

# 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

<sup>(1)</sup> Note:  
For use below freezing point  
please contact us

<sup>(2)</sup> Actuation force for valves  
without spring return,  
actuation with rotary lever:  
5N

<sup>(3)</sup> Actuation force for valves  
with spring return,  
Actuation with rotary lever:  
15N

<sup>(4)</sup> Only for version with biased  
position 2 – 10 bar,  
pneumatically actuated  
2 – 10 bar, electrically  
actuated 2.5 – 10 bar

<sup>(5)</sup> Version with biased position  
2.5 – 10 bar

<sup>(6)</sup> Low wattage version:  
Plug to  
DIN EN 175301-803  
form A

<sup>(7)</sup> Version “middle position  
vented“ 1000 l/min

<sup>(8)</sup> Version “middle position  
vented“ 3300 l/min  
Version “middle position  
pressured“ 3600 l/min

<sup>(9)</sup> 5/3 Way Valve 2.5 – 10 bar

<sup>(10)</sup> 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 <sup>(1)</sup>	T <sub>min. / max.</sub>	°C	-10 to +60 *		
Medium temperature range <sup>(1)</sup>	T <sub>min. / max.</sub>	°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 <sub>min. / max.</sub>	bar	6		
Operating pressure range	p <sub>min. / max.</sub>	bar	0–10 <sup>(10)</sup>		
– permanent signal version	p <sub>min. / max.</sub>	bar	–	0–10	2–10
– impulse version	p <sub>min. / max.</sub>	bar	–	0–10	2–10
– with external pilot air	p <sub>min. / max.</sub>	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 <sup>(2)</sup> 10 <sup>(3)</sup>		
Actuation force for panel mounting actuators			See page 48		
Pneumatic			Direct		
Actuation pressure range					
– permanent signal version	p <sub>min. / max.</sub>	bar	–	2–10	2–10
– impulse version	p <sub>min. / max.</sub>	bar	–	1.5–10	1.5–10
Electrical					
Electrical pilot operated					
Voltage type					
Alternating current (50/60Hz)					
Nominal voltage					
– Standard version	U <sub>n</sub>	V	230 ±10%		
– Low wattage version	U <sub>n</sub>	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
– Low wattage 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
– Low wattage 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 <sup>(6)</sup>		

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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 <sup>(7)</sup>			3500 <sup>(8)</sup>		
Direct			Direct		
6.5			9.4		
10 <sup>(2)</sup>			15 <sup>(2)</sup>		
15 <sup>(3)</sup>			40 <sup>(3)</sup>		
–			–		
Direct			Direct		
2–10	2–10	2–10	–	2.2–10 <sup>(9)</sup>	2.2–10
1.5–10	1.5–10 <sup>(4)</sup>	1.5–10 <sup>(4)</sup>	–	1.5–10 <sup>(5)</sup>	1.5–10 <sup>(4)</sup>
Direct current					
24 ±10%			Other voltages on request		
24 ±10%					
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			

# 5/3 Way Valves Series S9

G1/8

### Actuation systems:

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

### Versions:

- With external pilot air
- Version to ATEX Standard

### Weight (mass) kg

Description	Type *	Weight (mass)
Hand lever	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

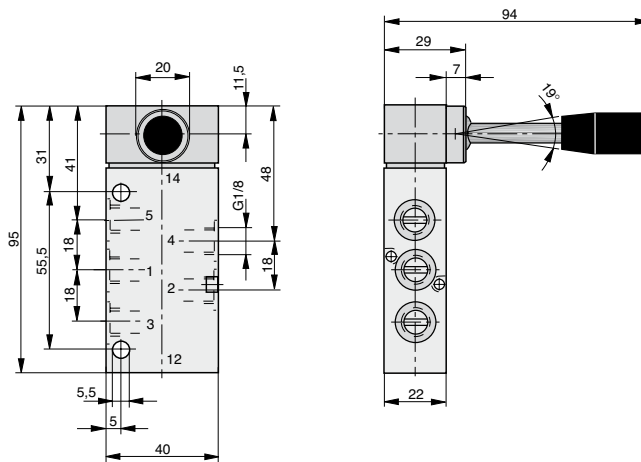
\* Type code for middle position functions

