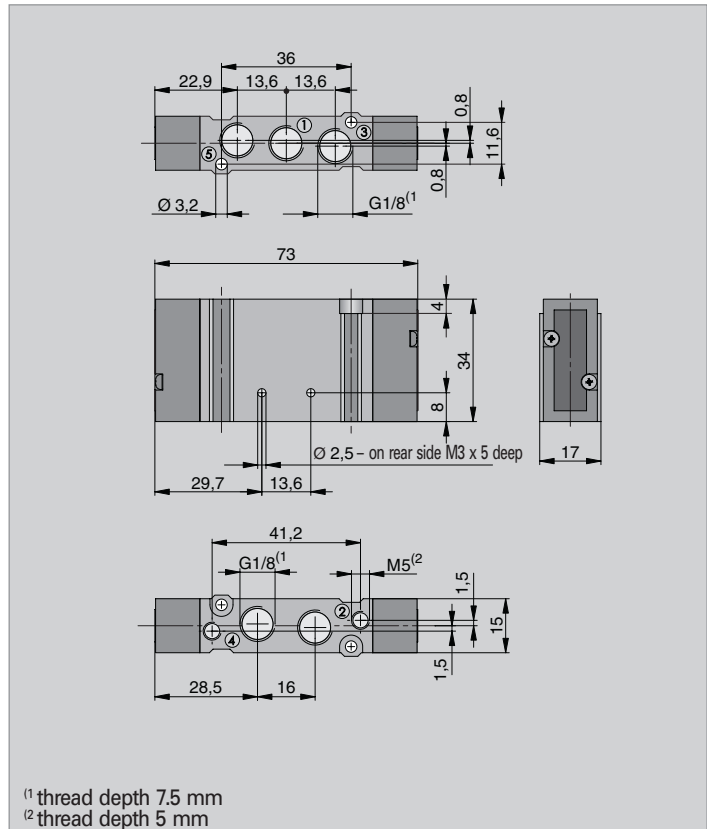


Versions:
– 2x normally closed
– 2x normally open
– 1x normally closed and
1x normally open
– with external pilot air

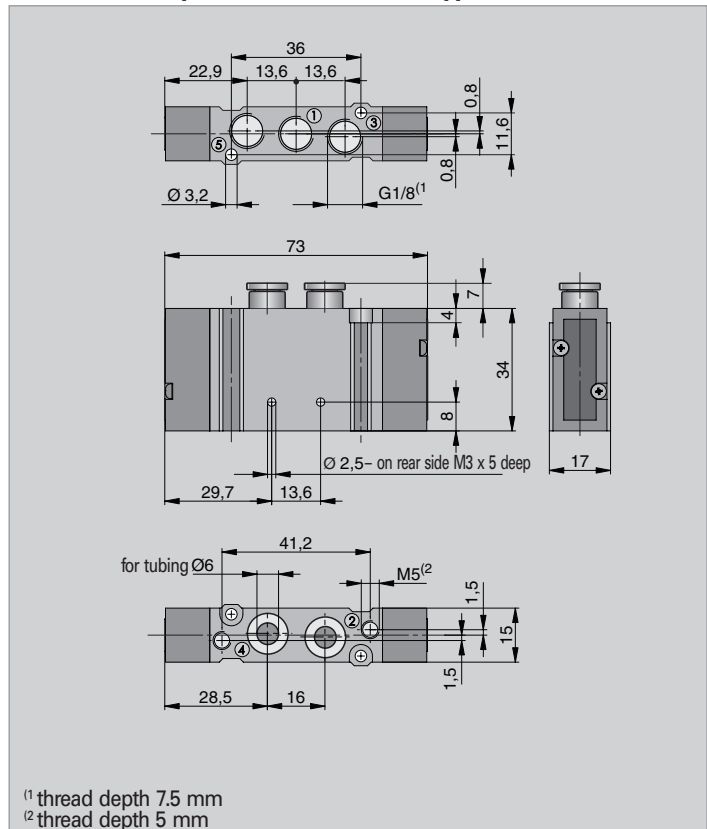
Accessories:
– adapter plate for direct
mounting on
HOERBIGER-ORIGA
profile-type cylinders
– mounting bracket

For further information see
page 19

2x 3/2 way valve, pneumatically actuated,
threaded version, Type: S10 361..-1/8



2x 3/2 way valve, pneumatically actuated,
version with push-in connection, Type: S10 361..-Q6

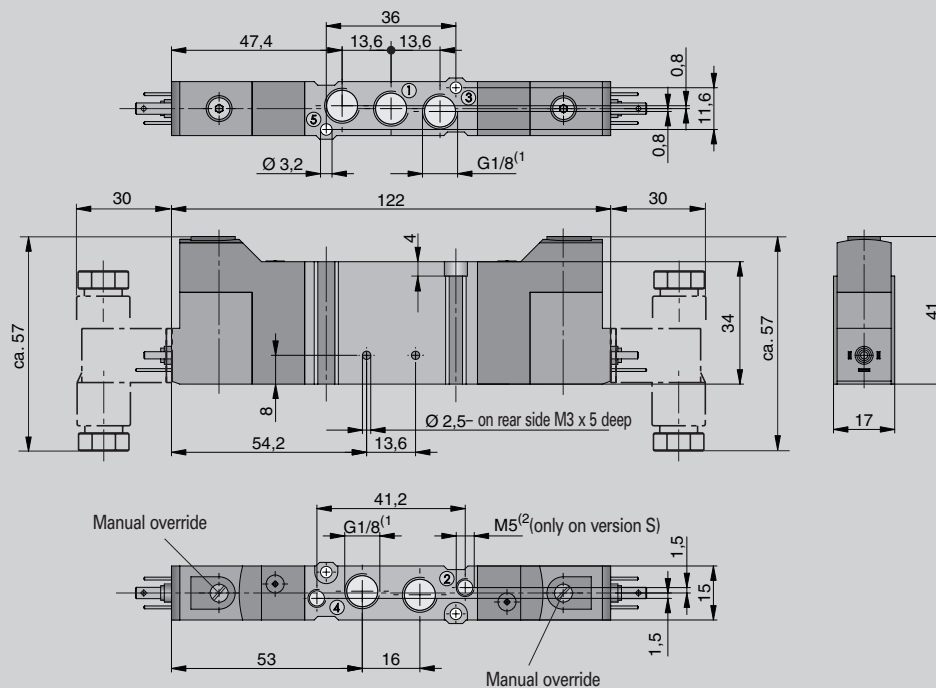


Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic, permanent signal	S10 361R..-1/8	0,063 kg
Electrical, permanent signal	S10 381R..-1/8	0,089 kg
Pneumatic, permanent signal	S10 361R..-Q6	0,070 kg
Electrical, permanent signal	S10 381R..-Q6	0,097 kg

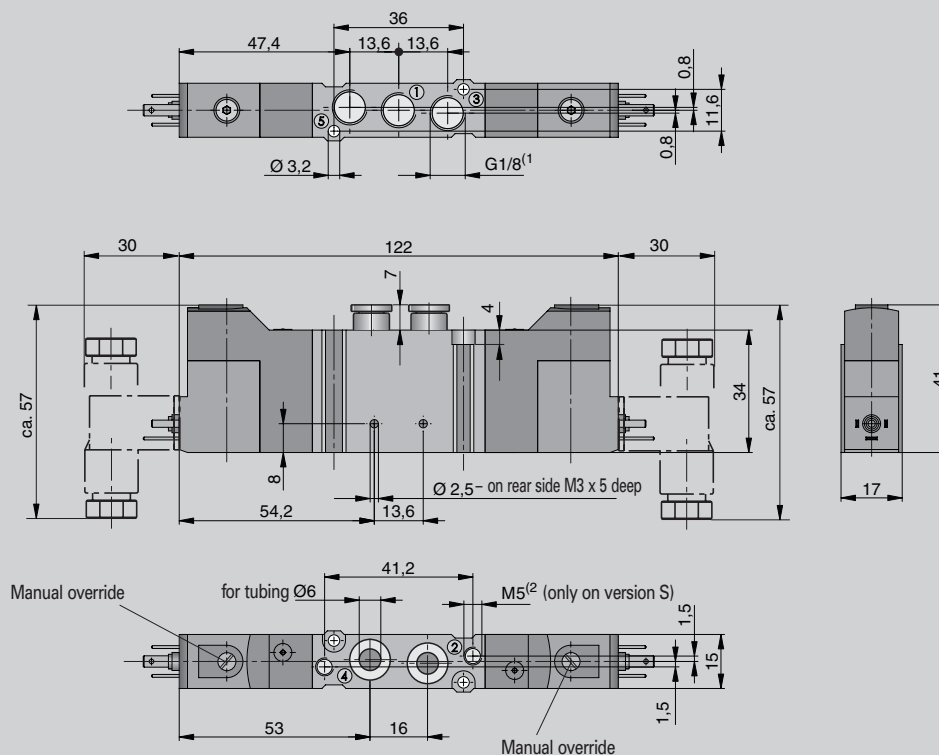
For valve manifolds see page 28-30; for RPS manifolds see page 34,35; for mounting bracket see page 36;
for adapter plate see page 36.

**2x 3/2 way valve, electrically actuated (permanent signal) – threaded version,
Type: S10 381R..-1/8**



⁽¹⁾ thread depth 7.5 mm
⁽²⁾ thread depth 5 mm

**2x 3/2 way valve, electrically actuated (permanent signal) – version with push-in connections
Type: S10 381R..-Q6**



⁽¹⁾ thread depth 7.5 mm
⁽²⁾ thread depth 5 mm

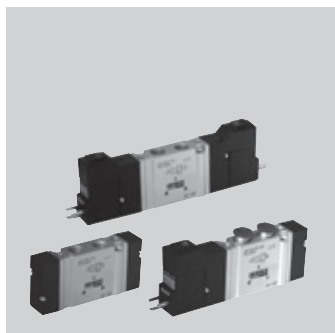
For valve manifolds see page 28-30; for RPS manifolds see page 34,35; for mounting bracket see page 36; for adapter plate see page 36.

Compact Valves with Threaded Ports or Push-In Connections

Series S10..-1/8 and S10..-Q6

5/2 and 5/3 Way Valves Series S10 G1/8 and Push-In Connections OD Ø 6 mm

Actuation systems:
– pneumatic
– electrical, pilot operated

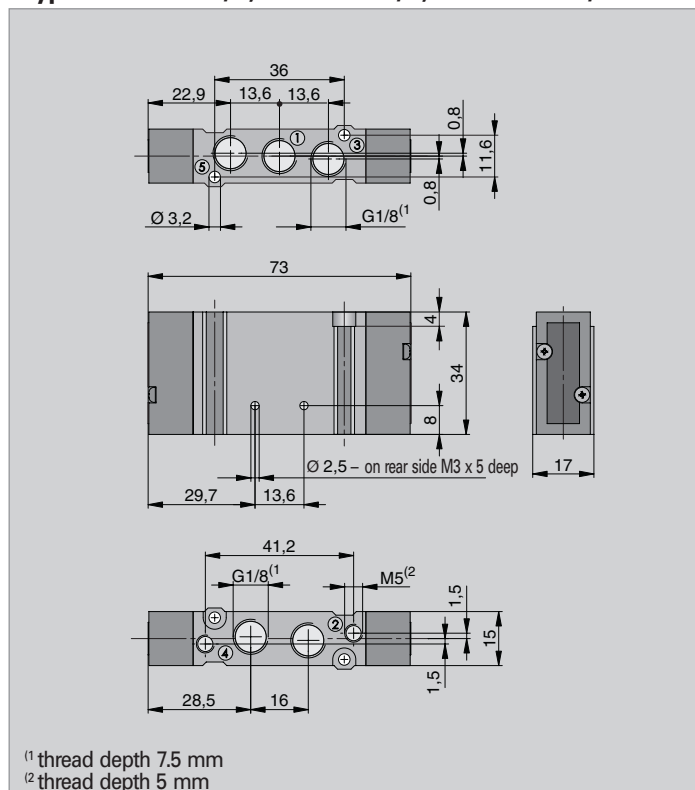


Versions:
– with biased position
– with external pilot air

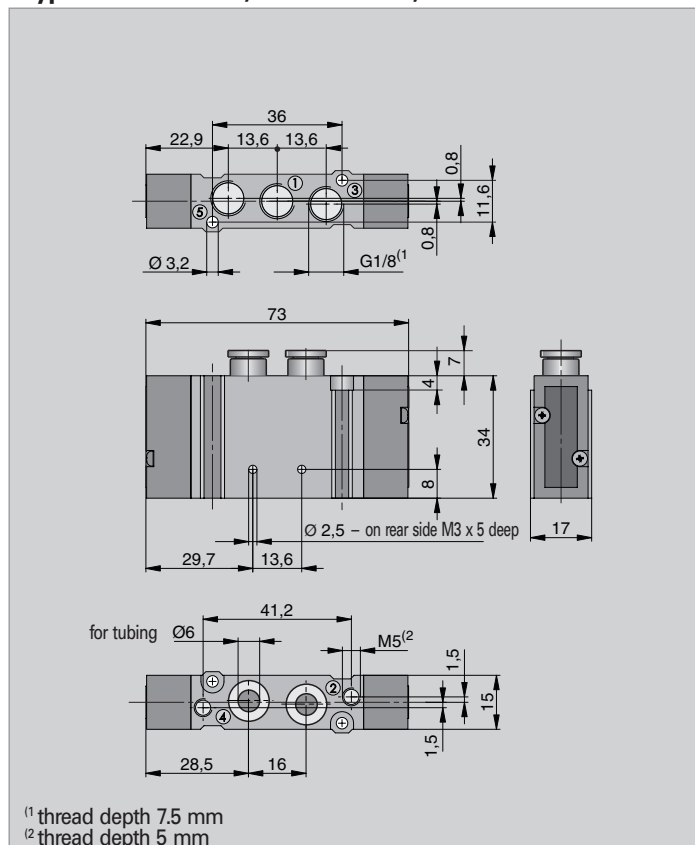
Accessories:
– adapter plate for direct mounting on HOERBIGER-ORIGA profile-type cylinders
– mounting brackets

For further information see page 35, 36

5/2 and 5/3 way valve, pneumatically actuated, threaded version
Type: S10 561..-1/8, S10 562..-1/8, S10 561RF-1/8



5/2 and 5/3way valve, pneumatically actuated, version with push-in connections
Type: S10 561..-Q6, S10 562..-Q6, S10 561RF-Q6

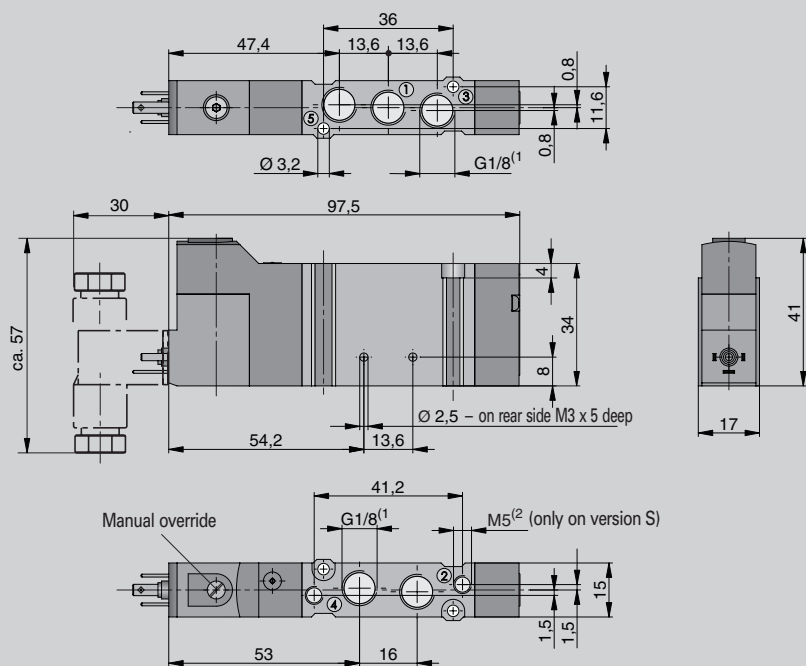


Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic, permanent signal	S10 561R..-1/8	0.063 kg
Pneumatic, impulse	S10 561(562)-1/8	0.063 kg
Electrical, permanent signal	S10 581R..-1/8	0.076 kg
Electrical, impulse	S10 581(582)-1/8	0.089 kg
Pneumatic, permanent signal	S10 561R..-Q6	0.070 kg
Pneumatic, impulse	S10 561(562)-Q6	0.070 kg
Electrical, permanent signal	S10 581R..-Q6	0.083 kg
Electrical, impulse	S10 581(582)-Q6	0.097 kg

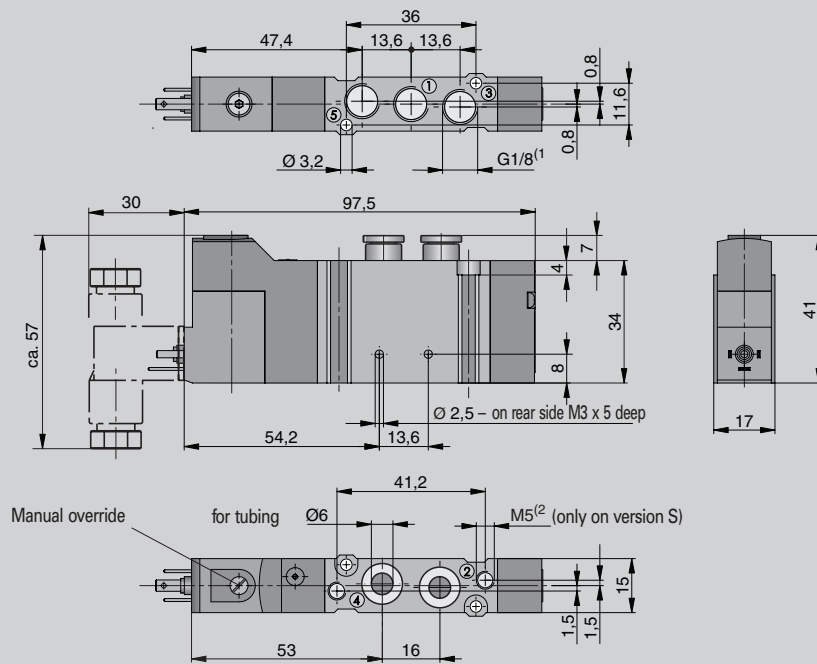
For valve manifolds see page 28-30; for RPS manifolds see page 34,35; for mounting bracket see page 36; for adapter plate see page 36.

5/2 way valve, electrically actuated (permanent signal) – threaded version
Type: S10 581..-1/8



⁽¹⁾ thread depth 7.5 mm
⁽²⁾ thread depth 5 mm

5/2 way valve, electrically actuated (permanent signal) – version with push-in connections
Type: S10 581..-Q6



⁽¹⁾ thread depth 7.5 mm
⁽²⁾ thread depth 5 mm

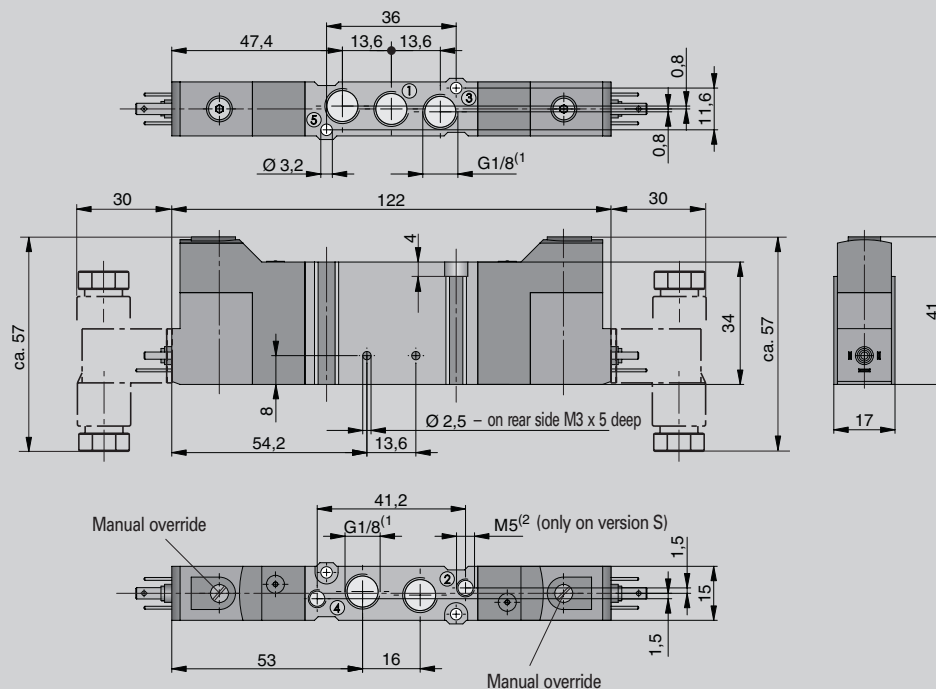
For valve manifolds see page 28-30; for RPS manifolds see page 34,35; for mounting bracket see page 36;
 for adapter plate see page 36.

Compact Valves with Threaded Ports or Push-In Connections

Series S10..-1/8 and S10..-Q6

5/2 way valve, electrically actuated (impulse) – threaded version, Type: S10 581-1/8, S10 582-1/8

5/3 way valve, electrically actuated (permanent signal) – threaded version, Type: S10 581RF-1/8

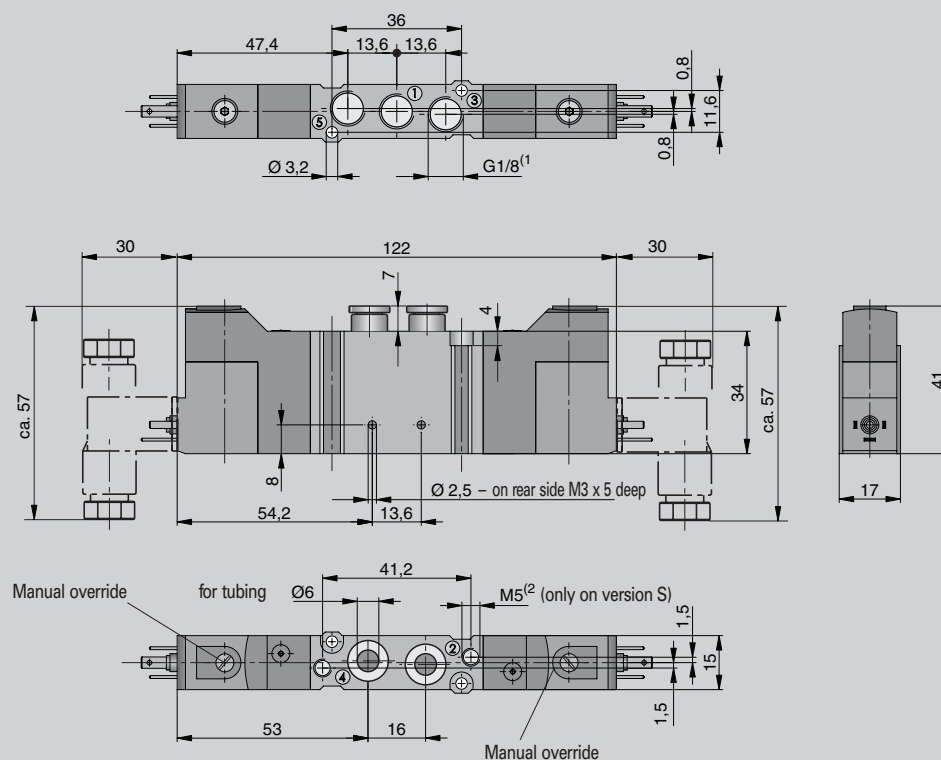


¹ thread depth 7.5 mm

² thread depth 5 mm

5/2 way valve, electrically actuated (impulse) – version with push-in connections, Type: S10 581-Q6, S10 582-Q6

5/3 way valve, electrically actuated (permanent signal) – version with push-in connections, Type: S10 581RF-Q6



¹ thread depth 7.5 mm

² thread depth 5 mm

For valve manifolds see page 28-30; for RPS manifolds see page 34,35; for mounting bracket see page 36; for adapter plate see page 36.

Order Instructions

2x 3/2 way valves – Series S10..-1/8 and S10..-Q6

Actuation System	Symbol	Connection		Order Instructions Type	Order No.	Page
		Thread	Push-In			
Pneumatic permanent signal		G1/8	–	S10 361R2G-1/8 S10 361R2G-Q6	PA 10417 PA 10447	20
		G1/8	–			
		G1/8	–			
Electrical permanent signal		G1/8	–	S10 381R2G-1/8-□33-□ S10 381R2G-Q6-□33-□	PA 10404-□33-□ PA 10434-□33-□	21
		G1/8	–			
		G1/8	–			
Electrical permanent signal with external pilot air		G1/8	–	S10 381S-R2G-1/8-□33-□ S10 381S-R2G-Q6-□33-□	PA 10405-□33-□ PA 10435-□33-□	21
		G1/8	–			
		G1/8	–			

Solenoid version/ voltage

– for connector

00	without solenoid
01	12 V DC
02	24 V DC
04	48 V DC
07	110 V DC
50	12 V AC
51	24 V AC
55	48 V AC
57	110 V AC
61	230 V AC

– with cable (length 1 m)

41	12 V DC
42	24 V DC
71	12 V AC
72	24 V AC

Other voltages available on request

Notes on ordering

all electrically actuated valves are supplied without connector as standard

– please include this in Order No. or order it separately (see Order Instructions).

For electrically actuated valves please complete the Type Designation and Order No. with the order codes.

Example:

3/2 way valve, threaded version, electrically actuated, with spring return, normally closed, voltage 12 V DC, with standard connector

Order data:

S10 381R2G-1/8-0133-88 PA 10404-0133-88

Connector Types

00	without connector *
88	standard connector 15mm
89	230 V AC with LED and protective circuit
92	24 V DC with LED and protective circuit

* Standard version

Compact Valves with Threaded Ports or Push-In Connections

Overview and Order Instructions

5/2 way valves – Series S10..-1/8 and S10..-Q6

Actuation System	Symbol	Connections		Order Instructions Type	Order No.	Page
		Thread	Push-In			
Pneumatic permanent signal		G1/8	–	S10561RF-1/8 S10561RF-Q6	PA 10410 PA 10440	22
	–	ODØ 6mm				
Pneumatic impulse		G1/8	–	S10561-1/8 S10561-Q6	PA 10412 PA 10442	22
	–	ODØ 6mm				
– biased position bistable valve		G1/8	–	S10562-1/8 S10562-Q6	PA 10413 PA 10443	22
	–	ODØ 6mm				
Electrical permanent signal		G1/8	–	S10581RF-1/8-□33-□ S10581RF-Q6-□33-□	PA 10390-□33-□ PA 10420-□33-□	23
	–	ODØ 6mm				
Electrical permanent signal with external pilot air		G1/8	–	S10581S-RF-1/8-□33-□ S10581S-RF-Q6-□33-□	PA 10391-□33-□ PA 10421-□33-□	23
	–	ODØ 6mm				
Electrical impulse		G1/8	–	S10581-1/8-□33-□ S10581-Q6-□33-□	PA 10394-□33-□ PA 10424-□33-□	24
	–	ODØ 6mm				
– biased position bistable valve		G1/8	–	S10582-1/8-□33-□ S10582-Q6-□33-□	PA 10396-□33-□ PA 10426-□33-□	24
	–	ODØ 6mm				
Electrical impulse with external pilot air		G1/8	–	S10581S-1/8-□33-□ S10581S-Q6-□33-□	PA 10395-□33-□ PA 10425-□33-□	24
	–	ODØ 6mm				
– biased position bistable valve		G1/8	–	S10582S-1/8-□33-□ S10582S-Q6-□33-□	PA 10397-□33-□ PA 10427-□33-□	24
	–	ODØ 6mm				

Solenoid version/ voltage

– for connector

00	without solenoid
01	12 VDC
02	24 VDC
04	48 VDC
07	110 VDC
50	12 V AC
51	24 V AC
55	48 V AC
57	110 V AC
61	230 V AC

– with cable (length 1m)

41	12 VDC
42	24 VDC
71	12 V AC
72	24 V AC

Other voltages available on request

Notes on ordering:

All electrically actuated valves are supplied without connector as standard

– **please include this in Order No. or order it separately (see Order Instructions).**

For electrically actuated valves please complete the Type Designation and Order No. with the order codes.

Example:

5/2 way valve, push-in connections, electrically actuated, with spring return, voltage 12 V DC, with standard connector:

Order data:

S10581RF-Q6-0133-88

PA 10420-0133-88

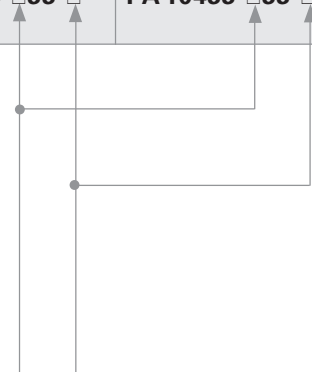
Connector Types

00	without connector *
88	standard connector 15mm
89	230 V AC with LED and protective circuit
92	24 V DC with LED and protective circuit

* Standard version

5/3 way valves – Series S10..-1/8 and S10..-Q6

Actuation System	Symbol	Connections		Order Data Type	Order No.	Page
		Thread	Push-In			
Pneumatic permanent signal		G1/8	–	S10 561RFG-1/8 S10 561RFG-Q6	PA 10414 PA 10444	22
		G1/8	–			
		G1/8	–			
Electrical permanent signal		G1/8	–	S10 581RFG-1/8-□33-□ S10 581RFG-Q6-□33-□	PA 10398-□33-□ PA 10428-□33-□	24
		G1/8	–			
		G1/8	–			
Electrical permanent signal with external pilot air		G1/8	–	S10 581S-RFG-1/8-□33-□ S10 581S-RFG-Q6-□33-□	PA 10399-□33-□ PA 10429-□33-□	24
		G1/8	–			
		G1/8	–			



Solenoid version/ voltage

– for connector

00	without solenoid
01	12 VDC
02	24 VDC
04	48 VDC
07	110 VDC
50	12 V AC
51	24 V AC
55	48 V AC
57	110 V AC
61	230 V AC

– with cable (length 1m)

41	12 VDC
42	24 VDC
71	12 V AC
72	24 V AC

Other voltages available on request

Notes on ordering:

All electrically actuated valves are supplied without connector as standard

– **please include this in Order in No. or order it separately (see Order Instructions).**

For electrically actuated valves please complete the Type Designation and Order No. with the order codes.

Example:

5/3 way valve, push-in connections, middle position closed, electrically actuated, with spring return, voltage 230 V AC, without standard connector:

Order data:

S10 581RFG-Q6-6133-00

PA 10428-6133-00

Connector Types

00	without connector *
88	standard connector 15mm
89	230 V AC with LED and protective circuit
92	24 V DC with LED and protective circuit

* Standard version

Valve Manifold Assemblies

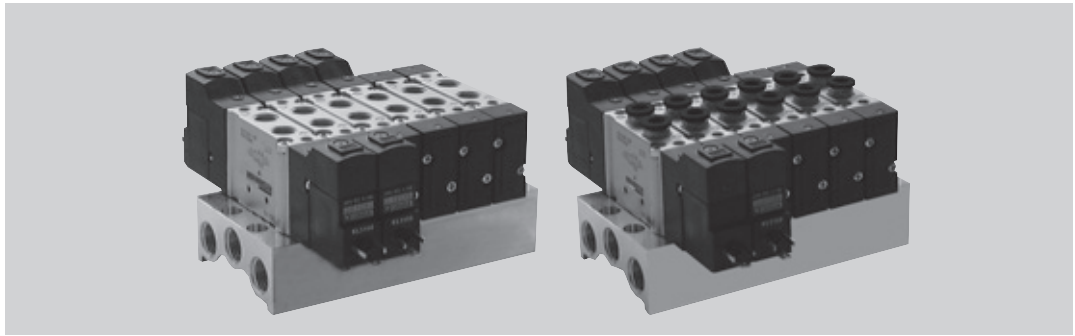
Series S10-1/8-.. and S10-Q6-..

Valve Manifold Assemblies G1/8 or with Push-In Connections OD Ø 6 mm

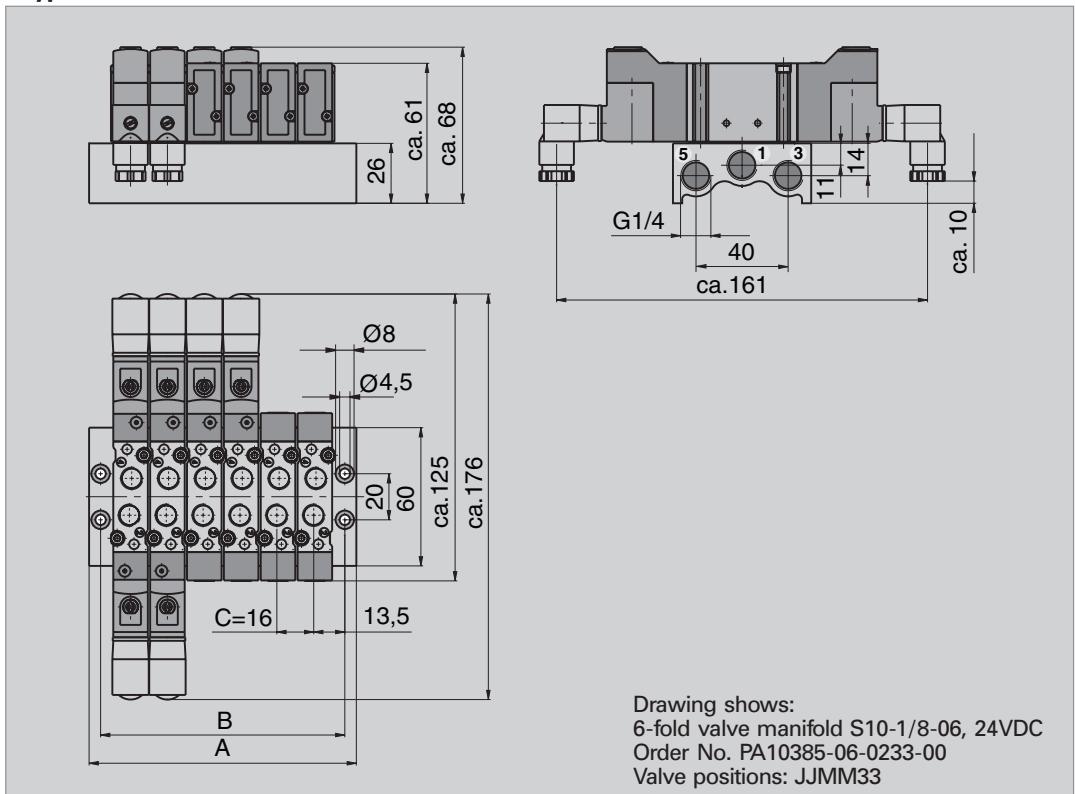
fully assembled

Actuation systems:

- pneumatic
- electrical, pilot actuated



Valve manifold assembly – threaded version
Type: S10-1/8-..

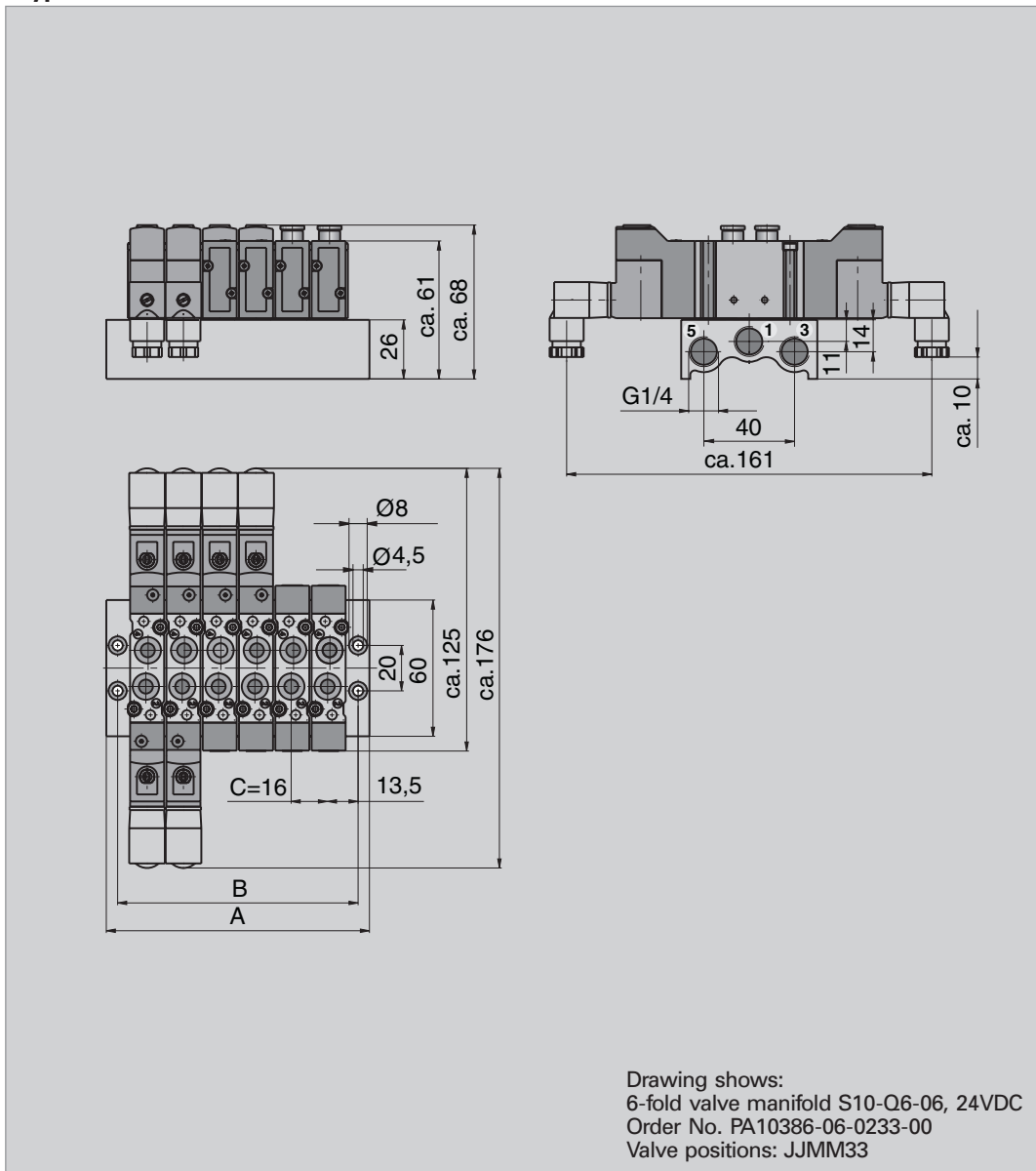


Dimension Table (mm)

Dimension	Number of valves							
	2	4	6	8	10	12	14	16
A	52	84	116	148	180	212	244	276
B	42	74	106	138	170	202	234	266

For single valves see page 20-24, for order instructions see page 30

Valve manifold assembly – version with Push-In Connections
Type: S10-Q6-..

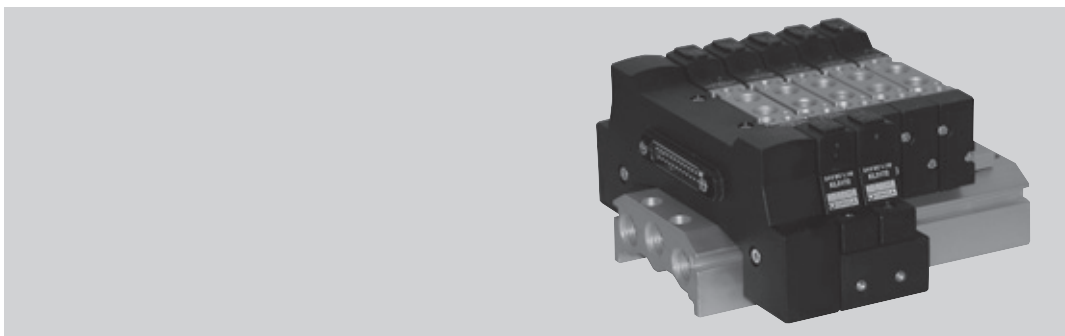


Dimension Table (mm)

Dimension	Number of valves							
	2	4	6	8	10	12	14	16
A	52	84	116	148	180	212	244	276
B	42	74	106	138	170	202	234	266

For single valves see page 20-24, for order instructions see page 30

Valve Islands with Multipole Connection Series IM10-G1/8 and IM10-Q6

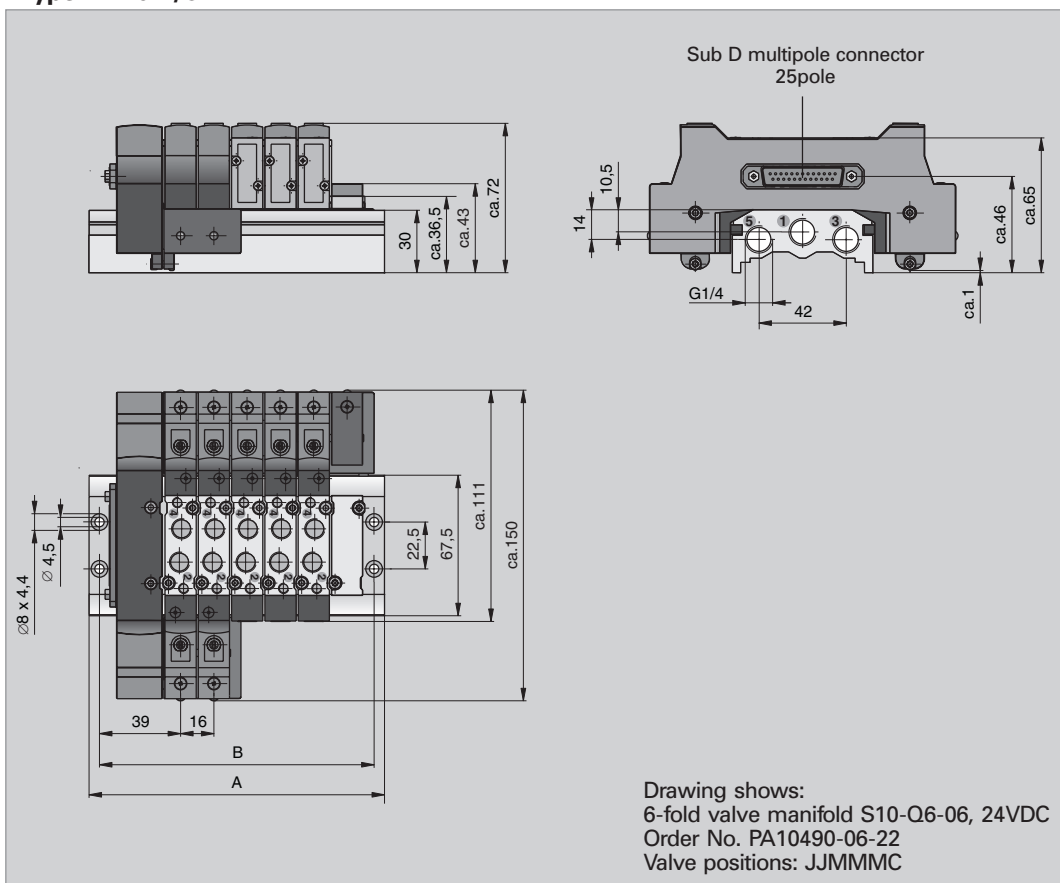


Valve Islands G1/8 or with Push-In Connections OD Ø 6 mm

fully assembled

Actuation systems:
– electrical, pilot actuated

Valve Islands, fully assembled – threaded version Type: IM10-1/8-..



Version

Multipole version with
Sub D connector, 25 pole.

Can be equipped with:
– max. 18 monostable
valves

– max. 11 bistable valves
– Combination mono-/
bistable valves:

Outputs: max. 22
max. 18
(monostable)

On Request:

Expandable with external
field bus components (Profi
Bus DP, Inter Bus S, CAN
Open, AS-Interface)

Dimension Table (mm)

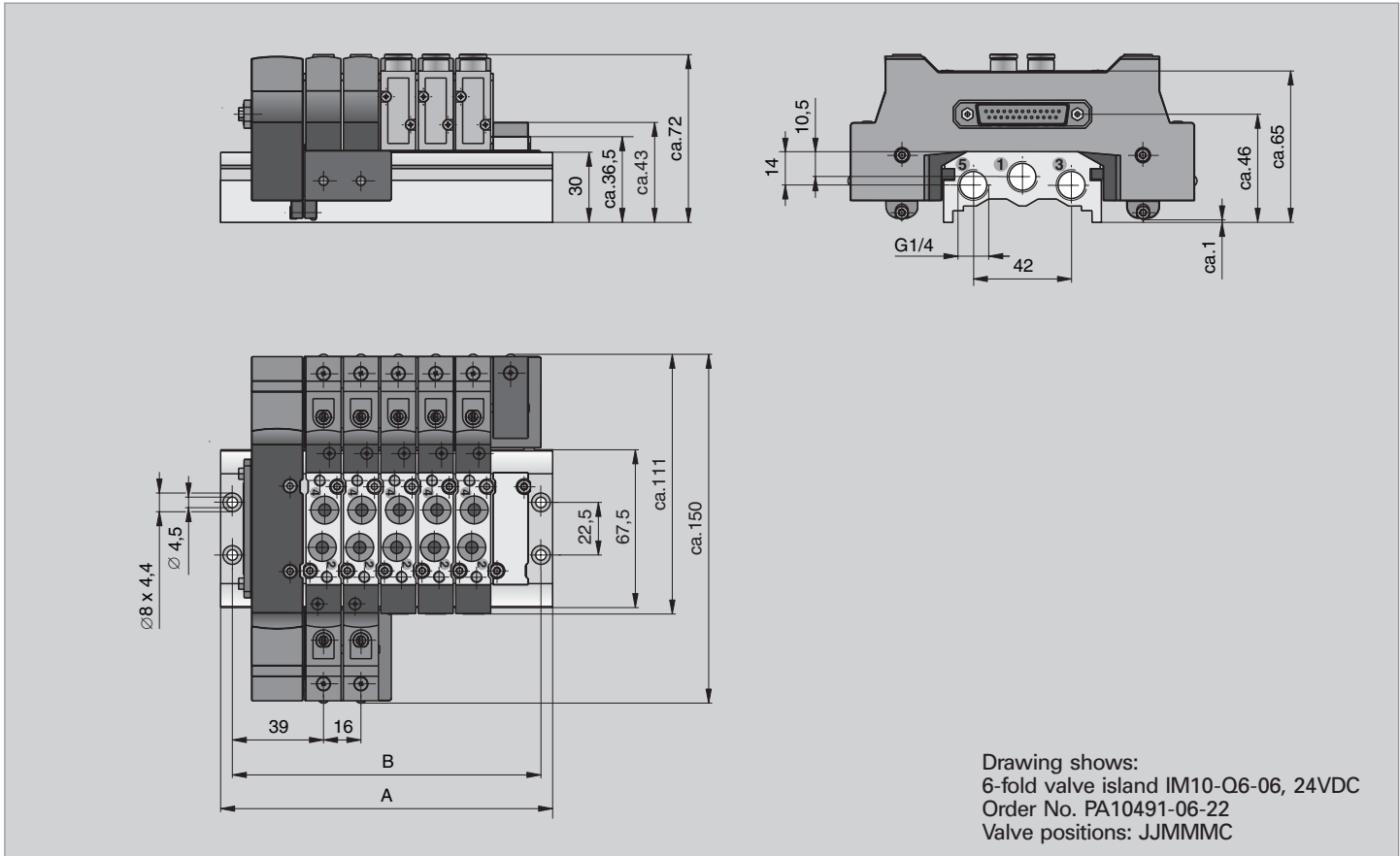
Dimension	Number of Valves																	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
A	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	
B	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	

For single valves see page 20-24, for order instructions see page 33

Valve Islands with Multipole Connection

Series IM10-G1/8 and IM10-Q6

Valve Islands, fully assembled – version with Push-In Connections
Type: IM10-Q6-..



