

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					
Actuation					
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					
Actuation					
Voltage type			Electrical pilot operated 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
– Low wattage version		VA (W)	6.0	6.0	8.5
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
– 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 (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			2.2-10 ⁽⁹⁾		
1.5-10			1.5-10 ⁽⁵⁾		
2-10			2.2-10		
1.5-10 ⁽⁴⁾			1.5-10 ⁽⁴⁾		
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			

3/2 Way Valves Series S9

G1/8

Actuation:

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

Versions:

- Normally closed
- Normally open
- With external pilot air
- Version to ATEX Standard

Note:

The "normally open" valve S9 381S-RF-1/8 cannot be used on a P-supply manifold.

Weight (mass) kg

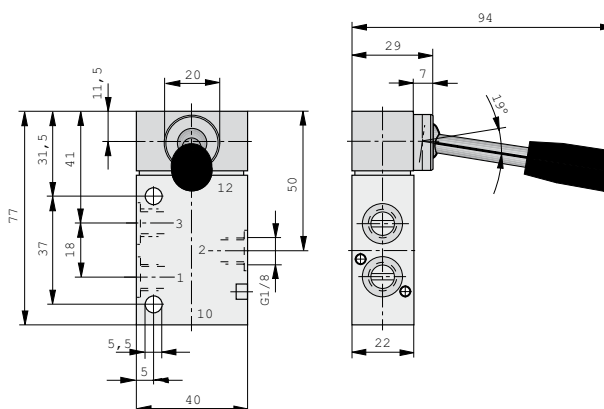
Description	Type	Weight (mass) kg
Hand lever indexed	S9 311-1/8	0.162
- with spring return	S9 311RF-1/8	0.162
Pneumatic, by permanent signal	S9 361RF-1/8	0.137
Pneumatic, by impulse	S9 361-1/8	0.147
Electrical, by permanent signal	S9 381(S)RF-1/8	0.247
Electrical, by impulse	S9 381(S)-1/8	0.382

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

Description	Type	Actuation force (N, Nm)	Weight (mass) kg
Rotary lever	S9 312T-1/8	0.3	0.137
	S9 312T-RF-1/8	0.3	0.137
Pushbutton	S9 313T-RF-1/8	8.0	0.137
Mushroom pushbutton	S9 315T-RF-1/8	8.0	0.137
Locking switch	S9 316T-1/8	9.0	0.202
Rotary switch	S9 317T-1/8	0.3	0.127
Mushroom pushbutton emergency-Off	S9 318T-1/8	10.0	0.137

Hand lever actuated

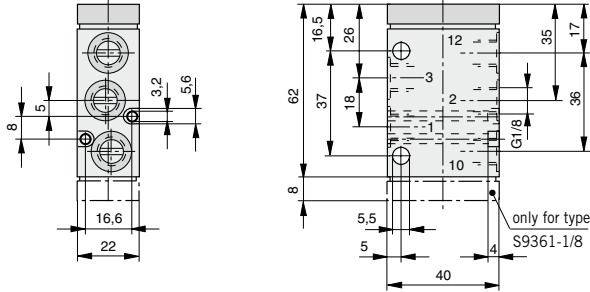
Type: S9 311-1/8, S9 311RF-1/8



For order instructions see page 70-72, characteristics see page 44-47 and for RPS manifolds see page 93-100, Valve Islands see page 87-92