G = middle position closed

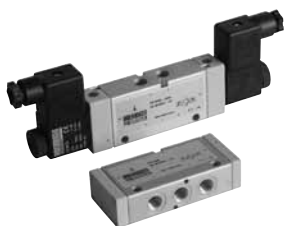
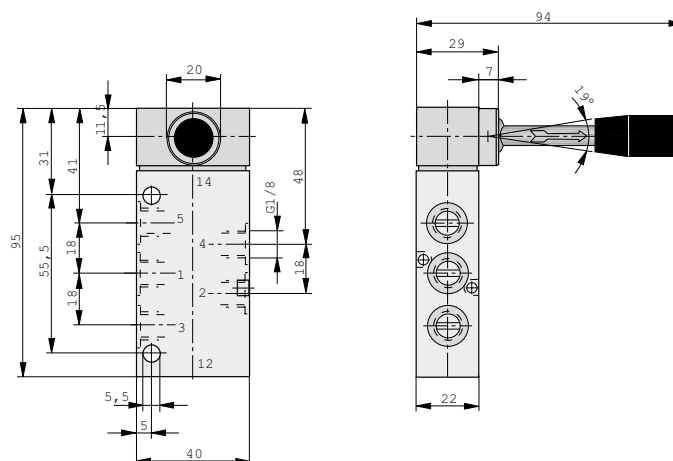
E = middle position exhausted

B = middle position pressurized

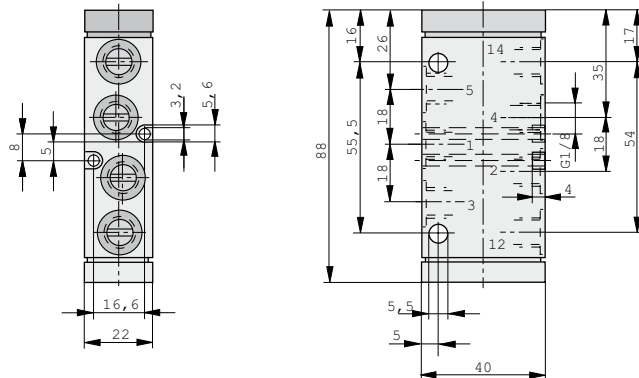
### Hand lever actuated – Type: S9 511.-1/8, S9 511RF.-1/8



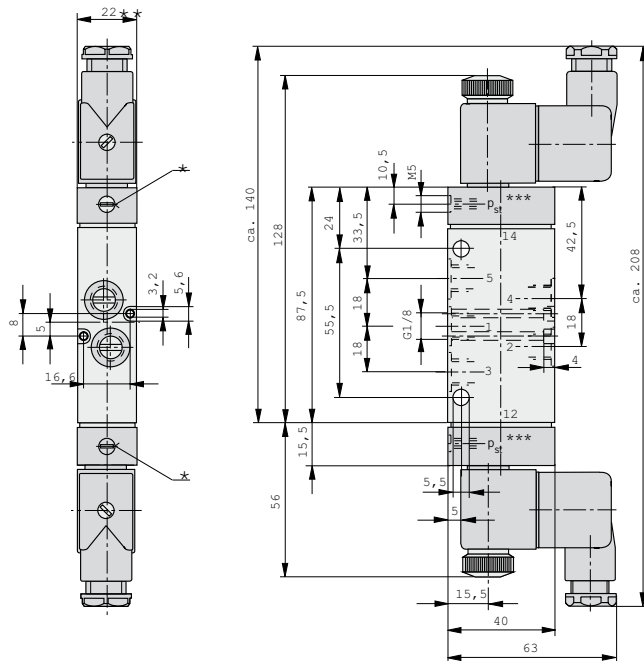
### Safety hand lever actuated – Type: S9 511S.-1/8



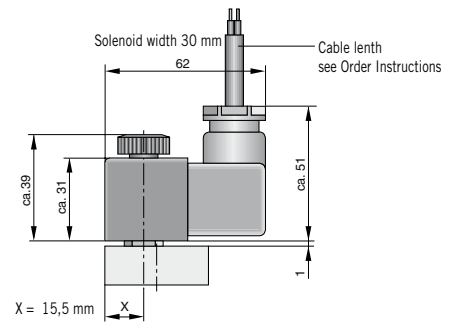
**Pneumatically actuated – Type: S9 561RF-1/8**