Dimension Table (mm)

Dimension	Number of Valves																	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
A	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	
B	68	84	100	116	132	148	164	180	196	212	228	244	260	276	292	308	324	

For single valves see page 20-24, for order instructions see page 33

Order Instructions

Order No.											
										Number of valves	Solenoid version voltage
	P	A								-	-



Valve Assignment																	
Valve Positions 1 – 18																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

Version	
PA 10490	Valve islands with threaded ports G1/8 Series: IM10-1/8
PA 10491	Valve islands with push-in connections OD Ø6 Series: IM10-Q6

Number of Valves	
02	2 valves
03	3 valves *
04	4 valves
05	5 valves
▼	
18	18 valves
* uneven number of valve positions on request	

Solenoid Version/ Voltage	
21	12 V DC
22	24 V DC

02	04	06	08	10	12	14	16	18
→	→	→	→	→	→	→	→	→

Flow divider (for dual-pressure operating)	
	none (Standard)
..	at valve position

Even and uneven numbers of valves are possible!
Please enter the codes for the valve types required.

Order Codes for Valves and Cover Plates		
Code	Description	Page
A	Cover plate for unused valve position	21
C	Cover plate (monostable)*	21
O	Cover plate (bistable)*	21
P	Intermediate air supply adapter G1/8	21
* including electrical socket		

Order Codes for Valves and Cover Plates		
Code	Description	Page
Electrically actuated, with external pilot air		
X	2x 3/2 way valve NC, air spring return	21
Y	2x 3/2 way valve NO, air spring return	21
Z	2x 3/2 way valve NC, NO, air spring return	21
F	5/2 way valve, spring return	23
R	5/2 way valve, air spring return	23
S	5/2 way valve, impulse	24
T	5/2 way valve, impulse, biased position	24
U	5/3 way valve, middle position closed, spring return to middle position	24
W	5/3 way valve, middle position exhausted, spring return to middle position	24
V	5/3 way valve, middle position pressurized, spring return to middle position	24

Order Codes for Valves and Cover Plates		
Code	Description	Page
Electrically actuated		
K	2x 3/2 way valve NC, air spring return	21
N	2x 3/2 way valve NO, air spring return	21
H	2x 3/2 way valve NC, NO, air spring return	21
M	5/2 way valve, spring return	23
L	5/2 way valve, air spring return	23
J	5/2 way valve, impulse	24
D	5/2 way valve, impulse, biased position	24
G	5/3 way valve, middle position closed, spring return to middle position	24
E	5/3 way valve, middle position exhausted, spring return to middle position	24
B	5/3 way valve, middle position pressurized, spring return to middle position	24

Valve Manifold Assemblies and RPS Manifolds

Series RPSL-S10-1/8-.. and RPSL-S10-Q6-..

RPS Manifolds

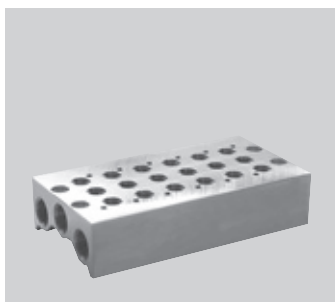
for Directional Valves
 – Series S10-1/8
 – Series S10-Q6

RPS manifolds reduce and simplify the tubing layout. They provide a space-saving, clear and simple, compact solution.

RPS manifolds have a common compressed air supply port (P) and common exhaust ports (R, S).

From 2 to 16 valves can be mounted on them.

(Other sizes available on request)



Dimension Table (mm)

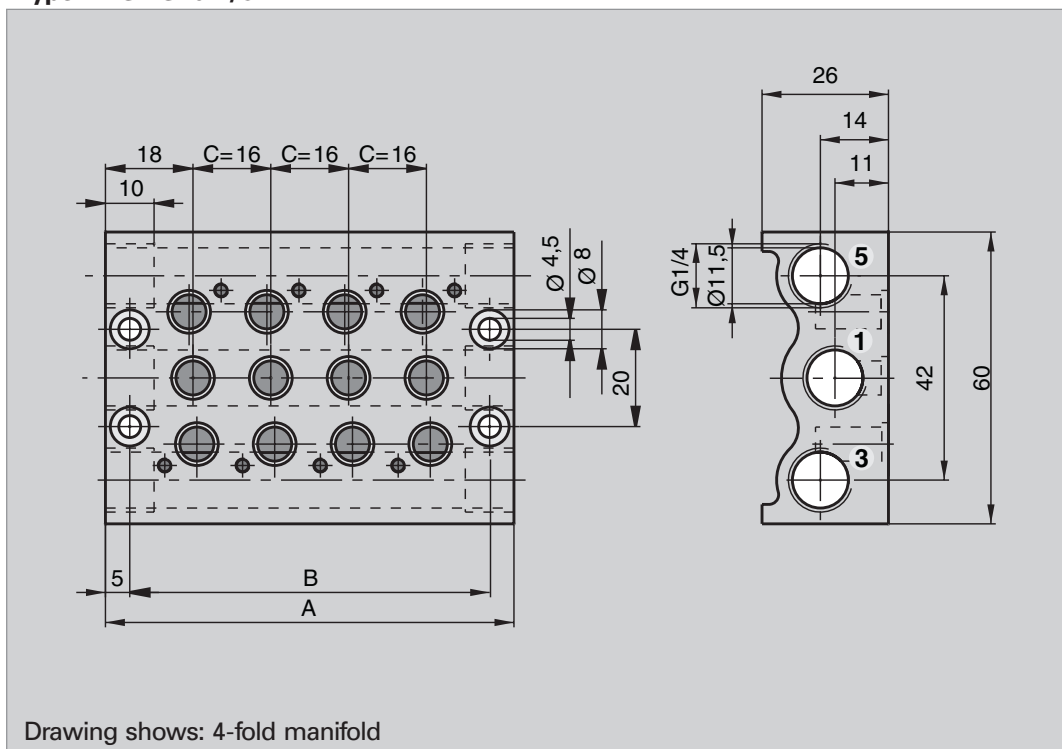
Type	Number of Valves	Dimension A	B
RPSL-S10-1/8-02	02	52	42
RPSL-S10-1/8-04	04	84	74
RPSL-S10-1/8-06	06	116	106
RPSL-S10-1/8-08	08	148	138
RPSL-S10-1/8-10	10	180	170
RPSL-S10-1/8-12	12	212	202
RPSL-S10-1/8-14	14	244	234
RPSL-S10-1/8-16	16	276	266

Materials:

RPS manifold – aluminium
 Screws – galvanized steel
 Gasket – oil-resistant rubber

Dimensions (mm)

Type: RPSL-S10-1/8-..



Order Instructions and Weight

Order Instruction* Type	Order No.	consisting of manifold	screws	seals	Weight (mass)[kg]
RPSL-S10-1/8-02	PD47254-0002	1	4	2	0.116
RPSL-S10-1/8-04	PD47254-0004	1	8	4	0.190
RPSL-S10-1/8-06	PD47254-0006	1	12	6	0.264
RPSL-S10-1/8-08	PD47254-0008	1	16	8	0.337
RPSL-S10-1/8-10	PD47254-0010	1	20	10	0.410
RPSL-S10-1/8-12	PD47254-0012	1	24	12	0.484
RPSL-S10-1/8-14	PD47254-0014	1	28	14	0.557
RPSL-S10-1/8-16	PD47254-0016	1	32	16	0.630

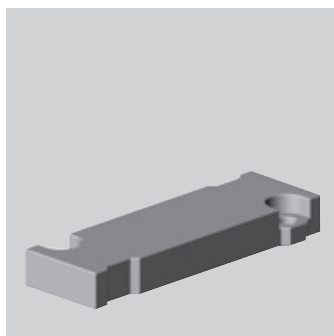
* other versions on request

For single valves see page 20-24, for accessories see page 35

Accessories for Valve Manifold Assemblies and Single Valves

Accessories for Valve Manifold Assemblies

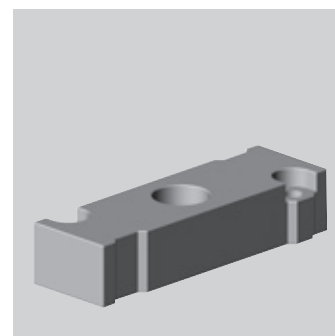
Cover Plate for Unused Valve Positions



Material:
Aluminium

Order No. KL 9114

Intermediate Air Supply Adapter



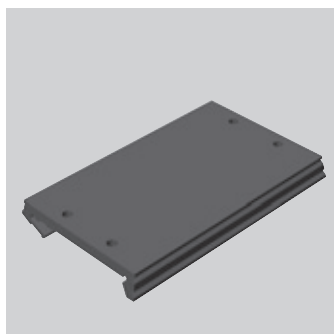
Material:
Aluminium

Order No. KL 9115

Clamp Mounting for DIN Rail 35 mm

Versions

- for Valve Manifolds S10
- for Valve Islands IM10



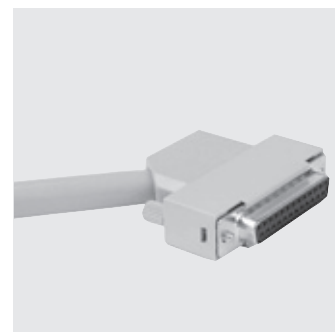
Material:
Aluminium

Flow Divider

Material:
Aluminium

Order No. PD47353

Cable with Sub-D Connector 25 pin



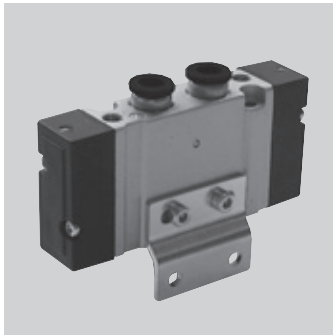
Clamp mounting Number of valves	Order No.	
	for valve manifolds Type: S10	for valve islands Type: IM10
2	PD47393-0002	PD47949-0002
4	PD47393-0004	PD47949-0004
6	PD47393-0006	PD47949-0006
8	PD47393-0008	PD47949-0008
10	PD47393-0010	PD47949-0010
11 – 18	on request	PD48270

Cable length	Electrical protection	Order No.
2 m	IP40	KL3355
5 m	IP40	KL3356
5 m	IP65	KL3357

Accessories for Valve Manifold Assemblies and Single Valves

Accessories for Single Valves

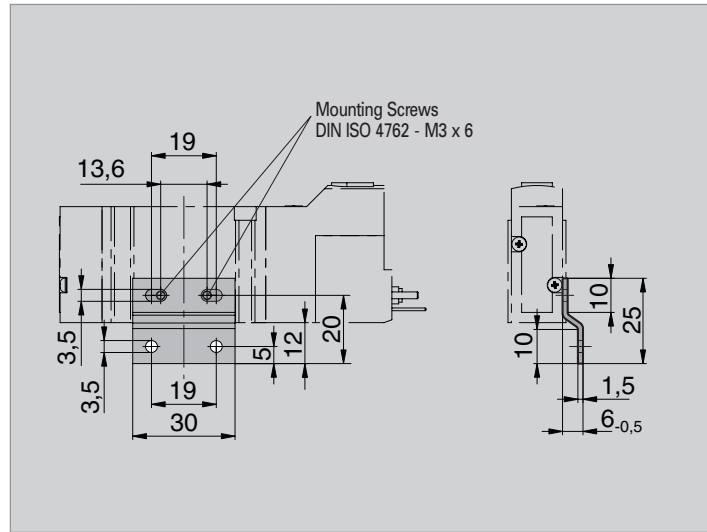
Mounting Bracket for Single Valves Series S10



Material:
Steel, passivated

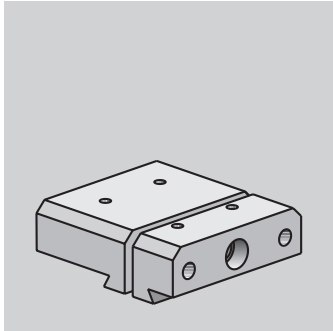
Order No. KL9112

Mounting Bracket for Single Valves



Adapter Plate for Single Valves Series S10

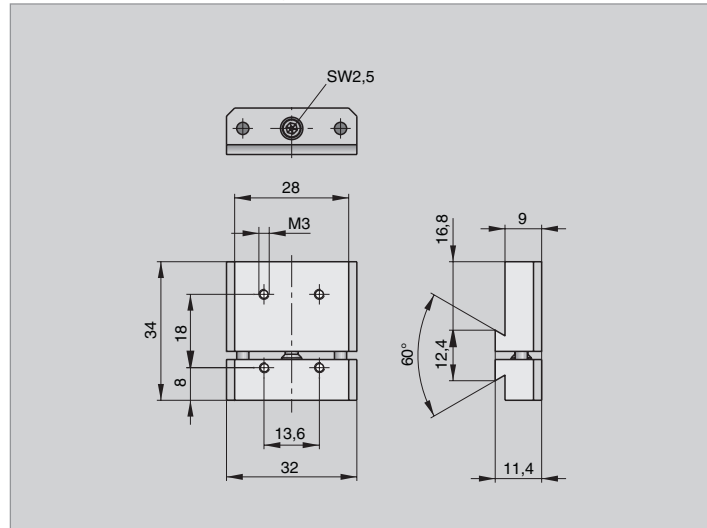
Adapter plate for direct mounting on HOERBIGER-ORIGA profile cylinders



Material:
Aluminium

Order No. PD47420

Adapter Plate for Single Valves



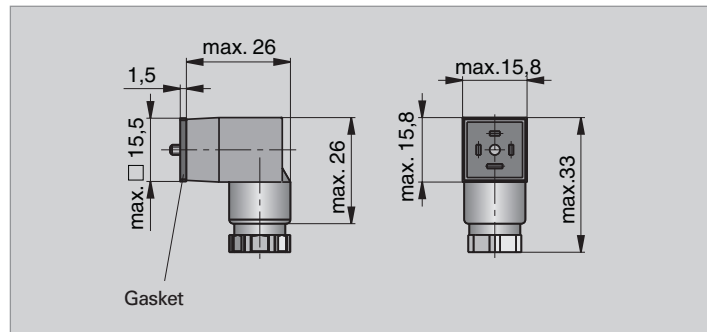
Connectors for Series S10

- Standard version
- with LED and protective circuit



Material:
Plastic

Connectors



Versions and Order Instructions

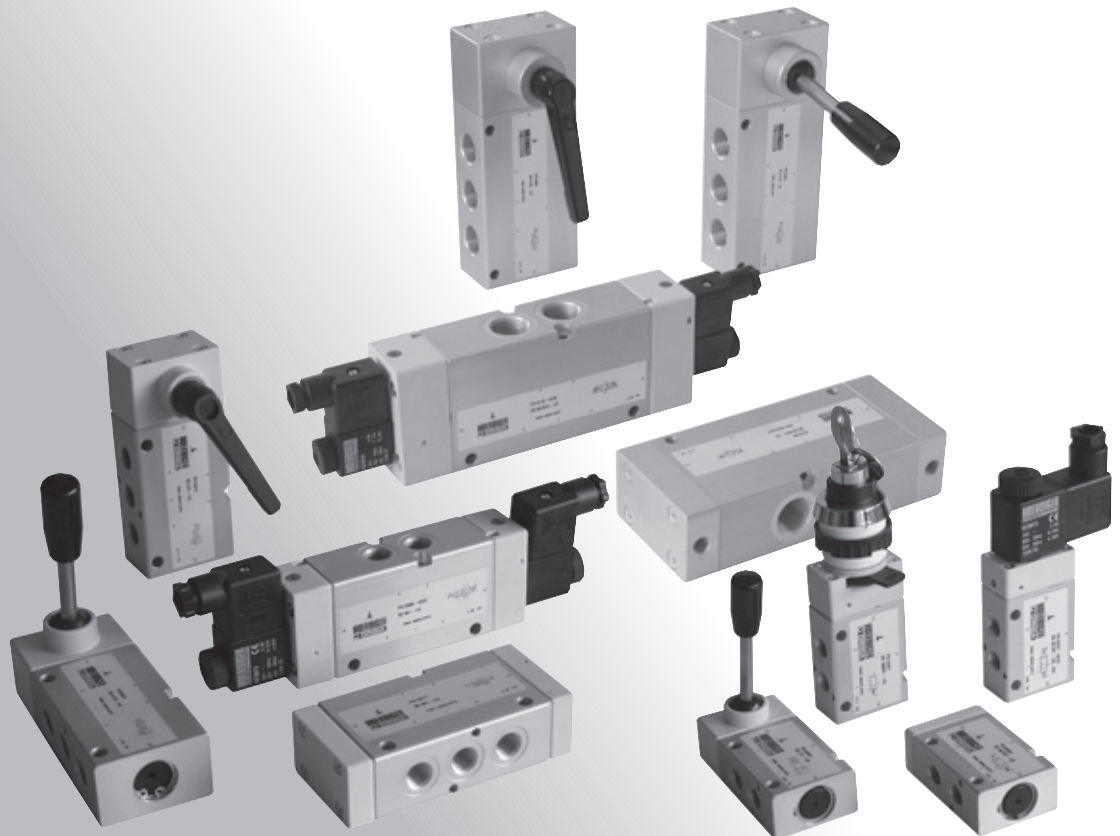
Version	Voltage	Colour	Order No.
Standard version	230 V AC/DC	black	KL9052
Bipolar LED and VDR to protect supply and switch	230 V AC	transparent	KL9056
	24 V DC	transparent	KL9118

Dimensions in mm

Directional Control Valves – Series S9-G1/8 to G1/2

Contents

Version	Actuation	Page		
		Characteristics	Dimensions	Order Instructions Overview
3/2 Way Valves Series S9-G1/8, G1/4, G1/2 for panel mounting to DIN 43696 (only for G1/8)	Manual Control Pneumatic Electric Manual Control	38, 39	40, 46	60, 61
5/2 Way Valves Series S9-G1/8, G1/4, G1/2 for panel mounting to DIN 43696 (only for G1/8)	Manual Control Pneumatic Electric Manual Control	38, 39	47-53	62, 63
5/3 Way Valves Series S9-G1/8, G1/4, G1/2	Manual Control Pneumatic Electric	38, 39	54, 59	64, 65
3/2, 5/2 and 5/3 Way Valve combinations with Logic Elements Series S9-G1/8, G1/4	Pneumatic AND OR TIMER	38, 39	66	67



Directional Control Valves – Series S9-G1/8 to G1/2

Characteristics for Standard Valves

Series S9 – G1/8 to G1/2

Characteristics	Symbol	Unit	Series S9								
			G1/8			G1/4			G1/2		
Actuation			Manual Control	pneumatic	electrical	Manual Control	pneumatic	electrical	Manual Control	pneumatic	electrical
General Features											
Type			Spool valve			Spool valve			Spool valve		
Mounting			2 screws M5			2 screws M6			2 screws M6		
Tube connection			Thread			Thread			Thread		
Port size			G1/8 – 7.4 deep			G1/4 – 11 deep			G1/2 – 16 deep		
Weight		kg	See page 40, 47, 54			See page 43, 50, 56			See page 45, 52, 58		
Installation			In any position			In any position			In any position		
Ambient temperature range ⁽¹⁾	$\vartheta_{\text{min. / max.}}$	°C	-10 to +60			-10 to +60			-10 to +60		
Medium temperature range ⁽¹⁾	$\vartheta_{\text{min. / max.}}$	°C	-10 to +60			-10 to +60			-10 to +60		
Medium			Filtered compressed air								
Lubrication			With or without oil mist lubrication (We recommend the use of mineral oil type VG 32 to ISO 3448)								
Pneumatic Characteristics											
Nominal pressure	$p_{\text{min. / max.}}$	bar	6			6			6		
Operating pressure range	$p_{\text{min. / max.}}$	bar	0–10 ⁽¹⁰⁾			0–10			0–10		
– permanent signal version	$p_{\text{min. / max.}}$	bar	–	0–10	2–10	–	0–10	2–10	–	0–10	2,2–10
– impulse version	$p_{\text{min. / max.}}$	bar	–	0–10	1.5–10 ⁽⁴⁾	–	0–10	1.5–10 ⁽⁴⁾	–	0–10	1.5–10 ⁽⁵⁾
– with external pilot air	$p_{\text{min. / max.}}$	bar	–	–	0–10	–	–	0–10	–	–	0–10
Nominal flow	Q_N	l/min	500 (450 – 3/2 way valve)			1300 ⁽⁷⁾			3500 ⁽⁸⁾		
Actuation											
Manual control			direct			direct			direct		
Stroke		mm	4.5			6.5			9.4		
Actuation force	F_b	N	7 ⁽²⁾ 10 ⁽³⁾			10 ⁽²⁾ 15 ⁽³⁾			15 ⁽²⁾ 40 ⁽³⁾		
Actuation force for panel mounting actuators			see page 40			–			–		
Pneumatic			direct			direct			direct		
Actuation pressure range											
– permanent signal version	$p_{\text{min. / max.}}$	bar	–	2–10	2–10	2–10	2–10	2–10	–	2.2–10 ⁽⁹⁾	2.2–10
– impulse version	$p_{\text{min. / max.}}$	bar	–	1.5–10	1.5–10	1.5–10	1.5–10 ⁽⁴⁾	1.5–10 ⁽⁴⁾	–	1.5–10 ⁽⁵⁾	1.5–10 ⁽⁴⁾
Electrical											
Voltage type			Pilot operated			Pilot operated			Pilot operated		
Voltage type			Alternating current (50/60Hz)			Direct current			Direct current		
Nominal voltage											
– Standard version	U_n	V	230 ±10%			24 ±10%			other voltages on request		
– Low wattage version	U_n	V	230 ±10%			24 ±10%					
Initial power consumption			G1/8	G1/4	G1/2	G1/8	G1/4	G1/2			
– Standard version		VA (W)	8.5	8.5	11.0	2.5	2.5	4.8			
– Low wattage version		VA (W)	6.6	6.6	7.8	2.1	2.1	2.7			
Continuous consumption											
– Standard version		VA (W)	6.0	6.0	8.5	2.5	2.5	4.8			
– Low wattage version		VA (W)	3.9	4.9	4.9	2.1	2.1	2.7			
Duty cycle	ED	%	100								
Electrical protection		IP	IP65 to DIN 40050 (applies only to solenoid with plug)								
Connection			Plug to DIN EN 175301-803 form B – industrial norm ⁽⁶⁾								

⁽¹⁾ Note: for use below freezing point please contact us

⁽²⁾ Action force for valves with spring return, Actuation with rotary lever: 5N

⁽³⁾ Action force for valves with spring return, Actuation with rotary lever: 15N

⁽⁴⁾ only for version with biased position pneumatically actuated 2 – 10 bar, electrically actuated 2.5 – 10 bar

⁽⁵⁾ version with biased position 2.5 – 10 bar

⁽⁶⁾ Low wattage version; Plug to DIN EN 175301-803 form A

⁽⁷⁾ Version "middle position vented" 1000 l/min

⁽⁸⁾ Version "middle position vented" 3300 l/min
Version "middle position pressured" 3600 l/min

⁽⁹⁾ 5/3 way valve 2,5 – 10 bar

⁽¹⁰⁾ valves with panel mounting actuators 2 – 10 bar

Characteristics for Valves in EX Areas

Series S9 – G1/8 to G1/2

Characteristics	Symbol	Unit	Series S9								
			G1/8			G1/4			G1/2		
Actuation			Manual Control	pneu-matic	electrical	Manual Control	pneu-matic	electrical	Manual Control	pneu-matic	electrical
General Features											
Type			Spool valve			Spool valve			Spool valve		
Mounting			2 screws M5			2 screws M6			2 screws M6		
Tube connection			Thread			Thread			Thread		
Port size			G1/8 – 7,4 deep			G1/4 – 11 deep			G1/2 – 16 deep		
Weight		kg	See page 40, 47, 54			See page 43, 50, 56			See page 45, 52, 58		
Installation			In any position			In any position			In any position		
Ambient temperature range ⁽¹⁾	$\varnothing_{\min. / \max.}$	°C	-10 to +60			-10 to +60			-10 to +60		
Medium temperature range ⁽¹⁾	$\varnothing_{\min. / \max.}$	°C	-10 to +60			-10 to +60			-10 to +60		
Medium			filtered, unlubricated compressed air – free from water and dirt to ISO 8573-1 Solids: Class 7 particle size <40 µm for gas. Water content: pressure dew point +3°C, Class 4, but at least 5°C below minimum operating temperature								
Pneumatic Characteristics											
Nominal pressure	$p_{\min. / \max.}$	bar	6			6			6		
Operating pressure range	$p_{\min. / \max.}$	bar	0–8 ⁽¹⁰⁾			0–8			0–8		
– permanent signal version	$p_{\min. / \max.}$	bar	–	0–8	2–8	–	0–8	2–8	–	0–8	2.2–8
– impulse version	$p_{\min. / \max.}$	bar	–	0–8	1.5–8 ⁽⁴⁾	–	0–8	1.5–8 ⁽⁴⁾	–	0–8	1.5–8 ⁽⁵⁾
– with external pilot air	$p_{\min. / \max.}$	bar	–	–	0–8	–	–	0–8	–	–	0–8
Nominal flow	Q_N	l/min	500 (450 at 3/2 way valve)			1300 ⁽⁷⁾			3500 ⁽⁸⁾		
Actuation											
Manual control			direct			direct			direct		
Stroke		mm	4.5			6.5			94		
Actuation force	F_b	N	7 ⁽²⁾ 10 ⁽³⁾			10 ⁽²⁾ 15 ⁽³⁾			15 ⁽²⁾ 40 ⁽³⁾		
Actuation force for panel mounting actuators			see page 40			–			–		
Pneumatic			direct			direct			direct		
Actuation pressure range											
– permanent signal version	$p_{\min. / \max.}$	bar	–	2–8	2–8	2–8	2–8	2–8	–	2.2–8 ⁽⁹⁾	2.2–8
– impulse version	$p_{\min. / \max.}$	bar	–	1.5–8	1.5–8	1.5–8	1.5–8 ⁽⁴⁾	1.5–8 ⁽⁴⁾	–	1.5–8 ⁽⁵⁾	1.5–8 ⁽⁴⁾
Electrical			pilot operated								
Certification			EC Type Test Certificate for single valve: not required for mechanical units in II 2G EC Type Test Certificate for solenoid coil: PTB-No. 03 Ex IEC 2019X and PTB 03 ATEX 2018X to T5								
Category, type of ignition protection			Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C								
Voltage type			Alternating current (50/60Hz)			Direct current					
Nominal voltage	U_N	V	230 ±10% 110 ±10% 24 ±10%			24 ±10%			other voltages on request		
Max. switching frequency			Hz			1 (independently of actuation type)					
Power rating at U_N			VA (W)			VA (W)					
			G1/8, G1/4, G1/2			G1/8, G1/4, G1/2					
			3.1 (230V)			3.3 (24V)					
			3.0 (110V)								
			2.5 (24V)								
Power limit at U_N ⁽⁶⁾			VA (W)			VA (W)					
			2.9 (230V)			3.0 (24V)					
			2.8 (110V)								
			2.4 (24V)								
Electrical protection			IP			IP65 (applies only to solenoid with cable)					
Connection						Cable – cable lengths see Order Instructions					

⁽¹⁾ Note: for use below freezing point please contact us

⁽²⁾ Action force for valves with spring return, Actuation with rotary lever: 5N

⁽³⁾ Action force for valves with spring return, Actuation with rotary lever: 15N

⁽⁴⁾ only for version with biased position pneumatically actuated 2 – 8 bar, electrically actuated 2.5 – 8 bar

⁽⁵⁾ version with biased position 2.5 – 8 bar

⁽⁶⁾ maximum power if warmed up to thermal load limit

⁽⁷⁾ Version "middle position vented" 1000 l/min

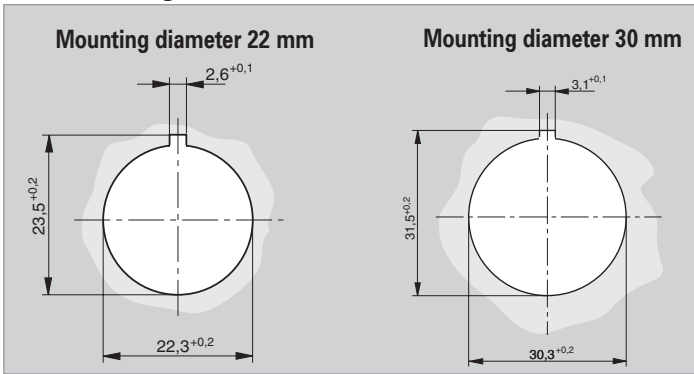
⁽⁸⁾ Version "middle position vented" 3300 l/min

Version "middle position pressured" 3600 l/min

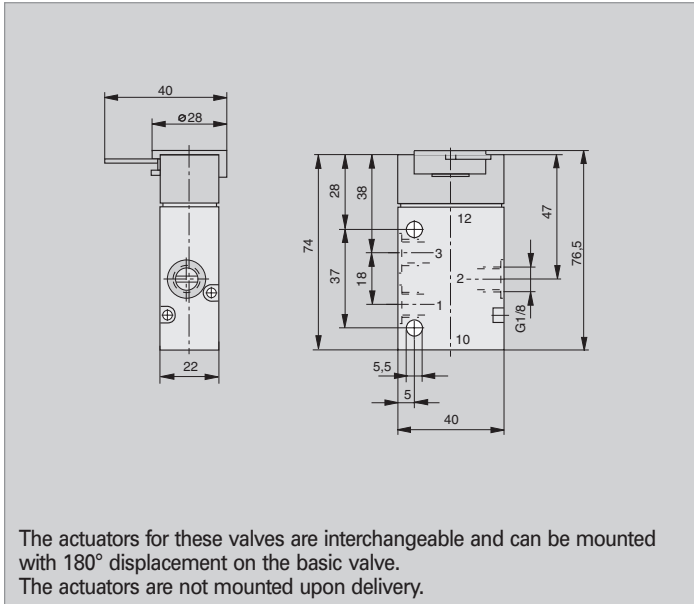
⁽⁹⁾ 5/3 way valve 2.5 – 8 bar

⁽¹⁰⁾ valves with panel mounting actuators 2 – 8 bar

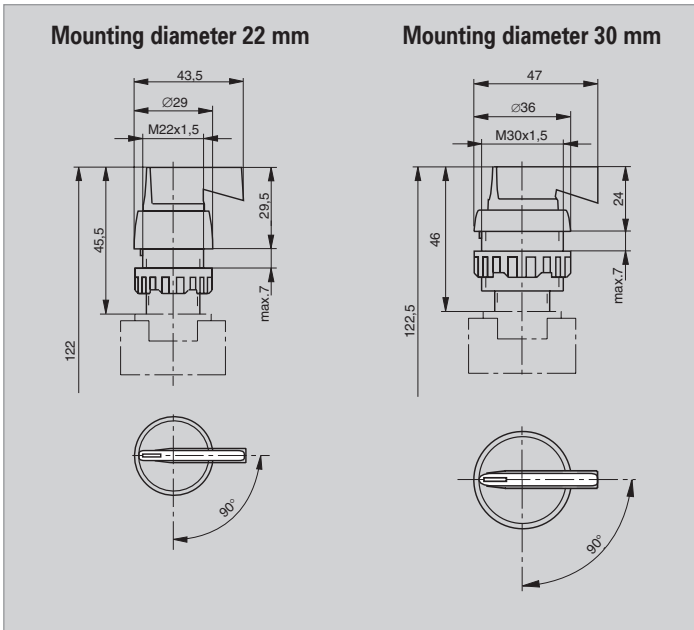
**Mounting holes
for mounting diameters 22 and 30 mm**



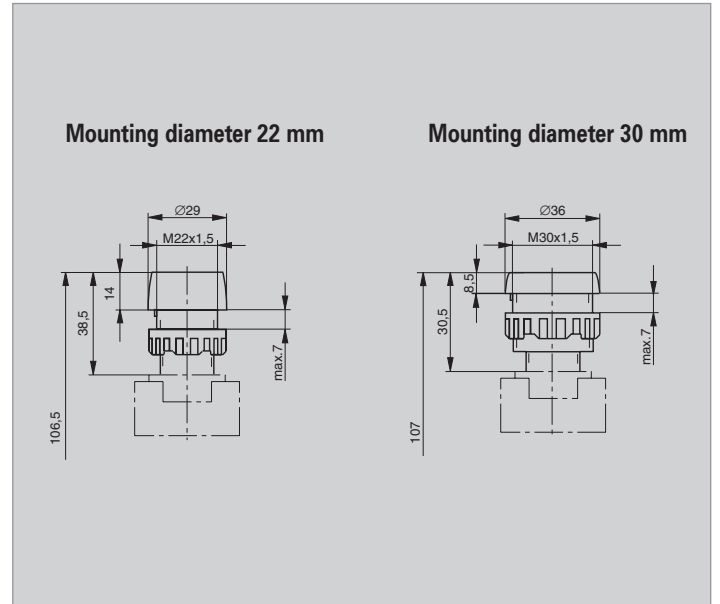
**Basic valve for panel mounting actuators
Type: S9 390RF-1/8**



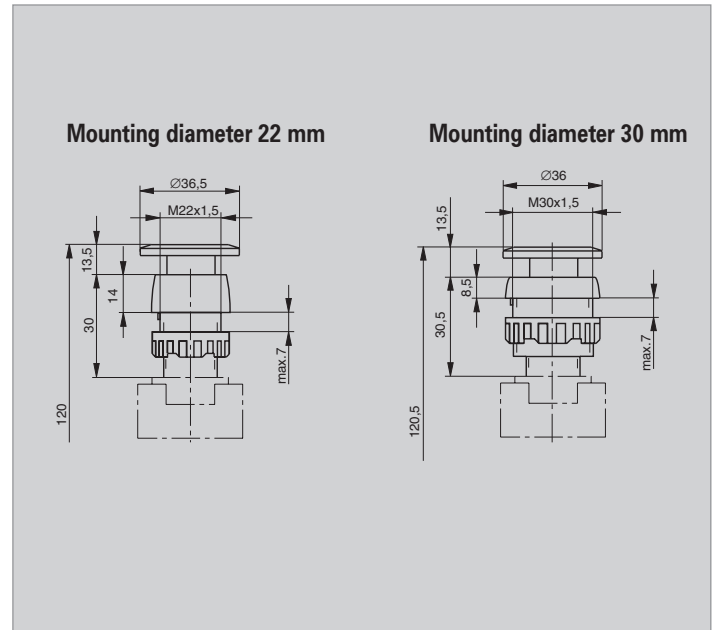
**Rotary lever, indexed
Type: 12T-22, 12T-30,**



**Pushbutton
Type: 13T-RF-22, 13T-RF-30**



**Mushroom pushbutton
Type: 15T-RF-22, 15T-RF-30**

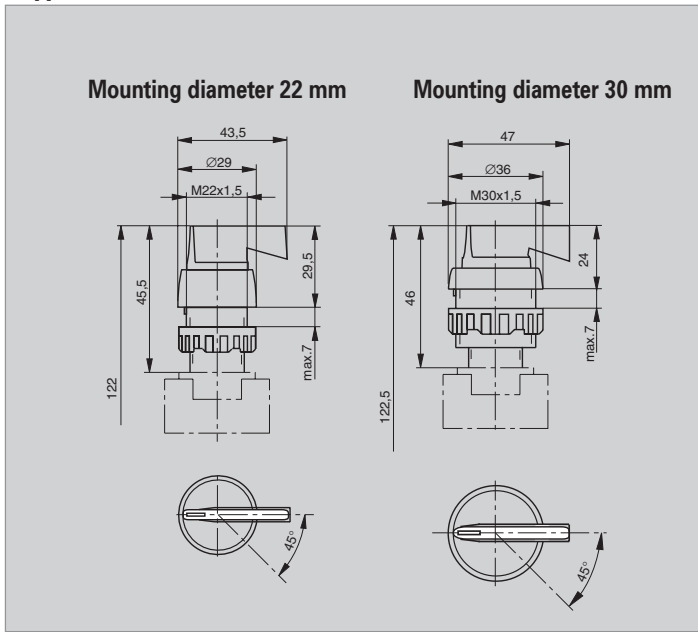


Order Instructions see page 60, 61, characteristics see page 38, 39

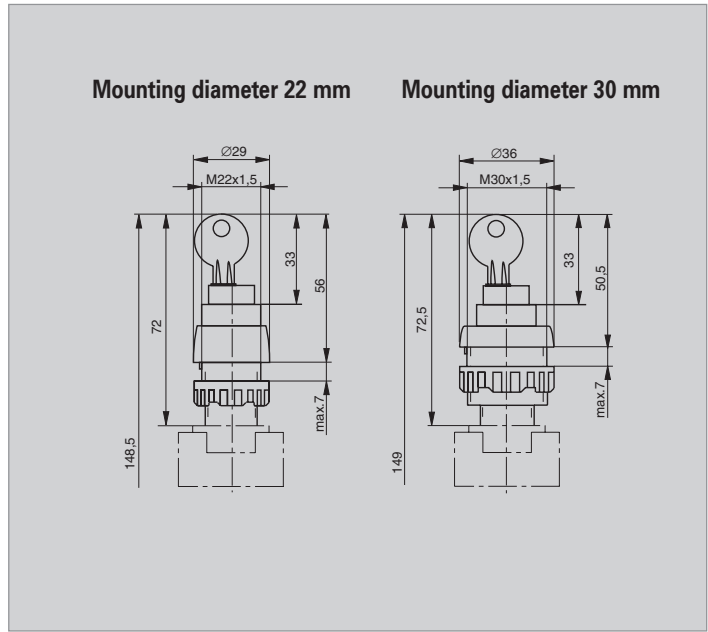
3/2 Way Valves – Series S9-G1/8

Dimensions

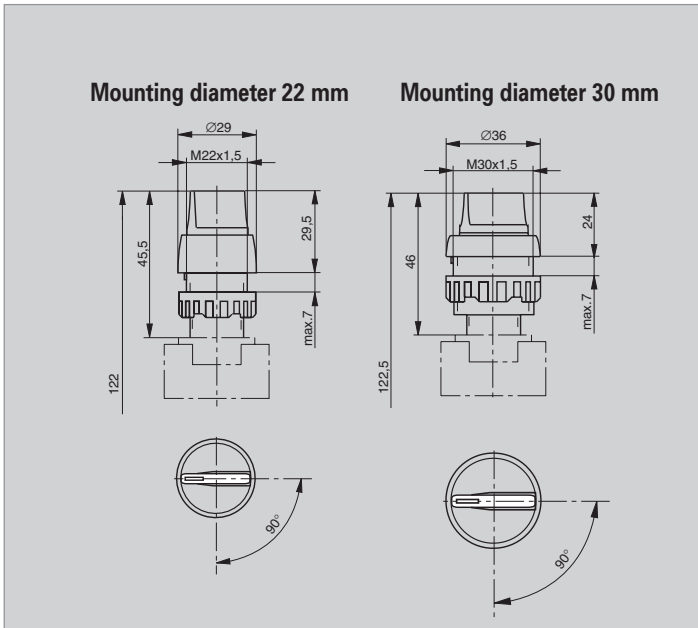
Rotary lever with spring return
Type: 12T-RF-22, 12T-RF-30



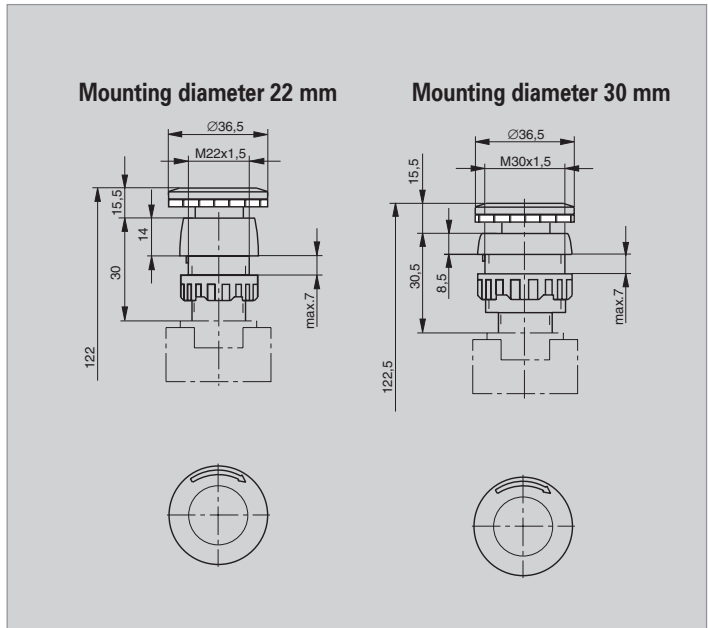
Locking switch
Type: 16T-22, 16T-30



Rotary switch
Type: 17T-22, 17T-30



Mushroom switch (EMERGENCY SHUTDOWN)
Type: 18T-22, 18T-30

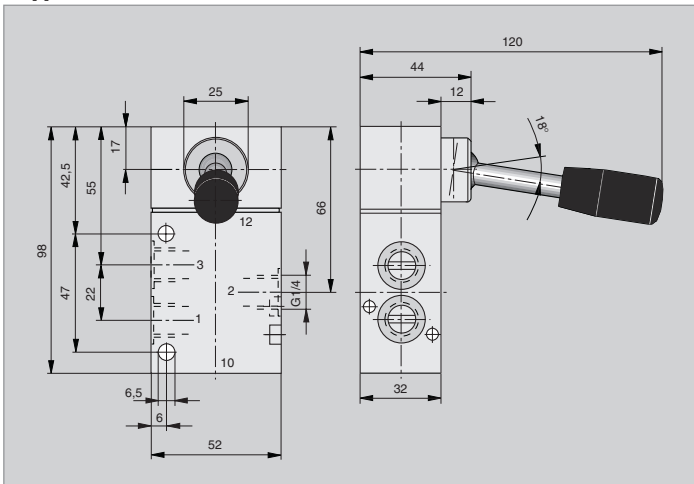


Order Instructions see page 60, 61, characteristics see page 38, 39

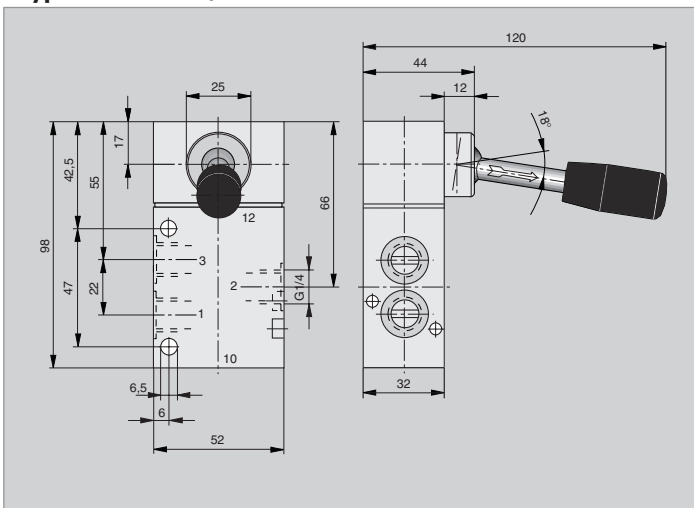
3/2 Way Valves – Series S9-G1/4

Dimensions

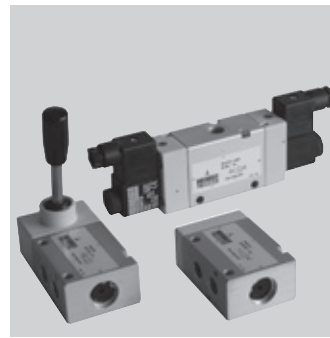
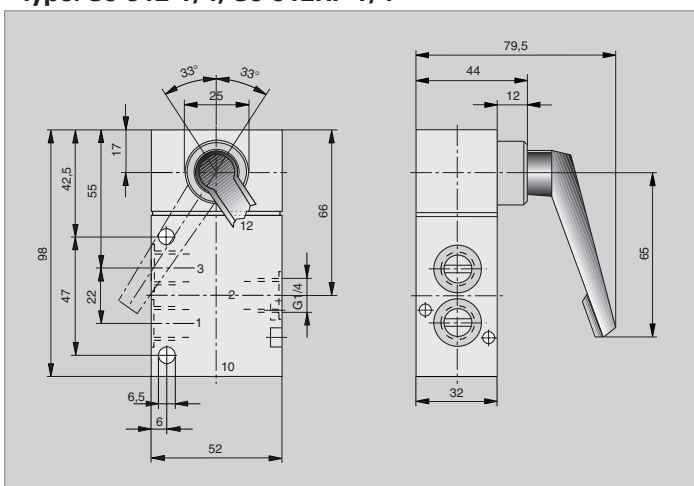
Hand lever actuated
Type: S9 311-1/4, S9 311RF-1/4



Safety hand lever actuated
Type: S9 311S-1/4



Rotary lever actuated
Type: S9 312-1/4, S9 312RF-1/4



3/2 Way Valves Series S9 G1/4

- Actuation:
- Hand lever
 - Pneumatic
 - Electrical pilot operated
 - Electrical pilot operated with external pilot air

Versions

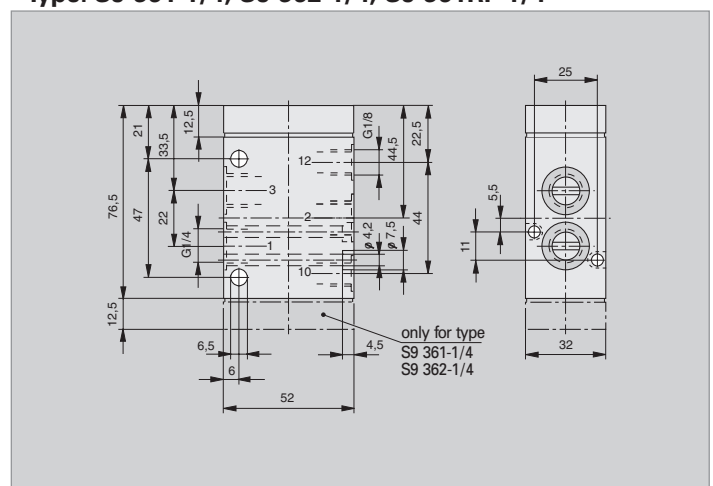
- normally closed
- normally open
- with external pilot air
- with biased position
- version to ATEX Standard

Weight (mass) kg

Description	Type	Weight (mass)
Hand lever, indexed	S9 311-1/4	0.370
- with spring return	S9 311RF-1/4	0.370
Safety hand lever	S9 311S-1/4	0.370
Rotary lever, indexed	S9 312-1/4	0.370
- with spring return	S9 312RF-1/4	0.370
Pneumatic by permanent signal	S9 361RF-1/4	0.370
Pneumatic by impulse	S9 361-1/4	0.430
- with biased position	S9 362-1/4	0.430
Electrical by permanent signal	S9 381(S) RF-1/4	0.500
Electrical by impulse	S9 381(S)-1/4	0.600
- with biased position	S9 382(S)-1/4	0.600