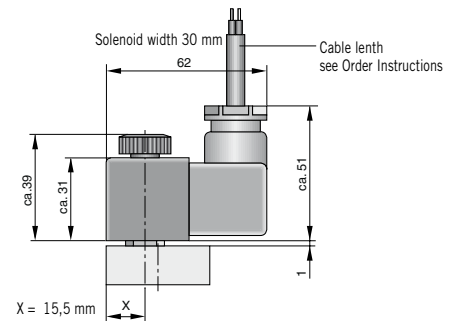
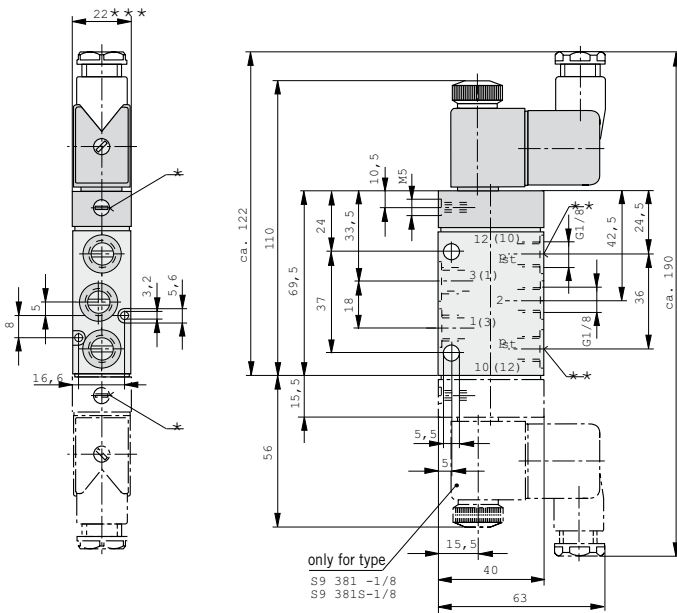
Dimensions in mm

Pneumatically actuated – Type: S9 361-1/8, S9 361RF-1/8



Electrically actuated – Type: S9 381(S)-1/8, S9 381(S)RF-1/8

Solenoid for use in EX areas – Dimensions



For more information on valves to ATEX standards see page 46, 47, 72

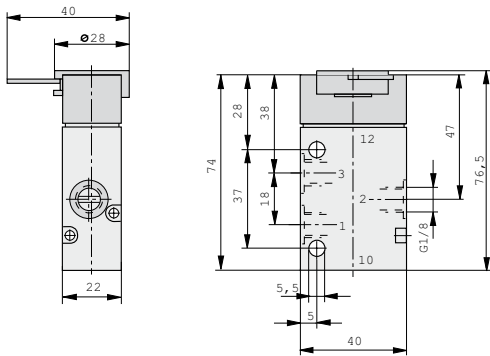
- * Manual override
- ** Operating pressure supply p_{st} only for type S9 381S
- *** Solenoid width = 30 mm on low wattage coil version

For order instructions see page 70-72, characteristics see page 44-47 P-Manifolds and for RPS manifolds see page 93-100, Valve Islands see page 87-92

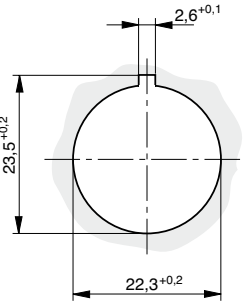
Dimensions in mm

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

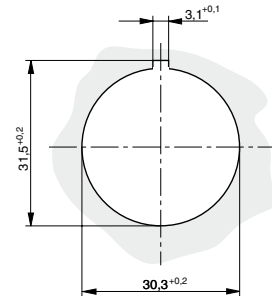
Mounting diameter



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,

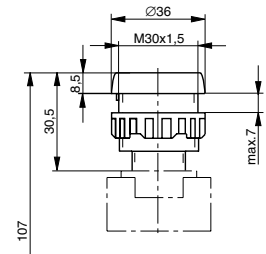
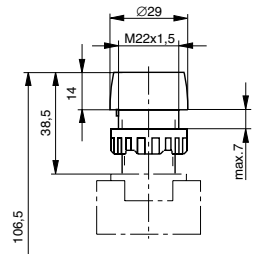
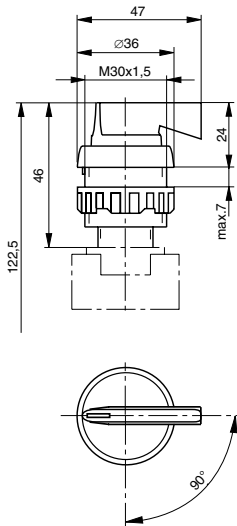
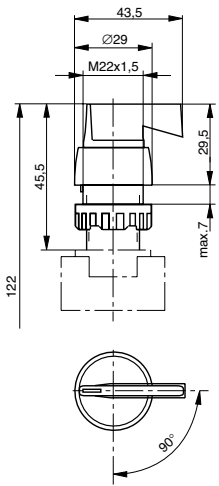
Pushbutton – Type: 13T-RF-22, 13T-RF-30

