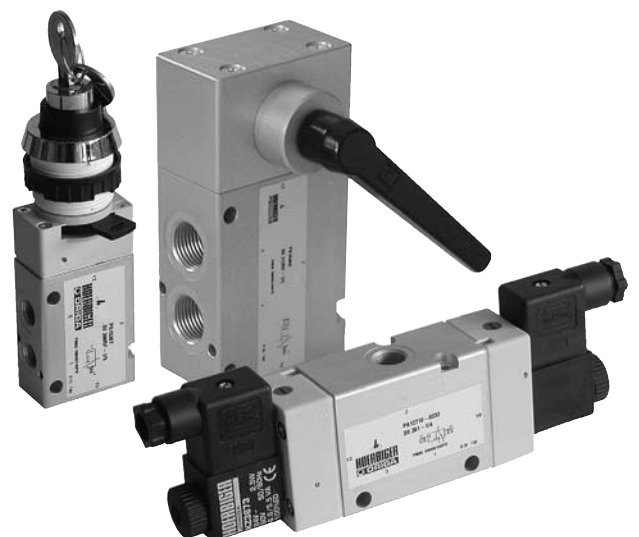


Directional Control Valves

Series
S9-G1/8 to G1/2

Contents

Version	Actuation System	Page		
		Characteristics	Dimension Table	Order Instructions Overview
3/2 Way Valves Series S9-G1/8, G1/4, G1/2	Manual Control pneumatic electric	44-47	48-55	70-72
for panel mounting to DIN 43696 (G1/8)	Manual Control			
5/2 Way Valves Series S9-G1/8, G1/4, G1/2	Manual Control pneumatic electric	44-47	56-63	73-74
for panel mounting to DIN 43696 (G1/8)	Manual Control			
5/3 Way Valves Series S9-G1/8, G1/4, G1/2	Manual Control pneumatic electric	44-47	64-69	75-77
3/2 , 5/2 and 5/3 Way Valve combinations with Logic Elements Series S9-G1/8, G1/4	Pneumatic AND OR TIMER	44-47	78-79	79



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 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					
			G1/8	G1/4	G1/2
– Standard version		VA (W)	8.5	8.5	11.0
– Low wattage version		VA (W)	6.6	6.6	7.8
Continuous consumption					
			G1/8	G1/4	G1/2
– Standard 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 ⁽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					
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, 5/2 and 5/3 Way Valves for use in EX areas

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 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

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, unlubricated compressed air – free from water and dirt to ISO8573-1		
Pneumatic Characteristics					
Nominal pressure	p _{min. / max.}	bar	6		
Operating pressure range	p _{min. / max.}	bar	0–8 (¹⁰)	–	–
– permanent signal version	p _{min. / max.}	bar	–	0–8	2–8
– impulse version	p _{min. / max.}	bar	–	0–8	1.5–8(⁴)
– with external pilot air	p _{min. / max.}	bar	–	–	0–8
Nominal flow	QN	l/min	500 (450 bei 3/2 Way Valve)		
Actuation					
Manual control			Direct		
Stroke		mm	4.5		
Actuation force	F _b	N	7 (²) 10 (³)		
Actuation force for panel mounting actuators			See page 48		
Pneumatic					
Actuation pressure range					
– permanent signal version	p _{min. / max.}	bar	–	2–8	2–8
– impulse version	p _{min. / max.}	bar	–	1.5–8	1.5–8(⁴)
Electrical					
Certification					
Electrical pilot operated					
EC Type Test Certificate for single valve: not required for mechanical units in II 2G					
Category, type of ignition protection					
Single valve II 2G c T4T135°C-10°C≤Ta≤+60°C					
Voltage type					
Alternating current (50/60Hz)					
Nominal voltage	U _N	V	230 ±10%		
	U _N	V	110 ±10%		
	U _N	V	24 ±10%		
Power rating at U _N					
		VA (W)	G1/8, G1/4, G1/2 3.1 (230V)		
		VA (W)	3.0 (110V)		
		VA (W)	2.5 (24V)		
Max. power at U _n (⁶)					
		VA (W)	G1/8, G1/4, G1/2 2.9 (230V)		
		VA (W)	2.8 (110V)		
		VA (W)	2.4 (24V)		
Electrical protection	IP		IP65 (applies only to solenoid with cable)		
Connection			Cable – cable lengths see Order Instructions		