Pneumatically actuated

Type: S9 361-1/4, S9 362-1/4, S9 361RF-1/4



Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 92, 95

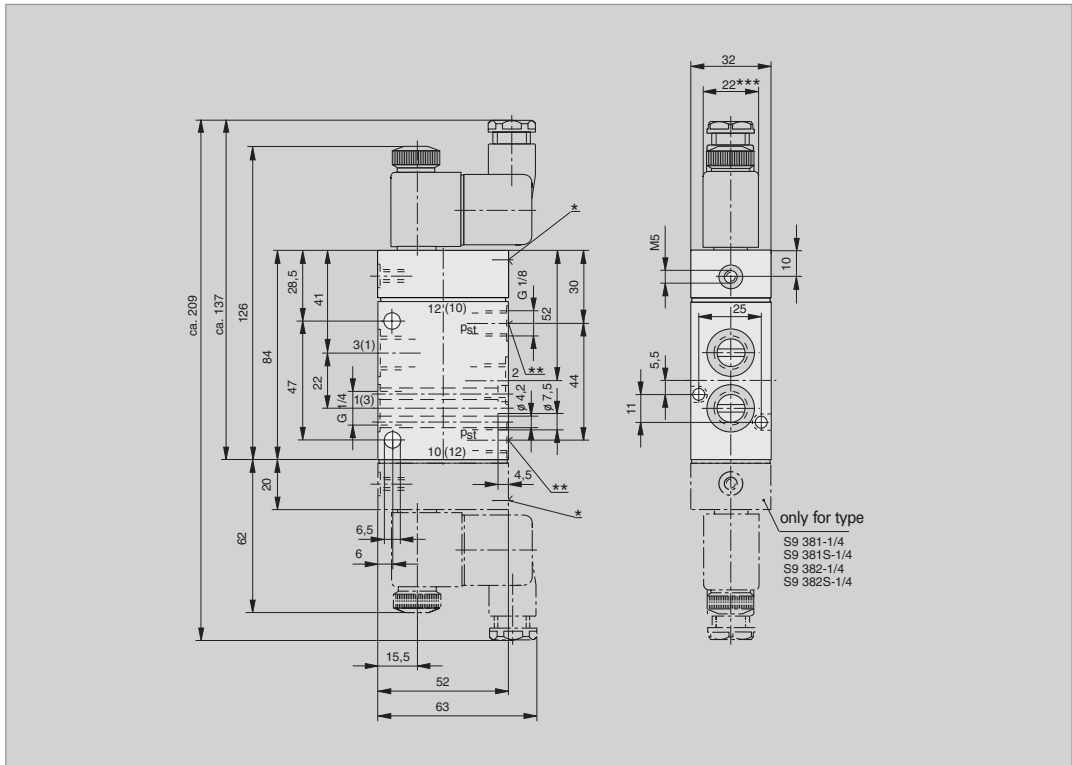
3/2 Way Valves – Series S9-G1/4

Dimensions

Electrically actuated

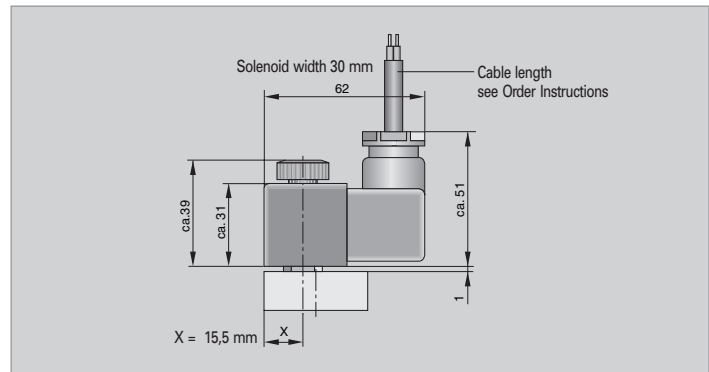
Type: S9 381(S)-1/4, S9 382(S)-1/4, S9 381(S)RF-1/4

Note:
The “normally open” version cannot be used on a P-supply manifold



- * Manual override
- ** Operating pressure supply p_{st} only for type S9 381S
- *** Solenoid width is 30 mm on low wattage coil version

Solenoid for use in EX areas Dimensions



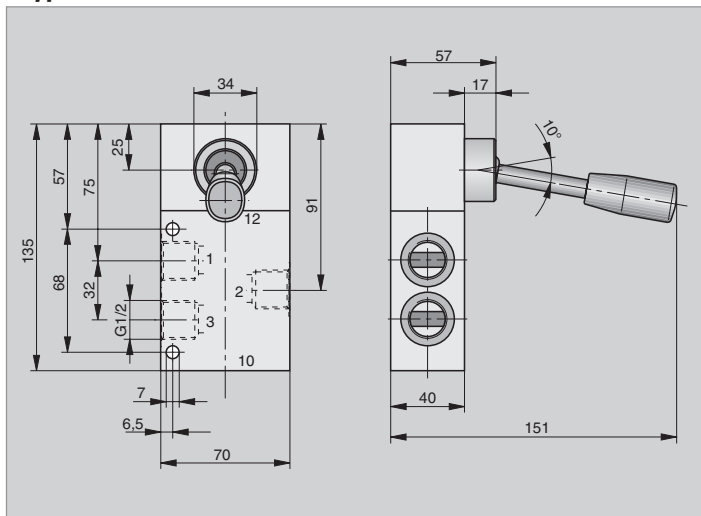
For more information on valves to ATEX standards see page 39, 61

Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

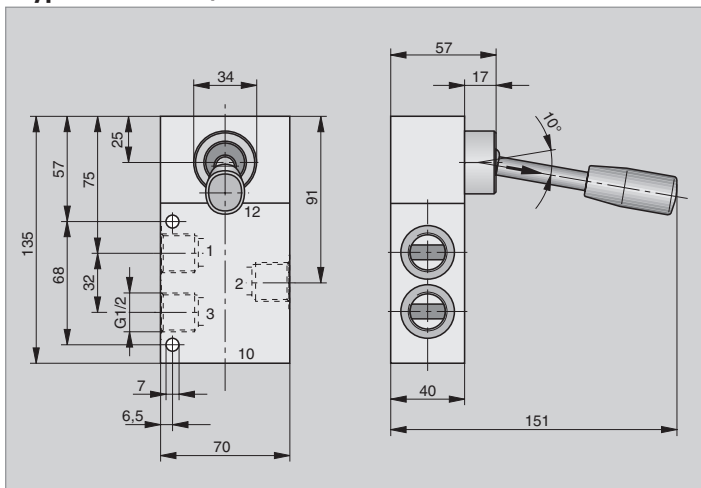
3/2 Way Valves – Series S9-G1/2

Dimensions

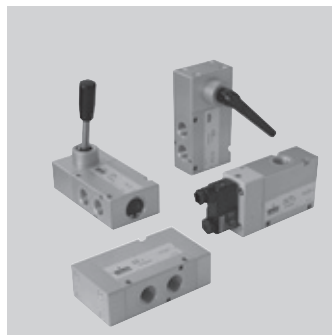
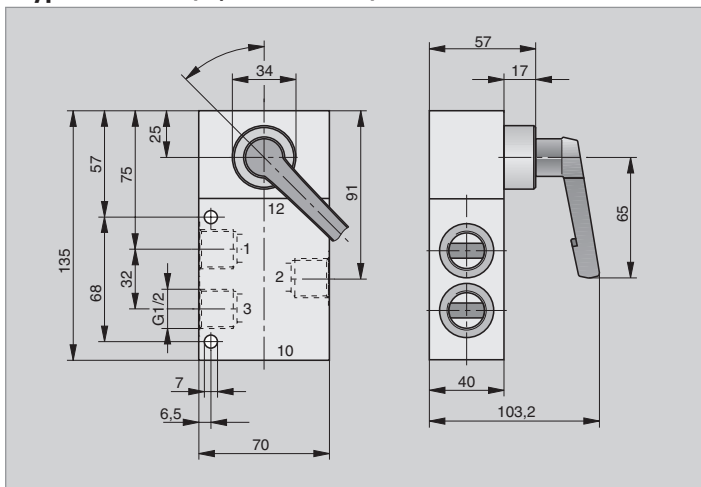
Hand lever actuated
Type: S9 311-1/2, S9 311RF-1/2



Safety hand lever actuated
Type: S9 311S-1/2



Rotary lever actuated
Type: S9 312-1/2, S9 312RF-1/2



3/2 Way Valves Series S9 G1/2

- Actuation:
- Hand lever
 - Pneumatic
 - Electrical pilot operated
 - Electrical pilot operated with external pilot air

Versions

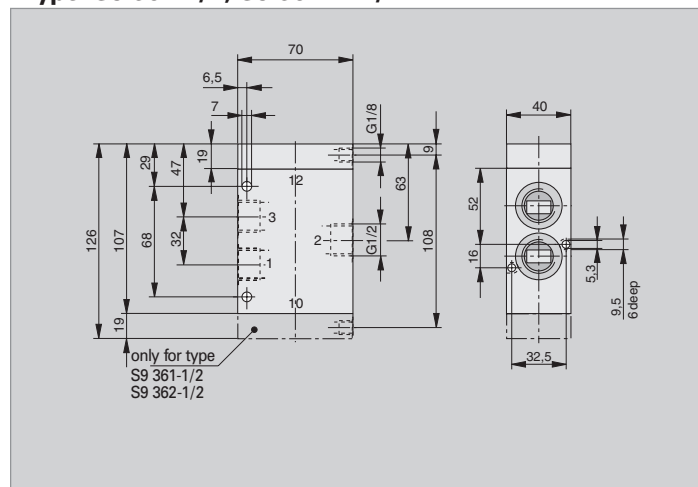
- normally closed
- normally open
- with external pilot air
- with biased position
- version to ATEX Standard

Weight (mass) kg

Description	Type	Weight (mass)
Hand lever, indexed	S9 311-1/2	0.900
- with spring return	S9 311RF-1/2	0.900
Safety hand lever	S9 311S-1/2	0.900
Rotary lever, indexed	S9 312-1/2	0.950
- with spring return	S9 312RF-1/2	0.950
Pneumatic by permanent signal	S9 361RF-1/2	0.700
Pneumatic by impulse	S9 361-1/2	0.650
- with biased position	S9 362-1/2	0.650
Electrical by permanent signal	S9 381(S) RF-1/2	0.770
Electrical by impulse	S9 381(S)-1/2	1.008
- with biased position	S9 382(S)-1/2	1.008

Pneumatically actuated

Type: S9 361-1/2, S9 361RF-1/2



Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

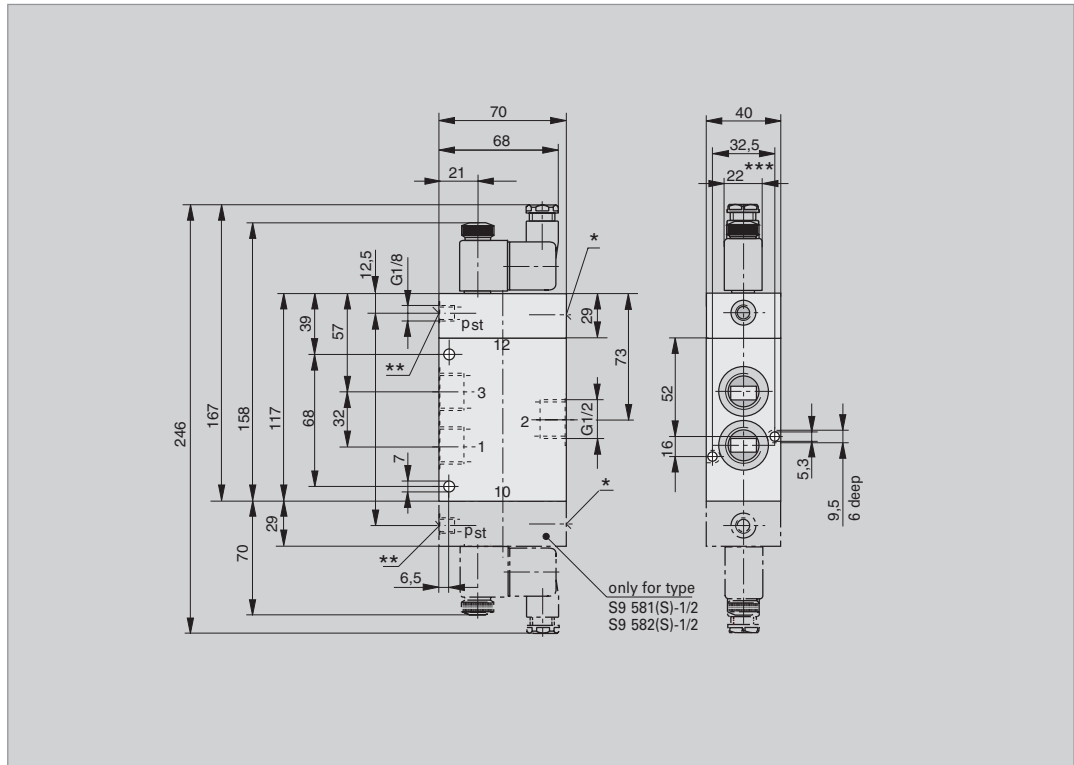
3/2 Way Valves – Series S9-G1/2

Dimensions

Electrically actuated

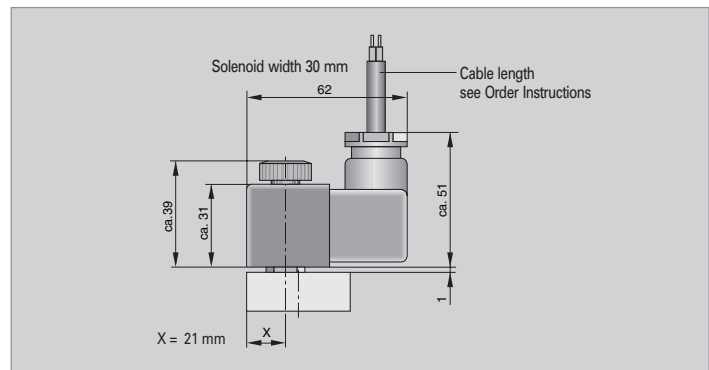
Type: S9 381(S)-1/2, S9 382(S)-1/2, S9 381(S)RF-1/2

Note:
The “normally open” version cannot be used on a P-supply manifold



- * Manual override
- ** Operating pressure supply p_{st} only for type S9 581S on low wattage coil version
- *** Solenoid width is 30 mm

Solenoid for use in EX areas Dimensions



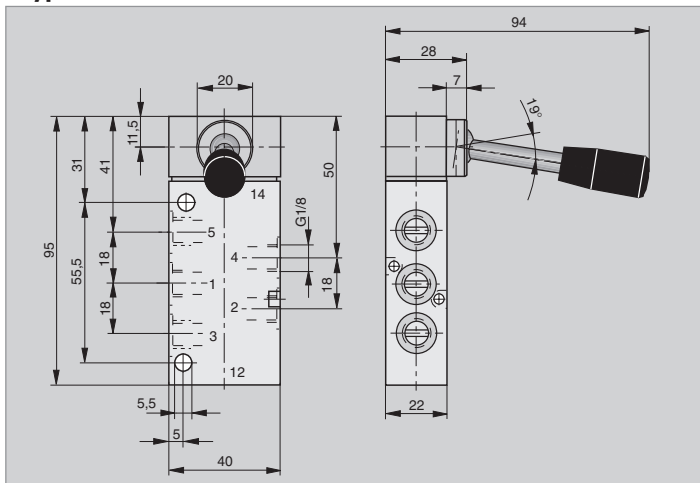
For more information on valves to ATEX standards see page 39, 61

Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

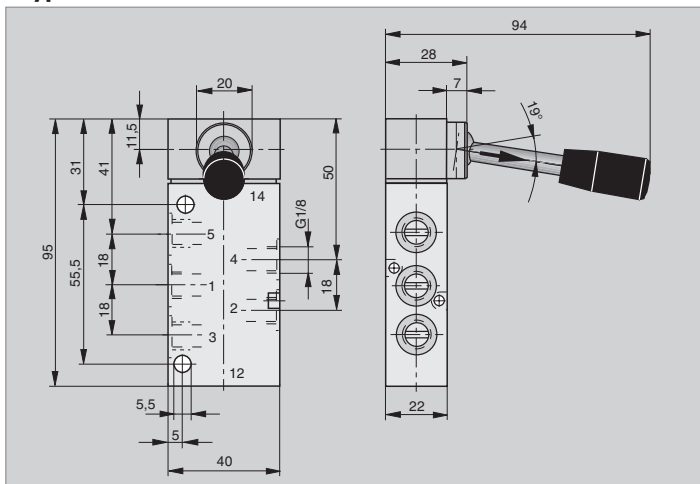
5/2 Way Valves – Series S9-G1/8

Dimensions

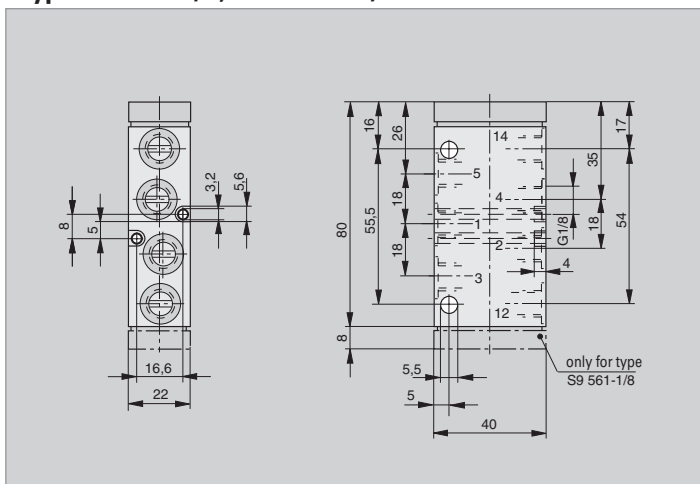
Hand lever actuated
Type: S9 511-1/8, S9 511RF-1/8



Safety hand lever actuated
Type: S9 511S-1/8



Pneumatically actuated
Type: S9 561-1/8, S9 561RF-1/8



5/2 Way Valves Series S9 G1/8

- Actuation:
- Hand lever
 - Safety hand lever
 - Pneumatic
 - Electrical pilot operated
 - Electrical pilot operated with external pilot air
 - Panel mounting actuators for mounting diameter to DIN 43696

- Versions**
- with external pilot air
 - with biased position
 - version to ATEX Standard

Weight (mass) kg

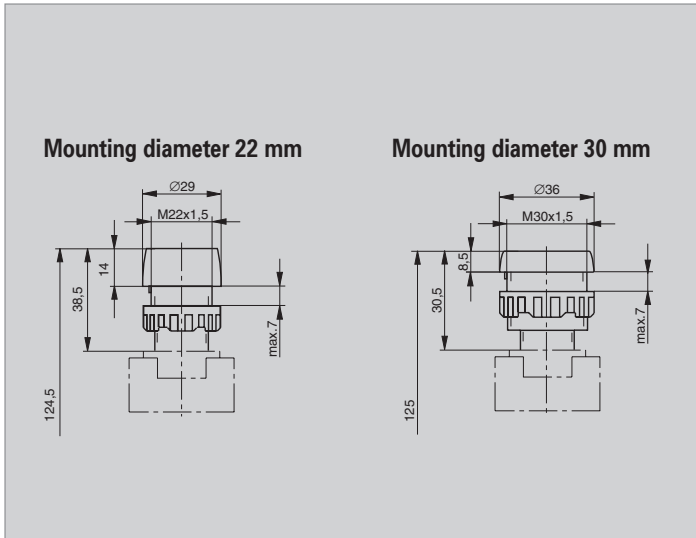
Description	Type	Weight (mass)
Hand lever, indexed	S9 511-1/8	0.195
- with spring return	S9 511RF-1/8	0.195
Safety hand lever	S9 511S-1/8	0.195
Pneumatic by permanent signal	S9 561RF-1/8	0.160
Pneumatic by impulse	S9 561-1/8	0.170
Electrical by permanent signal	S9 581(S)RF-1/8	0.280
Electrical by impulse	S9 581(S)-1/8	0.415
- with biased position	S9 582-1/8	0.415

Weight (mass) kg and actuation forces for valves with panel mounting actuators

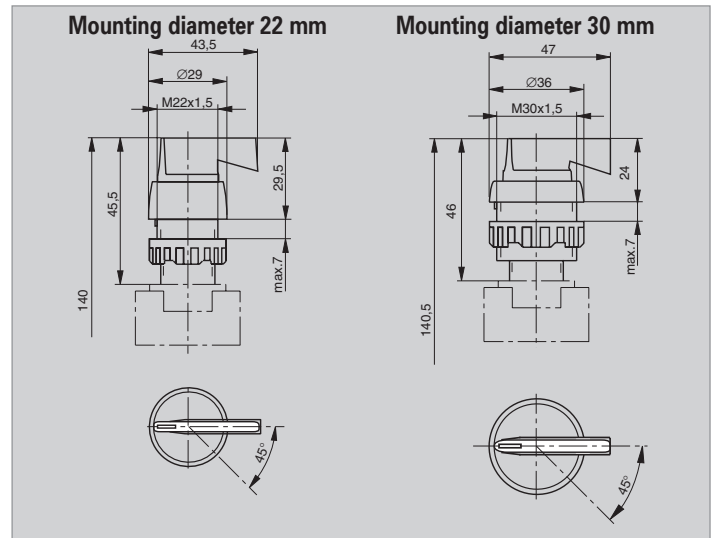
Description	Type	Actuation force (N, Nm)	Weight (mass)
Rotary lever	S9 512T-1/8	0.3	0.160
	S9 512T-RF-1/8	0.3	0.160
Pushbutton	S9 513T-RF-1/8	8.0	0.150
Mushroom pushbutton	S9 515T-RF-1/8	8.0	0.160
Locking switch	S9 516T-1/8	9.0	0.225
Rotary switch	S9 517T-1/8	0.3	0.150
Mushroom pushbutton EMERGENCY-OFF	S9 518T-1/8	10.0	0.160

Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

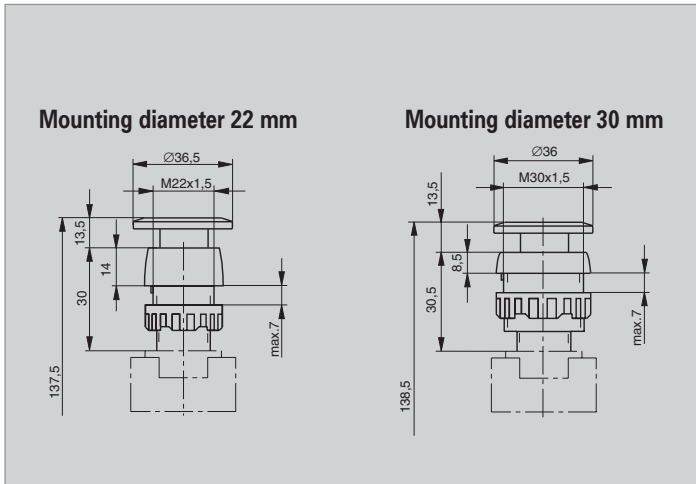
Pushbutton
Type: 13T-RF-22, 13T-RF-30



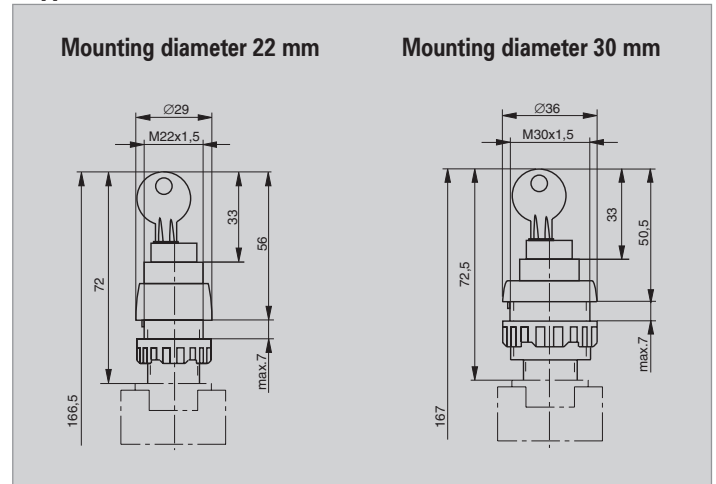
Rotary lever with spring return
Type: 12T-RF-22, 12T-RF-30



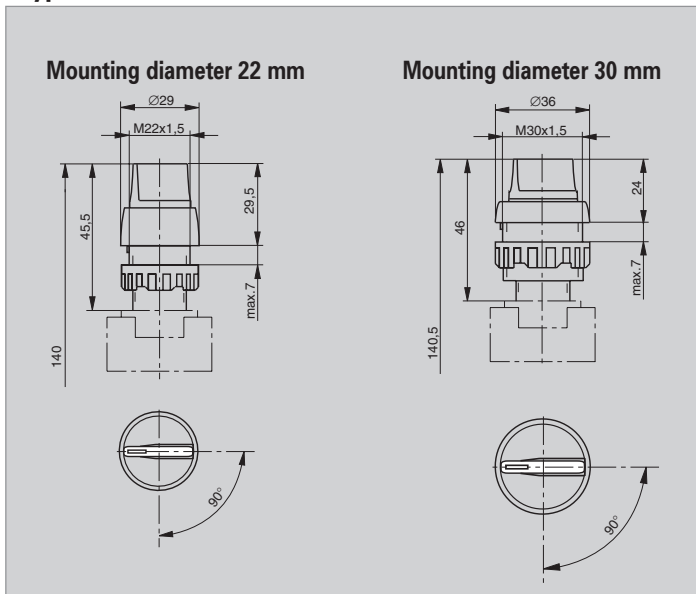
Mushroom pushbutton
Type: 15T-RF-22, 15T-RF-30



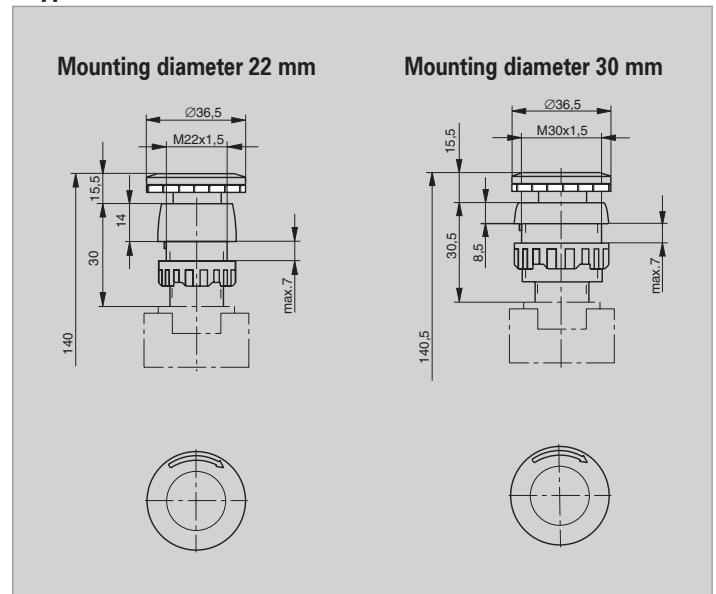
Locking switch
Type: 16T-22, 16T-30



Rotary switch
Type: 17T-22, 17T-30



Mushroom switch (EMERGENCY SHUTDOWN)
Type: 18T-22, 18T-30



Order Instructions see page 60, 61, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

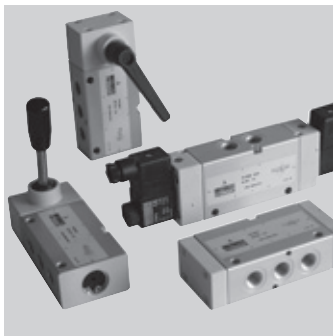
5/2 Way Valves – Series S9-G1/4

Dimensions

5/2 Way Valves Series S9 G1/4

Actuation:

- Hand lever
- Safety hand lever
- Pneumatic
- Electrical pilot operated
- Electrical pilot operated with external pilot air

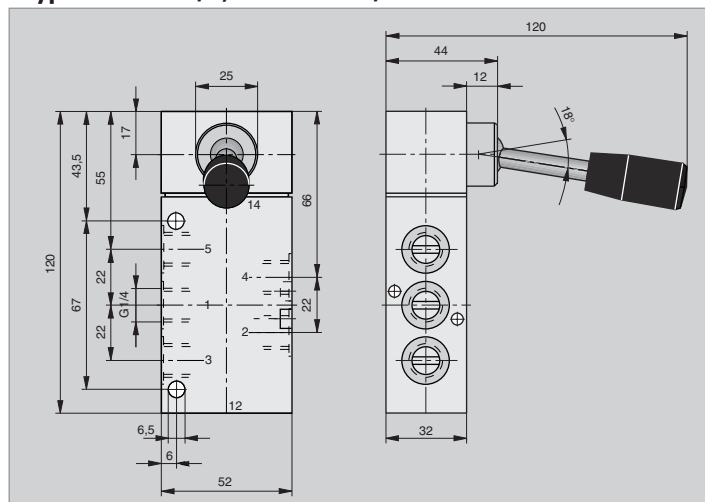


Versions

- with external pilot air
- with biased position
- version to ATEX Standard

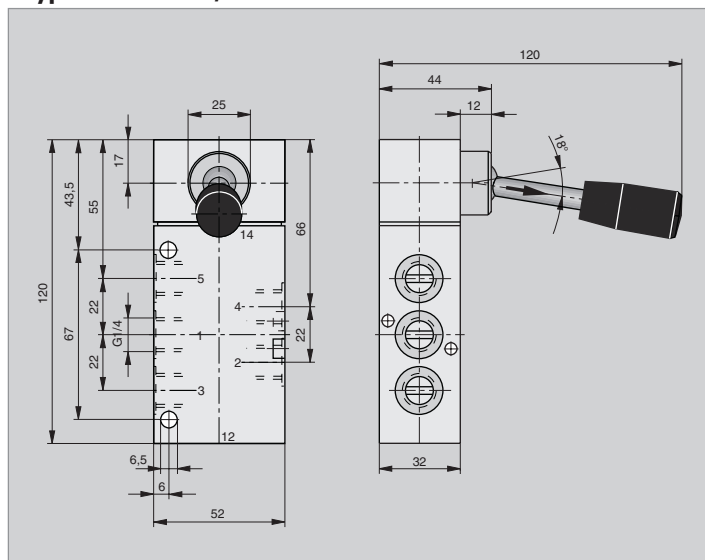
Hand lever actuated

Type: S9 511-1/4, S9 511RF-1/4



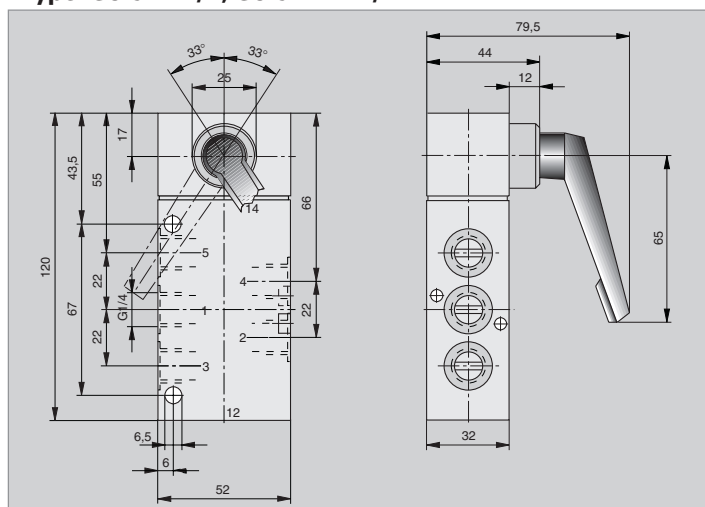
Safety hand lever actuated

Type: S9 511S-1/4



Rotary lever actuated

Type: S9 512-1/4, S9 512RF-1/4



Weight (mass) kg

Description	Type	Weight (mass)
Hand lever, indexed	S9 511-1/4	0.520
– with spring return	S9 511RF-1/4	0.520
Safety hand lever	S9 511S-1/4	0.520
Rotary lever, indexed	S9 512-1/4	0.520
– with spring return	S9 512RF-1/4	0.520
Pneumatic by permanent signal	S9 561RF-1/4	0.490
Pneumatic by impulse	S9 561-1/4	0.510
– with biased position	S9 562-1/4	0.510
Electrical by permanent signal	S9 581(S) RF-1/4	0.600
Electrical by impulse	S9 581(S)-1/4	0.700
– with biased position	S9 582(S)-1/4	0.700

Order Instructions see page 62, 63, characteristics see page 38, 39

P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

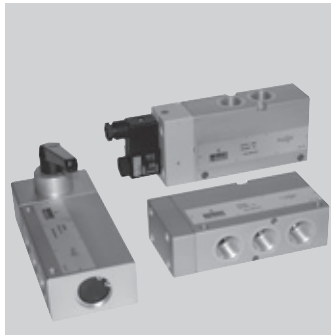
5/2 Way Valves – Series S9-G1/2

Dimensions

5/2 Way Valves Series S9 G1/2

Actuation:

- Hand lever
- Safety hand lever
- Pneumatic
- Electrical pilot operated

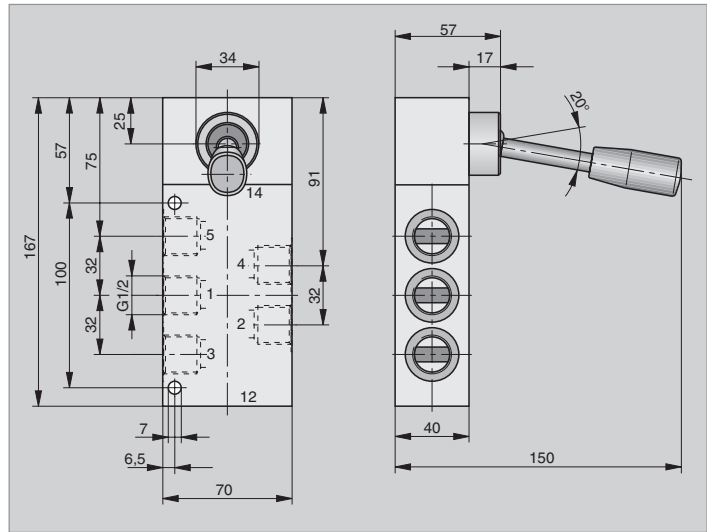


Versions

- with external pilot air
- with biased position
- version to ATEX Standard

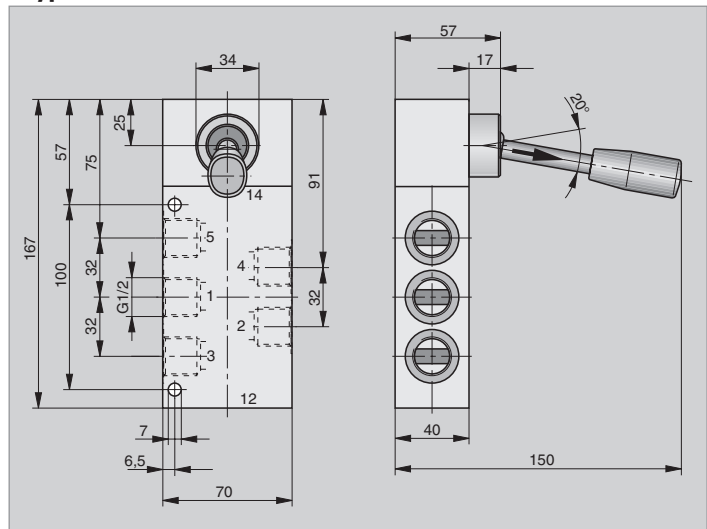
Hand lever actuated

Type: S9 511-1/2, S9 511RF-1/2



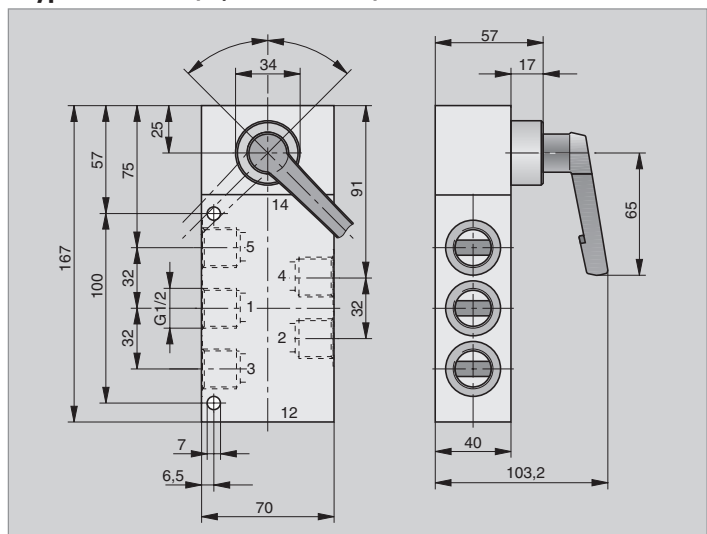
Safety hand lever actuated

Type: S9 511S-1/2



Rotary lever actuated

Type: S9 512-1/2, S9 512RF-1/2

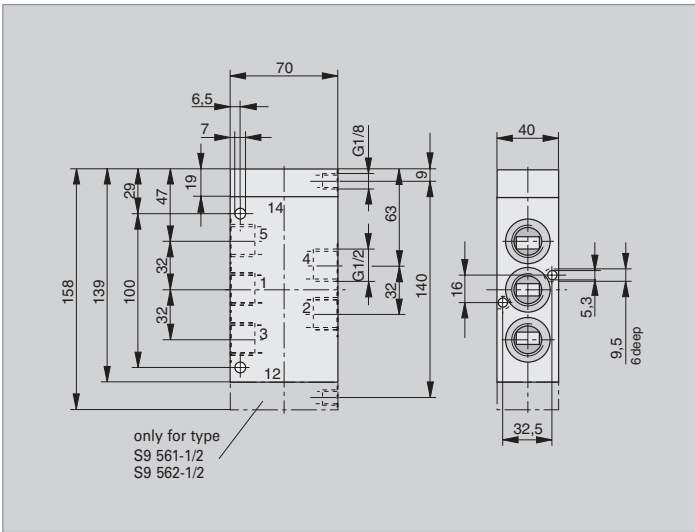


Weight (mass) kg

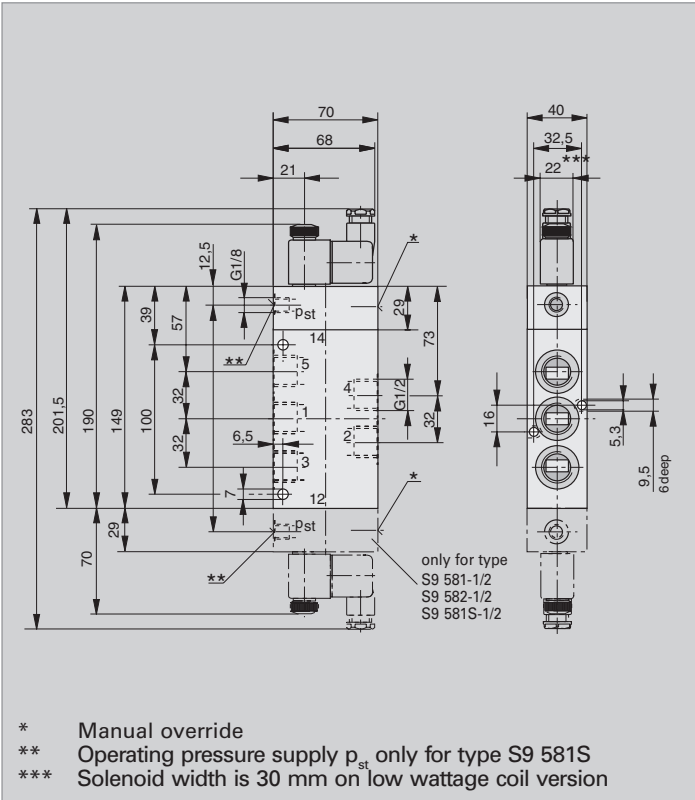
Description	Type	Weight (mass)
Hand lever, indexed	S9 511-1/2	0.120
- with spring return	S9 511RF-1/2	0.120
Safety hand lever	S9 511S-1/2	0.120
Rotary lever, indexed	S9 512-1/2	0.120
- with spring return	S9 512RF-1/2	0.120
Pneumatic by permanent signal	S9 561RF-1/2	0.800
Pneumatic by impulse	S9 561-1/2	0.900
- with biased position	S9 562-1/2	0.900
Electrical by permanent signal	S9 581(S) RF-1/2	1.000
Electrical by impulse	S9 581(S)-1/2	1.045
- with biased position	S9 582-1/2	1.045

Order Instructions see page 62, 63, characteristics see page 38, 39
P-supply manifolds see page 94

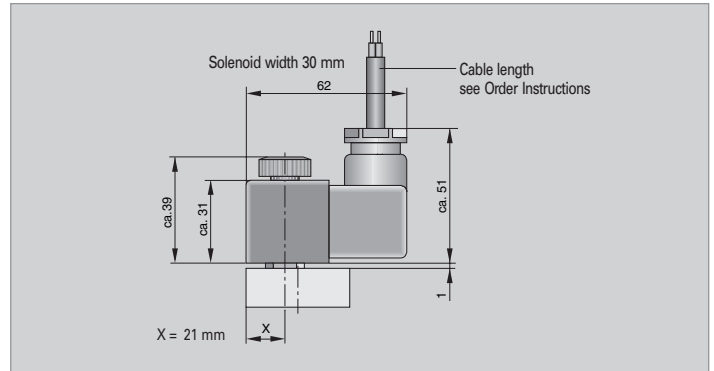
Pneumatically actuated
Type: S9 561-1/2, S9 561RF-1/2, S9 562-1/2



Electrically actuated
Type: S9 581(S)-1/2, S9 582-1/2, S9 581(S)RF-1/2



Solenoid for use in EX areas
Dimensions



For more information on valves to ATEX standards see page 39, 63

Order Instructions see page 62, 63, characteristics see page 38, 39
 P-supply manifolds see page 94

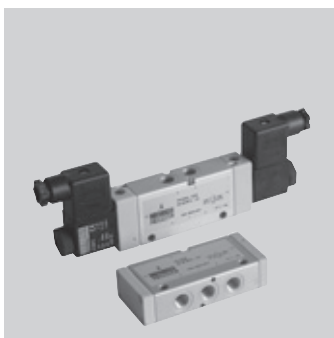
5/3 Way Valves – Series S9-G1/8

Dimensions

5/3 Way Valves Series S9 G1/8

Actuation:

- Hand lever
- Safety hand lever
- Pneumatic
- Electrical pilot operated

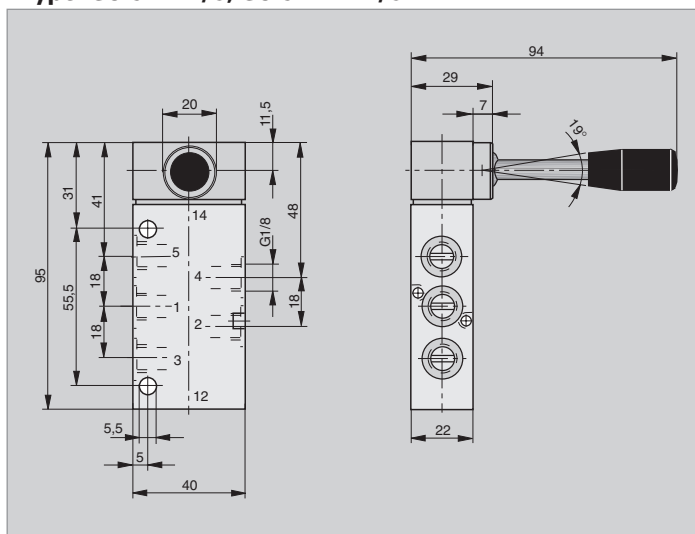


Versions

- with external pilot air
- version to ATEX Standard

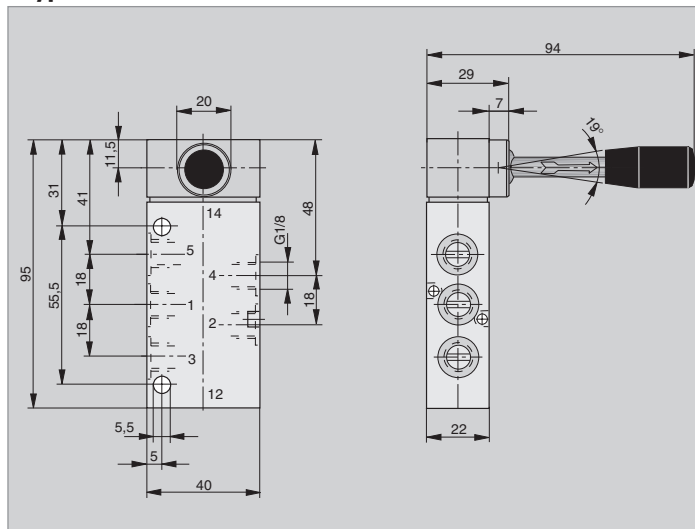
Hand lever actuated

Type: S9 511.-1/8, S9 511RF-1/8



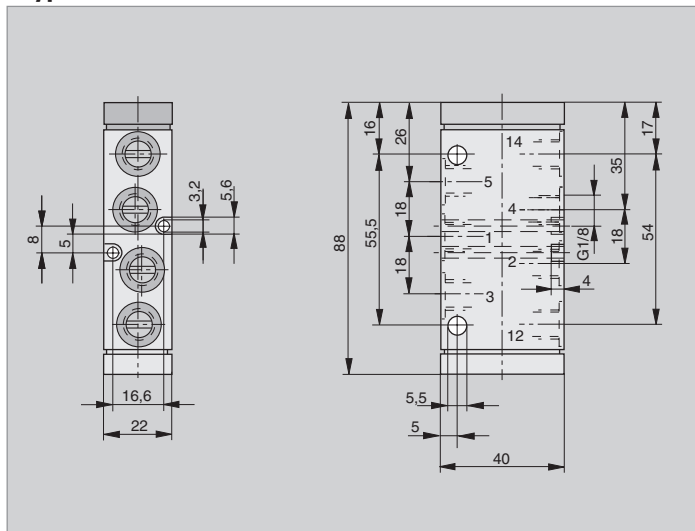
Safety hand lever actuated

Type: S9 511S.-1/8



Pneumatically actuated

Type: S9 561RF-1/8



Weight (mass) kg

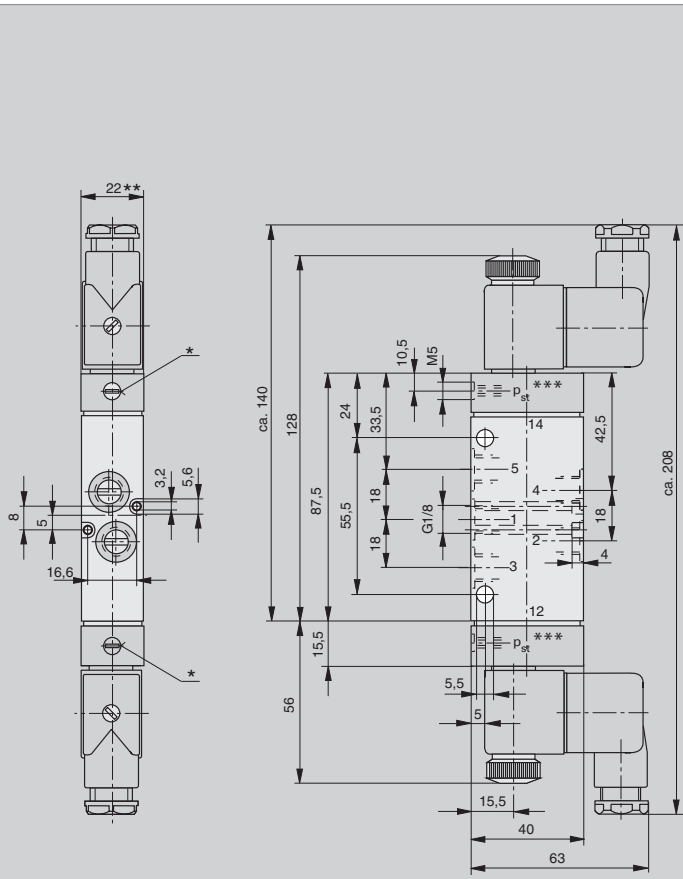
Description	Type *	Weight (mass)
Hand lever, indexed	S9 511.-1/8	0.195
- with spring return	S9 511RF-1/8	0.195
Safety hand lever	S9 511S.-1/8	0.195
Pneumatic by permanent signal	S9 561RF-1/8	0.180
Electrical by permanent signal	S9 581RF-1/8	0.425
Electrical by permanent signal	S9 581S-RF-1/8	0.425

* Type code for middle position functions

- G = middle position closed
- E = middle position vented
- B = middle position pressurized

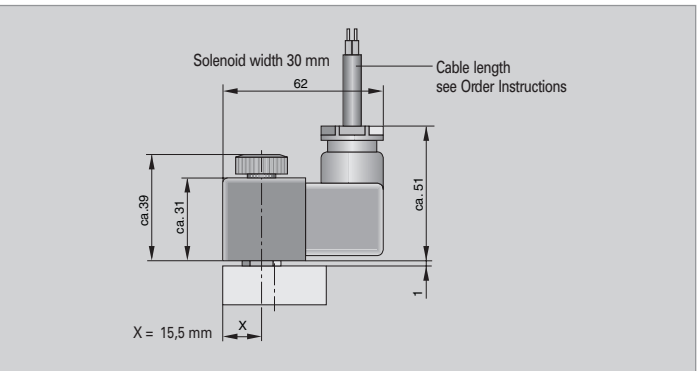
Order Instructions see page 64, 65, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

**Electrically actuated
Type: S9 561(S-)RF-1/8**



- * Manual override
- ** Solenoid width is 30 mm on low wattage coil version
- *** Operating pressure supply p_{st} only for type S9 581S

**Solenoid for use in EX areas
Dimensions**



For more information on valves to ATEX standards see page 39, 65

Order Instructions see page 64, 65, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