Mounting diameter Ø22 mm

Mounting diameter Ø30 mm

Mounting diameter Ø22 mm

Mounting diameter Ø30 mm

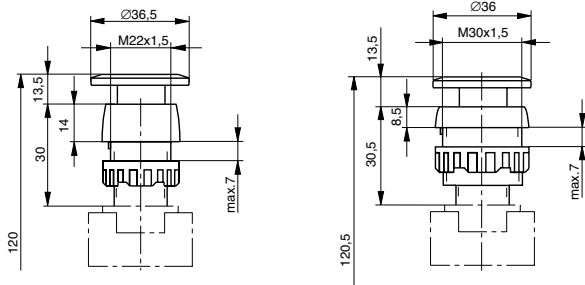


For order instructions see page 70-72, characteristics see page 44-47

Dimensions in mm

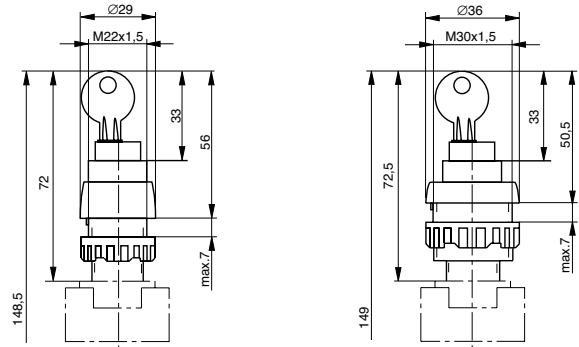
Mushroom pushbutton – Type: 15T-RF-22, 15T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



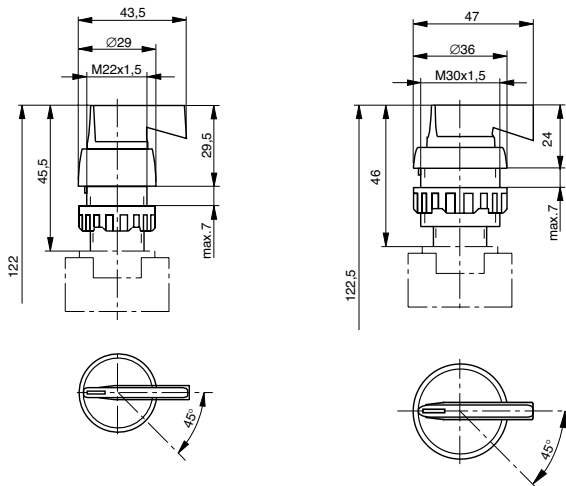
Locking switch – Type: 16T-22, 16T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



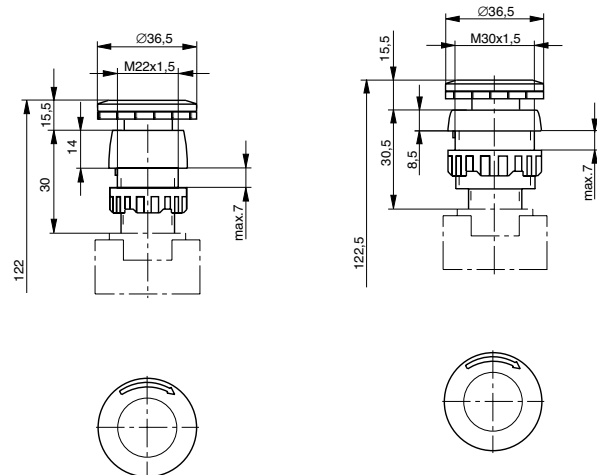
Rotary lever with spring return – Type: 12T-RF-22, 12T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



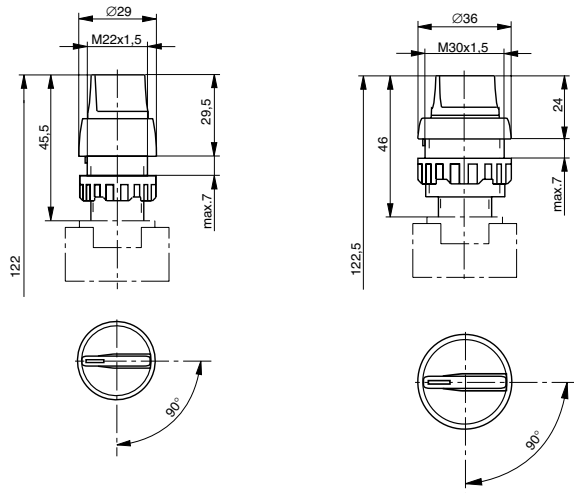
Mushroom pushbutton emergency-Off – Type: 18T-22, 18T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