**Electrically actuated – Type: S9 581(S)-RF-1/8**



**Solenoid for use in EX areas  
Dimensions**



For more information on valves to ATEX standards  
see page 46, 47, 77

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

For order instructions see page 75-77, characteristics see page 44-47

Dimensions in mm

# 5/3 Way Valves Series S9

G1/4

### Actuation systems:

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

### Versions:

- 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	0.530
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

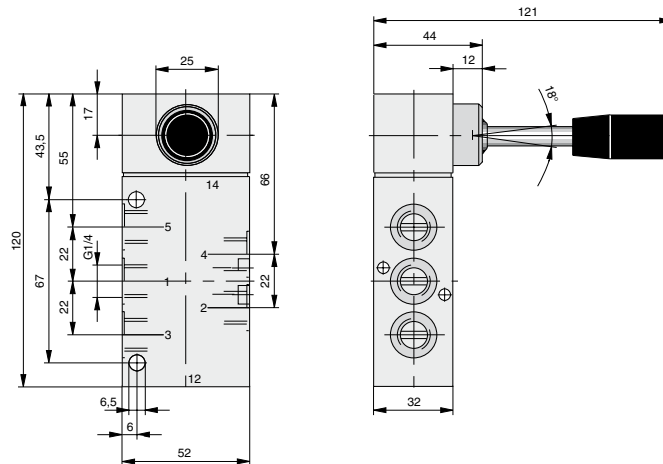
\* Type code for middle position functions

G = middle position closed

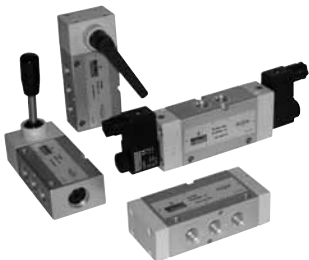
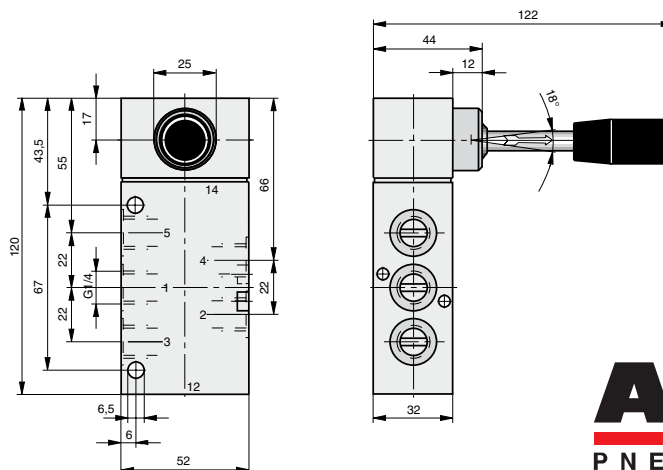
E = middle position exhausted

