

3/2, 5/2 and 5/3 Directional Control Valves

Series
S9-G1/8 to G1/2

* Valve Manifold Assemblies
with electrically actuated
valves -10 to +50°C

(¹ Note:
For use below freezing point
please contact us

(² Actuation force for valves
without spring return,
actuation with rotary lever:
5N

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

(⁴ Only for version with biased
position 2 – 10 bar,
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

Series S9 – G1/8 to G1/2

Characteristics	Symbol	Unit	Series S9		
			G1/8		
Actuation			Manual control	pneumatic	electrical
General Features					
Type			Spool valve		
Mounting			2 Screws M5		
Tube connection			Thread		
Thread			G1/8 – 7.4 deep		
Weight		kg	See page 48, 56, 64		
Installation			In any position		
Ambient temperature range (¹ T _{min. / max.})		°C	-10 to +60 *		
Medium temperature range (¹ T _{min. / max.})		°C	-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)		
Pneumatische Characteristics					
Nominal pressure	p _{min. / max.}	bar	6		
Operating pressure range	p _{min. / max.}	bar	0–10 (¹⁰)	–	–
– permanent signal version	p _{min. / max.}	bar	–	0–10	2–10
– impulse version	p _{min. / max.}	bar	–	0–10	2–10
– with external pilot air	p _{min. / max.}	bar	–	–	0–10
Nominal flow	QN	l/min	500 (450 bei 3/2 Way Valve)		
Actuation					
Manual control			Direct		
Stroke		mm	4.5		
Actuation force	Fb	N	7 (²) 10 (³)		
Actuation force for panel mounting actuators			See page 48		
Pneumatic					
Direct					
Actuation pressure range					
– permanent signal version	p _{min. / max.}	bar	–	2–10	2–10
– impulse version	p _{min. / max.}	bar	–	1.5–10	1.5–10
Electrical					
Electrical pilot operated					
Voltage type					
Alternating current (50/60Hz)					
Nominal voltage					
– Standard version	U _n	V	230 ±10%		
– Low wattage version	U _n	V	230 ±10%		
Initial power consumption					
– Standard version		VA (W)	G1/8	G1/4	G1/2
– Low wattage version		VA (W)	8.5	8.5	11.0
– Standard version		VA (W)	6.6	6.6	7.8
Continuous consumption					
– Standard version		VA (W)	G1/8	G1/4	G1/2
– Low wattage version		VA (W)	6.0	6.0	8.5
– Standard version		VA (W)	3.9	4.9	4.9
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 (⁶)		



Series S9 G1/4			Series S9 G1/2		
Manual control	pneumatic	electrical	Manual control	pneumatic	electrical
Spool valve			Spool valve		
2 Screws M6			2 Screws M6		
Thread			Thread		
G1/4 – 11 deep			G1/2 – 16 deep		
See page 52, 60, 66			See page 54, 62, 68		
In any position			In any position		
-10 to +60 *			-10 to +60 *		
-10 to +60 *			-10 to +60 *		
6			6		
0-10			0-10		
-	0-10	2-10	-	0-10	2.2-10
-	0-10	2-10	-	0-10	2.2-10
-	-	0-10	-	-	0-10
1300 ⁽⁷⁾			3500 ⁽⁸⁾		
Direct			Direct		
6.5			9.4		
10 ⁽²⁾			15 ⁽²⁾		
15 ⁽³⁾			40 ⁽³⁾		
-			-		
Direct			Direct		
2-10	2-10	2-10	-	2.2-10 ⁽⁹⁾	2.2-10
1.5-10	1.5-10 ⁽⁴⁾	1.5-10 ⁽⁴⁾	-	1.5-10 ⁽⁵⁾	1.5-10 ⁽⁴⁾
Direct current			Direct current		
24 ±10%			Other voltages on request		
24 ±10%			Other voltages on request		
G1/8	G1/4	G1/2			
2.5	2.5	4.8			
2.1	2.1	2.7			
G1/8	G1/4	G1/2			
2.5	2.5	4.8			
2.1	2.1	2.7			