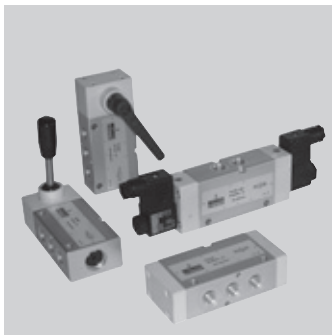
5/3 Way Valves – Series S9-G1/4

Dimensions

5/3 Way Valves Series S9 G1/4

Actuation:

- Hand lever
- Safety hand lever
- Pneumatic
- Electrical pilot operated

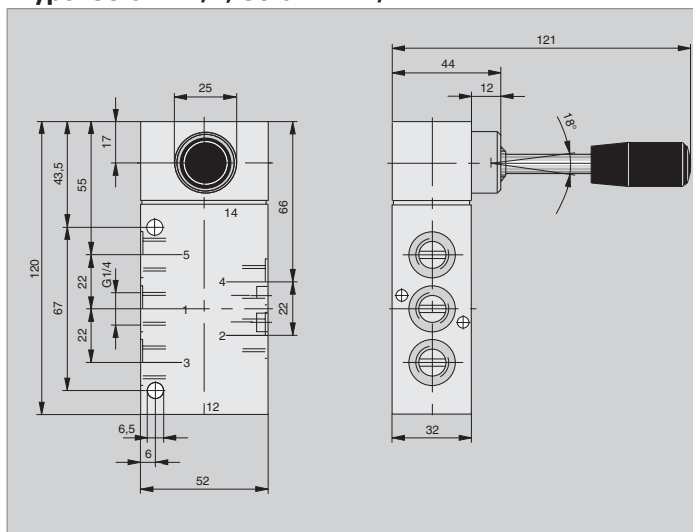


Versions

- version to ATEX Standard

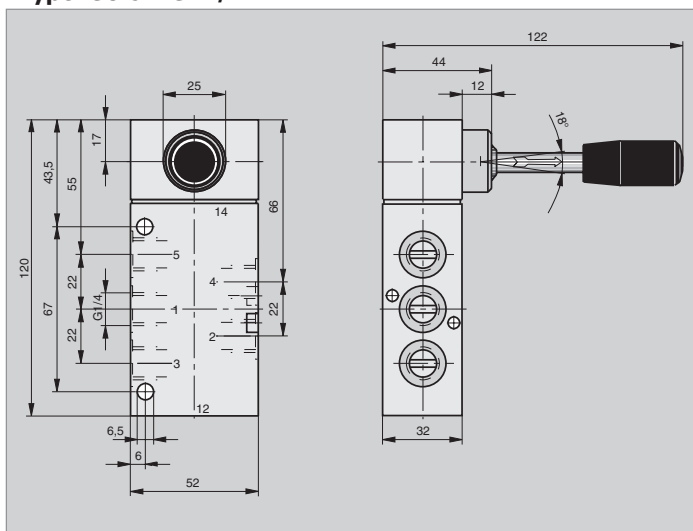
Hand lever actuated

Type: S9 511.-1/4, S9 511RF-1/4



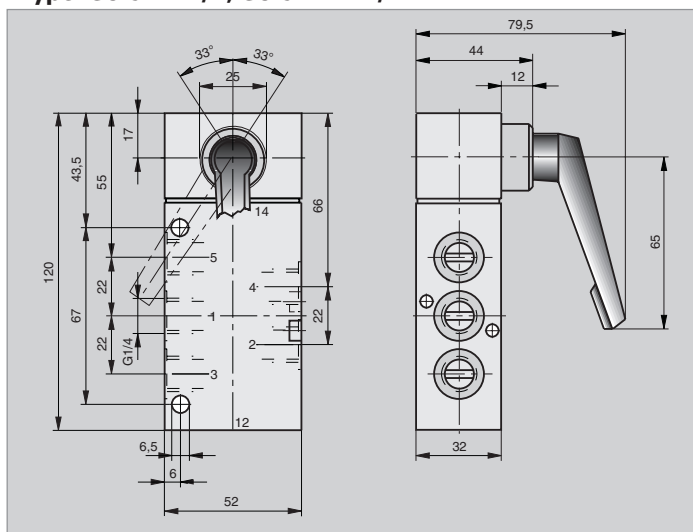
Safety hand lever actuated

Type: S9 511S.-1/4



Rotary lever actuated

Type: S9 512.-1/4, S9 512RF-1/4



Weight (mass) kg

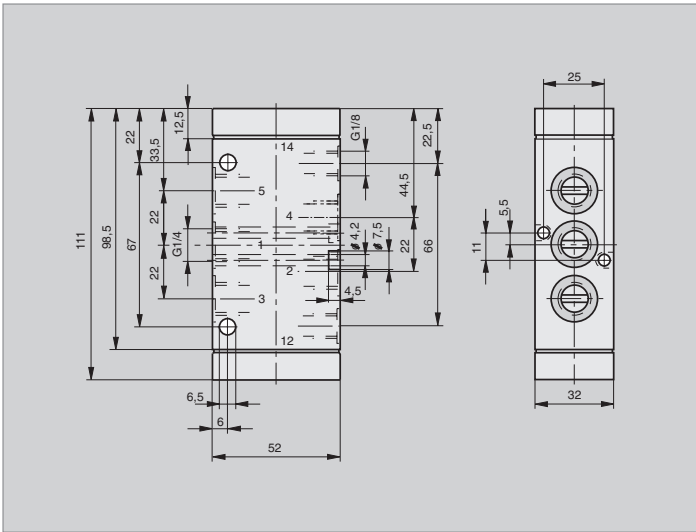
Description	Type *	Weight (mass)
Hand lever, indexed	S9 511.-1/4	0.520
- with spring return	S9 511RF-1/4	0.530
Safety hand lever	S9 511S.-1/4	0.520
Rotary lever, indexed	S9 512.-1/4	0.520
- with spring return	S9 512RF-1/4	0.530
Pneumatic by permanent signal	S9 561RF-1/4	0.530
Electrical by permanent signal	S9 581RF-1/4	0.700

* Type code for middle position functions

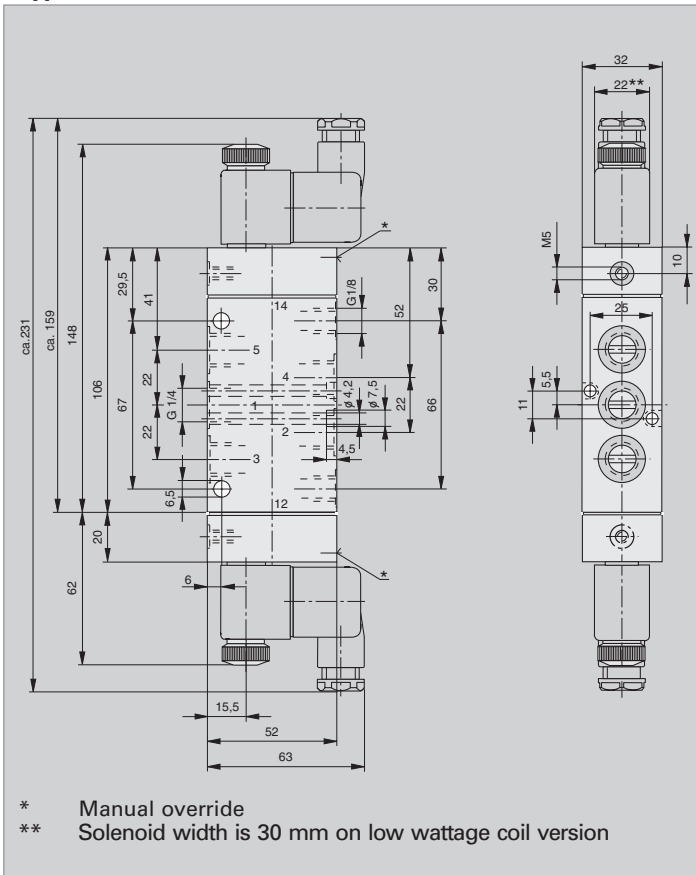
- G = middle position closed
- E = middle position vented
- B = middle position pressurized

Order Instructions see page 64, 65, characteristics see page 38, 39
P-supply manifolds and RPS-supply manifolds see page 93, 95, valve islands see page 75-83

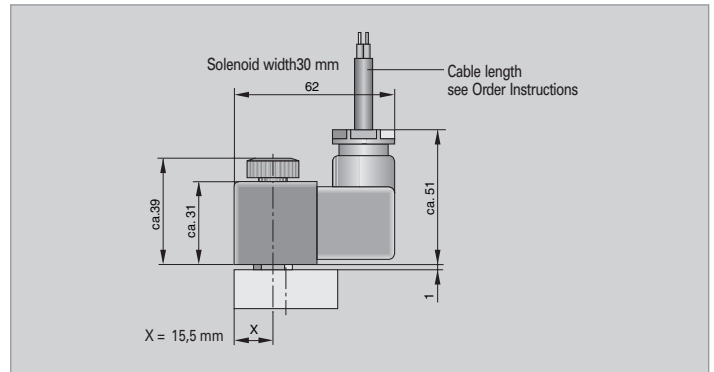
**Pneumatically actuated
Type: S9 561RF-1/4**



**Electrically actuated
Type: S9 581RF-1/4**



**Solenoid for using in EX Areas
Dimensions**



For more informations about valves to ATEX standards see page 39, 65

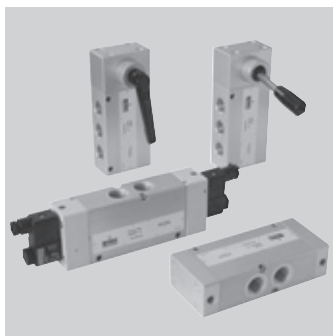
5/3 Way Valves – Series S9-G1/2

Dimensions

5/3 Way Valves Series S9 G1/2

Actuation:

- Hand lever
- Safety hand lever
- Pneumatic
- Electrical pilot operated

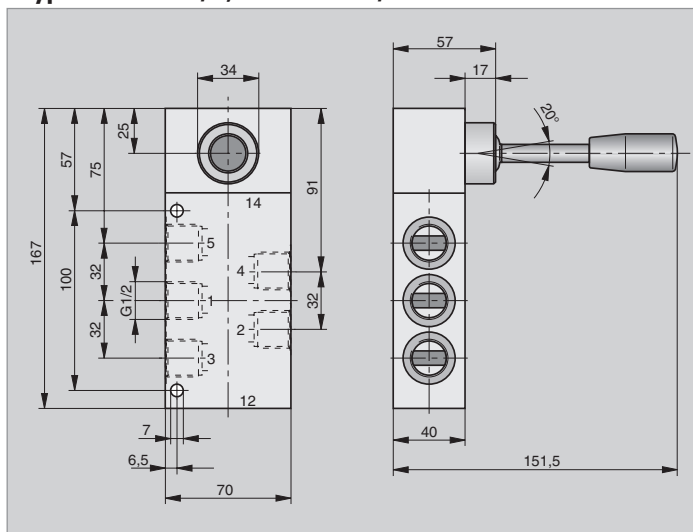


Versions

- version to ATEX Standard

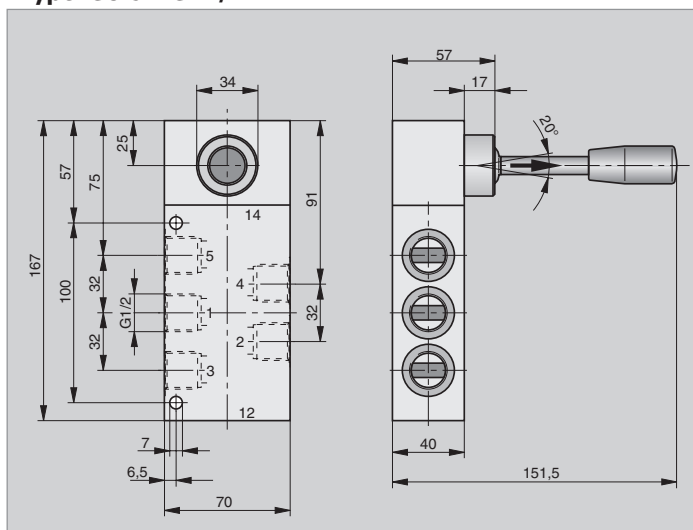
Hand lever actuated

Type: S9 511.-1/2, S9 511RF-1/2



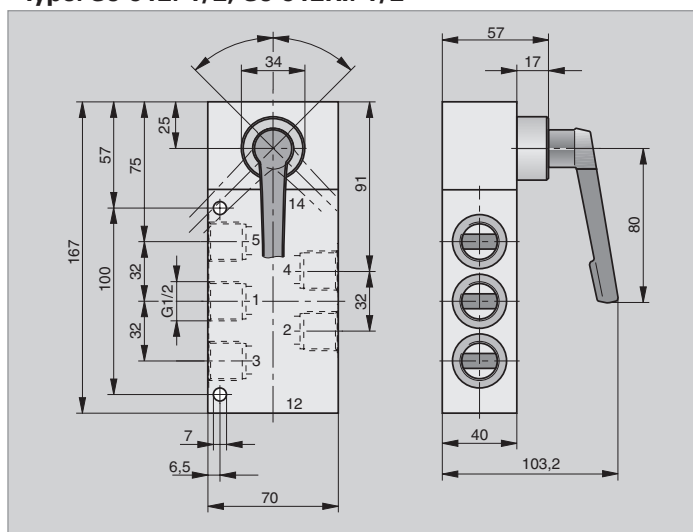
Safety hand lever actuated

Type: S9 511S.-1/2



Rotary lever actuated

Type: S9 512.-1/2, S9 512RF-1/2



Weight (mass) kg

Description	Type *	Weight (mass)
Hand lever, indexed	S9 511.-1/2	1.200
– with spring return	S9 511RF-1/2	1.200
Safety hand lever	S9 511S.-1/2	1.200
Rotary lever, indexed	S9 512.-1/2	1.200
– with spring return	S9 512RF-1/2	1.200
Pneumatic by permanent signal	S9 561RF-1/2	0.900
Electrical by permanent signal	S9 581RF-1/2	1.045

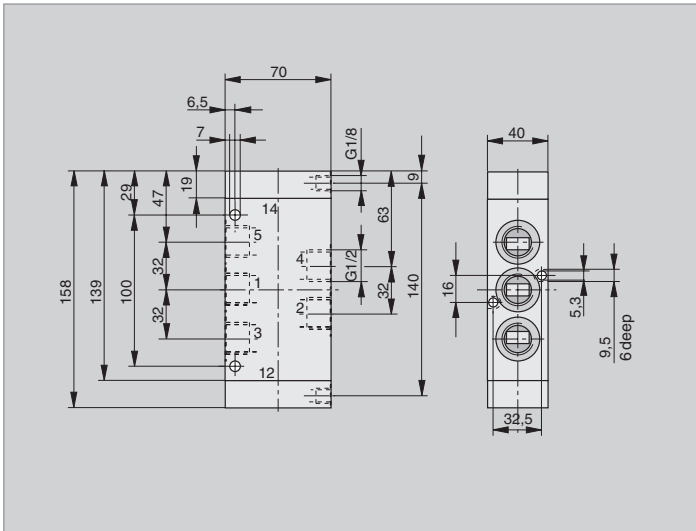
* Type code for middle position functions

G = middle position closed

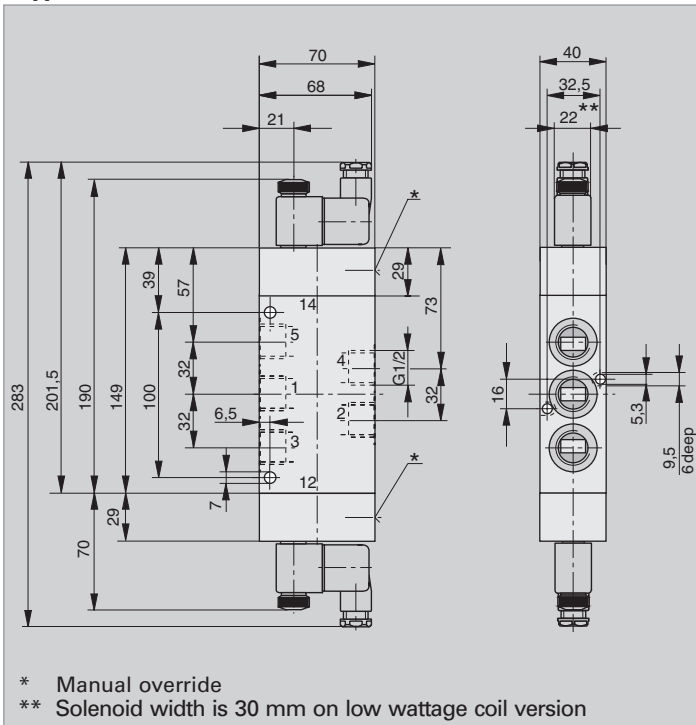
E = middle position vented

B = middle position pressurized

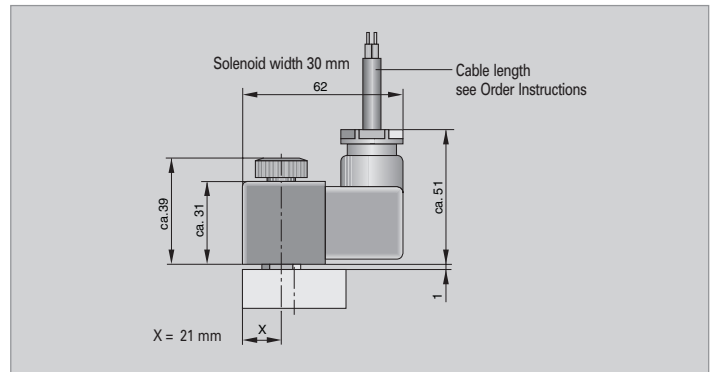
Pneumatically actuated
Type: S9 561RF-1/2



Electrically actuated
Type: S9 581RF-1/2



Solenoid for use in EX areas
Dimensions



For more information on valves to ATEX standards
 see page 39, 65

Order Instructions see page 64, 65, characteristics see page 38, 39
 P-supply manifolds see page 94

Directional Control Valves – Series S9-G1/8 to G1/2

3/2 Way Valves – Overview and Order Instructions

3/2 Way Valves – Standard versions

Actuation	Symbol	Mounting ø (mm)	Order Instructions Type	Order No.	Page
Hand lever, indexed			S9 311-1/8	PA 10293	40
			S9 311-1/4	PA 12708	43
			S9 311-1/2	PA 16404	45
Hand lever, spring return			S9 311RF-1/8	PA 10294	40
			S9 311RF-1/4	PA 12709	43
			S9 311RF-1/2	PA 16405	45
Hand lever, secured in 2 switching positions			S9 311S-1/4	PA 12710	43
			S9 311S-1/2	PA 16406	45
Rotary lever, indexed			S9 312-1/4	PA 12711	43
			S9 312-1/2	PA 16407	45
Rotary lever, spring return			S9 312RF-1/4	PA 12712	43
			S9 312RF-1/2	PA 16408	45
Pneumatic by permanent signal			S9 361RF-1/8	PA 10295	40
			S9 361RF-1/4	PA 12713	43
			S9 361RF-1/2	PA 16409	45
Pneumatic by impulse			S9 361-1/8	PA 10296	40
			S9 361-1/4	PA 12714	43
			S9 361-1/2	PA 16410	45
Pneumatic by impulse, with biased position			S9 362-1/4	PA 12715	43
			S9 362-1/2	PA 16411	45
Basic valve with adaptor for panel mounting			S9 390RF-1/8	PA 10307	41
Rotary lever, indexed		22	12T-22	KX 9355	41
		30	12T-30	KX 9314	
Rotary lever, spring return		22	12T-RF-22	KX 9356	41
		30	12T-RF-30	KX 9315	
Pushbutton		22	13T-RF-22	KX 9357	41
		30	13T-RF-30	KX 9316	
Mushroom pushbutton		22	15T-RF-22	KX 9358	42
		30	15T-RF-30	KX 9317	
Locking switch		22	16T-22	KX 9359	42
		30	16T-30	KX 9318	
Rotary switch		22	17T-22	KX 9360	42
		30	17T-30	KX 9319	
Mushroom pushbutton EMERGENCY-OFF		22	18T-22	KX 9361	42
		30	18T-30	KX 9320	
Electrical, by permanent signal			S9 381RF-1/8-NG-..	PA 10297-..33	40
			S9 381RF-1/4-NG-..	PA 12716-..33	44
			S9 381RF-1/2-NG-..	PA 16412-..33	46
with external pilot air			S9 381RF-1/8-NO-..	PA 10298-..33	40
			S9 381RF-1/4-NO-..	PA 12717-..33	44
			S9 381RF-1/2-NO-..	PA 16413-..33	46
Electrical, by impulse			S9 381S-RF-1/8-..	PA 10300-..33	40
			S9 381S-RF-1/4-..	PA 12719-..33	44
			S9 381S-RF-1/2-..	PA 16415-..33	46
Electrical, by impulse			S9 381-1/8-..	PA 10299-..33	40
			S9 381-1/4-..	PA 12718-..33	44
			S9 381-1/2-..	PA 16414-..33	46

3/2 Way Valves – Standard versions

Actuation	Symbol	Mounting ø (mm)	Order Instructions Type	Order No.	Page
Electrical by impulse with external pilot air			S9 381S-1/8-..	PA 10301-..33	40
			S9 381S-1/4-..	PA 12720-..33	44
			S9 381S-1/2-..	PA 16417-..33	46
Electrical by impulse with biased position			S9 382-1/4-..	PA 12721-..33	44
			S9 382-1/2-..	PA 16418-..33	46
with external pilot air			S9 382S-1/4-..	PA 12722-..33	44
			S9 382S-1/2-..	PA 16419-..33	46

Solenoid version	Nominal voltage	Applicable for	Key code	ATEX Type additon
Standard version	230V 50/60Hz	110 V = 60V 50/60Hz	61	-
	24V =		02	-
Low wattage version	24V =		13	-
	230V 50/60Hz		69	-

EX Area versions to ATEX Standard

Category, type of ignition protection

Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C

Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C

Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C

Solenoid	with cable	24V =			ATEX
	with cable 1,2 m	24V =		48	ATEX
	with cable 3 m	24V =		45	ATEX
	with cable 5 m	24V =		46	ATEX
	with cable 10 m	24V =		47	ATEX
	with cable 1,2 m	24V 50/60Hz		99	ATEX
	with cable 1,2 m	110V 50/60Hz		97	ATEX
	with cable 1,2 m	230V 50/60Hz		98	ATEX

Example for valves to ATEX standard:

– for valves Series S9-G1/8, S9-G1/4, S9-G1/2

Please add behind the Standard Order No. "ATEX"

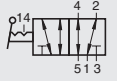

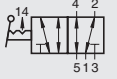
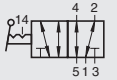
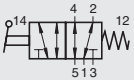
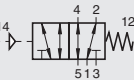
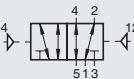
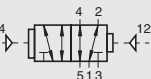
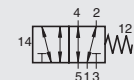











Type: S9 581RF-1/8-4633

Order No. PA10312-4633ATEX

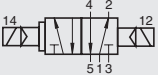

Directional Control Valves – Series S9-G1/8 to G1/2

5/2 Way Valves – Overview and Order Instructions

5/2 Way Valves – Standard versions

Actuation	Symbol	Mounting ø (mm)	Order Instructions Type	Order No.	Page	
Hand lever, indexed			S9 511-1/8 S9 511-1/4 S9 511-1/2	PA 10308 PA 12671 PA 16367	47 50 52	
			S9 511RF-1/8 S9 511RF-1/4 S9 511RF-1/2	PA 10309 PA 12672 PA 16366	47 50 52	
			S9 511S-1/8 S9 511S-1/4 S9 511S-1/2	PA 10368 PA 12673 PA 16368	47 50 52	
Rotary lever, indexed			S9 512-1/4 S9 512-1/2	PA 12674 PA 16378	50 52	
Rotary lever, spring return			S9 512RF-1/4 S9 512RF-1/2	PA 12675 PA 16379	50 52	
Pneumatic by permanent signal			S9 561RF-1/8 S9 561RF-1/4 S9 561RF-1/2	PA 10310 PA 12676 PA 16165	47 51 53	
Pneumatic by impulse			S9 561-1/8 S9 561-1/4 S9 561-1/2	PA 10311 PA 12677 PA 16166	47 51 53	
Pneumatic by impulse, with biased position			S9 562-1/4 S9 562-1/2	PA 12678 PA 16167	51 53	
Basic valve with adaptor for panel mounting			S9 590RF-1/8	PA 10320	48	
Rotary lever, indexed		22 30	12T-22 12T-30	KX 9355 KX 9314	48	
Rotary lever, spring return		22 30	12T-RF-22 12T-RF-30	KX 9356 KX 9315	48	
Pushbutton		22 30	13T-RF-22 13T-RF-30	KX 9357 KX 9316	48	
Mushroom pushbutton		22 30	15T-RF-22 15T-RF-30	KX 9358 KX 9317	48	
Locking switch		22 30	16T-22 16T-30	KX 9359 KX 9318	49	
Rotary switch		22 30	17T-22 17T-30	KX 9360 KX 9319	49	
Mushroom pushbutton EMERGENCY-OFF		22 30	18T-22 18T-30	KX 9361 KX 9320	49	
Electrical, by permanent signal			S9 581RF-1/8-.. S9 581RF-1/4-.. S9 581RF-1/2-..	PA 10312-..33 PA 12679-..33 PA 16171-..33	47 51 53	
	with external pilot air			S9 581S-RF-1/8-.. S9 581S-RF-1/4-.. S9 581S-RF-1/2-..	PA 10314-..33 PA 12681-..33 PA 16174-..33	47 51 53
	Electrical, by impulse			S9 581-1/8-.. S9 581-1/4-.. S9 581-1/2-..	PA 10313-..33 PA 12680-..33 PA 16172-..33	47 51 53
with external pilot air			S9 581S-1/8-.. S9 581S-1/4-.. S9 581S-1/2-..	PA 10315-..33 PA 12682-..33 PA 16175-..33	47 51 53	

5/2 Way Valves – Standard versions

Actuation	Symbol	Order Instructions Type	Order No.	Page
Electrical by impulse with biased position		S9 582-1/8-.. S9 582-1/4-.. S9 582-1/2-..	PA 10364-..33 PA 12683-..33 PA 16173-..33	47 51 53
with external pilot air		S9 582S-1/4-..	PA 12684-..33	51

Solenoid version	Nominal voltage	Applicable for	Key code	ATEX Type additon
Standard version	230V 50/60Hz 24V =	110 V = 60V 50/60Hz	61 02	- -
Low wattage version	24V = 230V 50/60Hz		13 69	- -

EX Area versions to ATEX Standard

Category, type of ignition protection

Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C

Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C

Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C

Solenoid	with cable 1,2 m	24V =		48	ATEX
	with cable 3 m	24V =		45	ATEX
	with cable 5 m	24V =		46	ATEX
	with cable 10 m	24V =		47	ATEX
	with cable 1,2 m	24V 50/60Hz		99	ATEX
	with cable 1,2 m	110V 50/60Hz		97	ATEX
	with cable 1,2 m	230V 50/60Hz		98	ATEX

Example for valves to ATEX standard:

– for valves Series S9-G1/8, S9-G1/4, S9-G1/2

Please add behind the Standard Order No. "ATEX"

Type: S9 581RF-1/8-4633

Order No. PA10312-4633ATEX

Directional Control Valves – Series S9-G1/8 to G1/2

5/3 Way Valves – Overview and Order Instructions

5/3 Way Valves – Standard versions

Actuation	Symbol	Order Instructions Type	Order No.	Page
Hand lever, indexed in 3 operating positions		S9 511G-1/8 S9 511G-1/4 S9 511G-1/2	PA 10321 PA 12687 PA 16369	54 56 58
		S9 511E-1/8 S9 511E-1/4 S9 511E-1/2	PA 10322 PA 12688 PA 16370	54 56 58
		S9 511B-1/8 S9 511B-1/4 S9 511B-1/2	PA 10323 PA 12689 PA 16371	54 56 58
Hand lever, spring return to middle position		S9 511RFG-1/8 S9 511RFG-1/4 S9 511RFG-1/2	PA 10324 PA 12690 PA 16372	54 56 58
		S9 511RFE-1/8 S9 511RFE-1/4 S9 511RFE-1/2	PA 10325 PA 12691 PA 16373	54 56 58
		S9 511RFB-1/8 S9 511RFB-1/4 S9 511RFB-1/2	PA 10326 PA 12692 PA 16374	54 56 58
Hand lever, secured in 3 operating positions		S9 511SG-1/8 S9 511SG-1/4 S9 511SG-1/2	PA 10327 PA 12693 PA 16375	54 56 58
		S9 511SE-1/8 S9 511SE-1/4 S9 511SE-1/2	PA 10328 PA 12694 PA 16376	54 56 58
		S9 511SB-1/8 S9 511SB-1/4 S9 511SB-1/2	PA 10329 PA 12695 PA 16377	54 56 58
Rotary lever, indexed in 3 operating positions		S9 512G-1/4 S9 512G-1/2	PA 12696 PA 16380	56 58
		S9 512E-1/4 S9 512E-1/2	PA 12697 PA 16381	56 58
		S9 512B-1/4 S9 512B-1/2	PA 12698 PA 16382	56 58
Rotary lever, spring return to middle position		S9 512RFG-1/4 S9 512RFG-1/2	PA 12699 PA 16383	56 58
		S9 512RFE-1/4 S9 512RFE-1/2	PA 12700 PA 16384	56 58
		S9 512RFB-1/4 S9 512RFB-1/2	PA 12701 PA 16385	56 58
Pneumatic by permanent signal spring return to middle position		S9 561RFG-1/8 S9 561RFG-1/4 S9 561RFG-1/2	PA 10330 PA 12702 PA 16168	54 56 58
		S9 561RFE-1/8 S9 561RFE-1/4 S9 561RFE-1/2	PA 10331 PA 12703 PA 16169	54 56 58
		S9 561RFB-1/8 S9 561RFB-1/4 S9 561RFB-1/2	PA 10332 PA 12704 PA 16170	54 56 58

5/3 Way Valves – Standard versions

Actuation	Symbol	Order Instructions		Page
		Type	Order No.	
Electrical by permanent signal spring return to middle position		S9 581RFG-1/8-.. S9 581RFG-1/4-.. S9 581RFG-1/2-..	PA 10333-..33 PA 12705-..33 PA 16176-..33	54 57 59
		S9 581RFE-1/8-.. S9 581RFE-1/4-.. S9 581RFE-1/2-..	PA 10334-..33 PA 12706-..33 PA 16177-..33	54 57 59
		S9 581RFB-1/8-.. S9 581RFB-1/4-.. S9 581RFB-1/2-..	PA 10335-..33 PA 12707-..33 PA 16178-..33	54 57 59
Electrical by permanent signal spring return to middle position with external pilot air		S9 581RFG-1/8-..	PA 10377-..33	54
		S9 581RFE-1/8-..	PA 10379-..33	54
		S9 581RFB-1/8-..	PA 10378-..33	54



Solenoid version	Nominal voltage	Applicable for	Key code	ATEX Type additon
Standard version	230V 50/60Hz	110 V =	61	-
	24V =	60V 50/60Hz	02	-
Low wattage version	24V =		13	-
	230V 50/60Hz		69	-

EX Area versions to ATEX Standard

Category, type of ignition protection

Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C

Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C

Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C

Solenoid	with cable 1,2 m	24V =		48	ATEX
	with cable 3 m	24V =		45	ATEX
	with cable 5 m	24V =		46	ATEX
	with cable 10 m	24V =		47	ATEX
	with cable 1,2 m	24V 50/60Hz		99	ATEX
	with cable 1,2 m	110V 50/60Hz		97	ATEX
	with cable 1,2 m	230V 50/60Hz		98	ATEX

Example for valves to ATEX standard:

– for valves Series S9-G1/8, S9-G1/4, S9-G1/2

Please add behind the Standard Order No. "ATEX"

Type: S9 581RF-1/8-4633

Order No. PA10312-4633ATEX

Valve Combinations with Logic Elements – Series S9 – G1/8, G1/4 3/2, 5/2 and 5/3 Way Valves – Dimensions

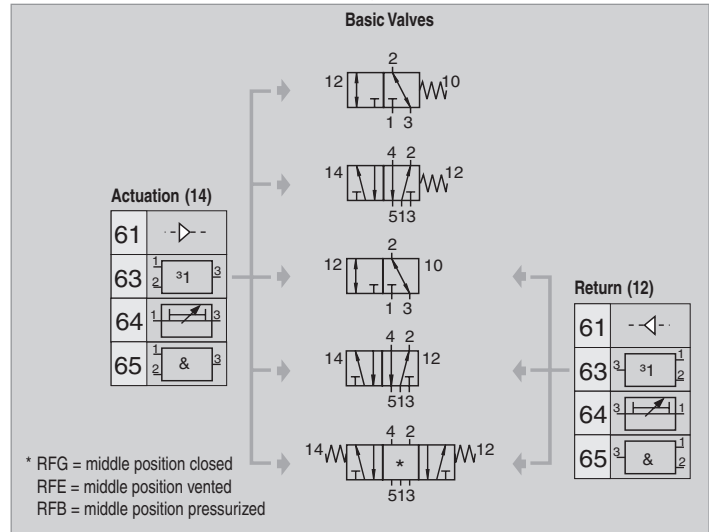
3/2, 5/2 and 5/3 Way Valves Series S9 G1/8, G1/4

Actuation:
Pneumatic
–AND
–OR
–TIMER

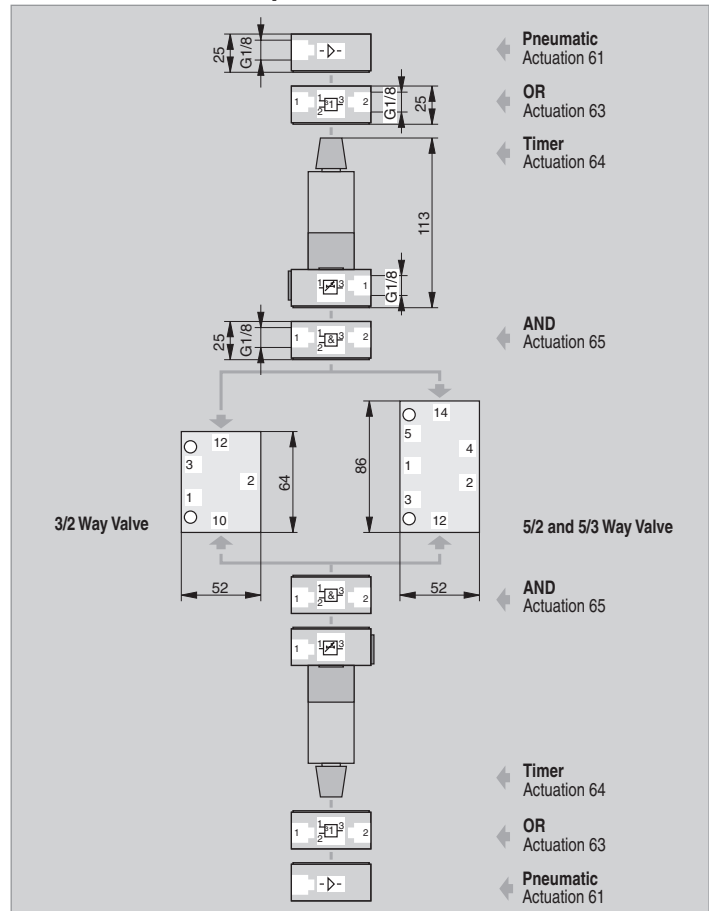


Versions
freely selectable types – see
Order information

Valve Combinations with Logic Elements



Valve Combinations with Logic Elements 3/2, 5/2 and 5/3 Way Valves



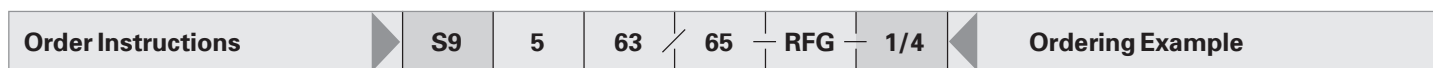
Weight (mass) kg

Description	Weight (mass) – Port size	
	G1/8	G1/4
3/2 Way Valve, by permanent signal	0.137	0.370
3/2 Way Valve, by impulse	0.147	0.430
5/2 Way Valve, by permanent signal	0.160	0.490
5/2 Way Valve, by impulse	0.170	0.510
5/3 Way Valve, by permanent signal	0.180	0.530

For more information on standard valves
see data sheets on page 38 to 57

Order Instructions see page 67, Characteristics see page 38, 39
P-Supply Manifolds and RPS-Supply Manifolds see page 93, 95

Order Instructions



Version	
3	3 way valve
5	5 way valve

Actuation (14)	
61	pneumatic
63	OR
64	Timer *
65	AND

* only for size G1/4

middle position function (only with 5/3 way valve)	
RFG	closed
RFE	vented
RFB	pressurized

Return (12)	
RF	spring return
61	pneumatic
63	OR
64	Timer *
65	AND

* only for size G1/4

Solenoid Poppet Valves, directly actuated – Series EV-M5 and V9

Contents

Description	Actuation	Page		
		Characteristics	Dimensions	Order Instructions Overview
3/2 Way Valves Series EV-M5 (G1/8)	Electrical	70	71	71
3/2 Way Valves Series V9-G1/8	Electrical	72	73	74

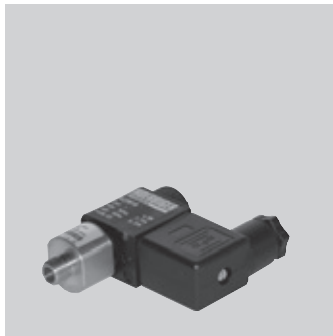


Screw-In Valves – Series EV-M5 (G1/8)

Characteristics, Dimensions and Order Instructions

3/2 Way Screw-In Valves Series EV G1/8-M5

Actuation:
– Electrical, directly operated

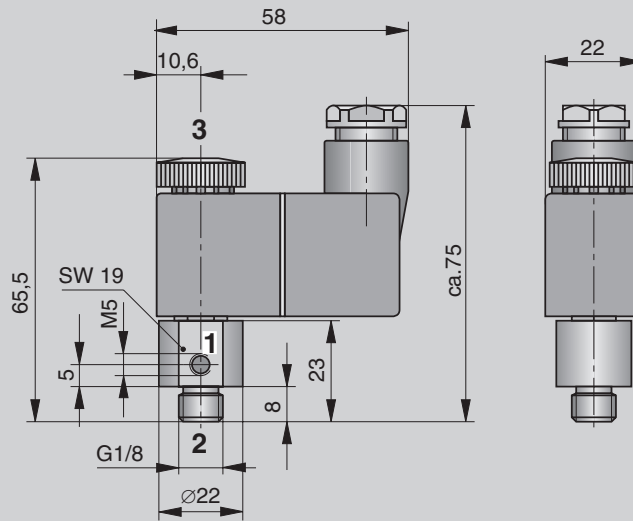


Characteristics – Series EV

Characteristics	Symbol	Unit	Description	
General Features				
Actuation			directly operated	
Type			Poppet valve, normally closed	
Mounting			Screws into G1/8 thread	
Tube connection			Thread	
Port size			Port 1: M5, Port 2: G1/8	
Weight		kg	0.1	
Nominal diameter		mm	1	
Installation			in any position	
Ambient temperature range	$\vartheta_{\min. / \max.}$	°C	-10 bis +60	Note: Please consult us for operating temperatures below 0° C
Medium temperature range	$\vartheta_{\min. / \max.}$	°C	-10 bis +60	
Medium			filtered compressed air (30 μ)	
Lubrication			with or without oil mist lubrication (We recommend the use of mineral oil type VG 32 to ISO 3448)	
Pneumatic Characteristics				
Nominal pressure	$p_{\min. / \max.}$	bar	6	
Operating pressure range	$p_{\min. / \max.}$	bar	0 – 10	
Nominal flow	Q_N	l/min	30	
Actuation				
Electrical			direct	
Voltage types			Alternating current (50/60Hz)	Direct current
Nominal voltage ¹				
– Standard version	U_n	V	230 \pm 10%	24 \pm 10% other voltages on request
– Low wattage version	U_n	V	230 \pm 10%	24 \pm 10%
Initial power consumption				
– Standard version		VA (W)	11	4.8
– Low wattage version		VA (W)	7.8	2.7
Continuous consumption				
– Standard version		VA (W)	8.5	4.8
– Low wattage version		VA (W)	4.9	2.7
Duty cycle	ED	%	100	
Electrical protection		IP	IP65 to DIN 40050 (applies only to solenoid with plug)	
Connection			Plug to DIN EN 175301-803 form B – industrial norm, low wattage version form A	

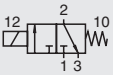
(¹ see Order Instructions)

3/2 Way Valve
Type: EV 381RF-M5



Overview and Order Instructions

3/2 Way Screw-In Valve – Series EV

Actuation	Symbol	Order Instructions Type	Order No.
Electrical, by permanent signal		EV 381RF-M5-..	PD25076-..33

Version	Nominal Voltage	Key code
Standard version	24V =	02
	230V 50/60Hz	61
	other voltages on request	

Solenoid Poppet Valves, directly actuated, with Threaded Ports – Series V9

Characteristics, Dimensions

3/2 Way Valves Series V9 NW 1.3 and 2.5

Actuation:
– Electrical, directly operated



Versions

- normally closed
- normally open
- with manual override

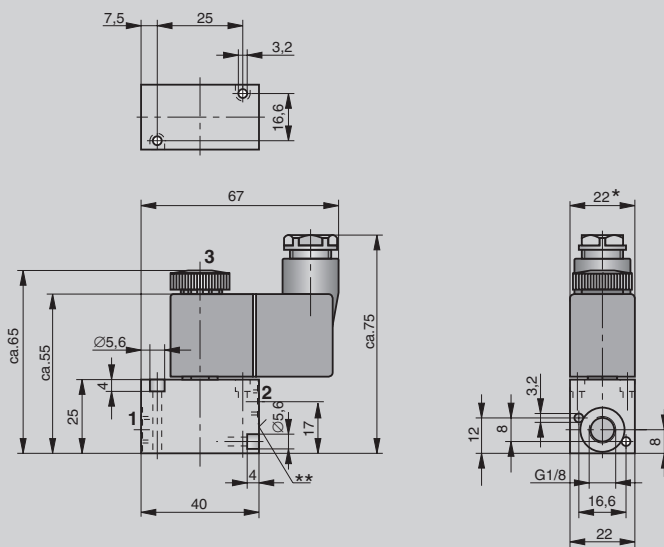
Characteristics – Series V9-G1/8

Characteristics	Symbol	Unit	Description	
General Features				
Type			Poppet valve	
Mounting			2 Screws M3 (NW 2.5: 2 x M4)	
Tube connection			Thread	
Port size			G1/8 – 8 deep	
Weight		kg	NW 1.3: 0.140 NW 2.5: 0.320	
Installation			in any position	
Ambient temperature range (1)	$\vartheta_{\min. / \max.}$	°C	-10 to +60	Note: Please consult us for operating temperatures below 0° C
Medium temperature range (1)	$\vartheta_{\min. / \max.}$	°C	-10 to +70	
Medium			filtered compressed air	
Lubrication			with or without oil mist lubrication (We recommend the use of mineral oil type VG 32 to ISO 3448)	
Pneumatic Characteristics				
Nominal pressure	$p_{\min. / \max.}$	bar	6	
Operating pressure range	$p_{\min. / \max.}$	bar	NW 1.3: 0–10 NW 2.5: 0-7	
Nominal flow	Q_N	l/min	NW 1.3: 37 NW 2.5: 150	
Actuation				
Electrical			direct	
Voltage types			Alternating current (50/60Hz)	Direct current
Nominal voltage				
– Standard version	U_n	V	230 ±10%	24 ±10%
– Low wattage version	U_n	V	230 ±10% (only for V9-NW 1.3)	24 ±10% only for V9-NW 1.3)
Initial power consumption				
– Standard version		VA (W)	NW 1.3: 11 NW 2.5: 11.5	NW 1.3: 4.8 NW 2.5: 10
– Low wattage version		VA (W)	7.8	2.7
Continuous consumption				
– Standard version		VA (W)	NW 1.3: 8.5 NW 2.5: 7.5	NW 1.3: 4.8 NW 2.5: 7.5
– Low wattage version		VA (W)	4.9	2.7
Duty cycle	ED	%	100	
Electrical protection		IP	IP 65 to DIN 40050 (applies only to solenoid with plug)	
Connection			NW 1.3: Plug to DIN EN 175301-803 form B – industrial norm NW 2.5: Plug to DIN EN 175301-803 form A – industrial norm	

Order Instructions see page 73
P-supply manifolds see page 90-92

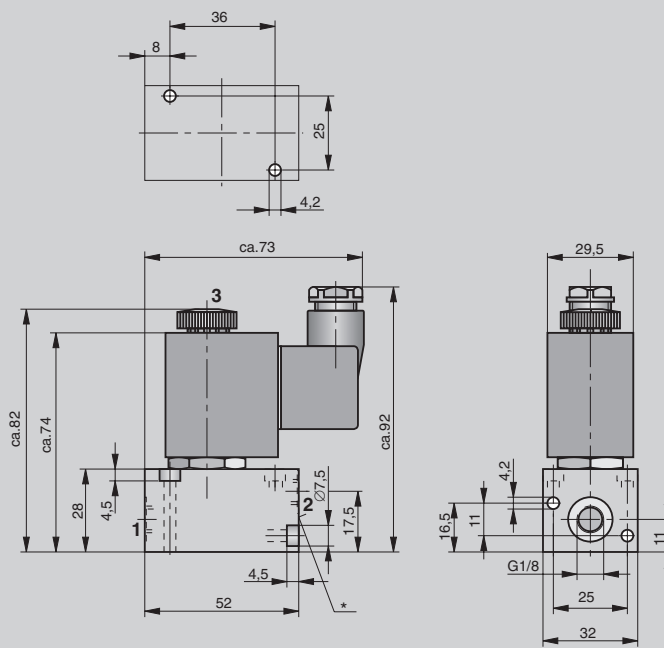
Type: V9 381RF-1/8NG (NO⁽¹⁾)– NW 1.3
 Type: V9 381H-RF-1/8NG (NO⁽¹⁾)– NW 1.3

⁽¹⁾ not suitable for P-supply manifold mounting



* Low wattage version is 30 mm wide:
 therefore to mount these on a P-Supply Manifold, special measures are needed – please consult us.
 ** Manual override

Type: V9 381RF-1/8NG – NW 2.5
 Type: V9 381H-RF-1/8NG – NW 2.5



* Manual override

Accessories for P-Supply Manifold Mounting

Description	Nominal size	Order No.
P-Supply manifold PL-1/8-..	1.3	PD32763-....*
P-Supply manifold PLK-1/8-..	1.3	PD37174-....*
P-Supply manifold PL-1/4-..	2.5	PD32765-....*
P-Supply manifold PLK-1/4-..	2.5	PD32175-....*

* Please complete the Order No. with the number of valves

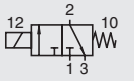
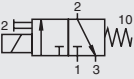
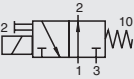
The delivery includes:

P-Supply Manifold complete, Mounting Kit included.