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 *		
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					
6			6		
0-8	-	-	0-8	-	-
-	0-8	2-8	-	0-8	2.2-8
-	0-8	1.5-8 ⁽⁴⁾	-	0-8	1.5-8 ⁽⁴⁾
-	-	0-8	-	-	0-8
1300 ⁽⁷⁾			3500 ⁽⁸⁾		
Direct			Direct		
6.5			9.4		
10 ⁽²⁾			15 ⁽²⁾		
15 ⁽³⁾			40 ⁽³⁾		
-			-		
Direct			Direct		
2-8	2-8	2-8	-	2.2-8 ⁽⁹⁾	2.2-8
1.5-8	1.5-8 ⁽⁴⁾	1.5-8 ⁽⁴⁾	-	1.5-8 ⁽⁵⁾	1.5-8 ⁽⁴⁾
EC Type Test Certificate for solenoid: PTB-No. 03 Ex IEC 2019X and PTB 03 ATEX 2018X toT5					
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					
Direct current					
24 ±10%			Other voltages on request		
G1/8, G1/4, G1/2					
3.3 (24V)					
G1/8, G1/4, G1/2					
3.0 (24V)					

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

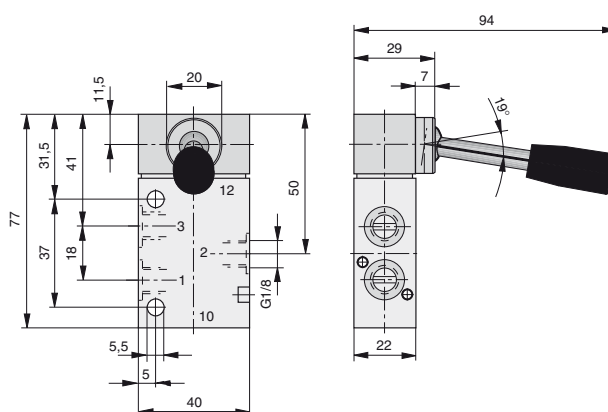
Description	Type	Weight (mass) kg
Hand lever indexed	S9 311-1/8	0.162
- with spring return	S9 311RF-1/8	0.162
Pneumatic, by permanent signal	S9 361RF-1/8	0.137
Pneumatic, by impulse	S9 361-1/8	0.147
Electrical, by permanent signal	S9 381(S)RF-1/8	0.247
Electrical, by impulse	S9 381(S)-1/8	0.382

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

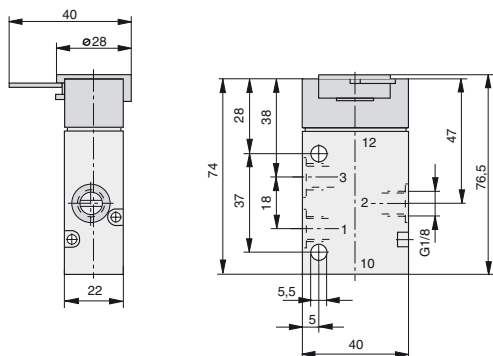


For order instructions see page 70-72, characteristics see page 44-47 and for RPS manifolds see page 93-100, Valve Islands see page 87-92

Dimensions in mm

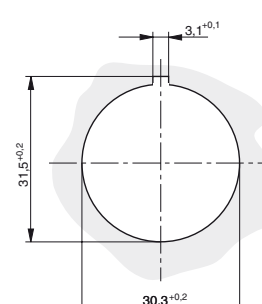
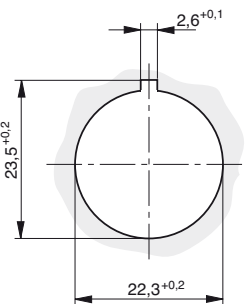
Basic valve for panel mounting actuators – Type: S9 390RF-1/8

Mounting diameter



Mounting diameter $\varnothing 22$ mm

Mounting diameter $\varnothing 30$ 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,

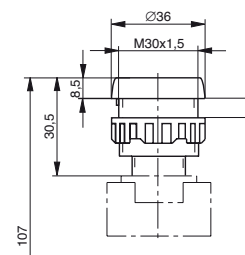
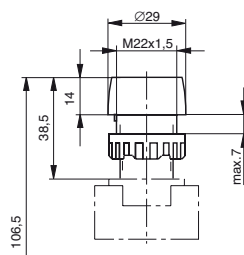
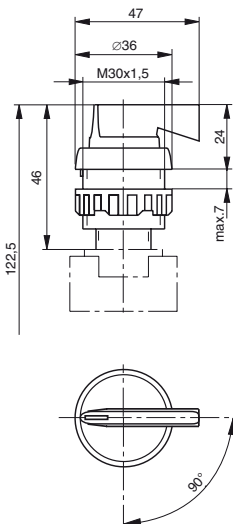
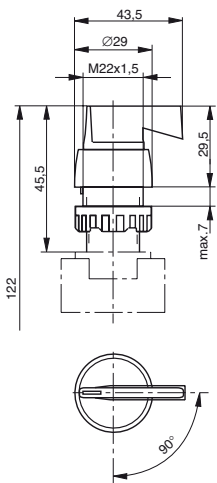
Pushbutton – Type: 13T-RF-22, 13T-RF-30