5/2 Way Valves Series S9

G1/8

Actuation systems:

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

Versions:

- With external pilot air
- With biased position
- Version to ATEX Standard

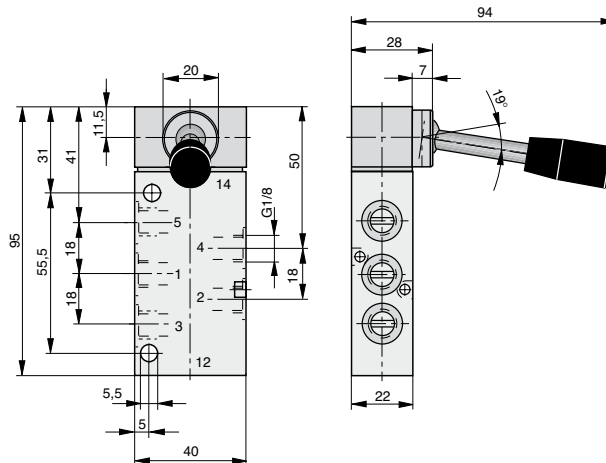
Weight (mass) kg

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

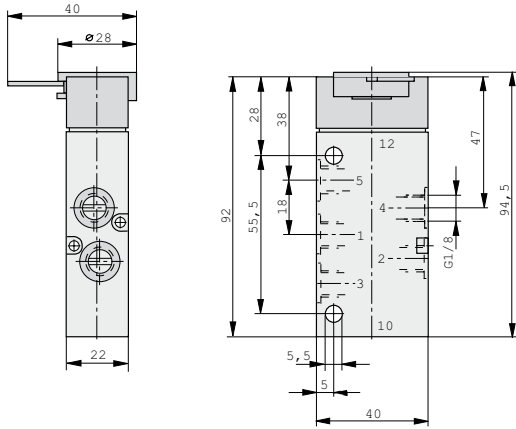
Weight (mass) and actuating forces for valves with panel mounting

Description	Type	Actuating force (N, Nm)	Weight (mass) (kg)
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

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

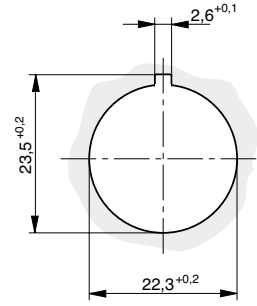


Basic valve for panel mounting actuators – Type: S9 590RF-1/8

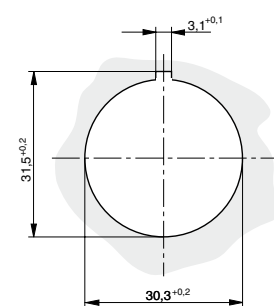


Mounting diameter

Mounting diameter Ø22 mm



Mounting diameter Ø30 mm

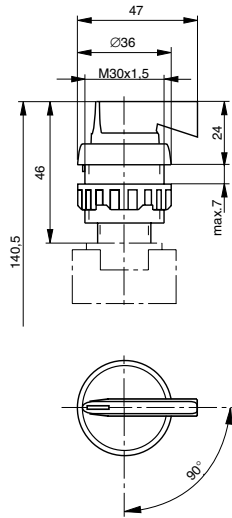
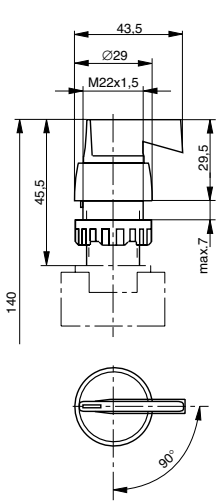


The actuators for these valves are interchangeable and can be mounted with 180° displacement on the basic valve. The actuators are not mounted upon delivery.