Solenoid Poppet Valves, directly actuated, with Threaded Ports – Series V9-G1/8

Order Instructions

3/2 Way Valves – Series V9

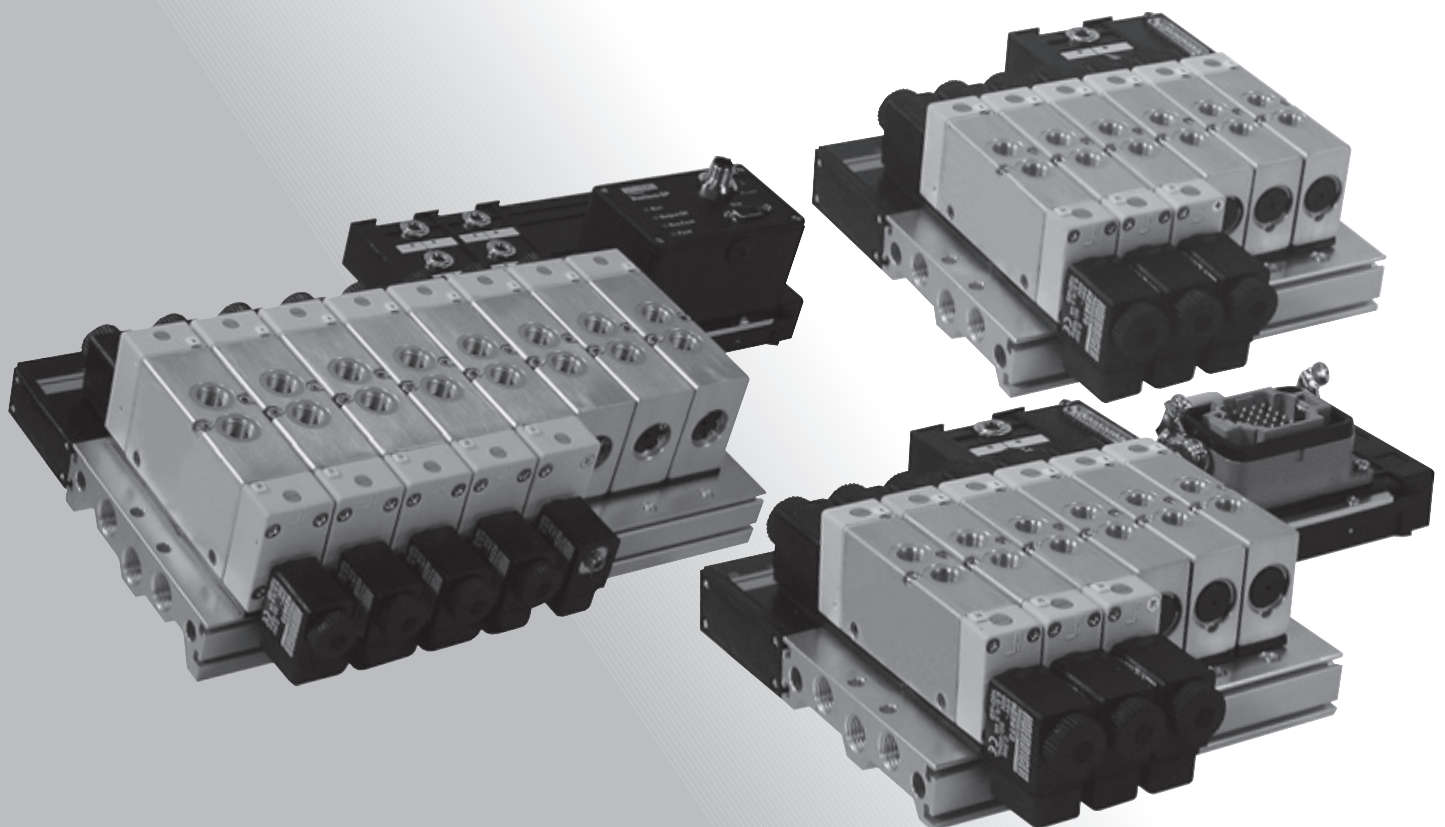
Actuation	Symbol	Nominal Size (mm)	Order Instructions		Page
			Type	Order No.	
Electrical, by permanent signal		1.3 2.5	V9 381RF-1/8-NG-.. V9 381RF-1/8-NG-..	PA 10362-..33 PA 10369-..33	72, 73
		1.3 2.5	V9 381H-RF-1/8-NG-.. V9 381H-RF-1/8-NG-..	PA 10363-..33 PA 10370-..33	72, 73
		1.3	V9 381H-RF-1/8-NO-..	PA 10367-..33	72, 73

Version	Nominal voltage	Applicable for	Key code
Standard version	230V 50/60Hz	110 V = 60V 50/60Hz	61
	24V =		02
Low wattage version	24V =		13
	230V 50/60Hz		69
other voltages on request			

Valve Islands Series IM 20-G1/8, G1/4

Contents

Description	Electrically actuated Connection	Page		
		Characteristics	Dimensions	Order Instructions Overview
Valve Island with Multipole Connection	Sub-D, heavy duty industrial connector	76	78, 79	82
Valve Island with Bus connection	Profibus DP Inter Bus S CAN Open Internal bus	77	80, 81	82
Accessories		83	-	83



Valve Islands – Series IM 20-G1/8, G1/4

... with Multipole Connection – Characteristics

Characteristics

Pressures quoted as gauge pressure

Characteristics	Symbol	Unit	Description
General Features			
Type			IM20-1/8 IM20-1/4
Mounting			4 screws – see drawing 4 screws – see drawing
Port size			
air supply and exhaust			G1/4 both sides G3/8 both sides
valve outlets			G1/8 G1/4
Grid size for valve positions			22 33
Installation			In any position
Ambient and Medium temperature range	ϑ_{\min} ϑ_{\max}	°C °C	-10 +60 Note: Please consult us for operating temperatures below 0° C
Medium			Filtered compressed air (5µm)
Lubrication			With or without oil mist lubrication (we recommend mineral oil type VG 32 to ISO 3448)
Material			
Base plate			Aluminium
Valve housing			Aluminium
Seals			NBR
Valve service life			10 x 10 ⁶ switching cycles
No. of valve positions			4 – 6 – 8 – 10 – 12 – 14 – 16 ⁽¹⁾
No. of switching outputs			max. 24
No. of sensor inputs			max. 32
Pneumatic Characteristics			
Nominal pressure	p _n	bar	6
Operating pressure range	p _{min}	bar	2.5
	p _{max}	bar	10
Nominal flow	Q _n	l/min	500 1300 ⁽²⁾
Actuation			
Electrical			By control system
Voltage type			Direct current
Nominal voltage	U _n	V	24 ±10%
Power consumption		W	2.5
Mass/ground			Minus pole
Electrical protection		IP	IP65 (applies only to the electrically part)
of input clamps		IP	IP20
of input connectors		IP	IP65
Connection			
Multipole connection			25-pin sub-D connector or 24-pin industrial connector
Sensor inputs			Ladder clamps or M8 x 14-pin connectors
Switching indicator			LED
Protective circuit			integrated

⁽¹⁾ other numbers of valves can be fitted via the use of blanking plates

⁽²⁾ Version "middle position vented" 1000 l/min

... with Bus Connection – Characteristics

Characteristics				Pressures quoted as gauge pressure	
Characteristics	Symbol	Unit	Description		
General Features					
Type			IM20-1/8		IM20-1/4
Mounting			4 screws – see drawing		4 screws – see drawing
Port size					
air supply and exhaust			G1/4 both sides		G3/8 both sides
valve outlets			G1/8		G1/4
Grid size for valve positions			22		33
Installation			In any position		
Ambient and Medium temperature range	t_{\min} t_{\max}	°C °C	-10 +60	Note: Please consult us for operating temperatures below 0° C	
Medium			Filtered compressed air (5µm)		
Lubrication			With or without oil mist lubrication (we recommend mineral oil type VG 32 to ISO 3448)		
Material					
Base plate			Aluminium		
Valve housing			Aluminium		
Seals			NBR		
Valve service life			10 x 10 ⁶ switching cycles		
No. of valve positions			4 – 6 – 8 – 10 – 12 – 14 – 16 ⁽¹⁾		
No. of switching outputs			max. 24		
No. of sensor inputs			max. 32		
Pneumatic Characteristics					
Nominal pressure	p_n	bar	6		
Operating pressure range	p_{\min}	bar	2.5		
	p_{\max}	bar	10		
Nominal flow	Q_n	l/min	500	1300 ⁽²⁾	
Actuation					
Electrical			By control system		
Voltage type			Direct current		
Nominal voltage	U_n	V	24 ±10%		
Power consumption		W	2.5		
Mass/ground			Minus pole		
Electrical protection		IP	IP65 (applies only to the electrically part)		
of input clamps		IP	IP20		
of input connectors		IP	IP65		
Connection					
Field bus connection			According to field bus accessories		
Sensor inputs			Ladder clamps or M8 x 14-pin connectors		
Switching indicator			LED		
Protective circuit			integrated		

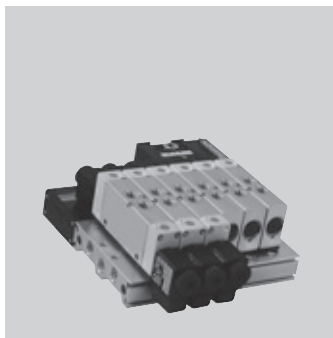
⁽¹⁾ other numbers of valves can be fitted via the use of blanking plates

⁽²⁾ Version "middle position vented" 1000 l/min

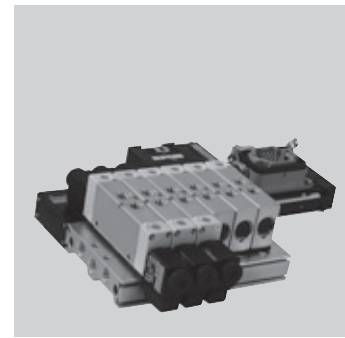
Valve Islands – Series IM 20-G1/8, G1/4

... with Multipole Connection – Dimensions

Valve Islands with Multipole Connection Series IM 20 G1/8



with sub-D connector



with heavy duty industrial connector

Multipole Island with 25-pin sub-D connector (or heavy duty industrial connector) and 16 M8 4-pin feedback inputs with 44-pin sub-D connector

Multipole islands can be equipped with following valves:

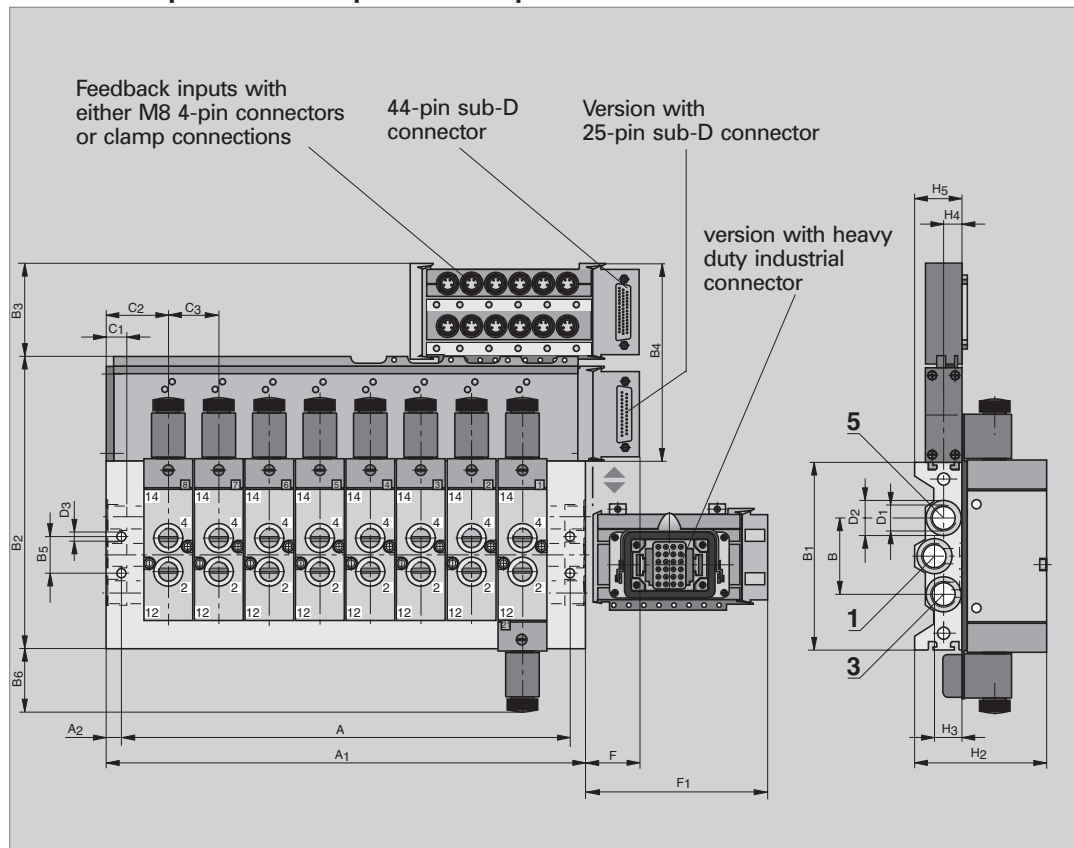
- 5/2 way valves with spring return
- 5/2 way impulse valves
- 5/3 way valves with spring return to middle position
 - middle position closed
 - middle position vented
 - middle position pressurized

Versions:

- Connection with sub-D connector
- Connection with heavy duty industrial connector
- with or without sensor inputs
- with multi-connection for sensor inputs (via 44-pin sub-D connector)

Accessories see page 83

- Cable with sub-D connector
- Heavy duty industrial connector
- Straight M8 4-pin connector

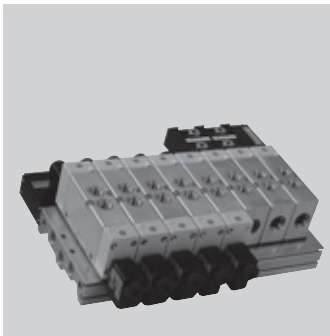


Dimension Table

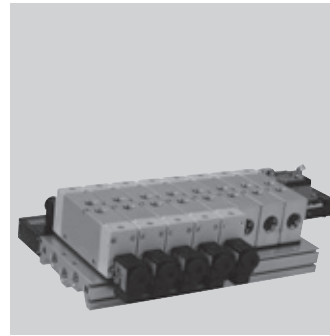
Valve Island	Dimension											
	A	A ₁	A ₂	B	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	B ₇	C ₁
IM20-1/8	17+ x C ₃	30+ x C ₃	6	43	99	166	62.5	132	20.5	42.5	60	11

Valve Island	Dimension										
	C ₂	C ₃	D ₁	øD ₂	øD ₃	F	F ₁	H ₂	H ₃	H ₄	H ₅
IM20-1/8	26	23	G1/4	19x0.2	5.5	40	126	68	12	9	25

x C₃= dimension C₃ multiplied by number of valves



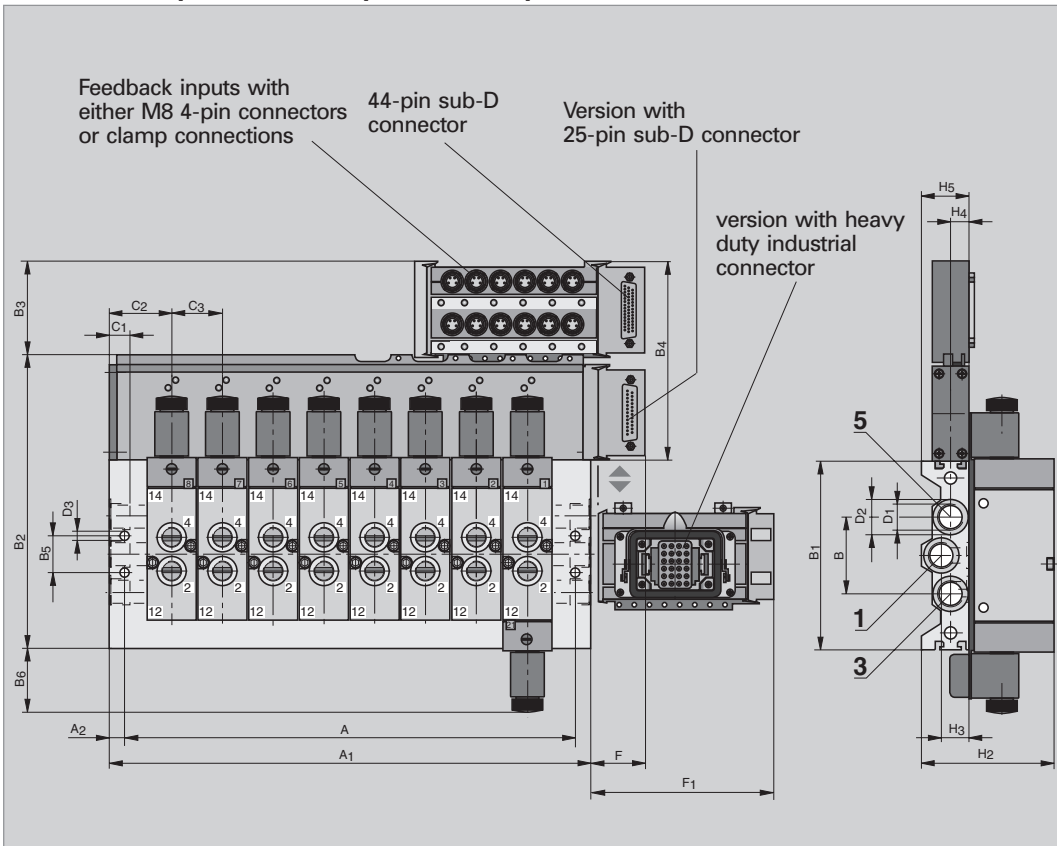
with sub-D connector



with heavy duty industrial connector

Valve Islands with Multipole Connection Series IM 20 G1/4

Multipole Island with 25-pin sub-D connector (or heavy duty industrial connector) and 16 M8 4-pin feedback inputs with 44-pin sub-D connector



Multipole islands can be equipped with following valves:

- 5/2 way valves with spring return
- 5/2 way impulse valves
- 5/3 way valves with spring return to middle position
 - middle position closed
 - middle position vented
 - middle position pressurized

Versions:

- Connection with sub-D connector
- Connection with heavy duty industrial connector
- with or without sensor inputs
- with multi-connection for sensor inputs (via 44-pin sub-D connector)

Accessories see page 83

- Cable with sub-D connector
- Heavy duty industrial connector
- Straight M8 4-pin connector

Dimension Table

Valve Island	Dimension											
	A	A ₁	A ₂	B	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	B ₇	C ₁
IM20-1/4	17+ x C ₃	30+ x C ₃	6	50	123	190	62.5	132	24	42.5	73.5	12

Valve Island	Dimension										
	C ₂	C ₃	D ₁	∅D ₂	∅D ₃	F	F ₁	H ₂	H ₃	H ₄	H ₅
IM20-1/4	31	33	G3/8	23x0.5	6.2	40	126	86	18.5	12	31

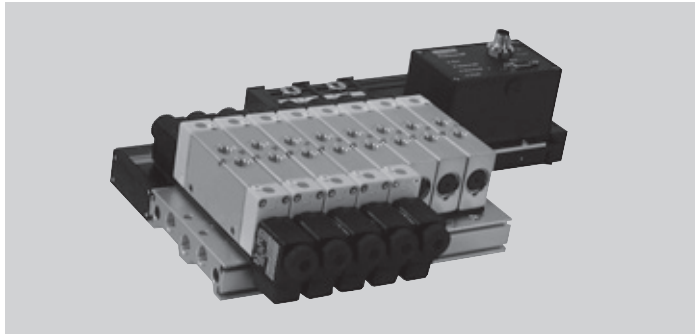
x C₃= dimension C₃ multiplied by number of valves

Order Instructions see page 82, Characteristics see page 76
Accessories see page 83

Valve Islands – Series IM 20-G1/8, G1/4

... with Bus Connection – Dimensions

Valve Islands with Bus Connection Series IM 20 G1/8



Field bus islands can be equipped with following valves:

- 5/2 way valves with spring return
- 5/2 way impulse valves
- 5/3 way valves with spring return to middle position
 - middle position closed
 - middle position vented
 - middle position pressurized

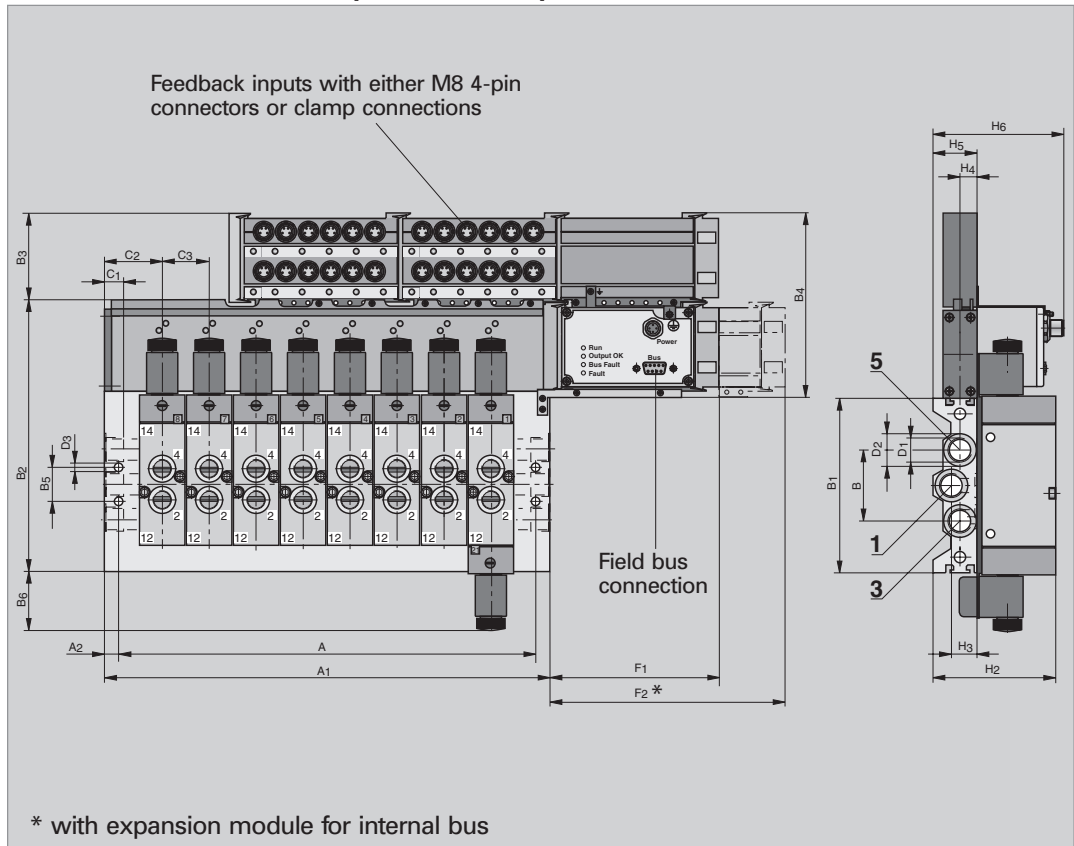
Versions:

- Profibus DP
- Interbus S
- CAN Open
- internal Bus
- with or without sensor inputs
- with or without integrated modules for sensor inputs

Accessories see page 83

- Cable with connector
- Straight M8 4-pin connector
- Straight M12 4-pin connector
- Elbow M12 4-pin connector

Field Bus Island with M8 4-pin feedback inputs



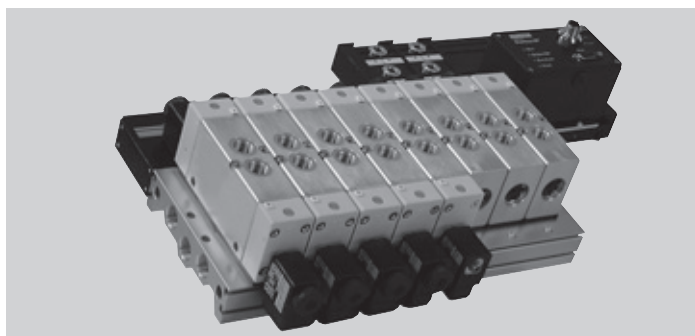
Dimension Table

Valve Island	Dimension											
	A	A ₁	A ₂	B	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	B ₇	C ₁
IM20-1/8	17+ x C ₃	30+ x C ₃	6	43	99	166	62.5	132	20.5	42.5	60	11

Valve Island	Dimension											
	C ₂	C ₃	D ₁	∅D ₂	∅D ₃	F ₁	F ₂	H ₂	H ₃	H ₄	H ₅	H ₆
IM20-1/8	26	23	G1/4	19x0.2	5.5	126	164	68	12	9	25	88.5

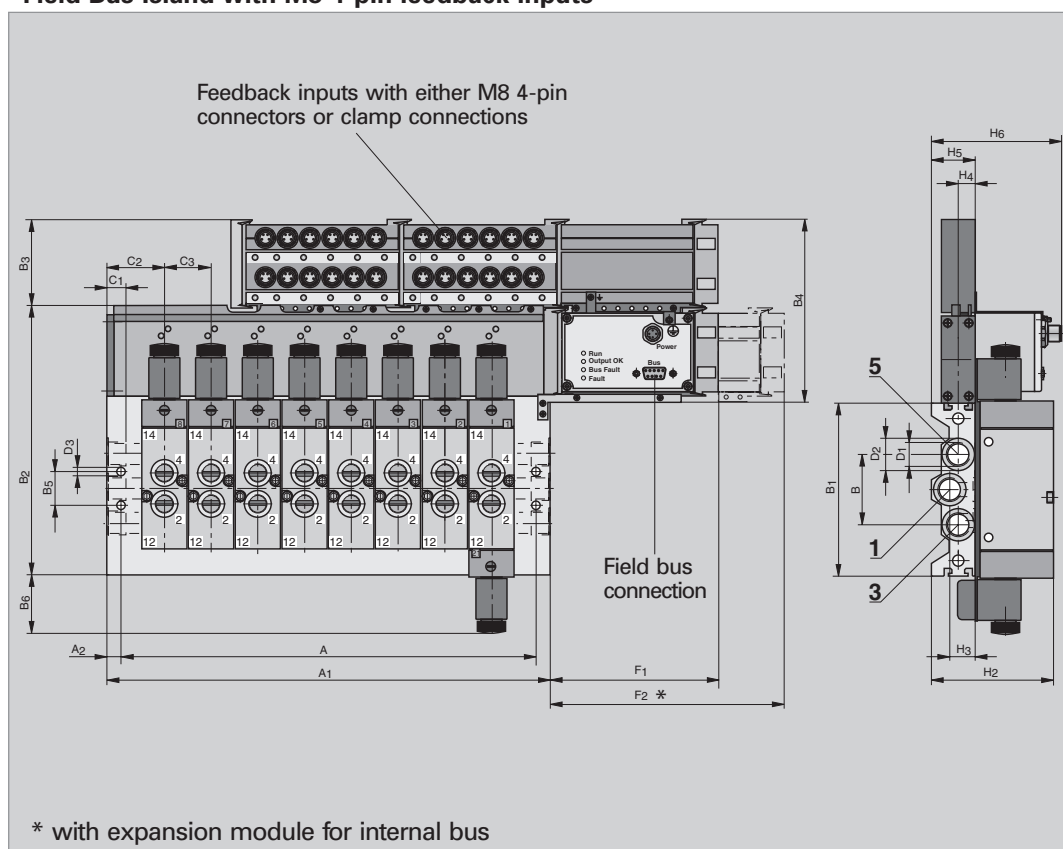
x C₃= dimension C₃ multiplied by number of valves

Order Instructions see page 82, Characteristics see page 77
Accessories see page 83



Valve Islands with Bus Connection Series IM 20 G1/4

Field Bus Island with M8 4-pin feedback inputs



Field bus islands can be equipped with following valves:

- 5/2 way valves with spring return
- 5/2 way impulse valves
- 5/3 way valves with spring return to middle position
 - middle position closed
 - middle position vented
 - middle position pressurized

Versions:

- Profibus DP
- Interbus S
- CAN Open
- internal bus
- with or without sensor inputs
- with or without integrated modules for sensor inputs

Accessories see page 83

- Cable with connector
- Straight M8 4-pin connector
- Straight M12 4-pin connector
- Elbow M12 4-pin connector

Dimension Table

Valve Island	Dimension											
	A	A ₁	A ₂	B	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	B ₇	C ₁
IM20-1/4	17+ x C ₃	30+ x C ₃	6	50	123	190	62.5	132	24	42.5	73.5	12

Valve Island	Dimension											
	C ₂	C ₃	D ₁	∅D ₂	∅D ₃	F ₁	F ₂	H ₂	H ₃	H ₄	H ₅	H ₆
IM20-1/4	31	33	G3/8	23x0.5	6.2	126	164	86	18.5	12	31	88.5

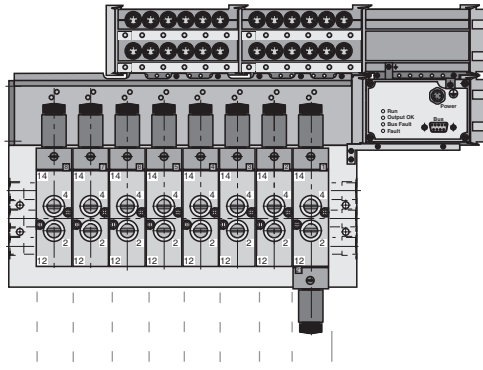
x C₃= dimension C₃ multiplied by number of valves

Order Instructions see page 82, Characteristics see page 77
Accessories see page 83

Dimensions in mm

Valve Islands – Series IM 20-G1/8, G1/4

Order Instructions



Ordering Example:

Valve island with field bus connection,
8 fold, equipped with:
1 bistable 5/2 way valve S9 581-1/8
7 monostable 5/2 way valves S9 581RF-1/8

Ordering example	Order No.							Electrical connection	Internal Bus expansion	No. of Valves	Valve position												Input module	Number of inputs	Channel divider	Position of channel divider
	P	A	1	0	3	8	1				D	P	0	8	M	M	M	M	M	M	M	J				

For order, please use the neutral order form on page 129

Valve Islands – Sizes

PA 10381	Type: IM20-1/8 Connections: G1/8 –valve ports G1/4 –base plate
PA12867	Type: IM20-1/4 Connections: G1/4 –valve ports G3/8 –base plate

Electrical Connection

Multipole Version	
DS	with sub-D connector
HI	with industrial connector
Fieldbus Version	
DP	Profibus DP
IS	Interbus S
CO	CAN Open
IB	Internal bus

Internal Bus Expansion

J	RIO-IF Module
----------	---------------

Valve Positions

04	up to 4 valves
06	5 and 6 valves
08	7 and 8 valves
10	9 and 10 valves
12	11 and 12 valves
14	13 and 14 valves
16	15 and 16 valves

4 → 6 → 8 → 10 → 12
even number of valve positions only

Important: Please specify the code for the desired valve types

Input Modules

K	Pins IP20
S	M8 IP65 connector
04-08-12	Number of inputs
16-20-24	
28-32	

Dual Pressure Operation

J	with channel divider in port 1 (P)
01 – 11	Position of channel divider to valve position

Ordering Code for Valves and Blanking Plates

Code	Symbol	Description
A	–	Blanking plate on valve position
M		5/2 way solenoid valve, permanent signal with spring return Type: S9 581RF-..
J		5/2 way solenoid valve, impulse version Type: S9 581-..
G		5/3 way solenoid valve, spring return to middle position, middle position closed Type: S9 581RFG-..
B		5/3 way solenoid valve, spring return to middle position, middle position pressurized Type: S9 581RFB-..
E		5/3 way solenoid valve, spring return to middle position, middle position vented Type: S9 581RFE-...

Characteristics see page 76, 77
Valve Islands see page 78-81

Accessories

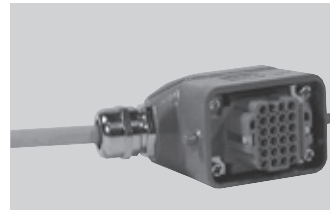
Cable with Sub-D Connector

Number of Pins	Cable length	Order Instructions	
		Type	Order No.
25	1.0 m	GSK-25-1	KL9012
25	3.0 m	GSK-25-3	KL9013
25	5.0 m	GSK-25-5	KL9014
44	5.0 m	GSK-44-5	KL9005



Heavy duty industrial connector (without cable)

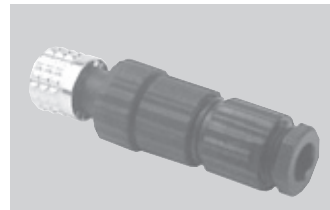
Number of Pins	Cable length	Order Instructions	
		Type	Order No.
24	5.0 m	K-IST-24	KL9003



Straight M8 Connector *

Number of Pins	Use	Order Instructions	
		Type	Order No.
4	for custom made cable	K-M8-4	KL9011

* the connector can be used for Multipole Version and Field Bus Version



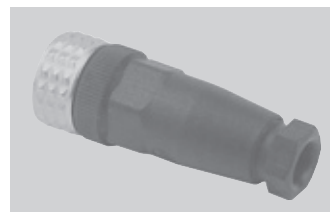
Cable with M8 connector – for internal bus expansion

Cable length	Order Instructions	
	Type	Order No.
1.0 m	K-M8-41	KL9008
2.0 m	K-M8-42	KL9010



Straight M12 connector (without cable)

Number of Pins	Use	Order Instructions	
		Type	Order No.
4	for power supply of the bus system	K-M12-4	KL9007



Elbow M12 connector (without cable)

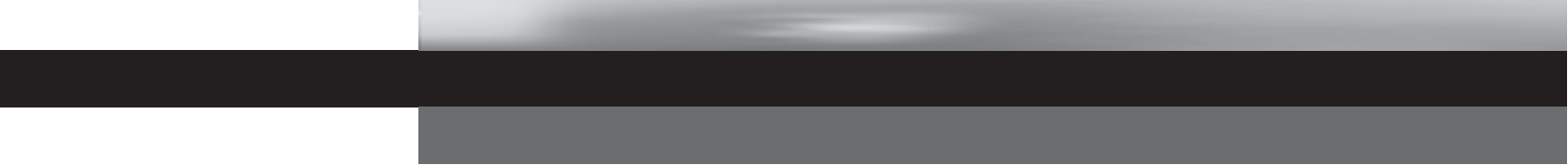
Number of Pins	Use	Order Instructions	
		Type	Order No.
4	for power supply of the bus system	K-M12W-4	KL9004



Accessories for Valve Islands IM 20

- with Multipole Connection
- with Bus Connection

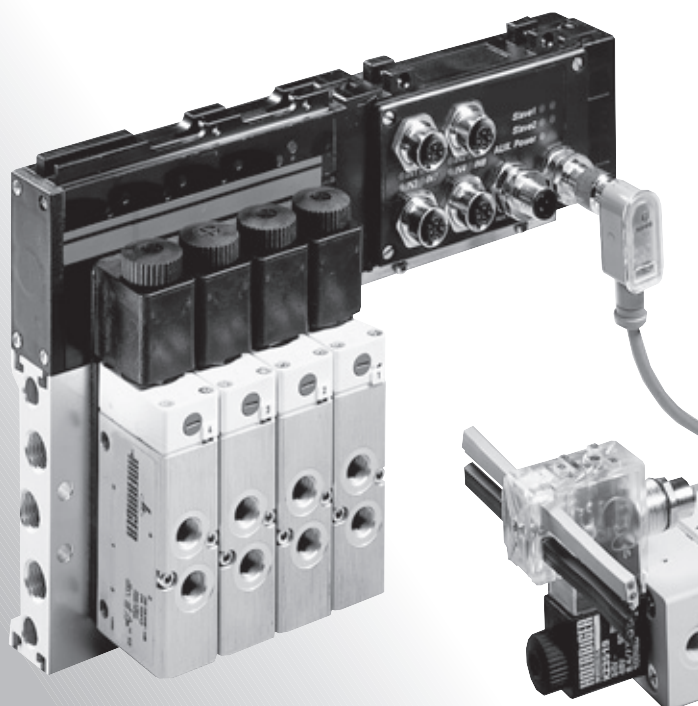
- Cable with sub-D connector
- Heavy duty industrial connector
- Straight M8 4-pin connector
- Straight M12 4-pin connector
- Elbow M12 4-pin connector
- Cable with M8 connector



Valves and Valve Islands with AS-Interface Connection

Contents

Description	Electrically actuated Connection	Page		
		Characteristics	Dimensions	Order Instructions Overview
Valve Island with AS-Interface	AS-Interface	86	87	87
Valve Connector for single valve actuation	AS-Interface	88	89	89

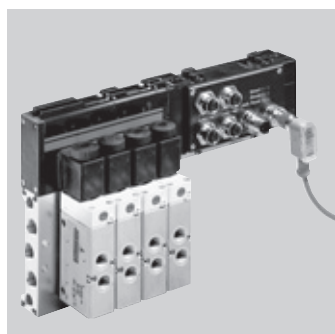


Valves and Valve Islands with AS-Interface Connection – Series IM

Characteristics

Valve Island G1/8, G1/4

Valve actuation via
AS-Interface



Series:
IM20-...ASI-.J-8S
IM20-...ASI-.M-8S

The valve islands are available with G1/8 and G1/4 valves. They have 8 sensor inputs and are equipped with max. 8 monostable or 4 bistable valves.

Application:

The valve islands are especially suitable for centralized applications.

The control system is connected via the yellow AS-interface cable and the energy is supplied through the black AS-interface cable by means of an M12 connector (4-pin) on the AS-interface slave

Characteristics

Pressures quoted as gauge pressure

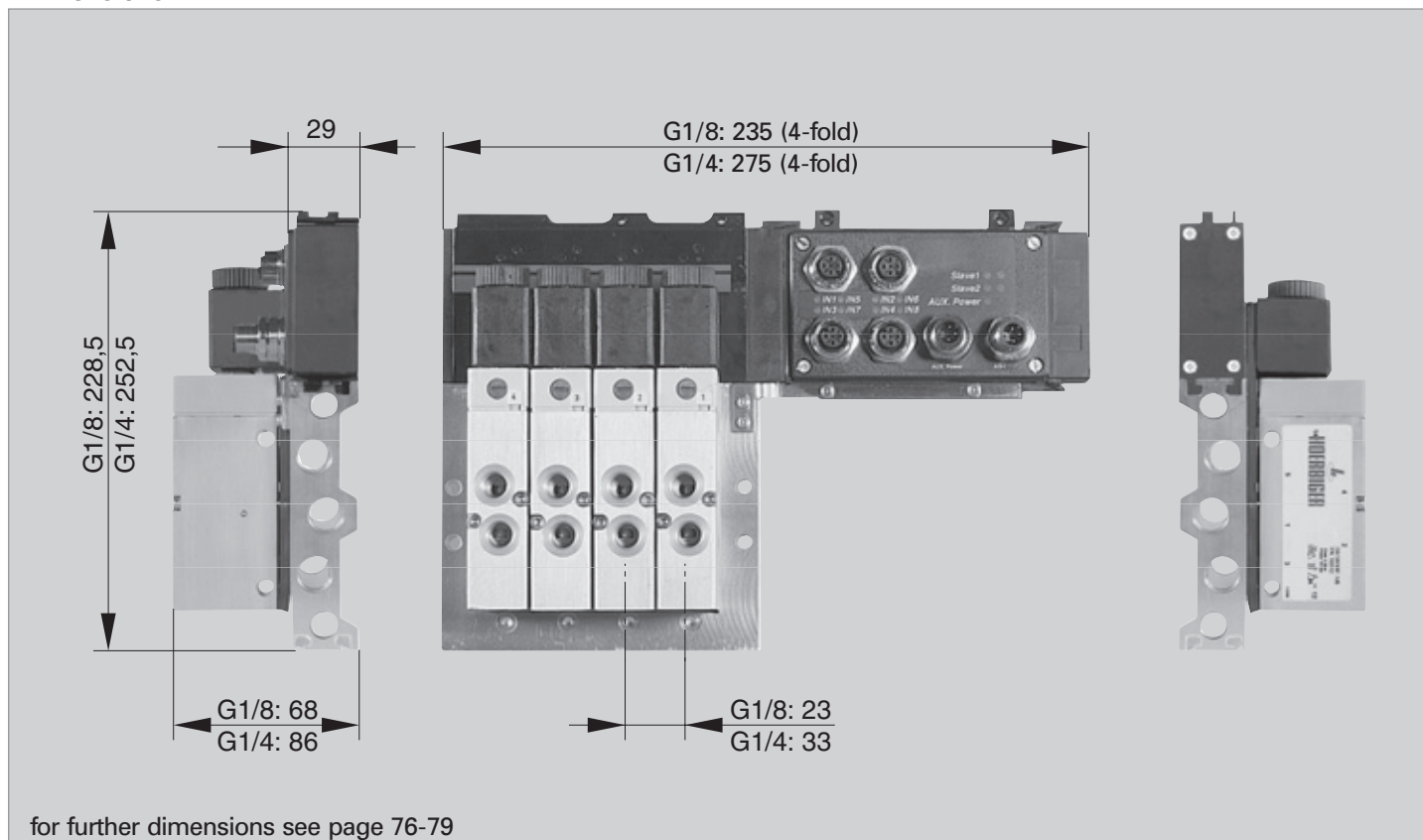
Characteristics	Symbol	Unit	Description
General Features			
Description			Valve island G1/8 and G1/4 with AS-Interface
Mounting			Wall mounting 4 screws
Type			IM20-1/8
Port size			IM20-1/4
air supply and exhaust			G1/4 both sides
valve outlets			G3/8 both sides
Grid width of valves			G1/8
			G1/4
Ambient and Medium temperature range	ϑ_{\min}	°C	-10
	ϑ_{\max}	°C	+50
			Note: Please consult us for operating temperatures below 0° C
Material			
Base plate			Al
Valve housing			Al
Seals			NBR
AS-Interface module housing			Plastic
Medium			Filtered compressed air (5µm)
Lubrication			With or without oil mist lubrication (we recommend mineral oil type VG 32 to ISO 3448)
Installation			In any position
No. of switching outputs			max. 8
No. of sensor inputs			max. 8
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	p_{\min}	bar	2.5
	p_{\max}	bar	10
Nominal flow	Q_N	l/min	500
			1300 ⁽¹⁾
Electrical Characteristics			
Actuation			electrically pilot operated (valves)
Connections			
Bus connection			M12 connector 5-pin
Inputs			M12 connector 5-pin (Y-adaptor needed)
Working principle			Via AS-interface, comprising 2 Slaves
Operating voltage	U	V/DC	AS-interface: 26.5 to 31.6 Extern: 24 ±10%
Data I/O configuration			7F
AS-interface specification			Fh
ID code			
Total power usage		mA	< 280 AS-Int. Bus)
External power supply		mA	< 900
Addressability			max. 15
Sensor voltage		V	Via AS-Interface
Sensor power rating		mA	max. 200, Sensor short circuit proof
Input voltage		V	for signal "0": < 5 for signal "1": > 10
Status indication			Via LED
Electrical protection		IP	IP65 (applies only to the electrically part)

⁽¹⁾ version "middle position vented" 1000 l/min

Note:

The power supply must be isolated according to IEC 3644-41!

Dimensions



Order Instructions for Standard Valve Islands

Valves	Port size	Order Instructions Type	Order No.
4 monostable valves 8 input connections for sensors	G1/8 – Outlet G1/4 – Inlet	IM20-1/8-ASI-4M-8S	PA10383-0400-04
4 bistable valves 8 input connections for sensors	G1/8 – Outlet G1/4 – Inlet	IM20-1/8-ASI-4J-8S	PA10383-0004-04
8 monostable valves 8 input connections for sensors	G1/8 – Outlet G1/4 – Inlet	IM20-1/8-ASI-8M-8S	PA10383-0800-08
4 monostable valves 8 input connections for sensors	G1/4 – Outlet G3/8 – Inlet	IM20-1/4-ASI-4M-8S	PA12921-0400-04
4 bistable valves 8 input connections for sensors	G1/4 – Outlet G3/8 – Inlet	IM20-1/4-ASI-4J-8S	PA12921-0004-04
8 monostable valves 8 input connections for sensors	G1/4 – Outlet G3/8 – Inlet	IM20-1/4-ASI-8M-8S	PA12921-0800-08

for additional valve configurations see page 80

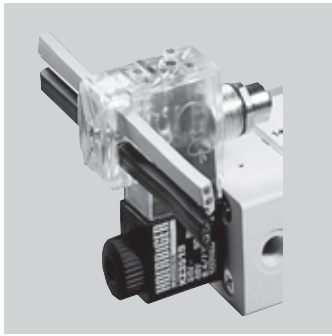
Order Instructions for Valve Island Connection Accessories

Description	Item	Order Instructions Type	Order No.
AS-Interface connection set – comprising items 2 to 5	1		PD45849
4 Y-cables for sensor connection M12/2xM8	2	KS-Y-M12-8-8	KL9092
1 right angle socket for M12 4-pin connector (for customer's own arrangement)	4	K-M12W-4	KL9004
2 AS-Interface connection modules M12	5	AM-AS-M12	KL3129
1 M12 connector with blank wire ends ca. 1,5 m	3	KS-M12-0-15	KL3141

Valve Connector for Valve Actuation via AS-Interface

Characteristics

Valve Connector for valve actuation via AS-Interface



- for directional valve series S9-1/8, S9-1/4, S9-1/2
- for stop valve series airfit swing G1/4, G3/8 series airfit comfort G3/8, G1/2

Valve connector Form B (industry standard) with status indicators and gasket for S9 valves

- with slave function for AS-Interface

Characteristics

Characteristics	Symbol	Unit	Description
General Features			
Description			AS-Interface Connector
Mounting			Plug-type connection with integrated fixing screw
Ambient temperature range	ϑ_{\min} ϑ_{\max}	°C	-10 +60
Material – housing			transparent plastic
Installation			in any position
Contact distance		mm	11
No. of outputs			1
No. of inputs			2 (Sensors)
Electrical Characteristics			
Output voltage		V	24 DC
Output current		A	< 0.5 from external supply
Total sensor current		A	< 0.2 from AS-Interface
Sensor connections			via M12x1 connector (4-pin)
Data I/O configuration			Bh
AS-Int. specification, ID code			Fh
Addressability			(0), 1 ... 31
Status indicator			LED
Meaning:			
– AS-Interface			AS-Interface operating voltage on
– Out			Valve output active
Electrical protection		IP	IP65 (applies only to solenoid with plug)

Connections

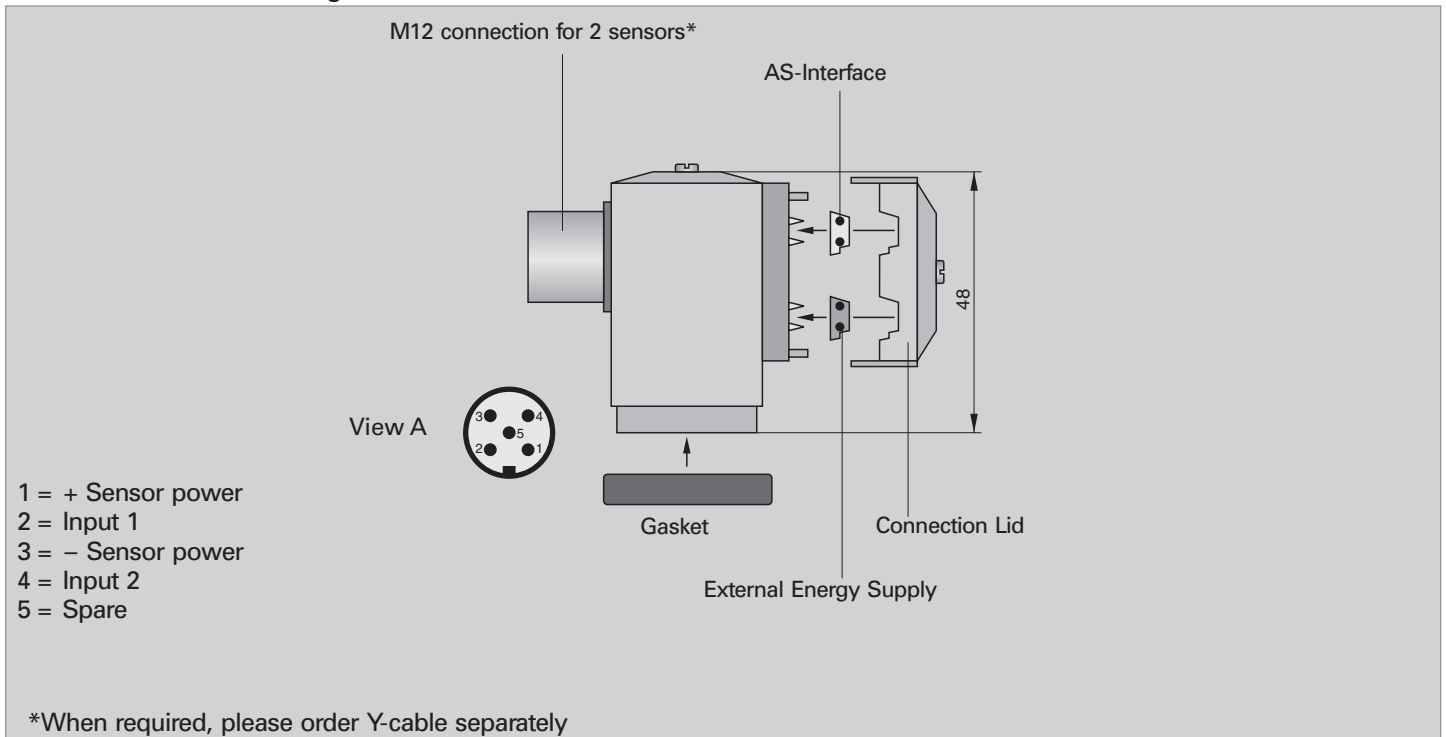
1. Black profile cable (= energy supply) in connection lid "POWER".
2. Yellow profile cable (= AS-Interface signal line) in connection lid "AS-Interface".
3. Secure connection lids with second fixing screw.
This completes the contact.