Rotary switch – Type: 17T-22, 17T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



3/2 Way Valves Series S9

G1/4

Actuation systems:

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

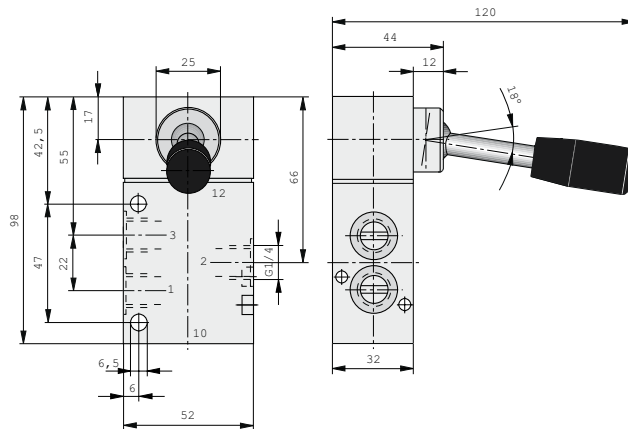
Versions:

- Normally closed
- Normally open
- With external pilot air
- With biased position
- Version to ATEX Standard

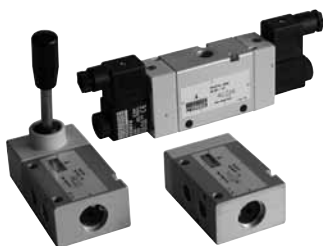
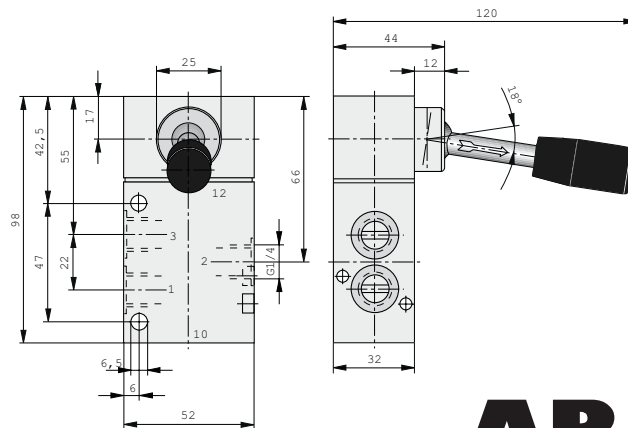
Weight (mass) kg