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

Mounting diameter Ø22 mm

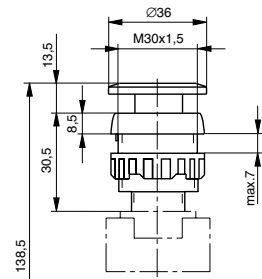
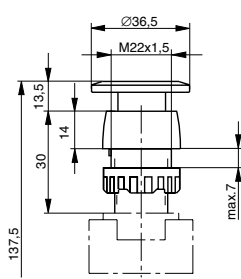
Mounting diameter Ø30 mm



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

Mounting diameter Ø22 mm

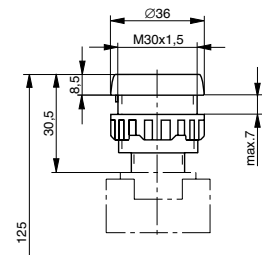
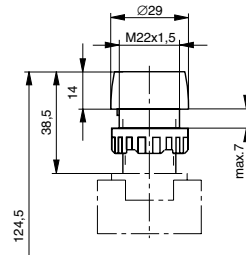
Mounting diameter Ø30 mm



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

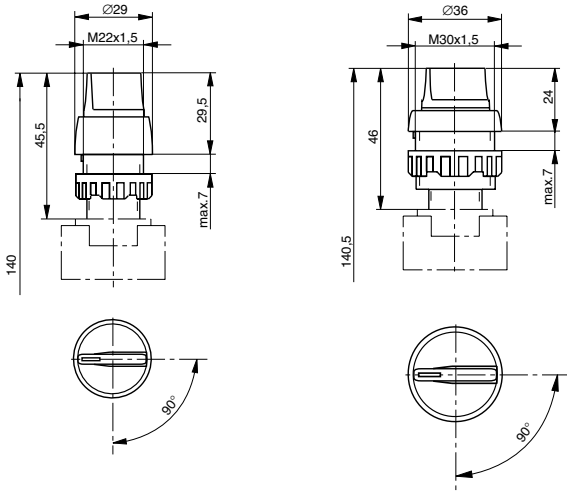
Mounting diameter Ø22 mm

Mounting diameter Ø30 mm



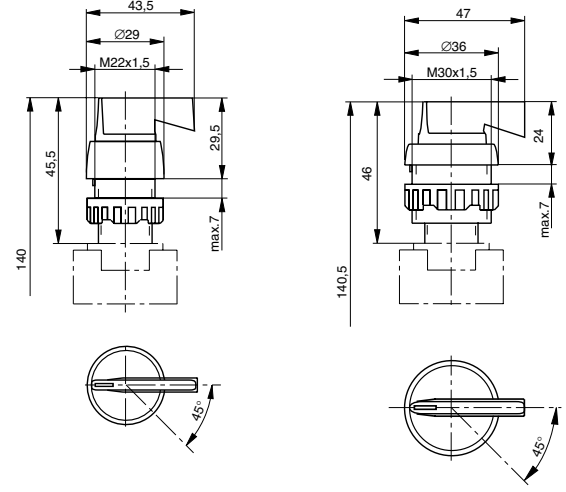
Rotary switch – Type: 17T-22, 17T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



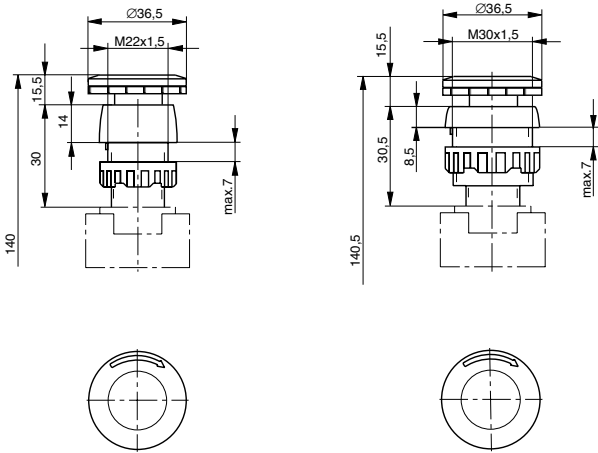
Rotary lever with spring return – Type: 12T-RF-22, 12T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