Note:

the power supply must be isolated according to IEC 3644-41!

Dimensions, Order Instructions

Dimensions and PIN Assignment



Order Instructions

Description	Order Instructions Type	Order No.
AS-interface valve connector	GSD-AS-22	KL3104
Y-cable M12 / 2 x M8 (accessories)	KS-Y-M12-8-8	KL9092

Please note:

Please order the S9 series valve (**without connector**) or the shut-off valve separately

Valves recommended for use with the AS-Interface valve connector are shown in the following table:

Order Instructions

Description	Order Instructions Type	Order No.
5/2 way valve, G1/8, monostable	S9581RF-1/8-OD	PA10312-0233-00
5/2 way valve, G1/4, monostable	S9581RF-1/4-OD	PA12679-0233-00
5/2 way valve, G1/2, monostable	S9581RF-1/2-OD	PA16171-0233-00
Stop valve, airfit swing, G1/4	SDR-1/4E	PB47149-201
Stop valve, airfit swing, G3/8	SDR-3/8E	PB47249-201
Stop valve, airfit comfort, G3/8	SDR-3/8E	PB57149-201
Stop valve, airfit comfort, G1/2	SDR-1/2E	PB57349-201

For additional valve types see page 37-65

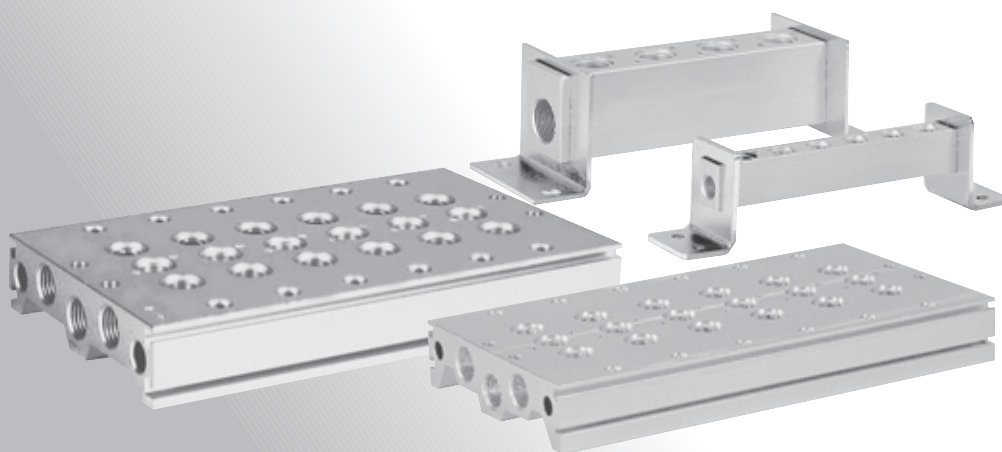
For shut-off valves see air preparation catalogue A4P006E



P- and RPS-Supply Manifolds for Series S9-G1/8, G1/4, G1/2

Contents

Description	Port size	Page		
		Characteristics	Dimensions	Order Instructions Overview
P-Supply Manifolds	G1/8	92	92	92
	G1/4	93	93	93
	G1/2	94	94	94
RPS-Supply Manifolds	G1/8	95	95	95
	G1/4			



P-Supply Manifolds S9-G1/8, G1/4

Dimensions and Order Instructions

P-Supply Manifold Series PLK, PL

for directional valves
Series S9-G1/8

P-supply manifolds reduce and simplify tubing. They allow a clear, space-saving design.

3/2, 5/2 and 5/3 directional valves with different types of actuation can be mounted in groups of 2-10.

The delivery includes:

P-supply manifold
Mounting bracket
Mounting screws
O-rings



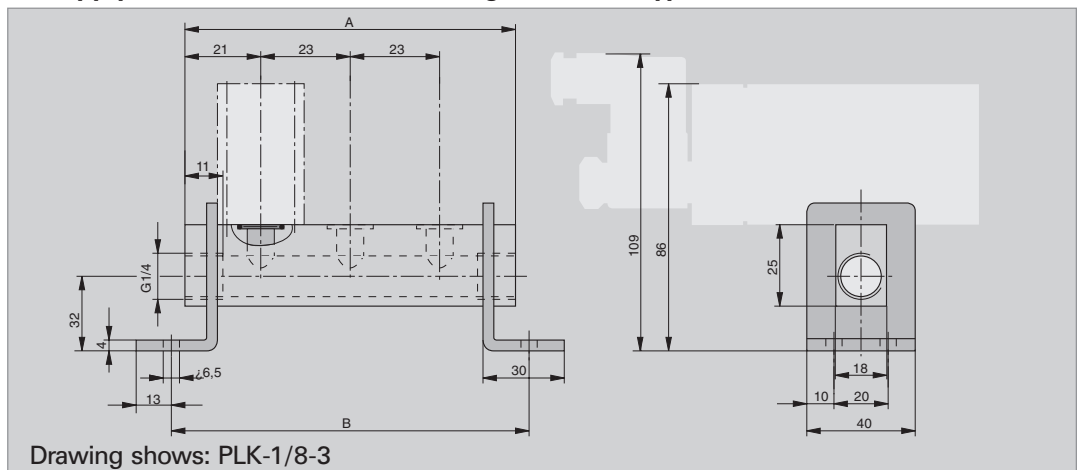
Accessories

Description	Order No.
Complete cover plate	PD 34694
Flow divider	PD 42483

Order Instructions and Weight

Order Instructions Type	Order No.	No. of Valves	Consisting of			O-ring	Weight (kg)
			Manifold	Bracket	Screws		
PLK-1/8-2	PD 37174-0002	2	1	2	4	2	0.28
PL-1/8-2	PD 32763-0002	2	1	2	4	2	0.28
PLK-1/8-3	PD 37174-0003	3	1	2	6	3	0.31
PL-1/8-3	PD 32763-0003	3	1	2	6	3	0.31
PLK-1/8-4	PD 37174-0004	4	1	2	8	4	0.34
PL-1/8-4	PD 32763-0004	4	1	2	8	4	0.34
PLK-1/8-5	PD 37174-0005	5	1	2	10	5	0.37
PL-1/8-5	PD 32763-0005	5	1	2	10	5	0.37
PLK-1/8-6	PD 37174-0006	6	1	2	12	6	0.40
PL-1/8-6	PD 32763-0006	6	1	2	12	6	0.40
PLK-1/8-7	PD 37174-0007	7	1	2	14	7	0.43
PL-1/8-7	PD 32763-0007	7	1	2	14	7	0.43
PLK-1/8-8	PD 37174-0008	8	1	2	16	8	0.47
PL-1/8-8	PD 32763-0008	8	1	2	16	8	0.47
PLK-1/8-9	PD 37174-0009	9	1	2	18	9	0.50
PL-1/8-9	PD 32763-0009	9	1	2	18	9	0.50
PLK-1/8-10	PD 37174-0010	10	1	2	20	10	0.53
PL-1/8-10	PD 32763-0010	10	1	2	20	10	0.53

P-Supply Manifold with short mounting brackets – Type: PLK-1/8-..

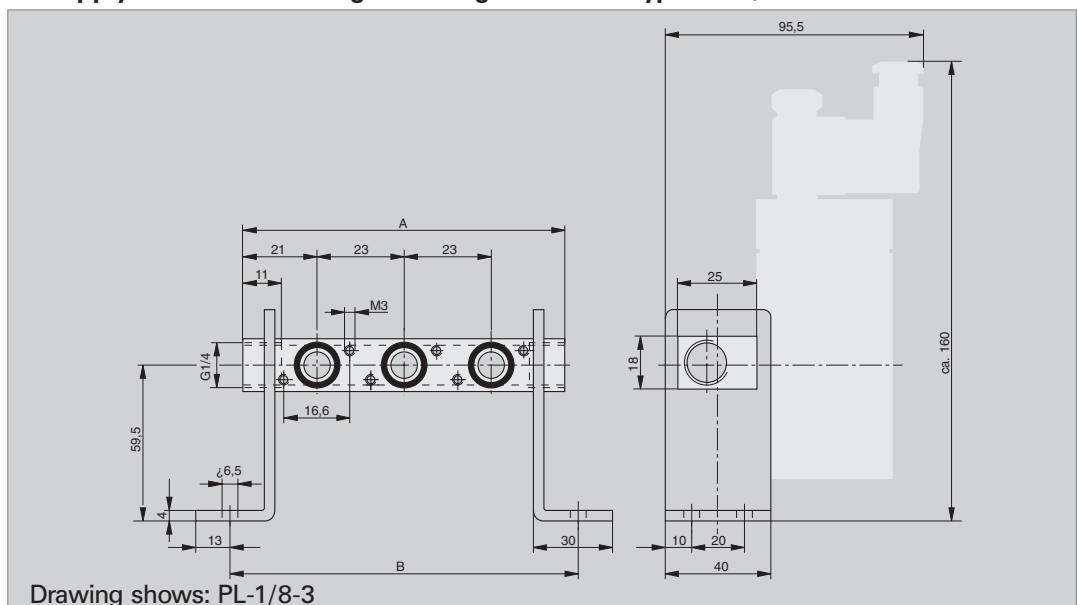


Drawing shows: PLK-1/8-3

Material

Description	Material
P-supply manifold	Al, anodized
Mounting bracket	Steel passivated
Screws	Galvanized steel
O-ring	Oil-res. rubber

P-Supply Manifold with long mounting brackets – Type: PL-1/8-..



Drawing shows: PL-1/8-3

Dimension Table

Type	No. of Valves	A	B
PLK-1/8-2	2	65	79
PL-1/8-2	2	65	79
PLK-1/8-3	3	88	102
PL-1/8-3	3	88	102
PLK-1/8-4	4	111	125
PL-1/8-4	4	111	125
PLK-1/8-5	5	134	148
PL-1/8-5	5	134	148
PLK-1/8-6	6	157	171
PL-1/8-6	6	157	171
PLK-1/8-7	7	180	194
PL-1/8-7	7	180	194
PLK-1/8-8	8	203	217
PL-1/8-8	8	203	217
PLK-1/8-9	9	226	240
PL-1/8-9	9	226	240
PLK-1/8-10	10	249	263
PL-1/8-10	10	249	263

Overview for directional valves see page 60-65

Order Instructions and Weight

Order Instructions Type	Order No.	No. of Valves	Consisting of				Weight (kg)
			Manifold	Bracket	Screws	O-ring	
PLK-1/4-2	PD 37175-0002	2	1	2	4	2	0.31
PL-1/4-2	PD 32765-0002	2	1	2	4	2	0.31
PLK-1/4-3	PD 37175-0003	3	1	2	6	3	0.35
PL-1/4-3	PD 32765-0003	3	1	2	6	3	0.35
PLK-1/4-4	PD 37175-0004	4	1	2	8	4	0.39
PL-1/4-4	PD 32765-0004	4	1	2	8	4	0.39
PLK-1/4-5	PD 37175-0005	5	1	2	10	5	0.43
PL-1/4-5	PD 32765-0005	5	1	2	10	5	0.43
PLK-1/4-6	PD 37175-0006	6	1	2	12	6	0.47
PL-1/4-6	PD 32765-0006	6	1	2	12	6	0.47
PLK-1/4-7	PD 37174-0007	7	1	2	14	7	0.51
PL-1/4-7	PD 32765-0007	7	1	2	14	7	0.51
PLK-1/4-8	PD 37175-0008	8	1	2	16	8	0.55
PL-1/4-8	PD 32765-0008	8	1	2	16	8	0.55
PLK-1/8-9	PD 37175-0009	9	1	2	18	9	0.59
PL-1/4-9	PD 32765-0009	9	1	2	18	9	0.59
PLK-1/4-10	PD 37175-0010	10	1	2	20	10	0.63
PL-1/4-10	PD 32765-0010	10	1	2	20	10	0.63



Accessories

Description	Order No.
Complete cover plate	PD 34695
Flow divider	PD 42516

P-Supply Manifold Series PLK, PL

for directional valves Series S9-G1/4

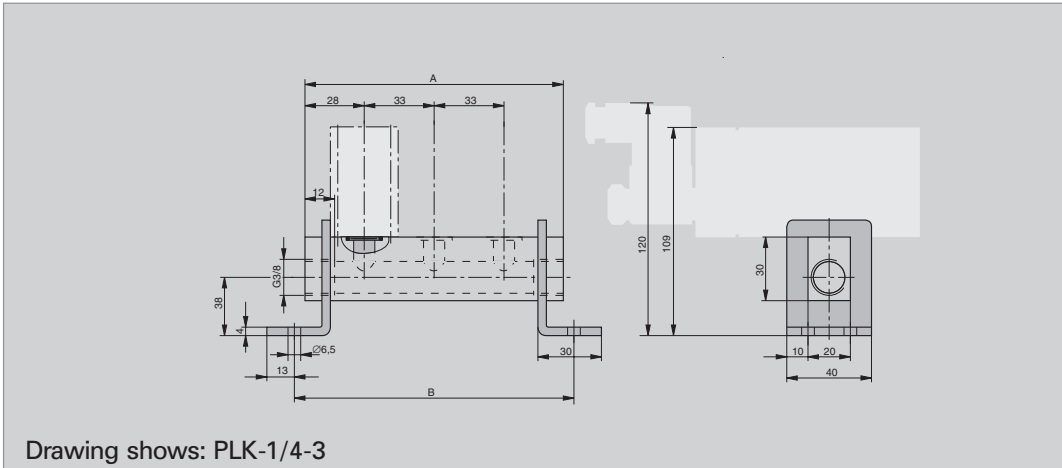
P-supply manifolds reduce and simplify tubing. They allow a clear, space-saving design.

3/2, 5/2 and 5/3 directional valves with different types of actuation can be mounted in groups of 2-10.

The delivery includes:

- P-supply manifold
- Mounting bracket
- Mounting screws
- O-rings

P-Supply Manifold with short mounting brackets – Type: PLK-1/4-..

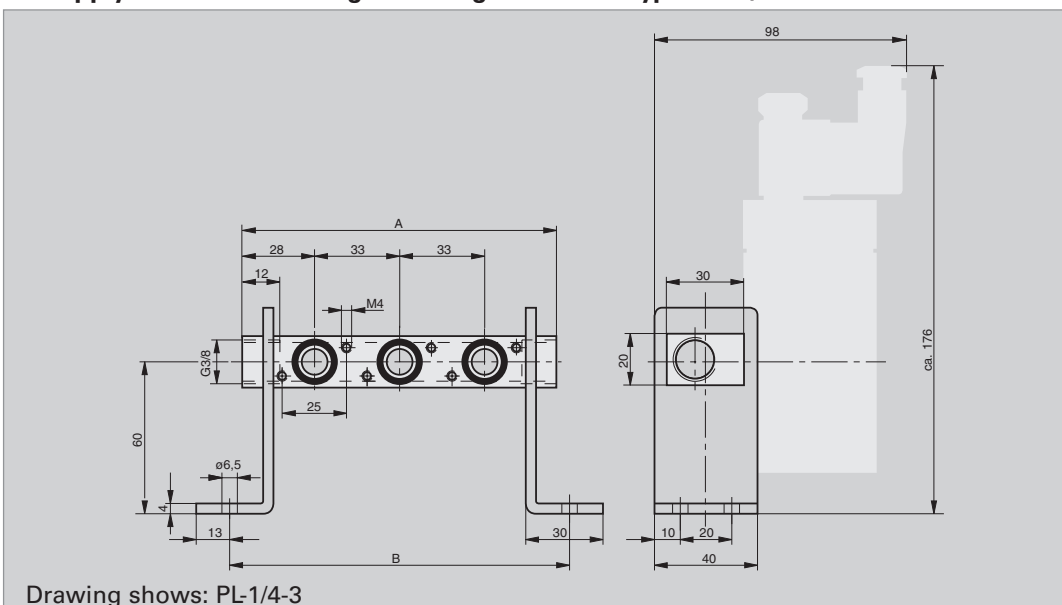


Drawing shows: PLK-1/4-3

Material

Description	Material
P-supply manifold	Al, anodized
Mounting bracket	Steel passivated
Screws	Galvanized steel
O-ring	Oil-res. rubber

P-Supply Manifold with long mounting brackets – Type: PL-1/4-..



Drawing shows: PL-1/4-3

Dimension Table

Type	No. of Valves	A	B
PLK-1/4-2	2	89	99
PL-1/4-2	2	89	99
PLK-1/4-3	3	122	132
PL-1/4-3	3	122	132
PLK-1/4-4	4	155	165
PL-1/4-4	4	155	165
PLK-1/4-5	5	188	198
PL-1/4-5	5	188	198
PLK-1/4-6	6	221	231
PL-1/4-6	6	221	231
PLK-1/4-7	7	254	264
PL-1/4-7	7	254	264
PLK-1/4-8	8	287	297
PL-1/4-8	8	287	297
PLK-1/4-9	9	320	330
PL-1/4-9	9	320	330
PLK-1/4-10	10	353	363
PL-1/4-10	10	353	363

Overview for directional valves see page 60-65

P-Supply Manifolds for Series S9-G1/2

Dimensions and Order Instructions

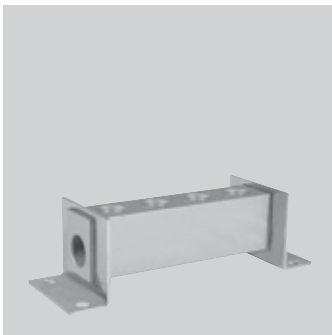
P-Supply Manifold Series PL

for directional valves
Series S9-G1/2

P-supply manifolds reduce and simplify tubing. They allow a clear, space-saving design.

3/2, 5/2 and 5/3 directional valves with different types of actuation can be mounted in groups of 2-4.

The delivery includes:
P-supply manifold
Mounting bracket
Mounting screws
O-rings



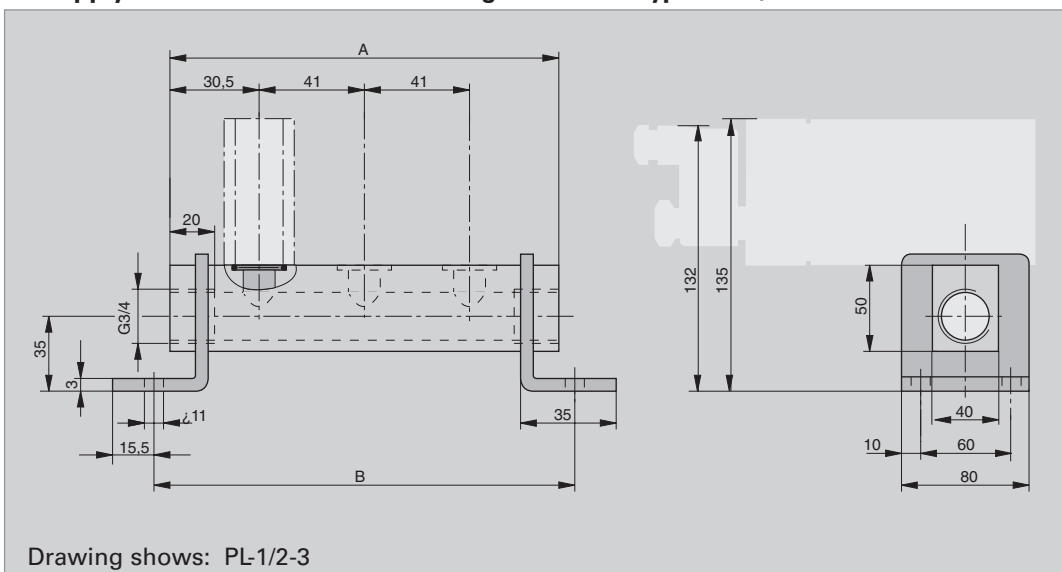
Material

Description	Material
P-supply manifold	Al, anodized
Mounting bracket	Steel passivated
Screws	Galvanized steel
O-ring	Oil-res. rubber

Dimension Table

Type	No. of Valves	A	B
PL-1/2-2	2	102	122
PL-1/2-3	3	143	163
PL-1/2-4	4	184	204

P-Supply Manifold with short mounting brackets – Type: PL-1/2-..



Order Instructions and Weight

Order Instructions		No. of Valves	Consisting of				Weight (kg)
Type	Order No.		Manifold	Bracket	Screws	O-ring	
PL-1/2-2	PD 39016-0002	2	1	2	4	2	0.45
PL-1/2-3	PD 39016-0003	3	1	2	6	3	0.60
PL-1/2-4	PD 39016-0004	4	1	2	8	4	0.80

Accessories

Description	Order No.
Complete cover plate	PD 39138

Overview for directional valves see page 60-65

RPS-Supply Manifolds for Series S9-G1/8, G1/4

Order Instructions and Weight

Order Instructions Type	Order No.	No. of Valves	Consisting of Manifold	Screws	O-ring	Weight (kg)
RPSL-S9-1/8-2	PD 44813-0002	2	1	4	6	0.470
RPSL-S9-1/4-2	PD 44814-0002	2	1	4	6	0.845
RPSL-S9-1/8-3	PD 44813-0003	3	1	6	9	0.570
RPSL-S9-1/4-3	PD 44814-0003	3	1	6	9	1.045
RPSL-S9-1/8-4	PD 44813-0004	4	1	8	12	0.670
RPSL-S9-1/4-4	PD 44814-0004	4	1	8	12	1.245
RPSL-S9-1/8-5	PD 44813-0005	5	1	10	15	0.770
RPSL-S9-1/4-5	PD 44814-0005	5	1	10	15	1.445
RPSL-S9-1/8-6	PD 44813-0006	6	1	12	18	0.870
RPSL-S9-1/4-6	PD 44814-0006	6	1	12	18	1.645
RPSL-S9-1/8-7	PD 44813-0007	7	1	14	21	0.970
RPSL-S9-1/4-7	PD 44814-0007	7	1	14	21	1.845
RPSL-S9-1/8-8	PD 44813-0008	8	1	16	24	1.070
RPSL-S9-1/4-8	PD 44814-0008	8	1	16	24	2.045
RPSL-S9-1/8-9	PD 44813-0009	9	1	18	27	1.170
RPSL-S9-1/4-9	PD 44814-0009	9	1	18	27	2.245
RPSL-S9-1/8-10	PD 44813-0010	10	1	20	30	1.270
RPSL-S9-1/4-10	PD 44814-0010	10	1	20	30	2.445



Accessories

Description	Order No.
Cover strip kit complete G1/8	PD 32956
Cover strip kit complete G1/4	PD 32957
Flow divider G1/8	PD 42483
Flow divider G1/4	PD 42483

RPS-Supply Manifold Series RPSL

for directional valves Series S9-G1/8, G1/4

P-supply manifolds reduce and simplify tubing. They allow a clear, space-saving design.

The RPS manifolds have a common compressed air supply (P) and common vent lines (R,S).

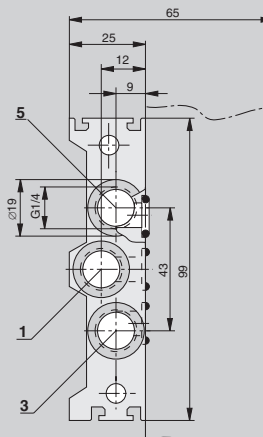
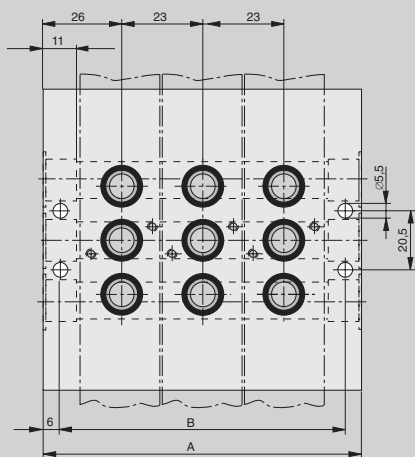
Valves can be mounted in groups of 2-10.

The delivery includes:

RPS-supply manifold
Mounting screws
O-rings

RPS-Supply Manifold Type: RPSL-S9-1/8-.

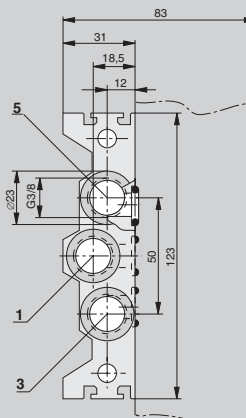
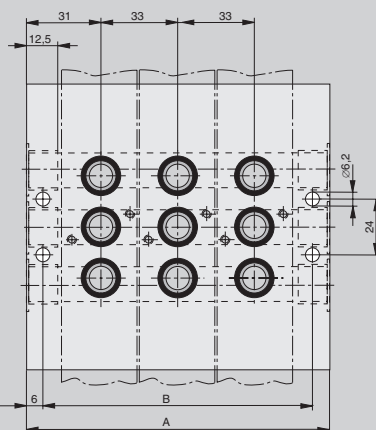
for dimensions A and B see dimension table



Drawing shows: RPSL-S9-1/8-3

RPS-Supply Manifold Type: RPSL-S9-1/4-..

for dimensions A and B see dimension table



Drawing shows: RPSL-S9-1/4-3

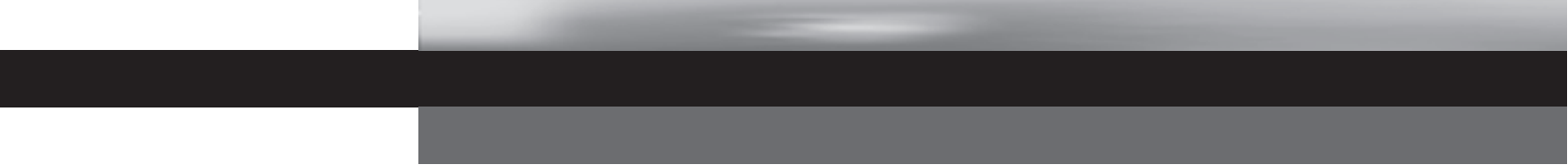
Material

Description	Material
P-supply manifold	Al, anodized
Screws	Galvanized steel
O-ring	Oil-res. rubber

Dimension Table

Type	No. of Valves	A	B
RPSL-S9-1/8-2	2	75	63
RPSL-S9-1/4-2	2	95	83
RPSL-S9-1/8-3	3	98	86
RPSL-S9-1/4-3	3	128	116
RPSL-S9-1/8-4	4	121	109
RPSL-S9-1/4-4	4	161	149
RPSL-S9-1/8-5	5	144	132
RPSL-S9-1/4-5	5	194	182
RPSL-S9-1/8-6	6	167	155
RPSL-S9-1/4-6	6	227	215
RPSL-S9-1/8-7	7	190	178
RPSL-S9-1/4-7	7	260	248
RPSL-S9-1/8-8	8	213	201
RPSL-S9-1/4-8	8	293	281
RPSL-S9-1/8-9	9	236	224
RPSL-S9-1/4-9	9	326	314
RPSL-S9-1/8-10	10	259	247
RPSL-S9-1/4-10	10	359	347

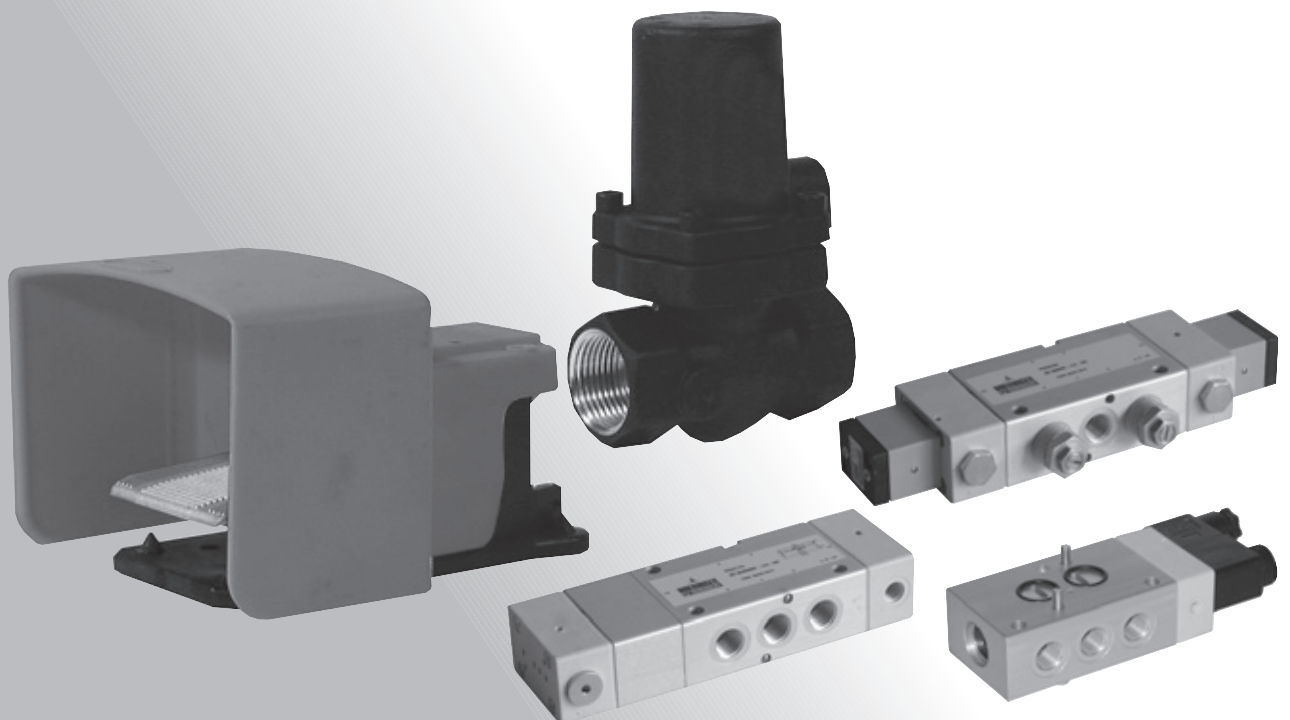
Overview for directional valves see page 60-65



Special Valves G1/8, G1/4

Contents

Description	Actuation	Port size	Page		
			Characteristics	Dimensions	Order Instructions Overview
3/2, 5/2 and 5/3 Way Valves with NAMUR connections Series S9	Electrical	G1/8 G1/4	98, 99	100-102	103
5/2 Way Valves for Two Hand Operation Series S9	Manual control	G1/8 G1/4	104	104, 105	105
5/2 Way Oscillating Valves Series S9	Pneumatic	G1/4	107	107	107
3/2 and 5/2 Way Valve Series F	Pedal	G1/4	108	108	109
2/2 Way Valve Series ARKV	Pneumatic	G1/2 G3/4 G1 G1 1/2 G2	110	110	110



Directional Valves with NAMUR Connections – Series S9-G1/8, G1/4

Characteristics for Standard Valves

Characteristics Series S9 – G1/8, G1/4 NAMUR Connections

Characteristics	Symbol	Unit	Series S9 G1/8	G1/4
Actuation			electrically actuated	electrically actuated
General Features				
Type			Spool valve	Spool valve
Mounting			2 Screws M5	2 Screws M6
Tube connection			Thread/NAMUR connections	Thread/NAMUR connections
Port size			G1/8 – 7.4 deep	G1/4 – 11 deep
Weight		kg	0.245 permanent signal version 0.340 impulse version	0.600 permanent signal version 0.700 impulse version
Installation			In any position	In any position
Ambient temperature range (1)	$\vartheta_{\min. / \max.}$	°C	-10 to +60	-10 to +60
Medium temperature range (1)	$\vartheta_{\min. / \max.}$	°C	-10 to +60	-10 to +60
Medium			Filtered compressed air	
Lubrication			With or without oil mist lubrication (We recommend the use of mineral oil type VG 32 to ISO 3448)	
Pneumatic Characteristics				
Nominal pressure	$p_{\min. / \max.}$	bar	6	
Operating pressure range				
– permanent signal version	$p_{\min. / \max.}$	bar	2–10	
– impulse version	$p_{\min. / \max.}$	bar	1.5–10	
Nominal flow	Q_N	l/min	500	1300 (3)
Actuation				
Electrical				
Voltage type			Alternating current (50/60Hz)	Direct current
Nominal voltage				
– Standard version	U_n	V	230 ±10%	24 ±10%
– Low wattage version	U_n	V	230 ±10%	24 ±10%
Initial power consumption				other voltages on request
– Standard version		VA (W)	8.5	2.5
– Low wattage version		VA (W)	6.6	2.1
Continuous consumption				
– Standard version		VA (W)	6.0	2.5
– Low wattage version		VA (W)	3.9	2.1
Duty cycle	ED	%	100	
Electrical protection		IP	IP65 to DIN 40050 (applies only to solenoid with plug)	
Connection			Plug to DIN EN 175301-803 form B – industrial standard (2)	

(1) Note: Please consult us for operating temperatures below 0° C

(2) Low wattage version: Plug to DIN EN 175301-803 form A

(3) Version “middle position vented” 1000 l/min

Overview for directional valves see page 103, 60-65

Characteristics for Valves in EX Areas

Characteristics Series S9 – G1/8, G1/4 NAMUR Connections

Characteristics	Symbol	Unit	Series S9 G1/8	G1/4
Actuation			electrically actuated	electrically actuated
General Features				
Type			Spool valve	Spool valve
Mounting			2 Screws M5	2 Screws M6
Tube connection			Thread/NAMUR connections	Thread/NAMUR connections
Port size			G1/8 – 7.4 deep	G1/4 – 11 deep
Weight		kg	0.245 permanent signal version 0.340 impulse version	0.600 permanent signal version 0.700 impulse version
Installation			In any position	In any position
Ambient temperature range ⁽¹⁾	$\vartheta_{\min. / \max.}$	°C	-10 to +60	-10 to +60
Medium temperature range ⁽¹⁾	$\vartheta_{\min. / \max.}$	°C	-10 to +60	-10 to +60
Medium			filtered, unlubricated compressed air – free from water and dirt to ISO 8573-1 Solids: Class 7 particle < 40 µm for gas. Water content: pressure dew point +3 °C, Class 4, but at least 5 °C below minimum operating temperature	
Pneumatic Characteristics				
Nominal pressure	$p_{\min. / \max.}$	bar	6	
Operating pressure range				
– permanent signal version	$p_{\min. / \max.}$	bar	2–10	
– impulse version	$p_{\min. / \max.}$	bar	1.5–10	
Nominal flow	Q_N	l/min	500	1300 ⁽³⁾
Actuation				
Electrical				
Zulassung			pilot operated EC Type Test Certificate for single valve: not required for mechanical units EC Type Test Certificate for solenoid coil: PTB-No. 03 Ex IEC 2019X and PTB 03 ATEX 2018X to T5	
Category, type of ignition protection			Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C	
Voltage type			Alternating current (50/60Hz)	Direct current
Nominal voltage	U_N	V	230 ±10% 110 ±10% 24 ±10%	24 ±10% other voltages on request
Max. switching frequency		Hz	1	
Power rating at U_N		VA (W)	G1/8, G1/4 3.1 (230V) 3.0 (110V) 2.5 (24V)	G1/8, G1/4 3.3 (24V)
Power limit at U_N ⁽²⁾		VA (W)	2.9 (230V) 2.8 (110V) 2.4 (24V)	3.0 (24V)
Electrical protection		IP	IP65 (applies only to solenoid with cable)	
Connection			Cable – cable lengths see Order Instructions	

⁽¹⁾ Note: Please consult us for operating temperatures below 0° C

⁽²⁾ maximum power if warmed up to thermal load limit

⁽³⁾ Version "middle position vented" 1000 l/min

3/2 Way Valves with NAMUR Connections – Series S9- G1/4

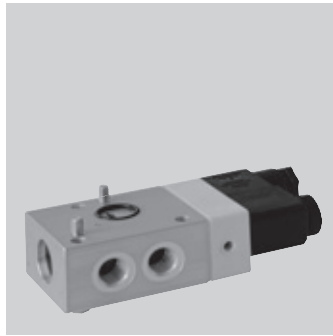
Dimensions

3/2 Way Valves Series S9 G1/4

Actuation:
– Electrical, pilot operated

The delivery includes:

- 1 Valve
- 2 Mounting screws
- 1 Coding pin
- 2 O-rings

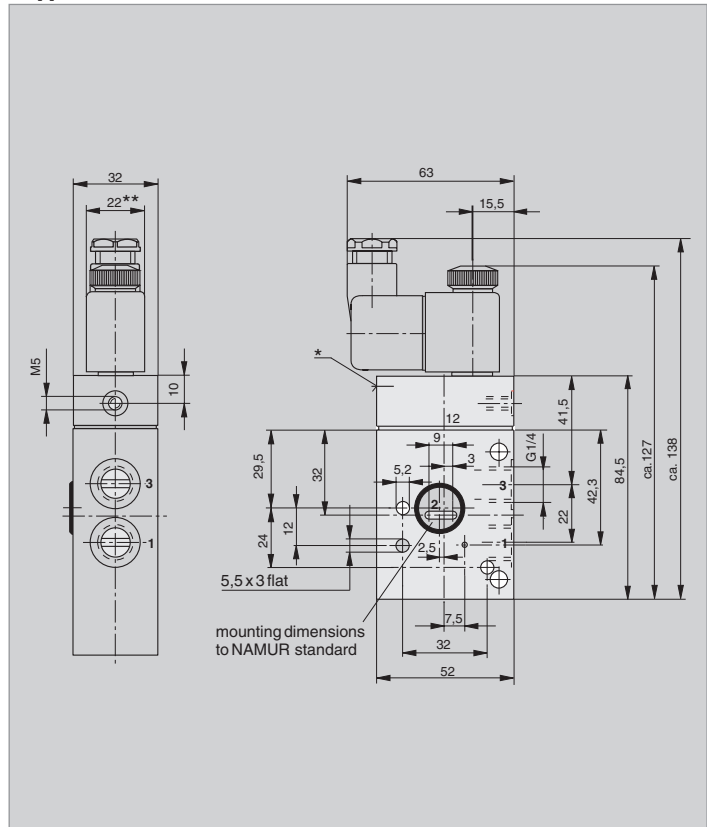


Versions

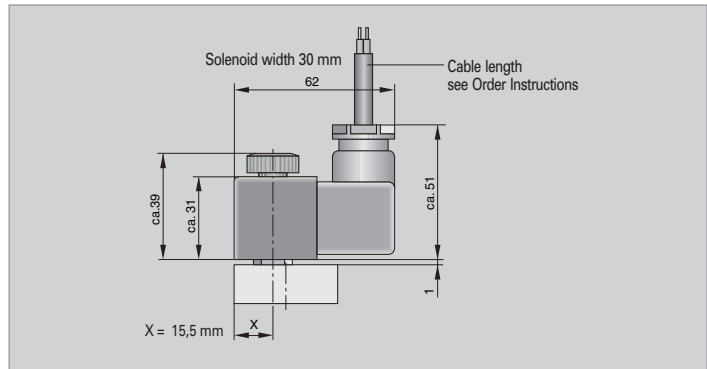
- with NAMUR connections
- version to ATEX Standard

- * Manual override
- ** Solenoid width is 30 mm on low wattage coil version

Electrically actuated Type: S9 381RF-1/4-NG SO



Solenoid for use in EX areas Dimensions

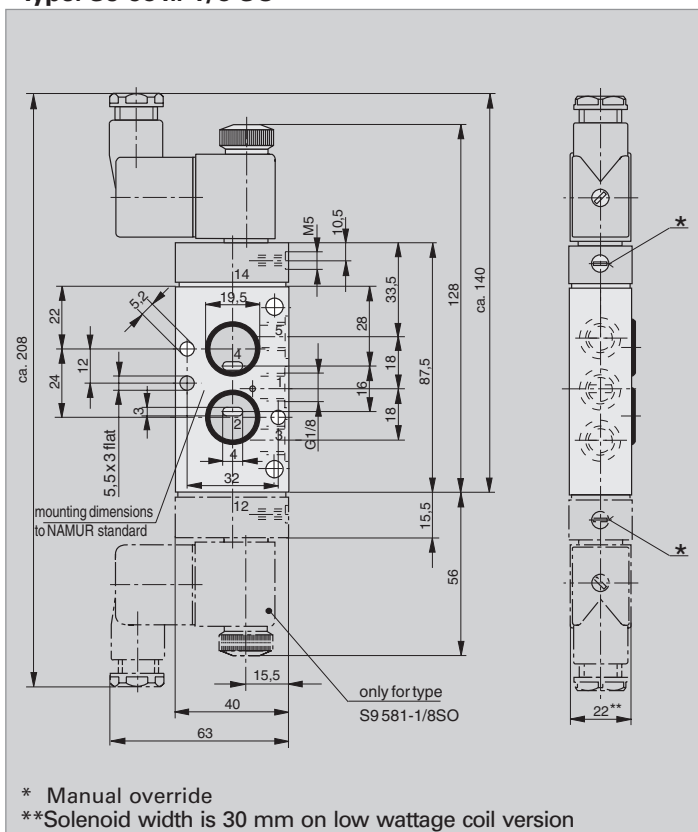


For more information on valves to ATEX standards
see page 39, 103

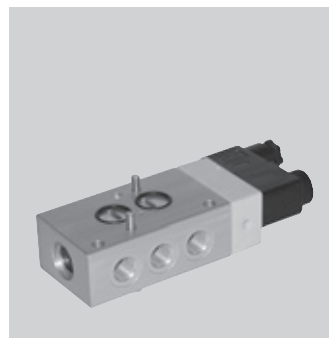
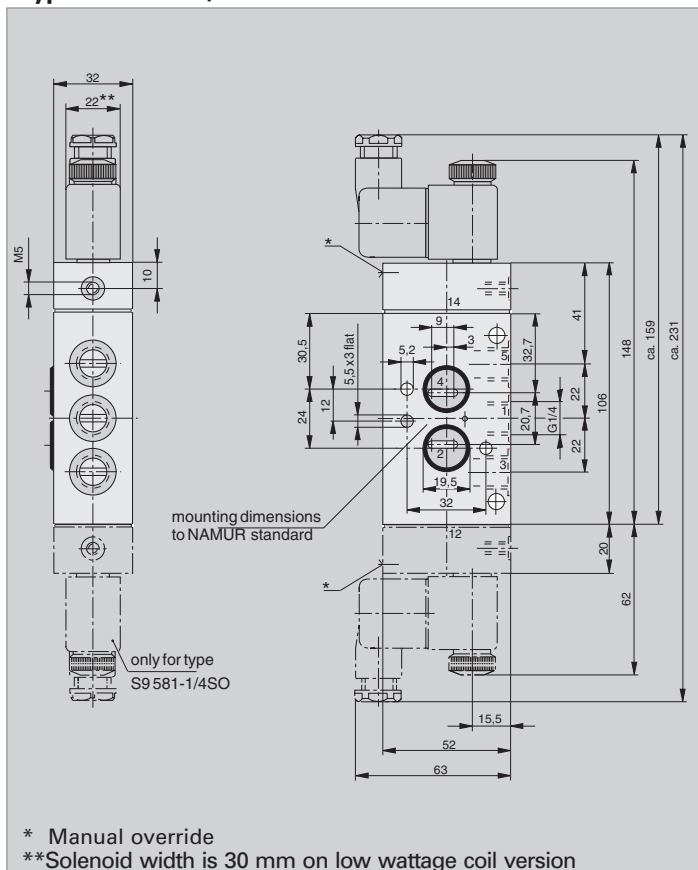
5/2 Way Valves with NAMUR Connections – Series S9- G1/8, G1/4

Dimensions

Electrically actuated
Type: S9 581..-1/8 SO



Electrically actuated
Type: S9 581..-1/4 SO



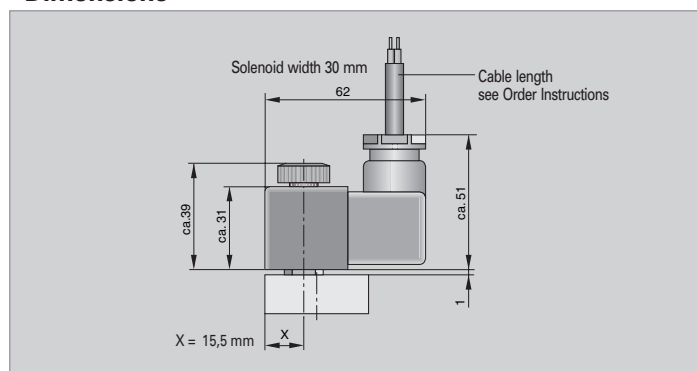
5/2 Way Valves Series S9 G1/8, G1/4

Actuation:
– Electrical, pilot operated

Versions
– with NAMUR connections
– version to ATEX Standard

The delivery includes:
1 Valve
2 Mounting screws
1 Coding pin
2 O-rings

Solenoid for use in EX areas Dimensions



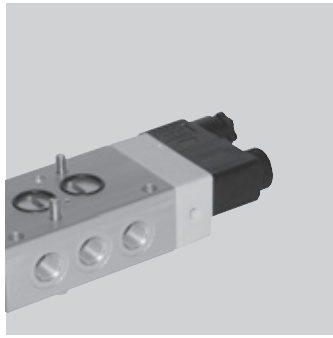
For more information on valves to ATEX standards see page 39, 103

5/3 Way Valves with NAMUR Connections – Series S9- G1/8, G1/4

Dimensions

5/3 Way Valves Series S9 G1/8, G1/4

Actuation:
– Electrical, pilot operated



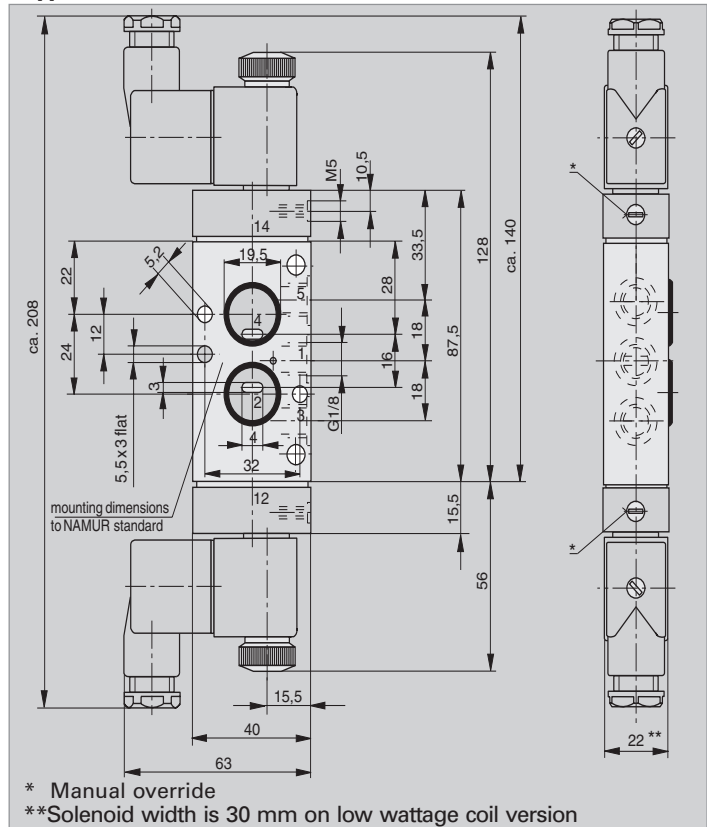
The delivery includes:

- 1 Valve
- 2 Mounting screws
- 1 Coding pin
- 2 O-rings

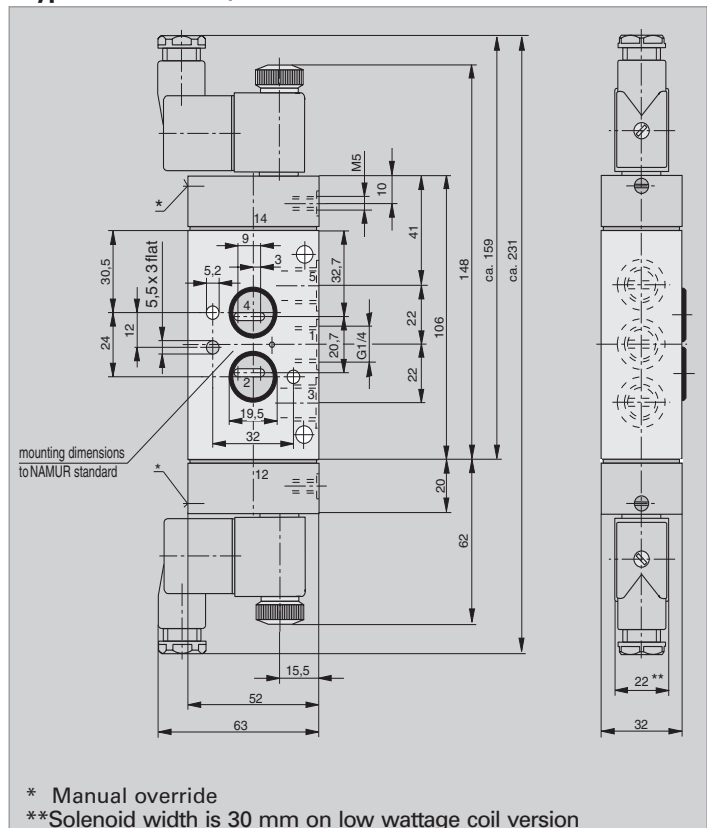
Versions

- with NAMUR connections
- version to ATEX Standard

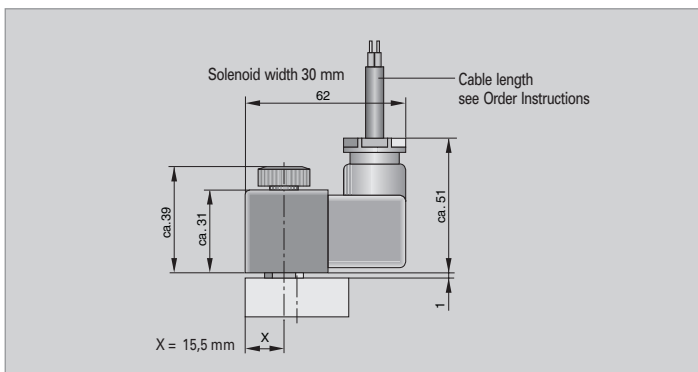
Electrically actuated Type: S9 581RF-1/8-NG SO



Electrically actuated Type: S9 581RF-1/4-NG SO



Solenoid for use in EX areas Dimensions



For more information on valves to ATEX standards see page 39, 103

Directional Valves with NAMUR Connections – Series S9- G1/8, G1/4

Order Instructions

3/2, 5/2 and 5/3 Way Valves – with NAMUR connections

Actuation	Symbol	Order Instructions Type	Order No.	Page
Electrical, by permanent signal		S9 381RF-1/4NG SO-..	PD 33854-..33	100
Electrical, by permanent signal		S9 581RF-1/8 SO-.. S9 581RF-1/4 SO-..	PD 34143-..33 PD 34985-..33	101
Electrical, by impulse		S9 581-1/8 SO-.. S9 581-1/4 SO-..	PD 34984-..33 PD 34986-..33	101
Electrical, by permanent signal		S9 581RFG-1/8 SO-.. S9 581RFG-1/4 SO-..	PD 40813-..33 PD 40808-..33	102
spring return to middle position		S9 581RFE-1/8 SO-.. S9 581RFE-1/4 SO-..	PD 40814-..33 PD 40618-..33	102
		S9 581RFB-1/8 SO-.. S9 581RFB-1/4 SO-..	PD 40815-..33 PD 40809-..33	102

Solenoid version	Nominal voltage	Applicable for	Key code	ATEX Type suffix
Standard version	230V 50/60Hz 24V =	110 V = 60V 50/60Hz	61 02	- -
Low wattage version	24V = 230V 50/60Hz		13 69	- -

EX Area versions to ATEX Standard

Category, type of ignition protection

Single valve: Ⓢ II 2G c T4 T135°C -10°C ≤ Ta ≤ +60°C

Solenoid/individual use: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +50°C

Solenoid/manifold mounting: Ⓢ II 2G EEx m II T5 -20°C ≤ Ta ≤ +40°C

Solenoid	with cable	Nominal voltage	Key code	ATEX
	with cable 1,2 m	24V =	48	ATEX
	with cable 3 m	24V =	45	ATEX
	with cable 5 m	24V =	46	ATEX
	with cable 10 m	24V =	47	ATEX
	with cable 1,2 m	24V 50/60Hz	99	ATEX
	with cable 1,2 m	110V 50/60Hz	97	ATEX
	with cable 1,2 m	230V 50/60Hz	98	ATEX

Example for valves to ATEX standard:

– for valves Series S9-G1/8, S9-G1/4, S9-G1/2

Please add "ATEX" to the Standard Order No.