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

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



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



ARA®

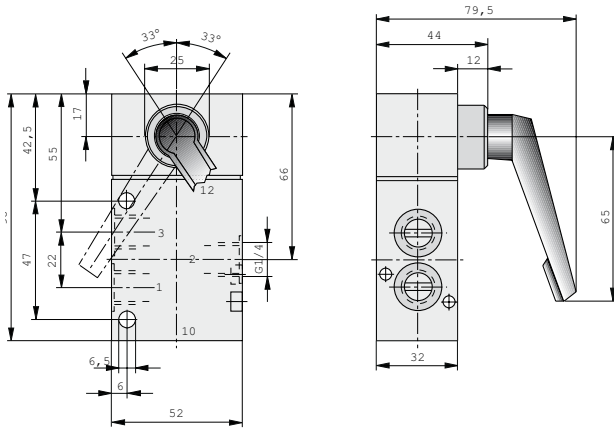
PNEUMATIK

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

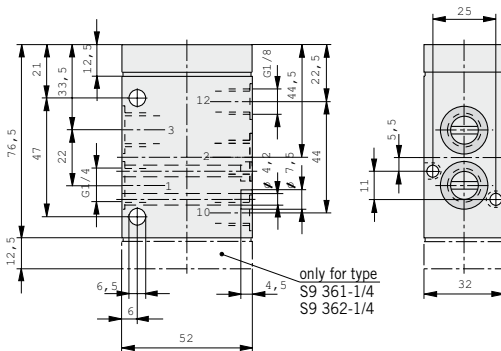
www.arapneumatik.pl



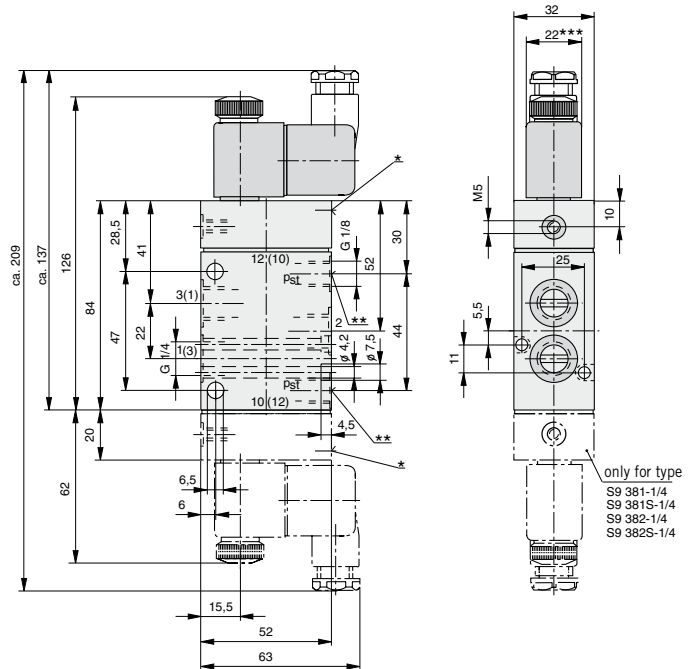
Rotary lever actuated – Type: S9 312-1/4, S9 312RF-1/4



Pneumatically actuated – Type: S9 361-1/4, S9 362-1/4, S9 361RF-1/4



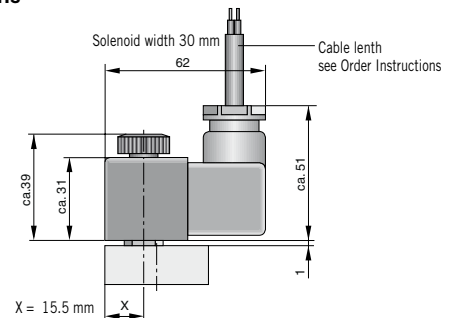
Electrically actuated – Type: S9 381(S)-1/4, S9 382(S)-1/4, S9 381(S)RF-1/4



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

Note:
The “normally open“ valve S9 381S-RF-1/4 cannot be used on a P-supply manifold.

**Solenoid for use in EX areas
Dimensions**



For more information on valves to ATEX standards see page 46, 47, 72

For order instructions see page 70-72, characteristics see page 44-47

Dimensions in mm

3/2 Way Valves Series S9

G1/2

Actuation systems:

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

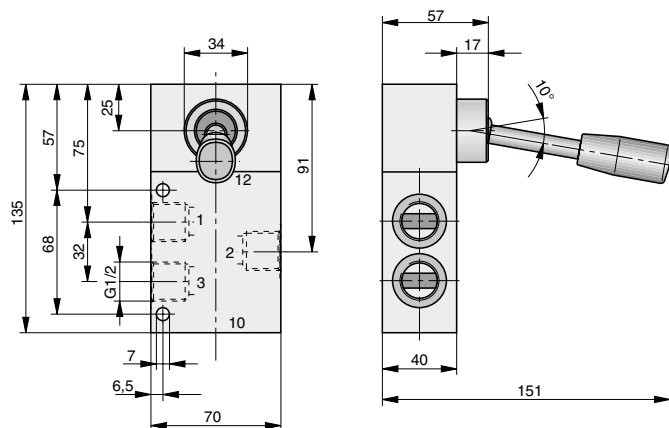
Versions:

- Normally closed
- Normally open
- With external pilot air
- With biased position
- Version to ATEX Standard

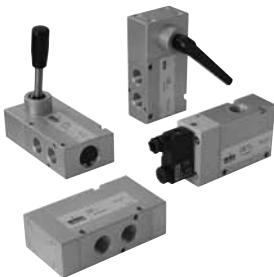
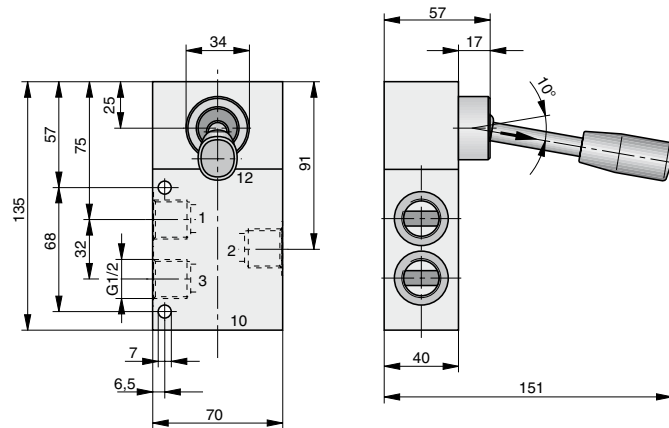
Weight (mass) kg