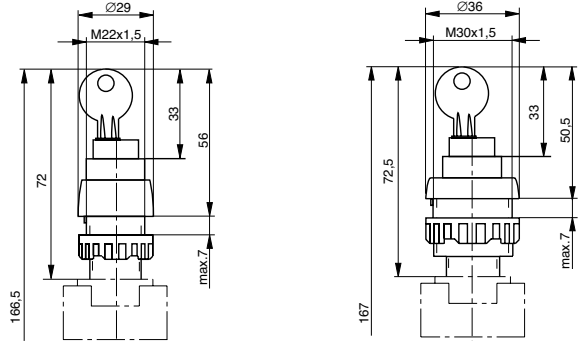
Mushroom pushbutton emergency-Off – Type: 18T-22, 18T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



Locking switch – Type: 16T-22, 16T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



For order instructions see page 73, 74, characteristics see page 44-47

Dimensions in mm

5/2 Way Valves Series S9

G1/4

Actuation systems:

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

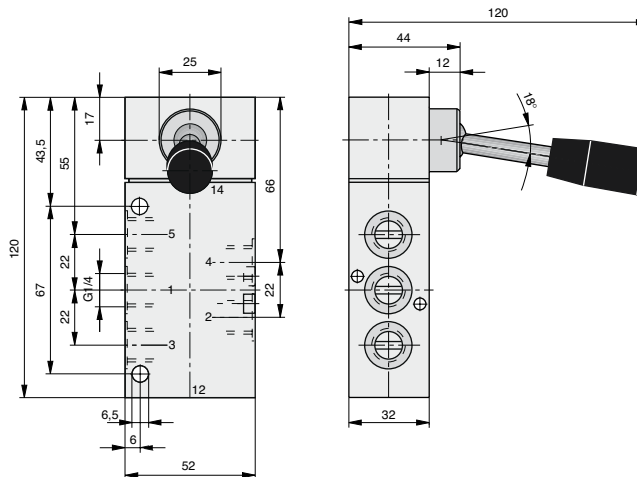
Versions

- With external pilot air
- With biased position
- Version to ATEX Standard

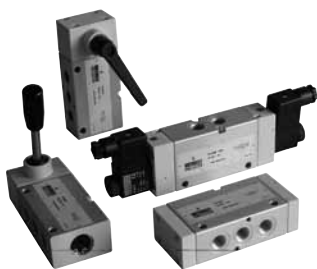
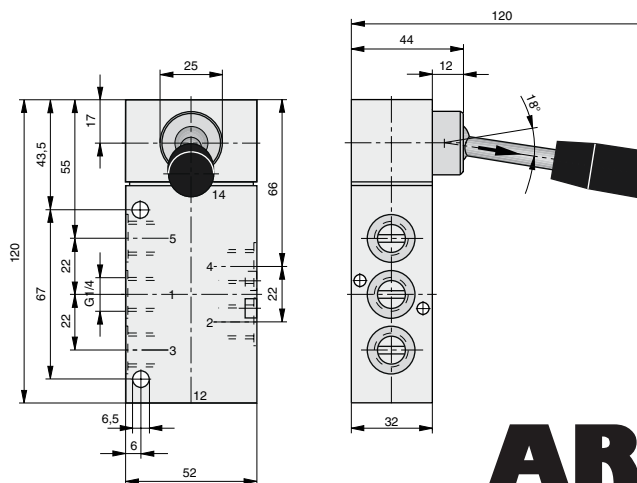
Weight (mass) kg