B = middle position pressurized

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



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



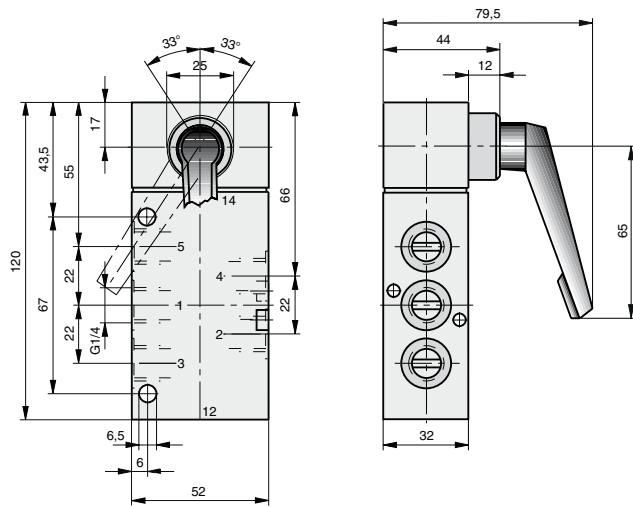
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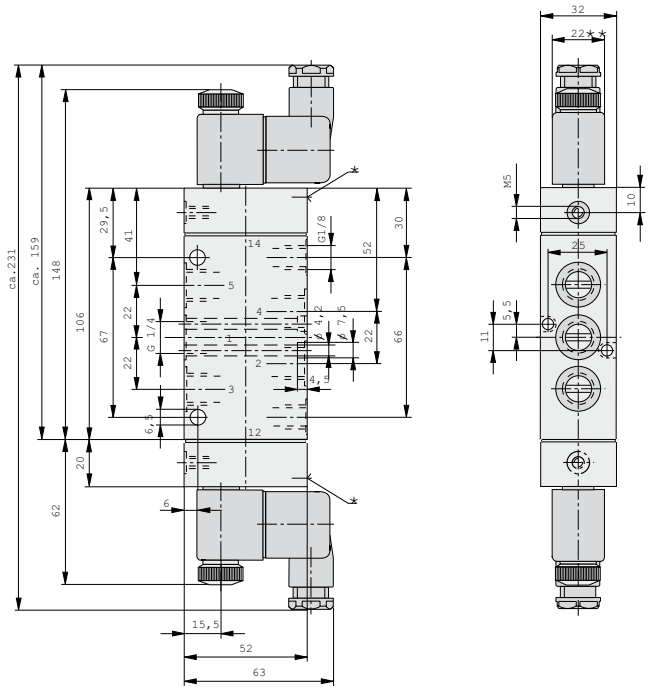
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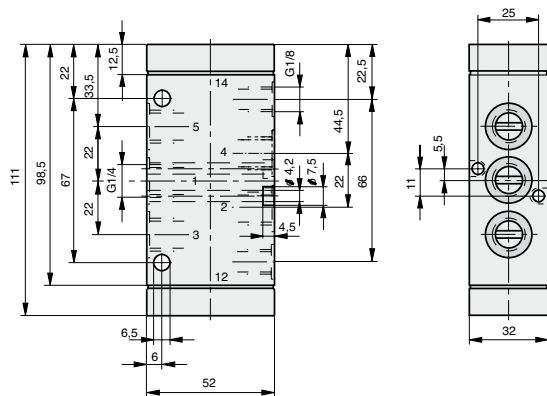
Rotary lever actuated – Type: S9 512.-1/4, S9 512RF.-1/4



Electrically actuated – Type: S9 581RF.-1/4

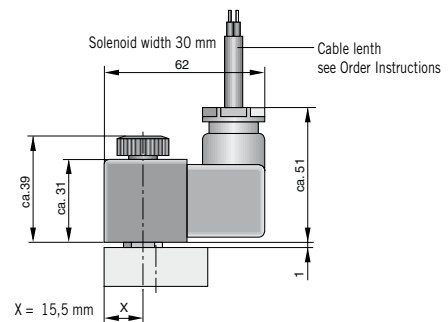


Pneumatically actuated – Type: S9 561RF.-1/4



- \* Manual override
- \*\* 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, 77

For order instructions see page 75-77, characteristics see page 44-47

Dimensions in mm

# 5/3 Way Valves Series S9

G1/2

### Actuation systems:

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

### Versions:

- Version to ATEX Standard

### 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

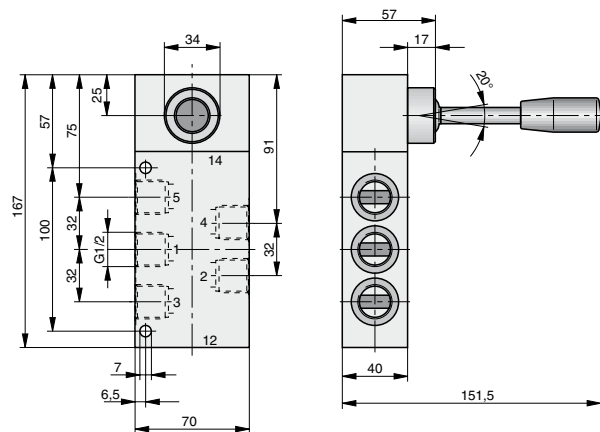
\* Type code for middle position functions