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

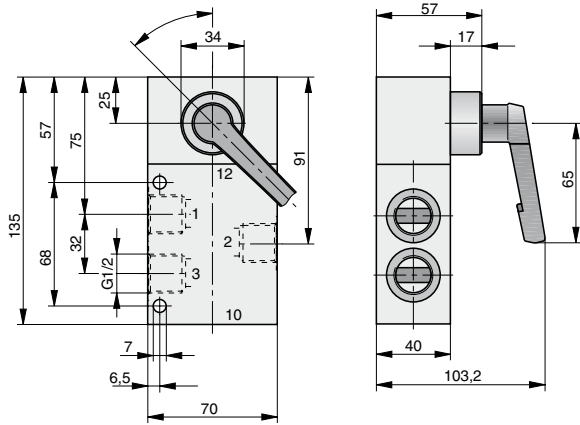
Hand lever actuated – Type: S9 311-1/2, S9 311RF-1/2



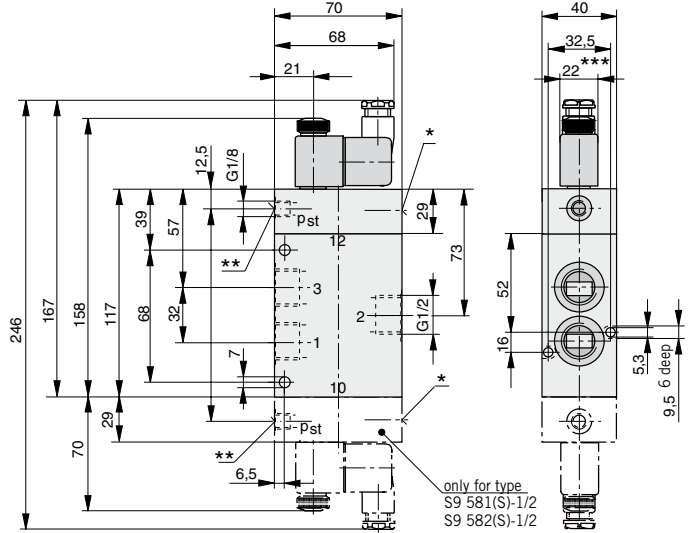
Safety hand lever actuated – Type: S9 311S-1/2



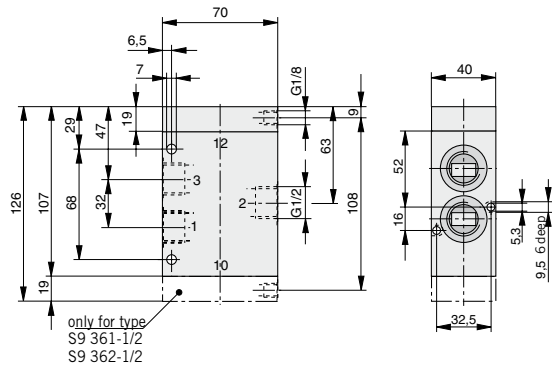
Rotary lever actuated – Type: S9 312-1/2, S9 312RF-1/2



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



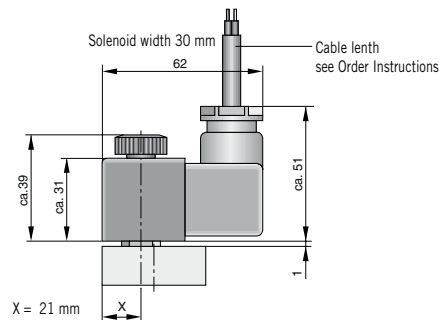
Pneumatically actuated – Type: S9 361-1/2, S9 361RF-1/2



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

Note:
The “normally open“ valve S9 381S-RF-1/2 cannot be used on a P-supply manifold.