Type: S9 581RF-1/8-4633

Order No. PA10312-4633ATEX

5/2 Way Valves for Two Hand Operation – Series S9-G1/8, G1/4

Characteristics, Dimensions, Order Instructions

5/2 Way Valves Series S9 G1/8, G1/4

Actuation:
– Pneumatic
for two hand operation



Characteristics

Characteristics	Symbol	Unit	Description	
Type			S9 563/65RF-1/8-SO	S9 563/65RF-1/4-SO
General Features				
System			Spool Valve	Spool Valve
Mounting			2 screws M5	2 screws M6
Tube connection			Thread	Thread
Port size			G1/8	G1/4 (12.1 und 12.2: G1/8)
Weight (mass)		kg	0.27	0.64
Installation			In any position	
Ambient temperature range	$\vartheta_{\min/\max}$	°C	-10 to +60 **	
Medium temperature range	$\vartheta_{\min/\max}$	°C	-10 to +60 **	
Medium			Filtered compressed air	
Lubrication *			with or without oil mist lubrication	
Pneumatic Characteristics				
Nominal pressure	p_n	bar	6	
Operating pressure range	$p_{\min/\max}$	bar	0 – 10	
Nominal flow	Q_N	l/min	500	1300
Actuation				
Pneumatic			direct	
Control pressure range	$p_{st\min/\max}$		2 – 10	3 – 10

* We recommend the use of mineral oil type VG 32 to ISO 3448
** Note: Please consult us for operating temperatures below 0° C

Pneumatically actuated with 2 hand operation Type: S9 563/65RF-1/8-SO

2 hand operated valve for pneumatically controlled machines and equipment.

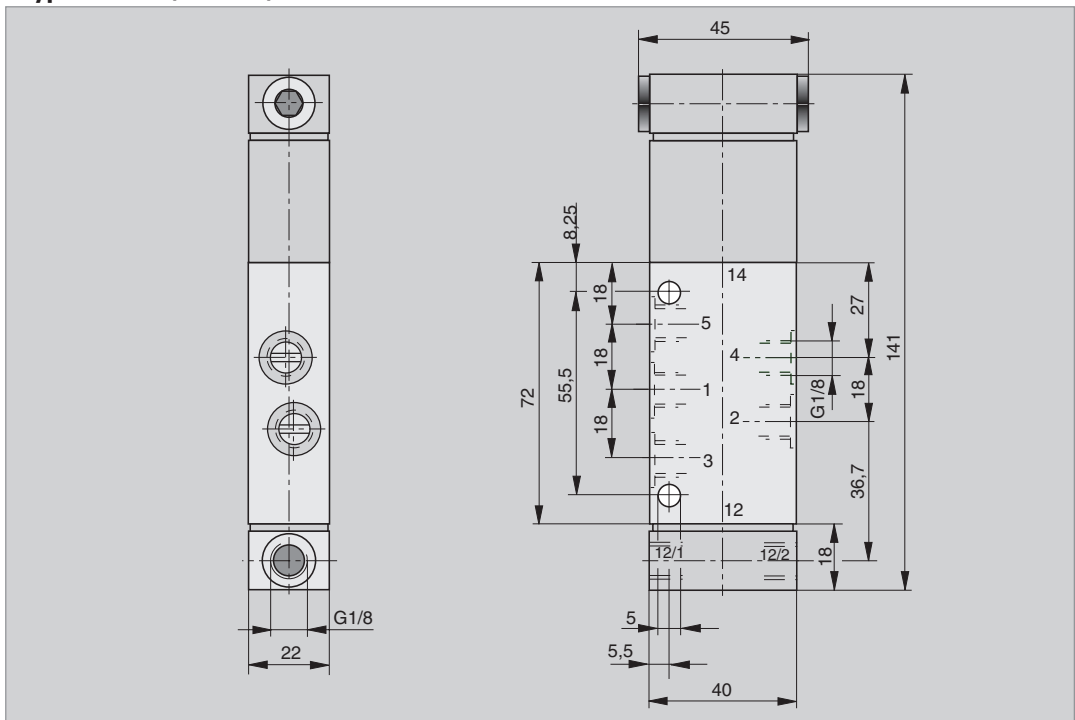
The valve only switches from outlet port 4 to outlet port 2 if both signal inlets are simultaneously actuated or are actuated within 0.5 s.

The valve cannot be switched again until both actuating signals are stopped.

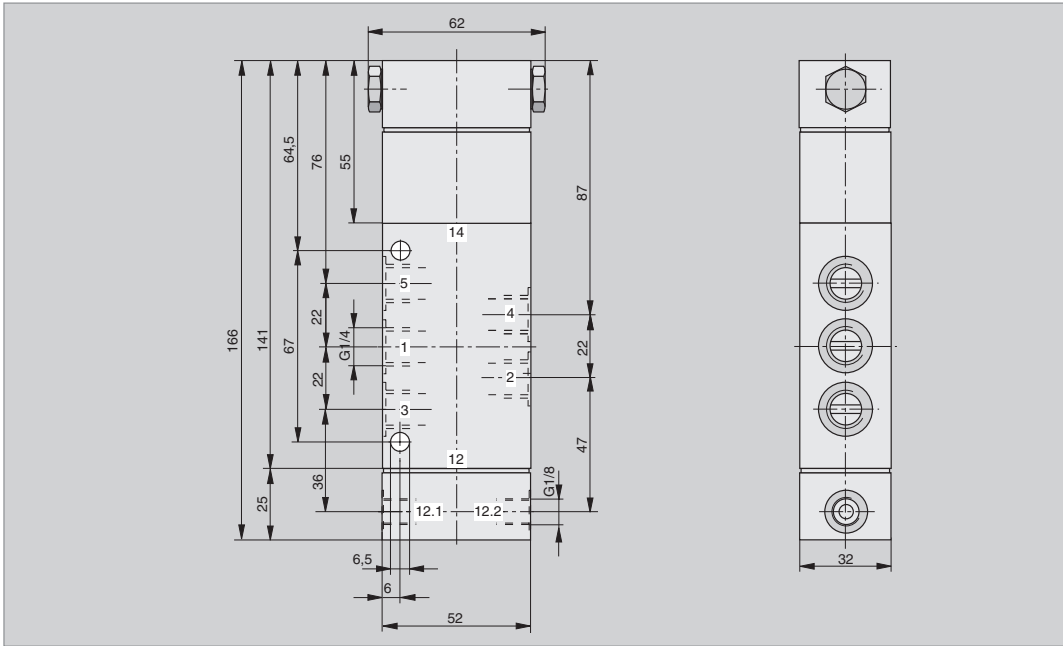
For protecting operating personnel during manufacturing processes such as engraving, bending, stamping, burring etc.

Note

Not applicable for operating eccentric presses and presses of similar design.



Pneumatically actuated with 2 hand operation
Type: S9 563/65RF-1/4-SO



Order Instructions

Actuation	Symbol	Order Instructions Type	Order No.
Pneumatic, with 2 hand operation		S9 563/65RF-1/8-SO S9 563/65RF-1/4-SO	PD37673 PD37173

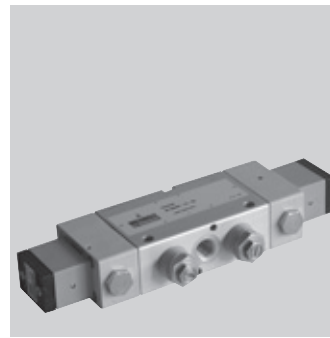
5/2 Way Oscillating Valves – Series S9- G1/4

Characteristics, Dimensions, Order Instructions

Characteristics

Characteristics	Symbol	Unit	Description
General Features			
System			Spool valves
Mounting			2 Screws M6 (M4)
Tube connection			Thread
Port size			G1/4, 11 deep
Weight (mass)		kg	0.65
Installation			In any position
Ambient temperature range**	$\vartheta_{\min/\max}$	°C	-10 to +60
Medium temperature range**	$\vartheta_{\min/\max}$	°C	-10 to +60
Medium			filtered compressed air
Lubrication*			with or without oil mist lubrication
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	$p_{\min/\max}$	bar	2.5 – 8
Nominal flow	Q_N	l/min	1300
Actuation			
Pneumatic			direct
Control pressure range	$p_{st\min/\max}$		2.5 – 8

* We recommend the use of mineral oil type VG 32 to ISO 3448
 **Note: Please consult us for operating temperatures below 0°C



5/2 Way Oscillating Valves Series S9 G1/4

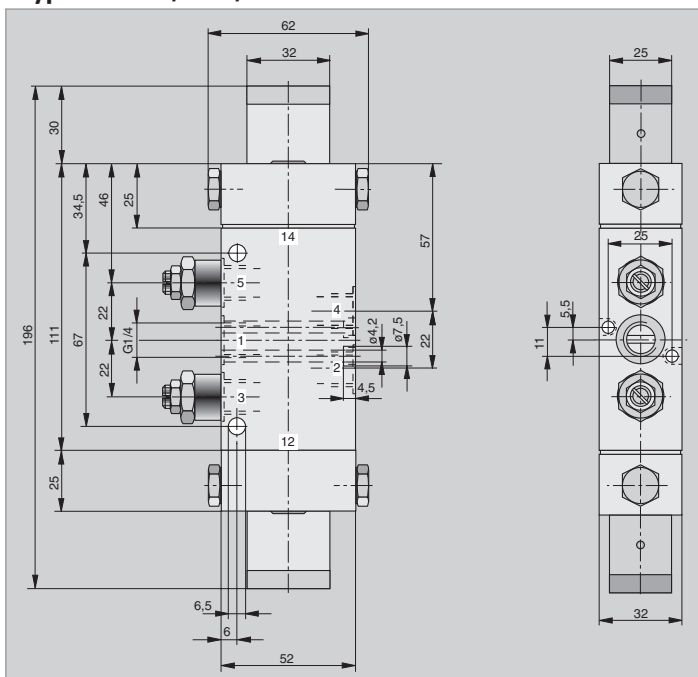
Actuation:
– Pneumatic

The oscillating valve generates oscillating movements such as e.g. shaking, hammering, plunging, feed motions etc.

Function

If compressed air is introduced into inlet port 1, the outlet ports 4 and 2 are alternately supplied with compressed air. The speed of the operated cylinder and also the stroke frequency are adjusted with two exhaust air throttles.

Pneumatic oscillating Type: S9 568/68-1/4-SO



Order Instructions

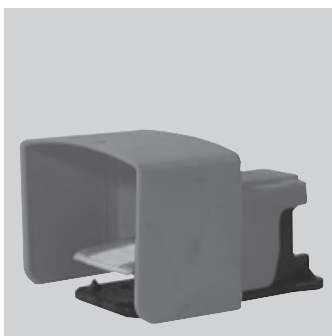
Actuation	Symbol	Order Instructions Type	Order No.
Pneumatic, oscillating		S9 568/68-1/4-SO	PD 34796

3/2 and 5/2 Way Valves, Pedal actuated – Series F-G1/4

Dimensions

3/2 and 5/2 Way Valves, Pedal actuated Series F G1/4

Actuation:
– Pedal



Mounting Instruction

Use only screw connections with max. wrench size across flats of 15

Characteristics

Characteristics	Symbol	Unit	Description
General Features			
System			Poppet valve
Mounting			4 Screws M8 ⁽¹⁾
Tube connection			Thread
Port size			G1/4
Weight (mass)		kg	1.5
Installation			In any position
Ambient temperature range ⁽³⁾	$\vartheta_{\min/\max}$	°C	-10 to +55
Medium temperature range ⁽³⁾	$\vartheta_{\min/\max}$	°C	-10 to +60
Medium			filtered compressed air
Lubrication ⁽²⁾			Oil mist lubrication compatible with Buna N
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6
Operating pressure range	$p_{\min/\max}$	bar	0 – 10
Nominal flow	Q_N	l/min	1400
Actuation			
Manual control			direct
Stroke		mm	2
Actuating force	F_b	N	ca. 30

⁽¹⁾ After removing the rubber footing

⁽²⁾ We recommend the use of mineral oil type VG 32 to ISO 3448

⁽³⁾ Note: Please consult us for operating temperatures below 0° C

Connections for 3/2 way version :

Version

"Normally closed": P, B, S

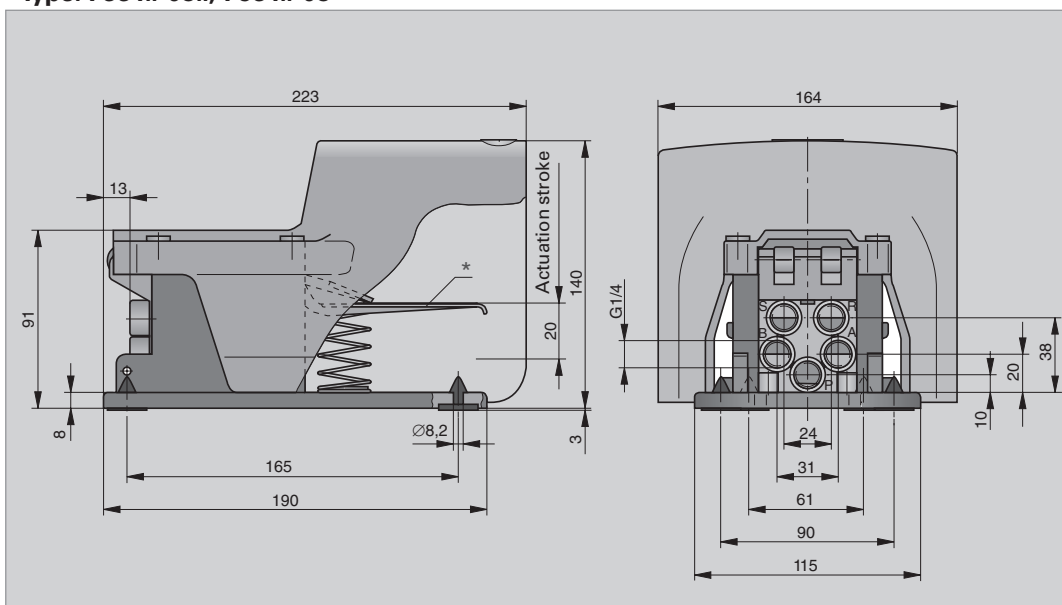
"Normally open": P, A, R

*Only for version "both switch positions indexed"
– return is only effected after actuating the locking pedal.

Connection designation:

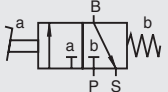
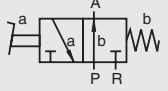
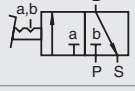
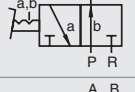
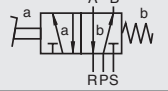
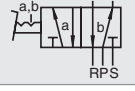
A = 4 Outlet
B = 2 Outlet
R = 5 Exhaust
P = 1 Air supply
S = 3 Exhaust

Pedal actuated Type: F331..-08., F531..-08



Order Instructions

3/2 and 5/2 Way Valves

Actuation	Symbol	Order Instructions	
		Type	Order No.
Pedal with spring return		F 331RF-08NG*	KZ 4410
		F 331RF-08NO*	KZ 4411
Pedal both switch positions indexed		F 331-08NG*	KZ 4408
		F 331-08NO*	KZ 4409
Pedal with spring return		F 531RF-08	KZ 4413
Pedal both switch positions indexed		F 531-08	KZ 4412

* NG – normally closed
NO – normally open

2/2 Way Valves – Series ARKV- G1/2 – G2

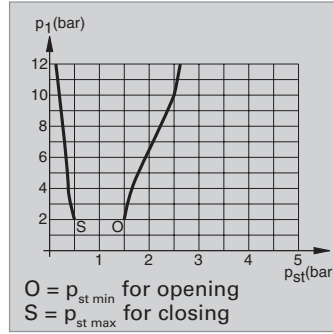
Characteristics, Dimensions, Order Instructions

2/2 Way Valves Series ARKV G1/2 to G2

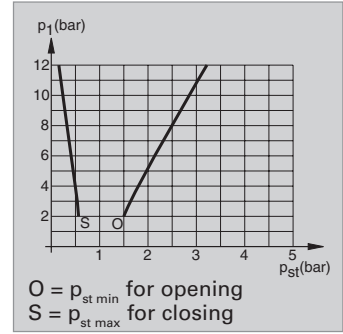
Actuation:
– Pneumatic



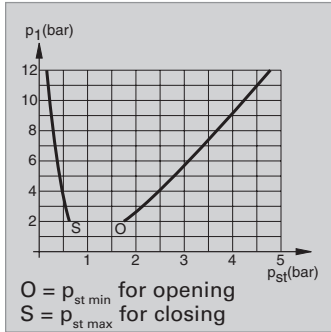
**Actuating Pressure
Type: ARKV-15**



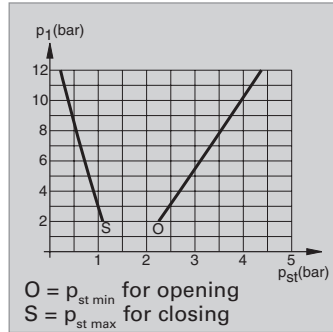
**Actuating Pressure
Type: ARKV-20**



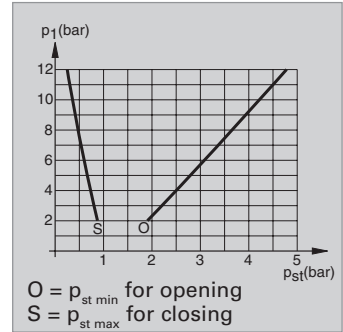
**Actuating Pressure
Type: ARKV-25**



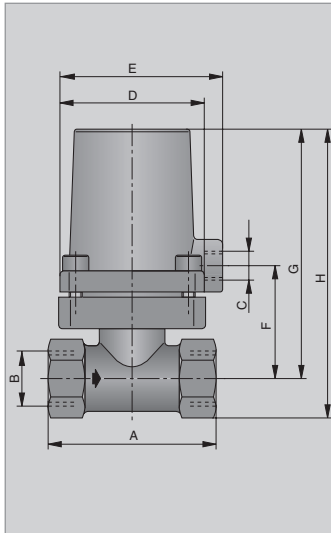
**Actuating Pressure
Type: ARKV-40**



**Actuating Pressure
Type: ARKV-50**



Pneumatically actuated Type: ARKV-..



Characteristics

Characteristics	Symbol	Unit	Description
General Features			
Designation			2/2 way valve
System			Poppet valve normally closed
Mounting			in-line
Tube connection			Thread
Port size			G1/2 G3/4 G1 G1 1/2 G2
Weight (mass)		kg	0.745 1.115 1.365 2.695 4.290
Installation			In any position
Ambient temperature range	$\vartheta_{\min/\max}$	°C	-20 to +80
Medium temperature range	$\vartheta_{\min/\max}$	°C	0 to +80
Operating medium			Compressed air, neutral gases, hydraulic fluid (only in cases of low flow rate and slow valve closing speeds)
Actuating medium			Filtered compressed air
Pneumatic Characteristics			
Nominal pressure	p_n	bar	6.3
Operating pressure range	$p_{\min/\max}$	bar	0 – 10
Nominal flow	Q_N	l/min	2200 5000 6900 22000 40000
Actuation			
Pneumatic			Direct

Dimension Table

Type	A	B	C	D	E	F	G	H
ARKV-15 NG	65	G1/2	G1/8	55	61	41.5	95	109.5
ARKV-20 NG	76	G3/4	G1/4	65	75	50	112	129
ARKV-25 NG	91	G1	G1/4	65	75	57	119	139
ARKV-40 NG	123	G1 1/2	G1/4	110	112	67	137	167.5
ARKV-50 NG	150	G2	G1/4	130	134	75	153	190

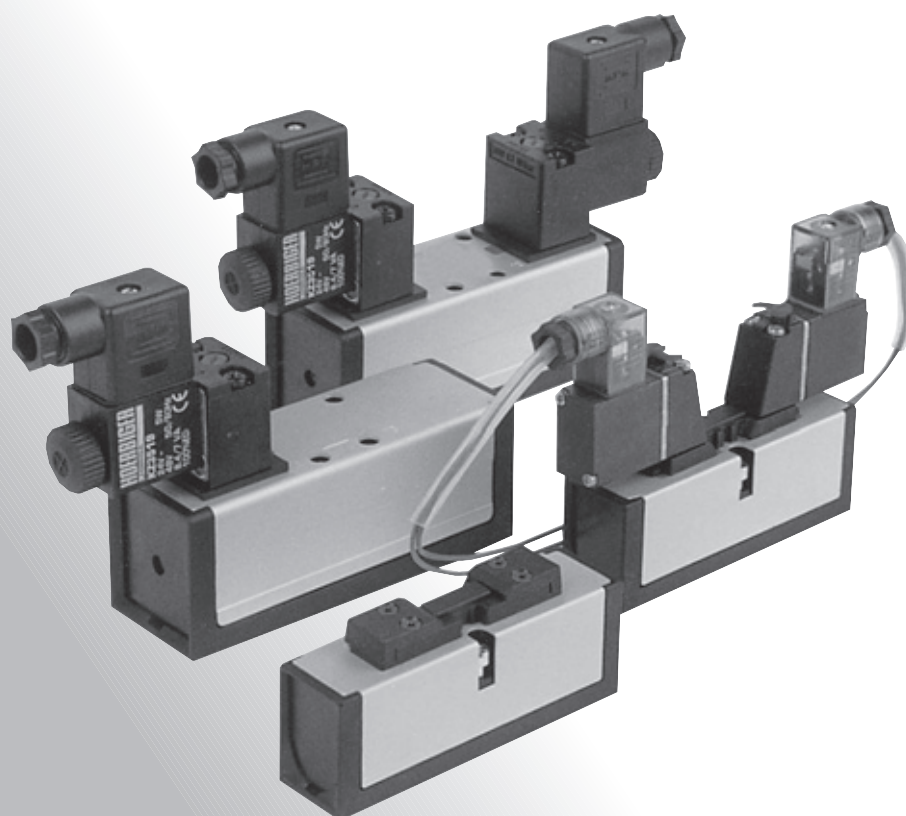
Order Instructions

Actuation	Symbol	Order Instructions	
		Type	Order No.
Pneumatic		ARKV-15 NG	PD 07334
		ARKV-20 NG	PD 07580
		ARKV-25 NG	PD 07581
		ARKV-40 NG	PD 07757
		ARKV-50 NG	PD 07765

Dimensions in mm

Contents

Description	Actuation	Norm	Page		
			Characteristics	Dimensions	Order Instructions Overview
5/2 and 5/3 Way Valves Series S20	Pneumatic Electrical	VDMA 24563 Size 01	112	113	117, 118
5/2 and 5/3 Way Valves Series S20	Pneumatic Electrical	ISO 5599 Size 1	112	114	117, 118
5/2 and 5/3 Way Valves Series S20	Pneumatic Electrical	ISO 5599 Size 2	112	115	117, 118
5/2 and 5/3 Way Valves Series S20	Pneumatic Electrical	ISO 5599 Size 3	112	116	117, 118



5/2 and 5/3 Way Valves to VDMA 24563 – Size 01 and ISO 5599 – Size 1, 2, 3

Characteristics

Characteristics

Characteristics	Symbol	Unit	Series S20 to VDMA 24563 Size 01		Series S20 to ISO 5599 Size 1		Size 2		Size 3	
			pneumatic	electrical	pneumatic	electrical	pneumatic	electrical	pneumatic	electrical
General Features										
System			Ceramic spool valve		Ceramic spool valve		Ceramic spool valve		Ceramic spool valve	
Mounting			On base plate to VDMA 24563		On base plate to ISO5599		On base plate to ISO5599		On base plate to ISO5599	
Tube connection			Base plate		Base plate		Base plate		Base plate	
Port size			G1/8 or G1/4 (Base plate)		G1/4 (Base plate)		G3/8 (Base plate)		G1/2 (Base plate)	
Weight										
- permanent signal version		kg	0.130	0.170	0.350	0.410	0.600	0.650	1.100	1.150
- impulse version		kg	0.130	0.210	0.350	0.450	0.600	0.700	1.100	1.200
Installation			In any position	In any position	In any position	In any position	In any position	In any position	In any position	In any position
Ambient temperature range ⁽¹⁾	$\vartheta_{\min. / \max.}$	°C	-10 to +60	-10 to +60	-10 to +60	-10 to +60	-10 to +60	-10 to +60	-10 to +60	-10 to +60
Medium temperature range ⁽¹⁾	$\vartheta_{\min. / \max.}$	°C	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55	-10 to +55
Medium			Filtered compressed air							
Lubrication			With or without oil mist lubrication (We recommend the use of mineral oil type VG 32 to ISO 3448)							
Pneumatic Characteristics										
Nominal pressure	$p_{\min. / \max.}$	bar	6	6	6	6	6	6	6	6
Operating pressure range ⁽²⁾										
- permanent signal version	$p_{\min. / \max.}$	bar	-0.9 – 10	2 – 10	-0.9 – 12	2 – 12	-0.9 – 12	2 – 12	-0.9 – 12	2 – 12
- impulse version	$p_{\min. / \max.}$	bar	-0.9 – 10	2 – 10	-0.9 – 12	2 – 12	-0.9 – 12	2 – 12	-0.9 – 12	2 – 12
- with external pilot air	$p_{\min. / \max.}$	bar	-	-0.9 – 10	-	-1 – 12	-	-1 – 12	-	-1 – 12
Maximum flow	$Q_{\max.}$	l/min	1050	1050	1680	1680	4320	4320	6540	6540
Actuation										
Pneumatic										
Actuation pressure range			direct	-	direct	-	direct	-	direct	-
- permanent signal version	$p_{\min. / \max.}$	bar	2 – 10	2 – 10	2 – 12	2 – 10	2 – 12	2 – 10	2 – 12	2 – 10
- impulse version	$p_{\min. / \max.}$	bar	2 – 10	2 – 10	2 – 12	2 – 10	2 – 12	2 – 10	2 – 12	2 – 10
Electrical										
pilot operated										
Voltage type			Alternating current 50/60Hz	Direct current	Alternating current 50/60Hz		Direct current			
Nominal voltage										
- Standard version	U_n	V	230 ±10%	24 ±10%	230 ±10%		24 ±10%	other voltages on request		
- Low wattage version	U_n	V	-	-	230 ±10%		24 ±10%			
Initial power consumption										
- Standard version		VA (W)	2	2	11		4,8			
- Low wattage version		VA (W)	(Nominal power)		7,8		2,7			
Continuous consumption										
- Standard version		VA (W)	-	-	8,5		4,8			
- Low wattage version		VA (W)	-	-	4,9		2,7			
Duty cycle	ED	%	100							
Electrical protection		IP	IP65 to DIN 40050 (applies only to solenoid with plug)							
Connection			Plug to DIN EN 175301-803 form C		Plug to DIN EN 175301-8030 form B – industrial standard ⁽⁴⁾					

⁽¹⁾ Note: Please consult us for operating temperatures below 0° C

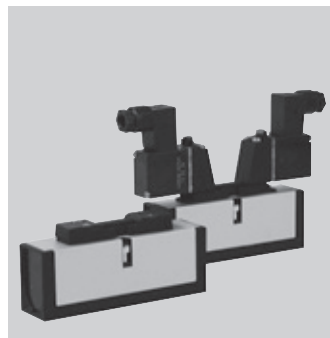
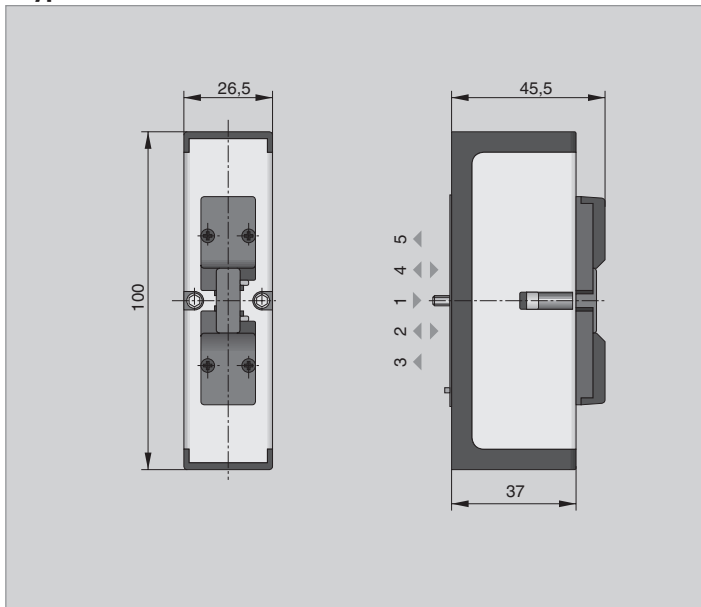
⁽²⁾ On request: 16 bar version for valves to ISO 5599 size 1, 2, 3

⁽⁴⁾ Low wattage version: Plug to DIN EN 175301-803 form A

5/2 and 5/3 Way Valves – Series S20 to VDMA 24563 – Size 01

Dimensions

Pneumatically actuated
Type: S20 561...-01



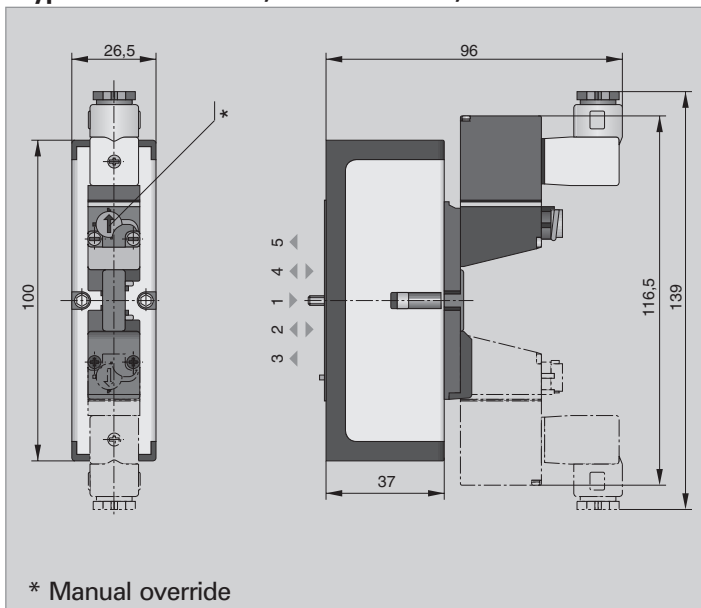
5/2 and 5/3 Way Valves Series S20 to VDMA 24563 Size 01

Actuation:
 – Pneumatic
 – Electrical, pilot operated

Versions
 – with external pilot air
 – with biased position

The delivery includes:
 1 Valve with mounting screws
 1 Gasket

Elektrically actuated
Type: S20 581...-01-.., S20 582...-01-.., S20 581S...-01-..



Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic by permanent signal	S20 561R..-01*	0.130
Pneumatic by impulse	S20 561-01	0.130
Electrical by permanent signal	S20 581R..-01*	0.170
Electrical by permanent signal	S20 581S-R..-01*	0.170
Electrical by impulse	S20 581-01	0.210
– with biased position	S20 582-01	0.210
Electrical by impulse	S20 581S-01	0.210

* Type code for middle position functions
 G = middle position closed
 E = middle position vented
 B = middle position pressurized

* Manual override

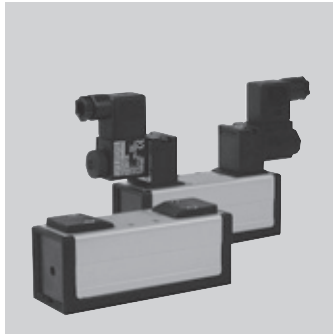
Order Instructions see page 117, 118, Base Plates see page 119-123

5/2 and 5/3 Way Valves – Series S20 to ISO5599 – Size 1

Dimensions

5/2 and 5/3 Way Valves Series S20 to ISO 5599 Size 1

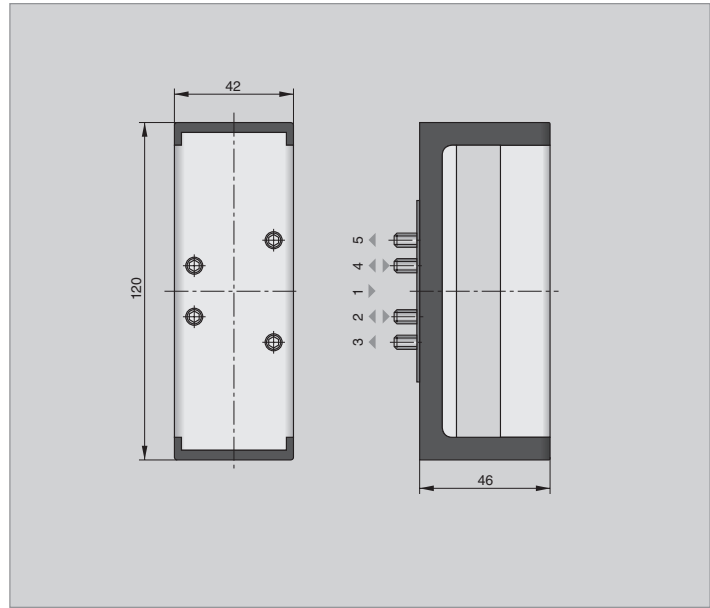
Actuation:
 – Pneumatic
 – Electrical, pilot operated



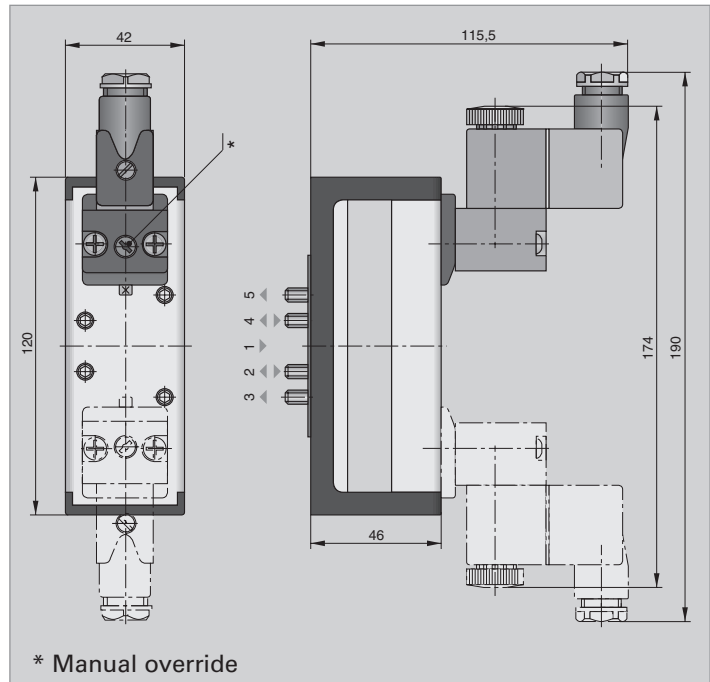
The delivery includes:
 1 Valve with mounting screws
 1 Gasket

Versions
 – with external pilot air
 – with biased position
 – low wattage version

Pneumatically actuated Type: S20 561...-1



Electrically actuated Type: S20 581...-1-., S20 582-1-., S20 581S...-1-.

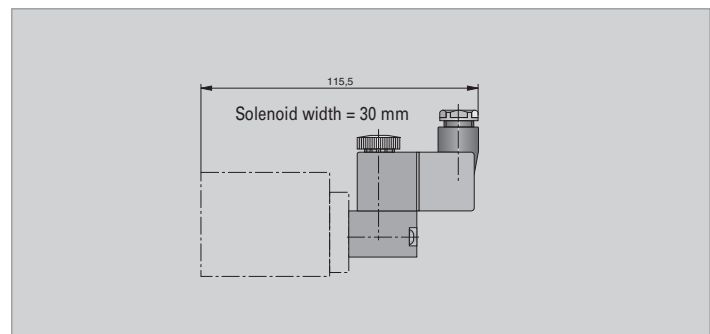


Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic by permanent signal	S20 561R..-1*	0.350
Pneumatic by impulse	S20 561-1	0.350
Electrical by permanent signal	S20 581R..-1*	0.410
Electrical by permanent signal	S20 581S-R..-1*	0.410
Electrical by impulse	S20 581-1	0.450
– with biased position	S20 582-1	0.450
Electrical by impulse	S20 581S-1	0.450

* Type code for middle position functions
 G = middle position closed
 E = middle position vented
 B = middle position pressurized

Solenoid for low wattage version

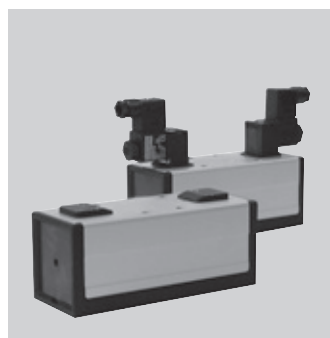
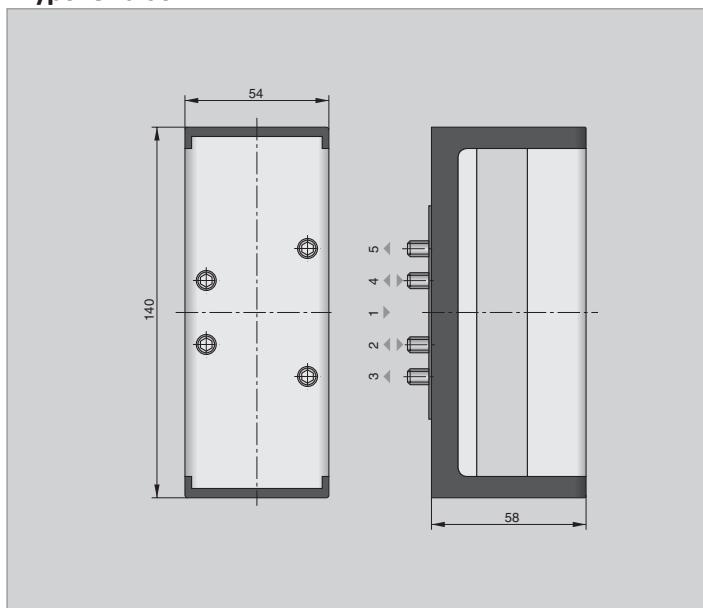


Order Instructions see page 117, 118, Base Plates see page 124-127

5/2 and 5/3 Way Valves – Series S20 to ISO5599 – Size 2

Dimensions

Pneumatically actuated
Type: S20 561...-2



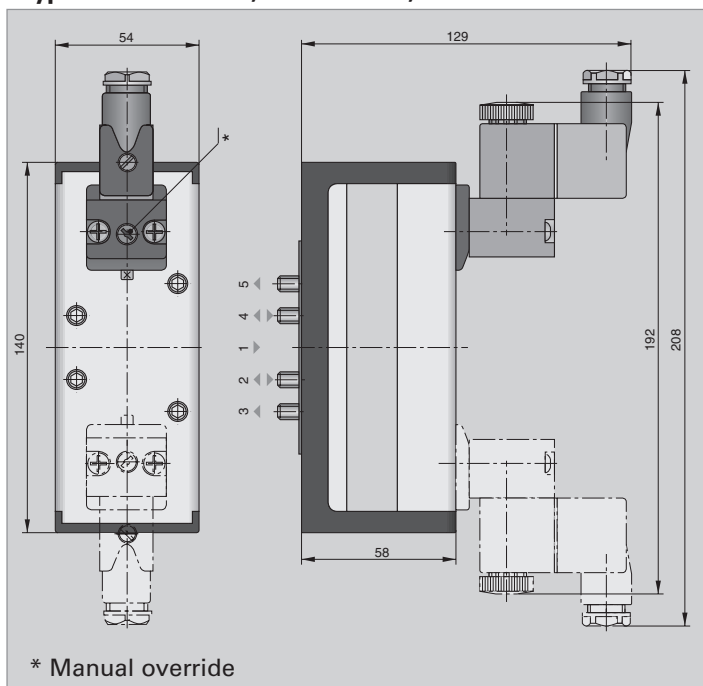
5/2 and 5/3 Way Valves Series S20 to ISO 5599 Size 2

Actuation:
 – Pneumatic
 – Electrical, pilot operated

Versions
 – with external pilot air
 – with biased position
 – low wattage version

The delivery includes:
 1 Valve with mounting screws
 1 Gasket

Electrically actuated
Type: S20 581...-2-., S20 582-2-., S20 581S...-2-.

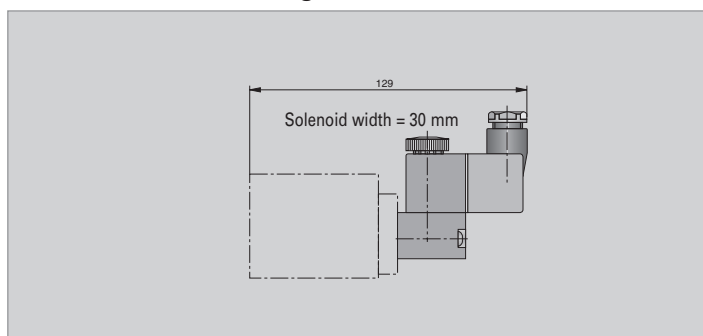


Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic by permanent signal	S20 561R..-2*	0.600
Pneumatic by impulse	S20 561-2	0.600
Electrical by permanent signal	S20 581R..-2*	0.650
Electrical by permanent signal	S20 581S-R..-2*	0.650
Electrical by impulse	S20 581-2	0.700
– with biased position	S20 582-2	0.700
Electrical by impulse	S20 581S-2	0.700

* Type code for middle position functions
 G = middle position closed
 E = middle position vented
 B = middle position pressurized

Solenoid for low wattage version



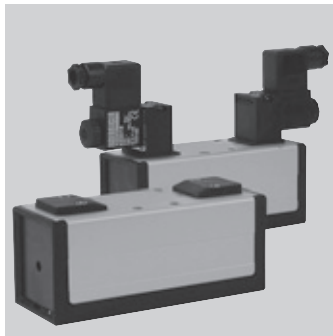
Order Instructions see page 117, 118, Base Plates see page 124-127

5/2 and 5/3 Way Valves – Series S20 to ISO5599 – Size 3

Dimensions

5/2 and 5/3 Way Valves Series S20 to ISO 5599 Size 3

Actuation:
 – Pneumatic
 – Electrical, pilot operated



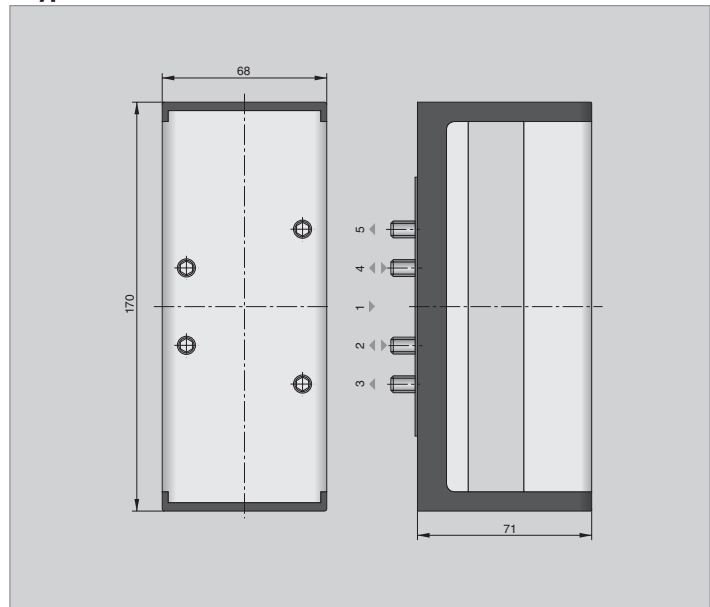
The delivery includes

- 1 Valve with mounting screws
- 1 Gasket

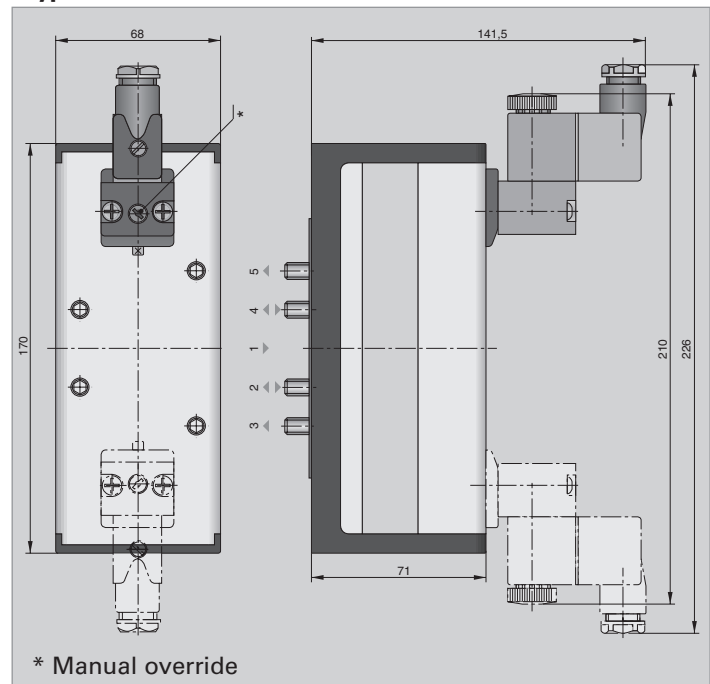
Versions

- with external pilot air
- with biased position
- low wattage version

Pneumatically actuated Type: S20 561...-3



Electrically actuated Type: S20 581...-3..