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

Hand lever actuated – Type: S9 511-1/4, S9 511RF-1/4



Safety hand lever actuated – Type: S9 511S-1/4



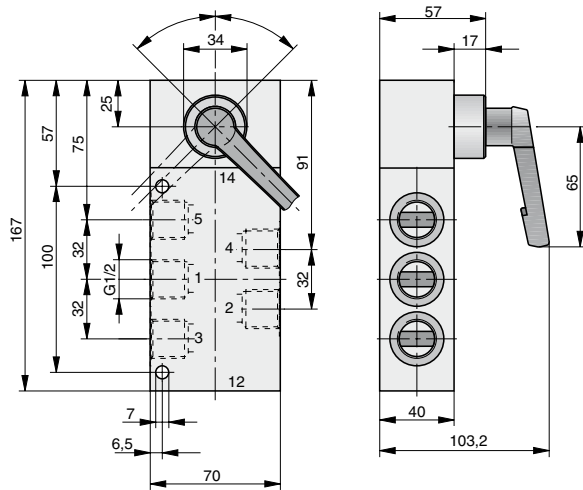
ARA[®]
PNEUMATIK

53-012 Wrocław tel. 71 364 72 82
ul. Wyciągowa 38 fax 71 364 72 83

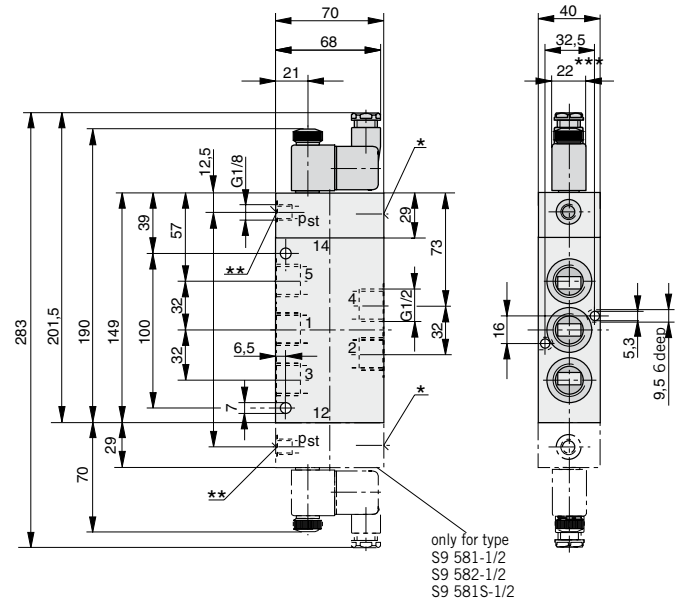
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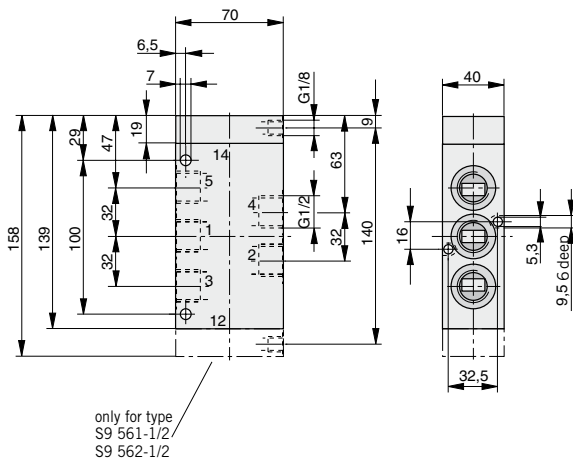
Rotary lever actuated – Type: S9 512-1/2, S9 512RF-1/2



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

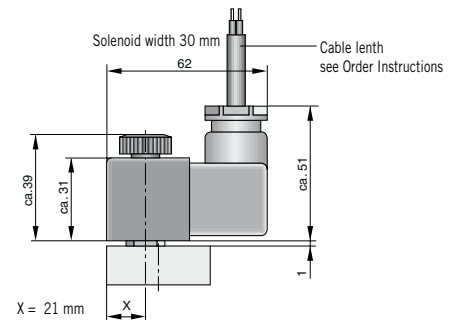


**Pneumatically actuated
Type: S9 561-1/2, S9 561RF-1/2, S9 562-1/2**



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

**Solenoid for use in EX areas
Dimensions**

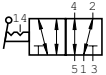
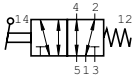
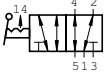
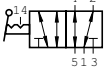

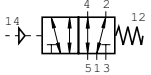
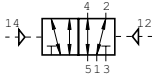
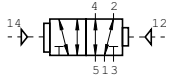