G = middle position closed

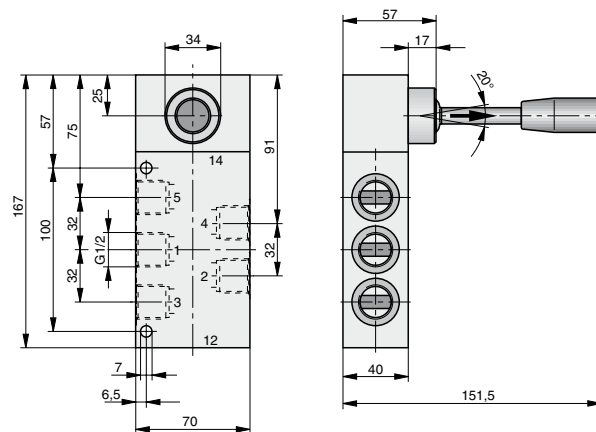
E = middle position exhausted

B = middle position pressurized

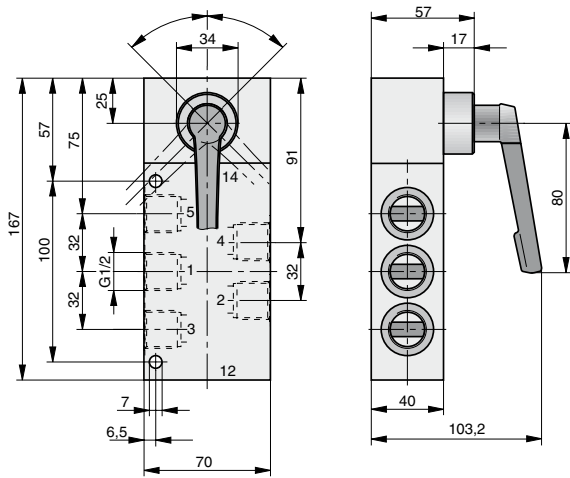
### Hand lever actuated – Type: S9 511.-1/2, S9 511RF.-1/2



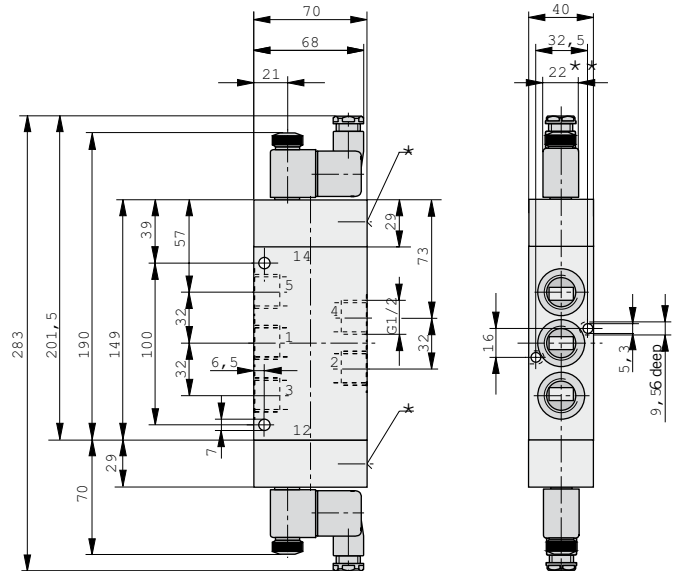
### Safety hand lever actuated – Type: S9 511S.-1/2



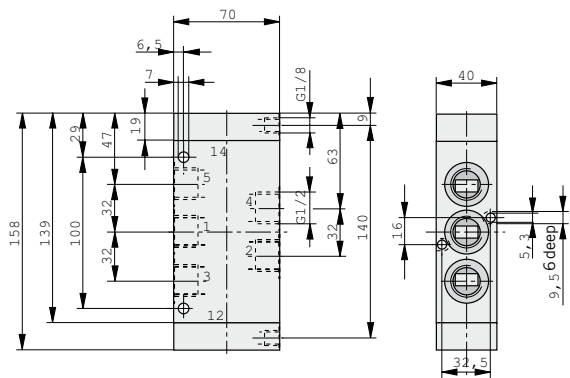
Rotary lever actuated – Type: S9 512.-1/2, S9 512RF.-1/2



Electrically actuated – Type: S9 581RF.-1/2

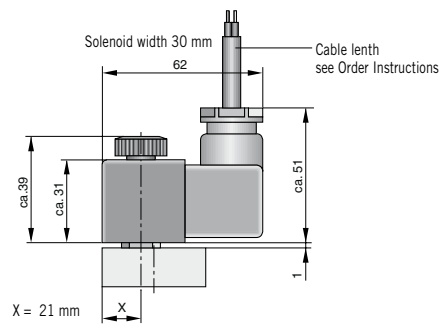


Pneumatically actuated – Type: S9 561RF.-1/2



- \* Manual override
- \*\* 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, 77