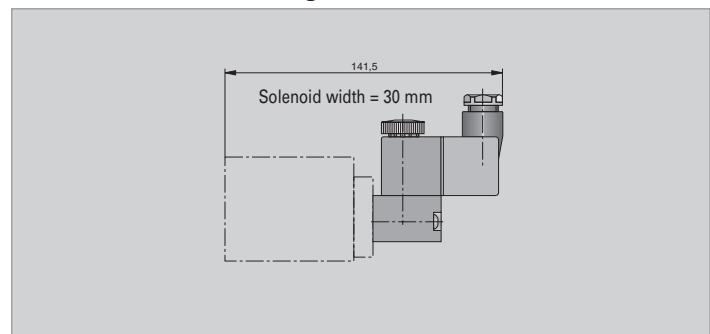
Weight (mass) kg

Description	Type	Weight (mass)
Pneumatic by permanent signal	S20 561R..-3*	1,100
Pneumatic by impulse	S20 561-3	1,100
Electrical by permanent signal	S20 581R..-3*	1,150
Electrical by permanent signal	S20 581S-R..-3*	1,150
Electrical by impulse	S20 581-3	1,200
– with biased position	S20 582-3	1,200
Electrical by impulse	S20 581S-3	1,200

* Type code for middle position functions

- G = middle position closed
- E = middle position vented
- B = middle position pressurized

Solenoid for low wattage version



Order Instructions see page 117, 118, Base Plates see page 124-127

5/2 Way Valves to VDMA 24563 and ISO 5599 – Series S20

Overview and Order Instructions

5/2 Way Valves

Actuation	Symbol	Standard/Size	Order Instructions		Page
			Type	Order No.	
Pneumatic by permanent signal spring return		VDMA 24563 Size 01	S20 561RF-01	PA 12891	113
		ISO 5599 Size 1	S20 561RF-1	PA 12869	114
		ISO 5599 Size 2	S20 561RF-2	PA 16425	115
		ISO 5599 Size 3	S20 561RF-3	PA 16426	116
Pneumatic by permanent signal air spring return		VDMA 24563 Size 01	S20 561R-01	PA 12892	113
		ISO 5599 Size 1	S20 561R-1	PA 12870	114
		ISO 5599 Size 2	S20 561R-2	PA 16428	115
		ISO 5599 Size 3	S20 561R-3	PA 16429	116
Pneumatic by impulse		VDMA 24563 Size 01	S20 561-01	PA 12893	113
		ISO 5599 Size 1	S20 561-1	PA 12868	114
		ISO 5599 Size 2	S20 561-2	PA 16422	115
		ISO 5599 Size 3	S20 561-3	PA 16423	116
Pneumatic by impulse with biased position		VDMA 24563 Gr. 01	S20 562-01	PA 12908	113
		ISO 5599 Größe 1	S20 562-1	PA 12905	114
		ISO 5599 Größe 2	S20 562-2	PA 12906	115
		ISO 5599 Größe 3	S20 562-3	PA 12907	116
Electrical by permanent signal spring return		VDMA 24563 Size 01	S20 581RF-01-..	PA 12886-..33	113
		ISO 5599 Size 1	S20 581RF-1-..	PA 12875-..33	114
		ISO 5599 Size 2	S20 581RF-2-..	PA 16441-..33	115
		ISO 5599 Size 3	S20 581RF-3-..	PA 16442-..33	116
with external pilot air		VDMA 24563 Size 01	S20 581S-RF-01-..	PA 12896-..33	113
		ISO 5599 Size 1	S20 581S-RF-1-..	PA 12882-..33	114
		ISO 5599 Size 2	S20 581S-RF-2-..	PA 16456-..33	115
		ISO 5599 Size 3	S20 581S-RF-3-..	PA 16462-..33	116
Electrical by permanent signal air spring return		VDMA 24563 Size 01	S20 581R-01-..	PA 12887-..33	113
		ISO 5599 Size 1	S20 581R-1-..	PA 12876-..33	114
		ISO 5599 Size 2	S20 581R-2-..	PA 16444-..33	115
		ISO 5599 Size 3	S20 581R-3-..	PA 16445-..33	116
Electrical by impulse		VDMA 24563 Size 01	S20 581-01-..	PA 12888-..33	113
		ISO 5599 Size 1	S20 581-1-..	PA 12874-..33	114
		ISO 5599 Size 2	S20 581-2-..	PA 16438-..33	115
		ISO 5599 Size 3	S20 581-3-..	PA 16439-..33	116
with external pilot air		VDMA 24563 Size 01	S20 581S-01-..	PA 12898-..33	113
		ISO 5599 Size 1	S20 581S-1-..	PA 12880-..33	114
		ISO 5599 Size 2	S20 581S-2-..	PA 16454-..33	115
		ISO 5599 Size 3	S20 581S-3-..	PA 16460-..33	116
Electrical by impulse with biased position		VDMA 24563 Size 01	S20 582-01-..	PA 12904-..33	113
		ISO 5599 Size 1	S20 582-1-..	PA 12901-..33	114
		ISO 5599 Size 2	S20 582-2-..	PA 12902-..33	115
		ISO 5599 Size 3	S20 582-3-..	PA 12903-..33	116

Solenoid version	Nominal voltage	Applicable for	Key code
Standard version	230V 50/60Hz 24V =	110 V = 60V 50/60Hz	61 02
Low wattage version	24V = 230V 50/60Hz		13 69
other voltages on request			

5/3 Way Valves to VDMA 24563 and ISO 5599 – Series S20

Overview and Order Instructions

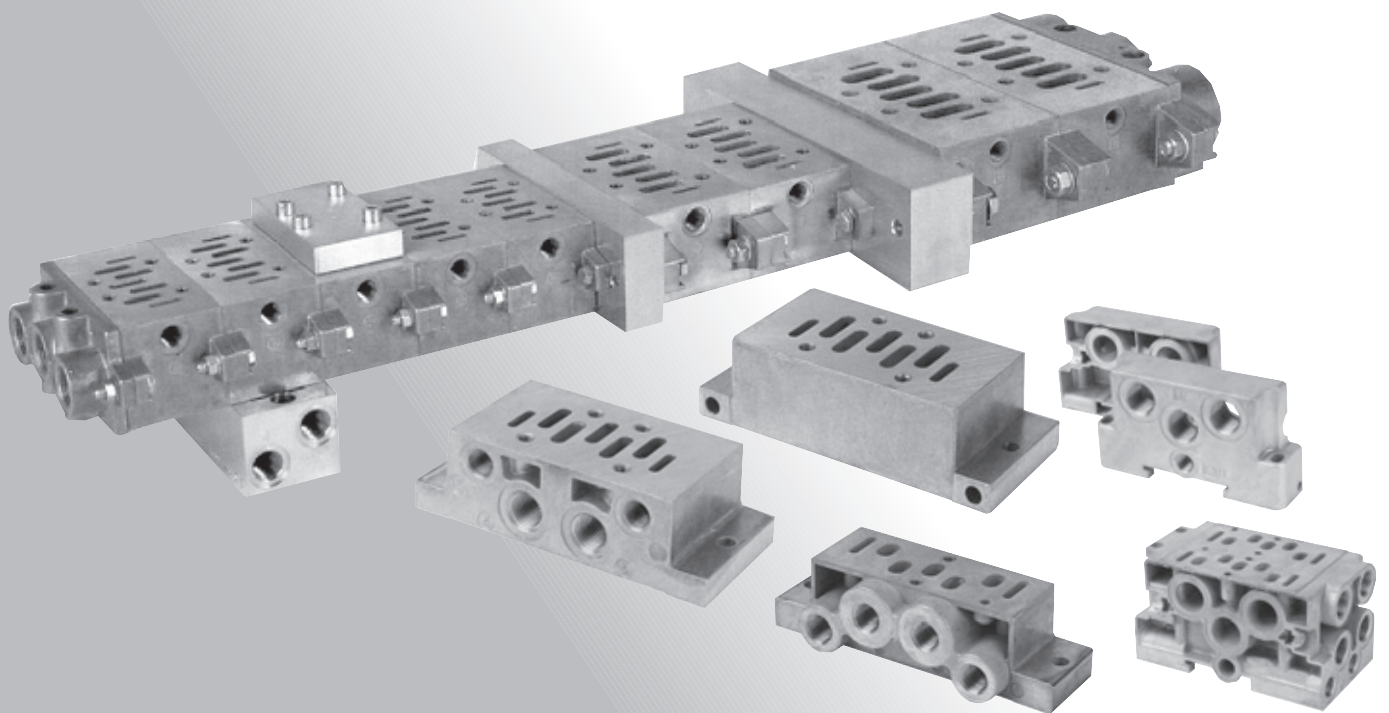
5/3 Way Valves

Actuation	Symbol	Standard/Size	Order Instructions Type	Order No.	Page
Pneumatic by permanent signal spring return to middle position		VDMA 24563 Size 01	S20 561RFG-01	PA 12894	113
		ISO 5599 Size 1	S20 561RFG-1	PA 12871	114
		ISO 5599 Size 2	S20 561RFG-2	PA 16431	115
		ISO 5599 Size 3	S20 561RFG-3	PA 16432	116
		ISO 5599 Size 1	S20 561RFB-1	PA 12873	114
		ISO 5599 Size 2	S20 561RFB-2	PA 16437	115
		VDMA 24563 Size 01	S20 561RFE-01	PA 12895	113
		ISO 5599 Size 1	S20 561RFE-1	PA 12872	114
		ISO 5599 Size 2	S20 561RFE-2	PA 16434	115
Electrical by permanent signal spring return to middle position		VDMA 24563 Size 01	S20 581RFG-01	PA 12889-..33	113
		ISO 5599 Size 1	S20 581RFG-1-..	PA 12877-..33	114
		ISO 5599 Size 2	S20 581RFG-2-..	PA 16447-..33	115
		ISO 5599 Size 3	S20 581RFG-3-..	PA 16448-..33	116
		ISO 5599 Size 1	S20 581RFB-1-..	PA 12879-..33	114
		ISO 5599 Size 2	S20 581RFB-2-..	PA 16453-..33	115
		VDMA 24563 Size 01	S20 581RFE-01	PA 12890-..33	113
		ISO 5599 Size 1	S20 581RFE-1-..	PA 12878-..33	114
		ISO 5599 Size 2	S20 581RFE-2-..	PA 16450-..33	115
with external pilot air		VDMA 24563 Size 01	S20 581S-RFG-01..	PA 12900-..33	113
		ISO 5599 Size 1	S20 581S-RFG-1-..	PA 12883-..33	114
		ISO 5599 Size 2	S20 581S-RFG-2-..	PA 16457-..33	115
		ISO 5599 Size 3	S20 581S-RFG-3-..	PA 16463-..33	116
		ISO 5599 Size 1	S20 581S-RFB-1-..	PA 12885-..33	114
		ISO 5599 Size 2	S20 581S-RFB-2-..	PA 16459-..33	115
		VDMA 24563 Size 01	S20 581S-RFE-01-..	PA 12899..33	113
		ISO 5599 Size 1	S20 581S-RFE-1-..	PA 12884..33	114
		ISO 5599 Size 2	S20 581S-RFE-2-..	PA 16458..33	115
		ISO 5599 Size 3	S20 581S-RFE-3-..	PA 16464..33	116

Solenoid version	Nominal voltage	Applicable for	Key code
Standard version	230V 50/60Hz 24V =	110 V = 60V 50/60Hz	61 02
Low wattage version	24V = 230V 50/60Hz		13 69
other voltages on request			

Contents

Description	Standard/Size	Page		
		Characteristics	Dimensions	Order Instructions Overview
Single Base Plates G1/8, G1/4	VDMA 24563 Size 01	120	120	120
Base Plate Combinations G1/8, G1/4	VDMA 24563 Size 01	121-123	121-123	121-123
Single Base Plates	ISO 5599 Size 1, 2, 3	124	124	124
Base Plate Combinations	ISO 5599 Size 1, 2, 3	125-127	125-127	125-127

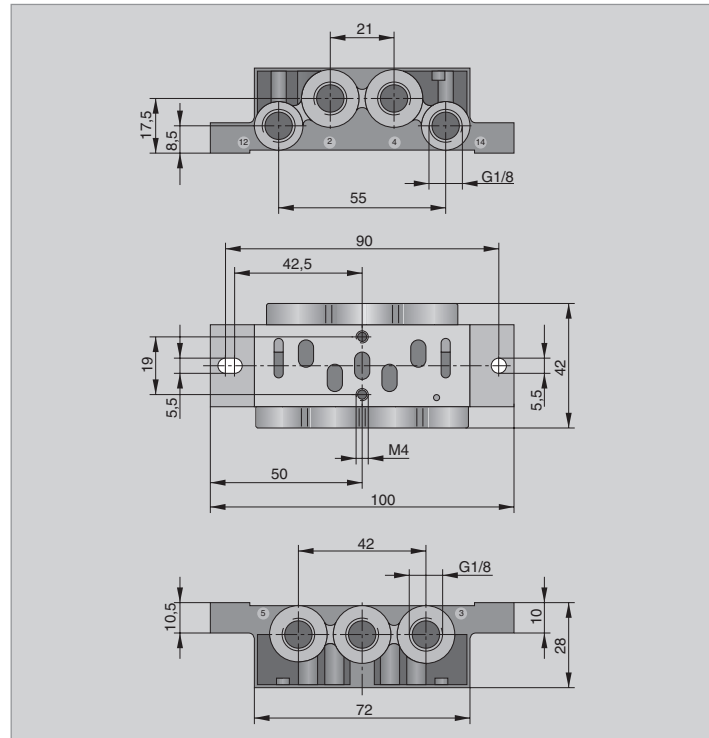


Single Base Plates to VDMA 24563 Size 01, Form A

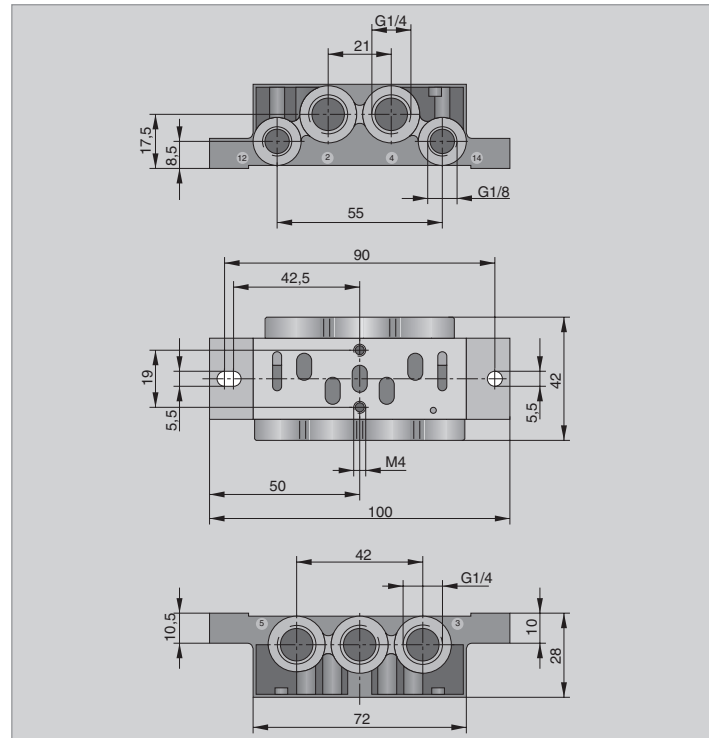
Port size
G1/8
G1/4



Single Base Plate, Form A – Port Size G1/8
Type: S20-01-1/8-A



Single Base Plate, Form A – Port Size G1/4
Type: S20-01-1/4-A



Order Instructions

Description	Port size	Weight (kg)	Order Instructions	
			Type	Order No.
Single Base plate	G1/8	0.070	S20-01-1/8-A	KL8004
	G1/4	0.120	S20-01-1/4-A	KL8005

Base Plate Combinations

Order Instructions for End Plate Set, Form D

Description	Size	Weight (kg)	Order Instructions	
			Type	Order No.
End Plate Set Form D	VDMA 01	0.220	S20-01-D	KL8008

The delivery includes:

End plate set, complete with screws

Order Instructions for Intermediate Plate Form C

Description	Size (Port size)	Weight (kg)	Order Instructions	
			Type	Order No.
Intermediate Plate Form C	VDMA 01 (G1/8)	0.080	S20-01-C	KL8006
Intermediate Plate Form C	VDMA 01 (G1/4)	0.100	S20-01-C	KL8007

The delivery includes:

Intermediate plate, complete with O-rings and screws

Order Instructions for Dummy Plate and Pressure Module

Description	Size	Weight (kg)	Order Instructions	
			Type	Order No.
Dummy plate *	VDMA 01	0.050	S20-01-BP	KL8009
Pressure module **	VDMA 01	0.080	S20-01-M	KL8010

The delivery includes:

* Dummy plate with gasket and screws

** Pressure module with gasket

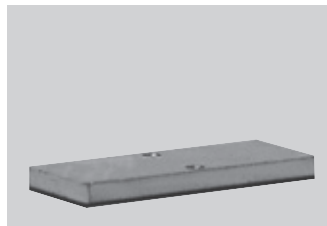
End Plate Set, Form D for intermediate Plate



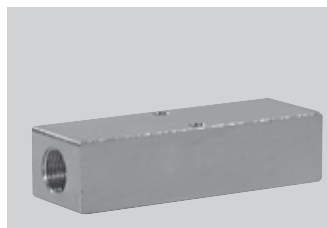
Intermediate Plate, Form C



Dummy Plate



Pressure Module with Gasket



Modules for Base Plate Combinations to VDMA 24563 Size 01

Modules

- End plate set, Form D, for intermediate plate, Form C
- Angle base plate, Form E, for intermediate plate, Form C
- Accessories

Port size

- G1/8
- G1/4

Base Plate Combinations

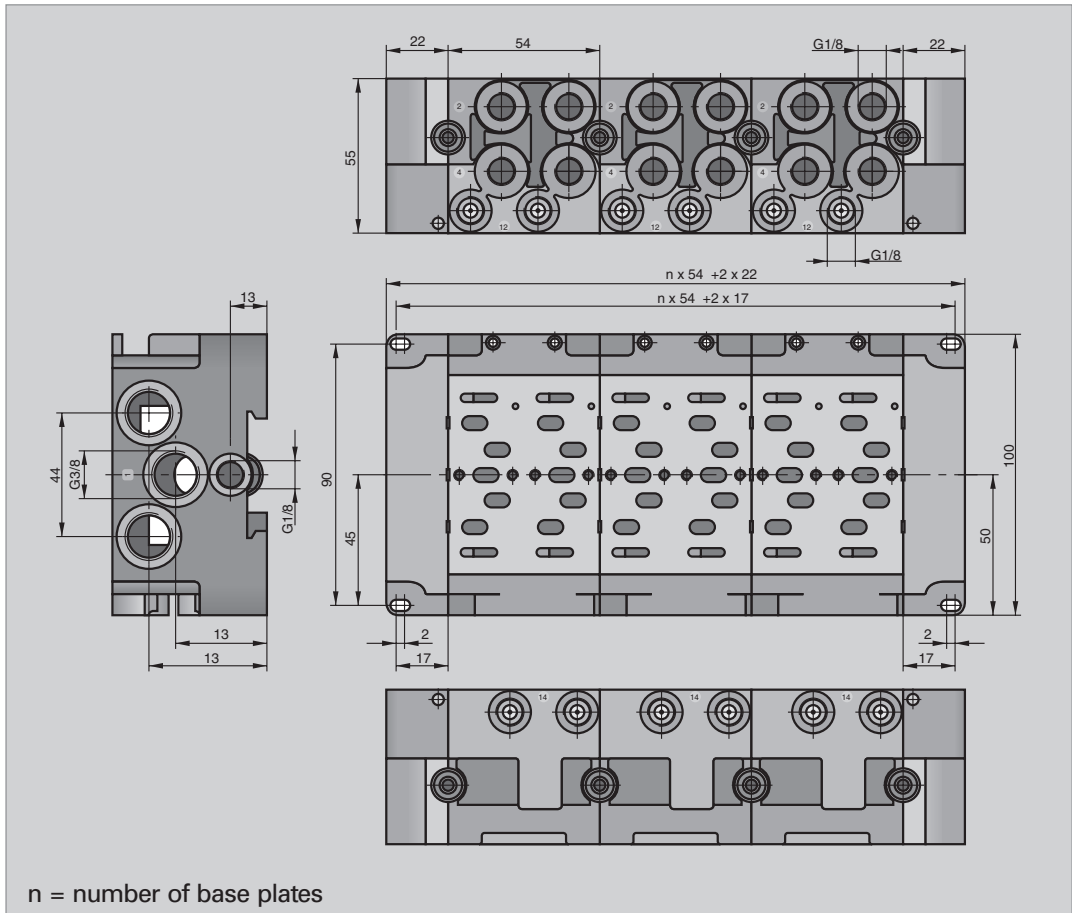
Base Plate Combinations of Form C and D – Port Size G1/8
Type: S20-1/8-...

Base Plate Combinations to VDMA 24563 Size 01

Modules

- End plate set, Form D, for intermediate plate Form C
- Angle base plate, Form E, for intermediate plate Form C
- Accessories

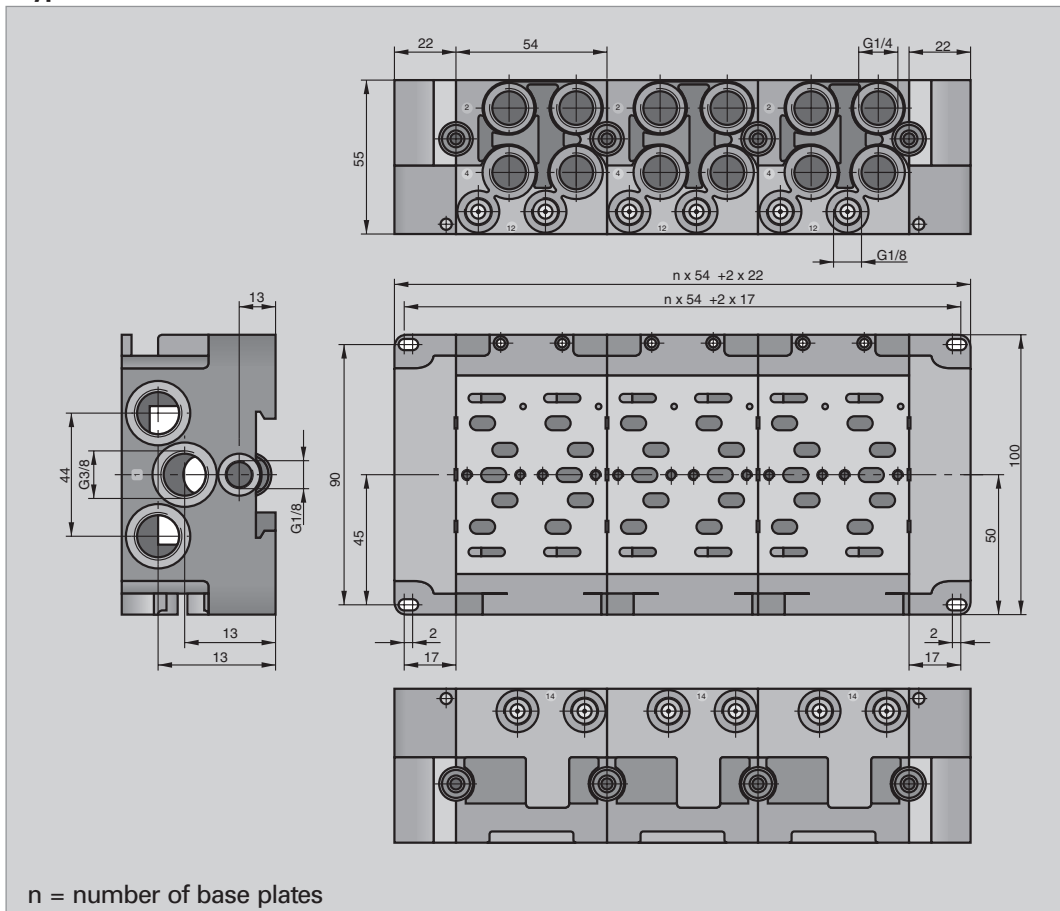
Port size
G1/8



Order Instructions for Base Plate Combinations

Description	Port size	Number of Valves	Order Instructions Type	Order No.
2-fold plate	G1/8	2	S20-1/8-002	PD 43963-0002
4-fold plate	G1/8	4	S20-1/8-004	PD 43963-0004
6-fold plate	G1/8	6	S20-1/8-006	PD 43963-0006

Base Plate Combinations of Form C and D – Port Size G1/4
Type: S20-1/4-...



Base Plate Combinations to VDMA 24563 Size 01

Modules

- End plate set, Form D, for intermediate plate Form C
- Angle base plate, Form E, for intermediate plate Form C
- Accessories

Port size
G1/4

Order Instructions for Base Plate Combinations

Description	Port size	Number of Valves	Order Instructions Type	Order No.
2-fold plate	G1/4	2	S20-1/4-002	PD 43964-0002
4-fold plate	G1/4	4	S20-1/4-004	PD 43964-0004
6-fold plate	G1/4	6	S20-1/4-006	PD 43964-0006

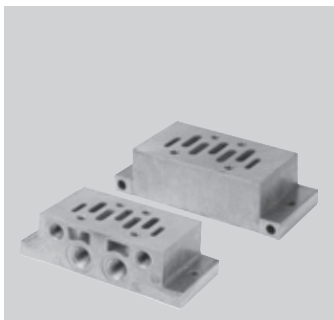
Base Plates to ISO 5599 Size 1, 2, 3

Single Base Plates

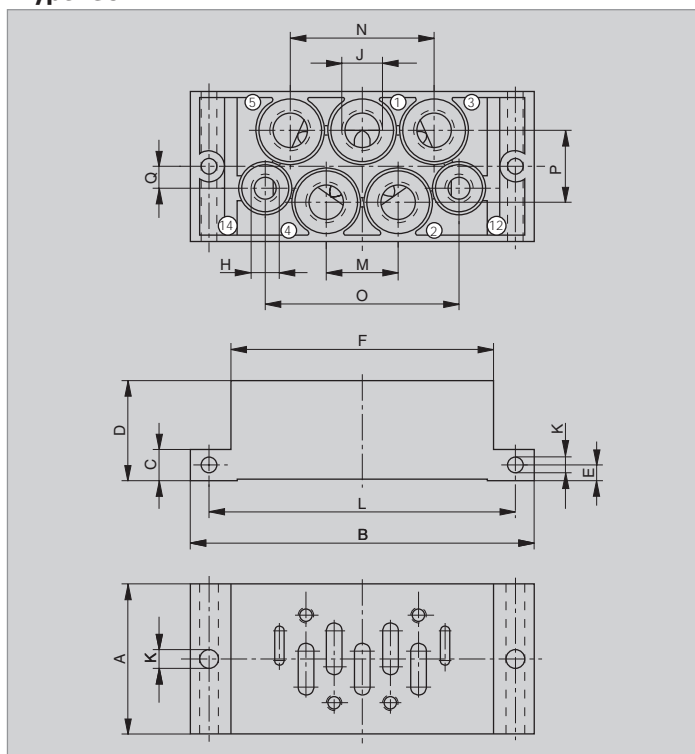
Base Plates to ISO 5599 Size 1, 2, 3

Versions

- Single Base Plates to VDMA 24345 Form A
- Single Base Plates to VDMA 24345 Form B



Single Base Plate, Form B Type: S9 --B



Dimension Table for Single Base Plate, Form B

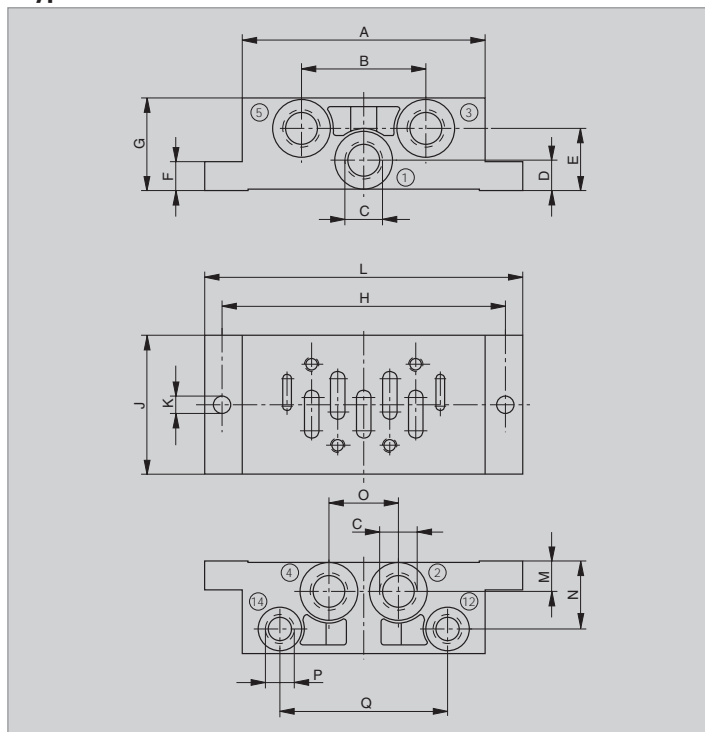
ISO Size	A	B	C	D	E	F	H	J
1	46	110	10	30	5	84	G1/8	G1/4
2	56	124	13	35	6.5	95	G1/8	G3/8
3	71	149	18	32	9	119	G1/8	G1/2

ISO Size	K	L	M	N	O	P	Q
1	5.5	98	23	46	62	23	7.5
2	6.6	112	28	56	73	27	7.5
3	6.6	136	34	68	90	35	10

Order Instructions for Single Base Plate, Form B

ISO Size	Weight (kg)	Order Instructions	
		Type	Order No.
1	0.370	S9-1-B	KX 9077
2	0.590	S9-2-B	KX 9436
3	0.900	S9-3-B	KX 9437

Single Base Plate, Form A Type: S9--A



Dimension Table for Single Base Plate, Form A

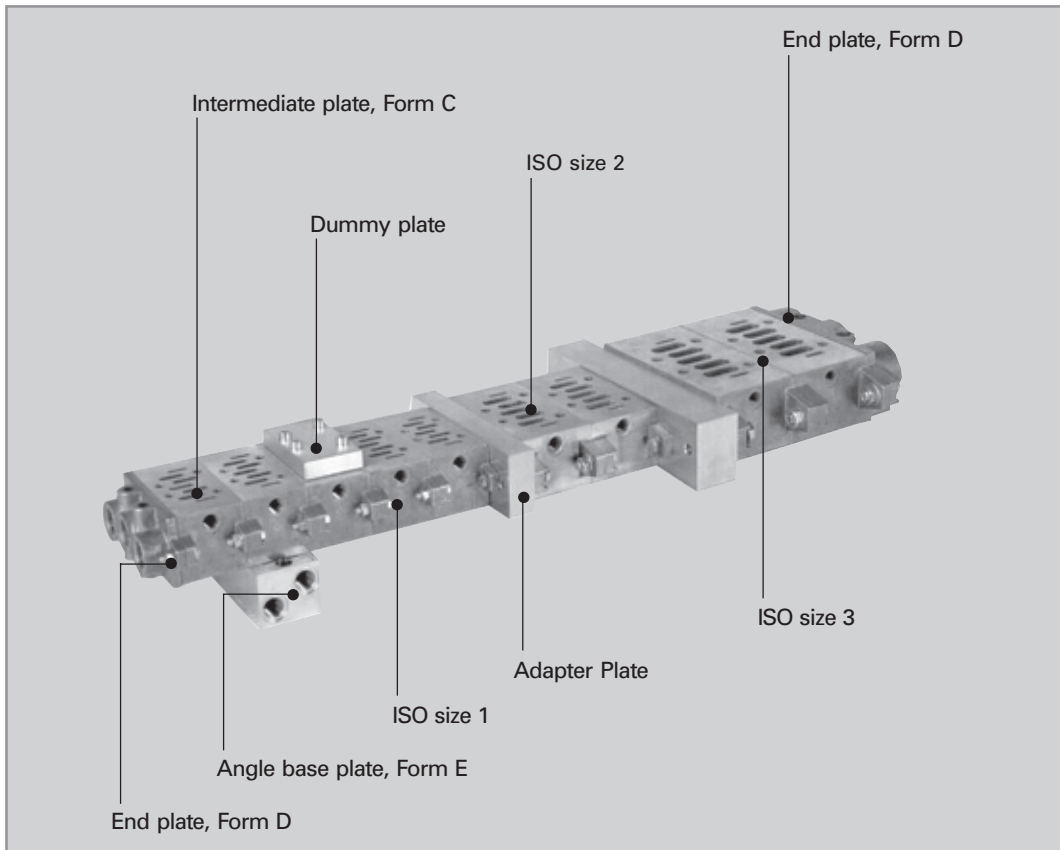
ISO Size	A	B	C	D	E	F	G	H
1	84	43	G1/4	10.5	21.5	10	32	98
2	95	56	G3/8	14	26	13	40	112
3	119	68	G1/2	17	17	18	32	136

ISO Size	J	K	L	M	N	O	P	Q
1	48	5.5	110	10.5	23.5	24	G1/8	58
2	57	6.6	124	14	30	30	G1/8	74
3	71	6.6	149	17	22	32	G1/8	90

Order Instructions for Single Base Plate, Form A

ISO Size	Weight (kg)	Order Instructions	
		Type	Order No.
1	0.160	S9-1-A	KX 9076
2	0.280	S9-2-A	KX 9433
3	0.570	S9-3-A	KX 9434

Base Plate Combinations



Base Plates to ISO 5599 Size 1, 2, 3

Modules to VDMA 24345

- End plate set, Form D, for intermediate plate, Form C
- Intermediate plate, Form C
- Base plate combinations of Form C and D
- Angle base plate, Form E, for intermediate plate, Form C
- Accessories

End Plate Set, Form D for Intermediate Plate



Weight (kg)

ISO Size	Weight
1	0.210
2	0.360
3	0.680

Order Instructions

ISO Size	Order Instructions Type	Order No.
1	S9-1-D	KX 9078
2	S9-2-D	KX 9421
3	S9-3-D	KX 9422

The delivery includes:
End plate set, complete with screws

Intermediate Plate, Form C



Weight (kg)

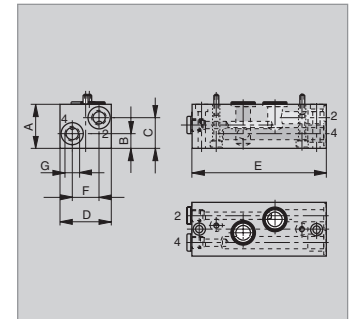
ISO Size	Weight
1	0.240
2	0.360
3	0.700

Order Instructions

ISO Size	Order Instructions Type	Order No.
1	S9-1-C	KX 9079
2	S9-2-C	KX 9419
3	S9-3-C	KX 9420

The delivery includes:
Intermediate plate, complete with O-rings and screws

Angle Base Plate, Form E for Intermediate Plate Form C



Order Instructions and Dimension Table

Order Instructions		ISO Size	A	B	C	D	E	F	G
S9-1-E	KX 9081	1	37	12	25	42	110	22	G1/4
-	-	2	-	-	-	-	-	-	-
S9-3-E	KX 9425	3	45	17	29	70	190	36	G1/2

The delivery includes:

Angle base plate, complete with O-rings and screws

Base Plates to ISO 5599 Size 1, 2, 3

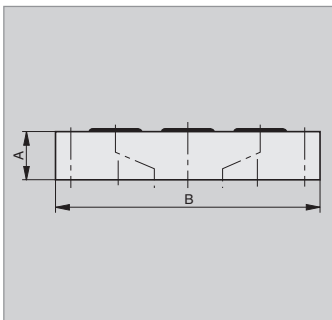
Base Plate Combinations

Base Plates to ISO 5599 Size 1, 2, 3

Modules to VDMA 24345

- End plate set, Form D, for intermediate plate, Form C
- Intermediate plate, Form C
- Base plate combinations of Form C and D
- Angle base plate, Form E, for intermediate plate, Form C
- Accessories

Adapter plate for combining ISO Sizes 1, 2, 3



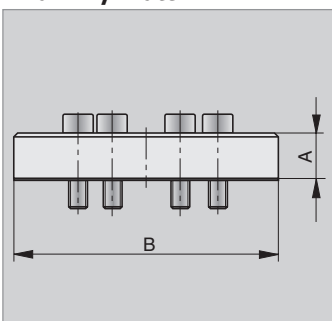
Order Instructions and Dimension Table

Order Instructions Type	Order No.	for ISO Size	A	B	Width
S9-1-2-KP	KX 9430	1 to 2	20	135	45
S9-2-3-KP	KX 9431	2 to 3	25	190	55
S9-1-3-KP	KX 9432	1 to 3	35	190	50

The delivery includes:

Adapter plate with O-rings and screws

Dummy Plate



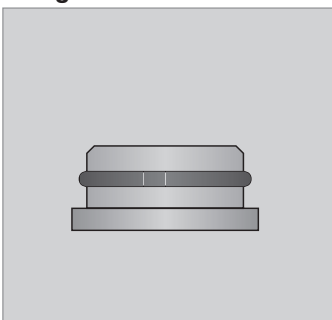
Order Instructions and Dimension Table

Order Instructions Type	Order No.	for ISO Size	A	B	Width
S9-1-BP	KX 9082	1	12	70	40
S9-2-BP	KX 9423	2	12	90	55
S9-3-BP	KX 9424	3	12	110	70

The delivery includes:

Dummy plate with gasket and screws

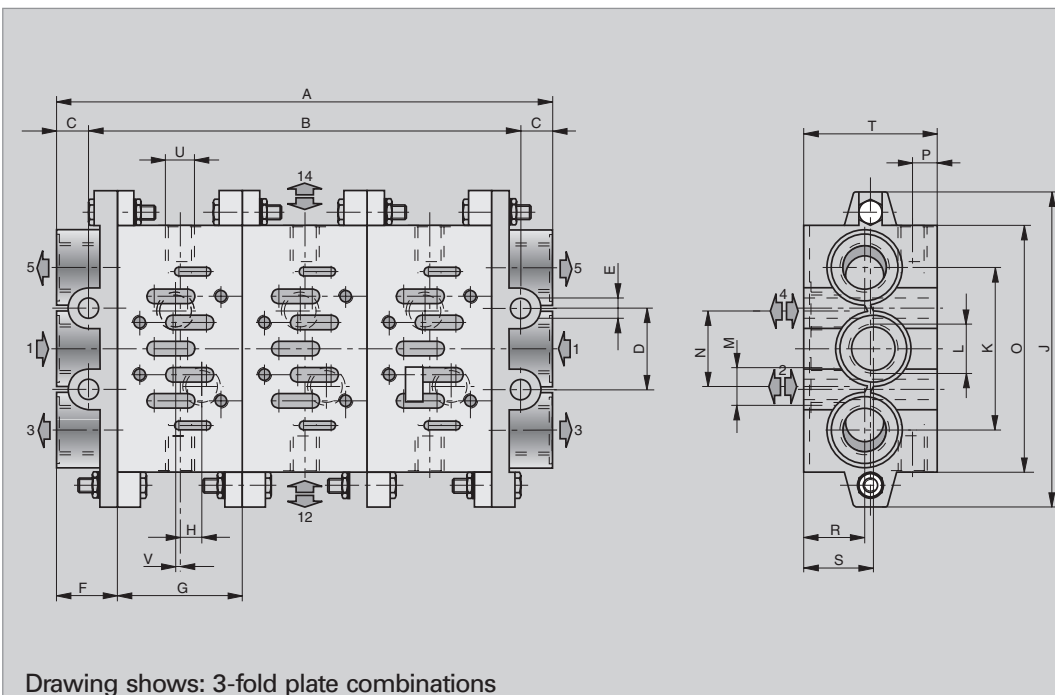
Plug



Order Instructions

Order Instructions Type	Order No.	for ISO Size
S9-1-VS	KX 5789	1
S9-2-VS	KX 9426	2
S9-3-VS	KX 9427	3

Base Plate Combinations of Form C and D



Drawing shows: 3-fold plate combinations

Dimension Table

ISO Size	Number of plates	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R	S	T	U	V
1	2	130	108	11	28	Ø7	22	43	7.5	110	56	G3/8	G1/4	26	85	8.5	21	24	46	G1/8	1.5
1	3	173	151	11	28	Ø7	22	43	7.5	110	56	G3/8	G1/4	26	85	8.5	21	24	46	G1/8	1.5
1	4	216	194	11	28	Ø7	22	43	7.5	110	56	G3/8	G1/4	26	85	8.5	21	24	46	G1/8	1.5
1	5	259	237	11	28	Ø7	22	43	7.5	110	56	G3/8	G1/4	26	85	8.5	21	24	46	G1/8	1.5
1	6	302	280	11	28	Ø7	22	43	7.5	110	56	G3/8	G1/4	26	85	8.5	21	24	46	G1/8	1.5
2	2	164	138	13	35	Ø9	26	56	6	135	68	G1/2	G3/8	30	100	9	22	24	47	G1/8	5
2	3	220	194	13	35	Ø9	26	56	6	135	68	G1/2	G3/8	30	100	9	22	24	47	G1/8	5
2	4	276	250	13	35	Ø9	26	56	6	135	68	G1/2	G3/8	30	100	9	22	24	47	G1/8	5
2	5	332	306	13	35	Ø9	26	56	6	135	68	G1/2	G3/8	30	100	9	22	24	47	G1/8	5
2	6	388	362	13	35	Ø9	26	56	6	135	68	G1/2	G3/8	30	100	9	22	24	47	G1/8	5
3	2	202	172	15	52	Ø12	30	71	8	190	104	G1	G1/2	38	140	10	31	34	56	G1/8	6
3	3	273	243	15	52	Ø12	30	71	8	190	104	G1	G1/2	38	140	10	31	34	56	G1/8	6
3	4	344	314	15	52	Ø12	30	71	8	190	104	G1	G1/2	38	140	10	31	34	56	G1/8	6
3	5	415	385	15	52	Ø12	30	71	8	190	104	G1	G1/2	38	140	10	31	34	56	G1/8	6
3	6	486	456	15	52	Ø12	30	71	8	190	104	G1	G1/2	38	140	10	31	34	56	G1/8	6

Order Instructions for Base Plate Combinations

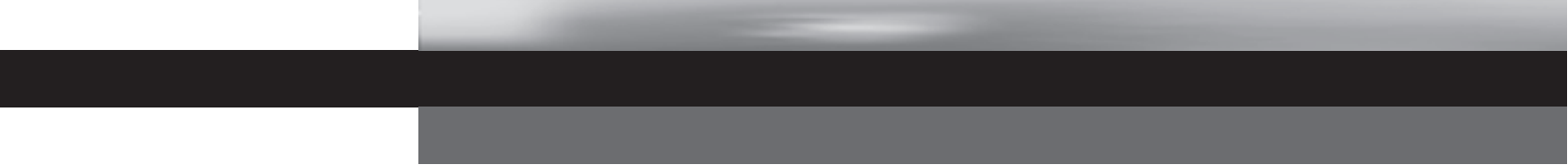
Description	ISO Size	Order Instructions	
		Type	Order No.
Plate combination for 2 valves	1	S9-1-002	PD 30076-0002
	2	S9-2-002	PD 32951-0002
	3	S9-3-002	PD 32952-0002
Plate combination for 3 valves	1	S9-1-003	PD 30076-0003
	2	S9-2-003	PD 32951-0003
	3	S9-3-003	PD 32952-0003
Plate combination for 4 valves	1	S9-1-004	PD 30076-0004
	2	S9-2-004	PD 32951-0004
	3	S9-3-004	PD 32952-0004
Plate combination for 5 valves	1	S9-1-005	PD 30076-0005
	2	S9-2-005	PD 32951-0005
	3	S9-3-005	PD 32952-0005
Plate combination for 6 valves	1	S9-1-006	PD 30076-0006
	2	S9-2-006	PD 32951-0006
	3	S9-3-006	PD 32952-0006

Plate combinations made up to customer's requirements on request

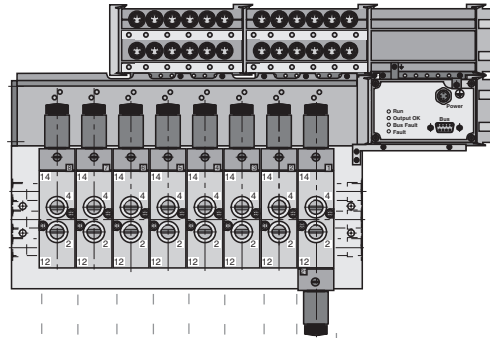
Accessories

Adapter plate for Pressure switch *	1	S9-1-DR	KX 9293
	2	S9-2-DR	KX 9428
	3	S9-3-DR	KX 9429
Adapter plate with built-in pressure regulator	1	S9-1-RE	PD 31826
	3	S9-3-RE	PD 33098

* Pressure switch available on request



Order Form, neutral, for Valve Islands



Ordering example	Order No.	Electrical connection	Internal Bus expansion	No. of Valves	Valve position												Input module	Number of inputs	Channel divider	Position of channel divider
					1	2	3	4	5	6	7	8	9	10	11	12				

4 → 6 → 8 → 10 → 12
even number of valve positions only

Important: Please specify the code for the desired valve types

Input Modules	
K	Pins IP20
S	M8 IP65 connector
04-08-12	Number of inputs
16-20-24	
28-32	

Dual Pressure Operation	
J	with channel divider in port 1 (P)
01 - 11	Position of channel divider to valve position

Valve Islands – Sizes	
PA 10381	Type: IM20-1/8 Connections: G1/8 –valve ports G1/4 –base plate
PA12867	Type: IM20-1/4 Connections: G1/4 –valve ports G3/8 –base plate

Electrical Connections	
Multipole Version	
DS	with sub-D connector
HI	with industrial connector
Field Bus Version	
DP	Profibus DP
IS	Interbus S
CO	CAN Open
IB	Internal Bus

Internal Bus Expansion	
J	RIO-IF Module

Valve Positions	
04	up to 4 valves
06	5 and 6 valves
08	7 and 8 valves
10	9 and 10 valves
12	11 and 12 valves
14	13 and 14 valves
16	15 and 16 valves

Ordering Code for Valves and Blanking Plates

Code	Symbol	Description
A	–	Blanking plate on valve position
M		5/2 way solenoid valve, permanent signal with spring return Type: S9 581RF-..
J		5/2 way solenoid valve, Impulse version Type: S9 581-..
G		5/3 way solenoid valve, spring return to middle position, middle position closed Type: S9 581RFG-..
B		5/3 way solenoid valve, spring return to middle position, middle position pressurized Type: S9 581RFB-..
E		5/3 way solenoid valve, spring return to middle position, middle position vented Type: S9 581RFE-...



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