**Solenoid for use in EX areas
Dimensions**





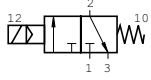
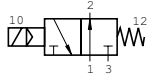
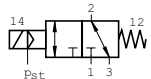
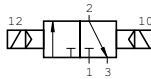
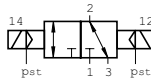
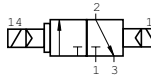
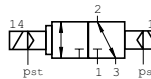
For more information on valves to ATEX standards see page 46, 47, 72

For order instructions see page 70-72, characteristics see page 44-47

Dimensions in mm

3/2 Way Valves – Standard versions

Actuation System	Symbol	Mounting Ø (mm)	Order Instructions		Page
			Type	Order No.	
Hand lever, indexed			S9 311-1/8	PA 10293	48
			S9 311-1/4	PA 12708	52
			S9 311-1/2	PA 16404	54
Hand lever, spring return			S9 311RF-1/8	PA 10294	48
			S9 311RF-1/4	PA 12709	52
			S9 311RF-1/2	PA 16405	54
Hand lever secured in 2 switching positions			S9 311S-1/4	PA 12710	52
			S9 311S-1/2	PA 16406	54
Rotary lever, indexed			S9 312-1/4	PA 12711	53
			S9 312-1/2	PA 16407	45
Rotary lever, spring return			S9 312RF-1/4	PA 12712	53
			S9 312RF-1/2	PA 16408	55
Pneumatic, by permanent signal			S9 361RF-1/8	PA 10295	49
			S9 361RF-1/4	PA 12713	53
			S9 361RF-1/2	PA 16409	55
Pneumatic, by impulse			S9 361-1/8	PA 10296	49
			S9 361-1/4	PA 12714	53
			S9 361-1/2	PA 16410	55
Pneumatic, by impulse, with biased position			S9 362-1/4	PA 12715	53
			S9 362-1/2	PA 16411	55
Basic valve for panel mounting			S9 390RF-1/8	PA 10307	50
Rotary lever, indexed		22	12T-22	KX 9355	50
		30	12T-30	KX 9314	
Rotary lever, spring return		22	12T-RF-22	KX 9356	51
		30	12T-RF-30	KX 9315	
Pushbutton		22	13T-RF-22	KX 9357	50
		30	13T-RF-30	KX 9316	
Mushroom pushbutton		22	15T-RF-22	KX 9358	51
		30	15T-RF-30	KX 9317	
Locking switch		22	16T-22	KX 9359	51
		30	16T-30	KX 9318	

Actuation System	Symbol	Mounting Ø (mm)	Order Instructions		Page
			Type	Order No.	
Rotary switch		22	17T-22	KX 9360	51
		30	17T-30	KX 9319	
Mushroom pushbutton emergency-Off		22	18T-22	KX 9361	51
		30	18T-30	KX 9320	
Electrical by permanent signal			S9 381RF-1/8-NC-..	PA 10297-..33	49
			S9 381RF-1/4-NC-..	PA 12716-..33	53
			S9 381RF-1/2-NC-..	PA 16412-..33	55
			S9 381RF-1/8-NO-..	PA 10298-..33	49
			S9 381RF-1/4-NO-..	PA 12717-..33	53
			S9 381RF-1/2-NO-..	PA 16413-..33	55
with external pilot air			S9 381S-RF-1/8-..	PA 10300-..33	49
			S9 381S-RF-1/4-..	PA 12719-..33	53
			S9 381S-RF-1/2-..	PA 16415-..33	55
Electrical by impulse			S9 381-1/8-..	PA 10299-..33	49
			S9 381-1/4-..	PA 12718-..33	53
			S9 381-1/2-..	PA 16414-..33	55
Electrical, by impulse, with external pilot air			S9 381S-1/8-..	PA 10301-..33	49
			S9 381S-1/4-..	PA 12720-..33	53
			S9 381S-1/2-..	PA 16417-..33	55
Electrical by impulse, with biased position			S9 382-1/4-..	PA 12721-..33	53
			S9 382-1/2-..	PA 16418-..33	55
	with external pilot air			S9 382S-1/4-..	PA 12722-..33
			S9 382S-1/2-..	PA 16419-..33	55

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 see page 72				

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 – 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 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 381RF-1/8-NC-4633**Order No. PA10297-4633ATEX**