For order instructions see page 75-77, characteristics see page 44-47

Dimensions in mm



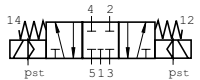
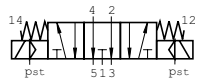
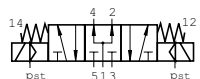
### Order Instructions – 5/3 Way Valves – Standard versions

Actuation System	Symbol	Order Instructions		Page
		Type	Order No.	
Hand lever, secured in 3 operating positions		S9 511G-1/8	PA 10321	64
		S9 511G-1/4	PA 12687	66
		S9 511G-1/2	PA 16369	68
		S9 511E-1/8	PA 10322	64
		S9 511E-1/4	PA 12688	66
		S9 511E-1/2	PA 16370	68
		S9 511B-1/8	PA 10323	64
		S9 511B-1/4	PA 12689	66
		S9 511B-1/2	PA 16371	68
Hand lever, spring return to middle position		S9 511RFG-1/8	PA 10324	64
		S9 511RFG-1/4	PA 12690	66
		S9 511RFG-1/2	PA 16372	68
		S9 511RFE-1/8	PA 10325	64
		S9 511RFE-1/4	PA 12691	66
		S9 511RFE-1/2	PA 16373	68
		S9 511RFB-1/8	PA 10326	64
		S9 511RFB-1/4	PA 12692	66
		S9 511RFB-1/2	PA 16374	68
Hand lever, secured in 3 operating positions		S9 511SG-1/8	PA 10327	64
		S9 511SG-1/4	PA 12693	66
		S9 511SG-1/2	PA 16375	68
		S9 511SE-1/8	PA 10328	64
		S9 511SE-1/4	PA 12694	66
		S9 511SE-1/2	PA 16376	68
		S9 511SB-1/8	PA 10329	64
		S9 511SB-1/4	PA 12695	66
		S9 511SB-1/2	PA 16377	68
Rotary lever, indexed in 3 operating positions		S9 512G-1/4	PA 12696	67
		S9 512G-1/2	PA 16380	69
		S9 512E-1/4	PA 12697	67
		S9 512E-1/2	PA 16381	69
		S9 512B-1/4	PA 12698	67
		S9 512B-1/2	PA 16382	69

Actuation System	Symbol	Order Instructions		Page
		Type	Order No.	
Rotary lever, spring return to middle position		S9 512RFG-1/4	PA 12699	67
		S9 512RFG-1/2	PA 16383	69
		S9 512RFE-1/4	PA 12700	67
		S9 512RFE-1/2	PA 16384	69
		S9 512RFB-1/4	PA 12701	67
		S9 512RFB-1/2	PA 16385	69
Pneumatic, by permanent signal		S9 561RFG-1/8	PA 10330	65
		S9 561RFG-1/4	PA 12702	67
		S9 561RFG-1/2	PA 16168	69
		S9 561RFE-1/8	PA 10331	65
		S9 561RFE-1/4	PA 12703	67
		S9 561RFE-1/2	PA 16169	69
		S9 561RFB-1/8	PA 10332	65
		S9 561RFB-1/4	PA 12704	67
		S9 561RFB-1/2	PA 16170	69
Electrical by permanent signal		S9 581RFG-1/8-..	PA 10333-..33	65
		S9 581RFG-1/4-..	PA 12705-..33	67
		S9 581RFG-1/2-..	PA 16176-..33	69
		S9 581RFE-1/8-..	PA 10334-..33	65
		S9 581RFE-1/4-..	PA 12706-..33	67
		S9 581RFE-1/2-..	PA 16177-..33	69
		S9 581RFB-1/8-..	PA 10335-..33	65
		S9 581RFB-1/4-..	PA 12707-..33	67
		S9 581RFB-1/2-..	PA 16178-..33	69



For complete Type- and Order No. - see page 77

Actuation System	Symbol	Order Instructions		Page
		Type	Order No.	
Electrical by permanent signal		S9 581S-RFG-1/8-..	PA 10377-..33	65
		S9 581S-RFG-1/4-..	PA 12925-..33	67
spring return to middle position		S9 581S-RFE-1/8-..	PA 10379-..33	65
		S9 581S-RFE-1/4-..	PA 12923-..33	67
with external pilot air		S9 581S-RFB-1/8-..	PA 10378-..33	65
		S9 581S-RFB-1/4-..	PA 12924-..33	67

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 581RFG-1/8-4633**

**Order No. PA10333-4633ATEX**

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