For more information on valves to ATEX standards see page 46, 47, 74

For order instructions see page 73,74, characteristics see page 44-47

Dimensions in mm

Order Instructions – 5/2 Way Valves – Standard versions

Actuation System	Symbol	Mounting Ø (mm)	Order Instructions		Page
			Type	Order No.	
Hand lever, indexed			S9 511-1/8	PA 10308	56
			S9 511-1/4	PA 12671	60
			S9 511-1/2	PA 16367	62
Hand lever, spring return			S9 511RF-1/8	PA 10309	56
			S9 511RF-1/4	PA 12672	60
			S9 511RF-1/2	PA 16366	62
Hand lever secured in 2 switching positions			S9 511S-1/8	PA 10368	57
			S9 511S-1/4	PA 12673	60
			S9 511S-1/2	PA 16368	62
Rotary lever, indexed			S9 512-1/4	PA 12674	61
			S9 512-1/2	PA 16378	63
Rotary lever, spring return			S9 512RF-1/4	PA 12675	61
			S9 512RF-1/2	PA 16379	63
Pneumatic, by permanent signal			S9 561RF-1/8	PA 10310	57
			S9 561RF-1/4	PA 12676	61
			S9 561RF-1/2	PA 16165	63
Pneumatic, by impulse			S9 561-1/8	PA 10311	57
			S9 561-1/4	PA 12677	61
			S9 561-1/2	PA 16166	63
Pneumatic, by impulse, with biased position			S9 562-1/4	PA 12678	61
			S9 562-1/2	PA 16167	63
Basic valve for panel mounting			S9 590RF-1/8	PA 10320	58
Rotary lever, indexed		22	12T-22	KX 9355	58
		30	12T-30	KX 9314	
Rotary lever, spring return		22	12T-RF-22	KX 9356	59
		30	12T-RF-30	KX 9315	
Pushbutton		22	13T-RF-22	KX 9357	58
		30	13T-RF-30	KX 9316	
Mushroom pushbutton		22	15T-RF-22	KX 9358	58
		30	15T-RF-30	KX 9317	
Locking switch		22	16T-22	KX 9359	59
		30	16T-30	KX 9318	

Order Instructions – 5/2 Way Valves – Standard versions

Actuation System	Symbol	Mounting Ø (mm)	Order Instructions		Page
			Type	Order No.	
Rotary switch		22	17T-22	KX 9360	58
		30	17T-30	KX 9319	
Mushroom pushbutton Emergency-Off		22	18T-22	KX 9361	59
		30	18T-30	KX 9320	
Electrical, by permanent signal			S9 581RF-1/8-..	PA 10312-..33	57
			S9 581RF-1/4-..	PA 12679-..33	61
			S9 581RF-1/2-..	PA 16171-..33	63
with external pilot air			S9 581S-RF-1/8-..	PA 10314-..33	57
			S9 581S-RF-1/4-..	PA 12681-..33	61
			S9 581S-RF-1/2-..	PA 16174-..33	63
Electrical, by impulse			S9 581-1/8-..	PA 10313-..33	57
			S9 581-1/4-..	PA 12680-..33	61
			S9 581-1/2-..	PA 16172-..33	63
with external pilot air			S9 581S-1/8-..	PA 10315-..33	57
			S9 581S-1/4-..	PA 12682-..33	61
			S9 581S-1/2-..	PA 16175-..33	63

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 version	Nominal voltage	Applicable for	Key code	ATEX Type additon
Solenoid	24V =		48	ATEX
- with cable 1.2 m	24V =		45	ATEX
- with cable 3 m	24V =		46	ATEX
- with cable 5 m	24V =		47	ATEX
- with cable 10 m	24V =		99	ATEX
- with cable 1.2 m	24V 50/60Hz		97	ATEX
- with cable 1.2 m	110V 50/60Hz		98	ATEX
- with cable 1.2 m	230V 50/60Hz			ATEX

Example for valves in ATEX-Version:

- 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

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