Mounting diameter $\varnothing 22$ mm

Mounting diameter $\varnothing 30$ mm

Mounting diameter $\varnothing 22$ mm

Mounting diameter $\varnothing 30$ mm

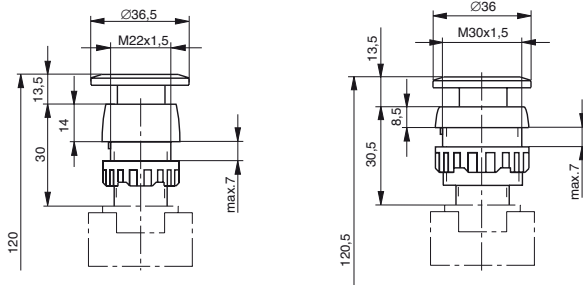


For order instructions see page 70-72, characteristics see page 44-47

Dimensions in mm

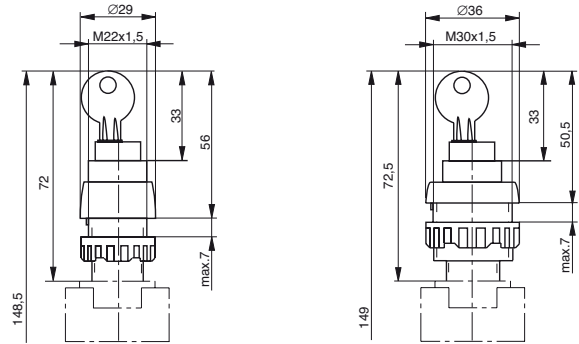
Mushroom pushbutton – Type: 15T-RF-22, 15T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



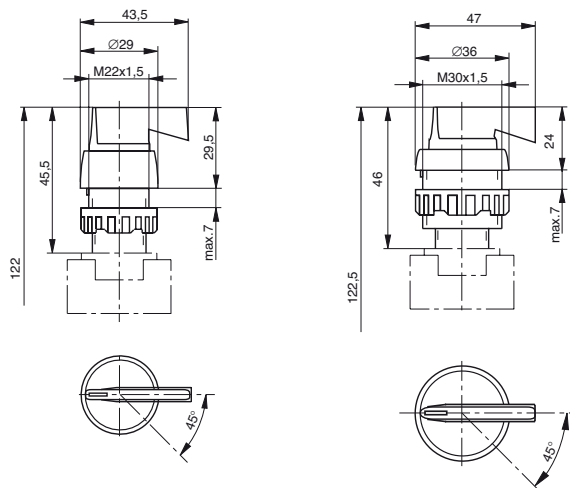
Locking switch – Type: 16T-22, 16T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



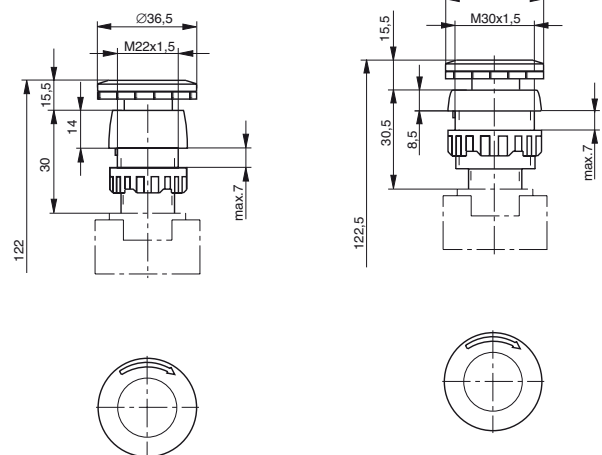
Rotary lever with spring return – Type: 12T-RF-22, 12T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



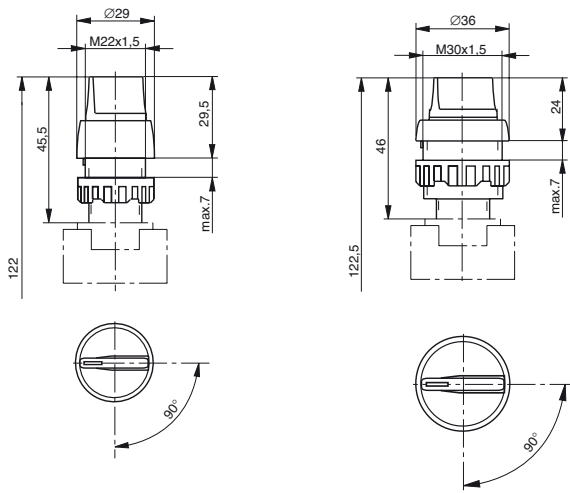
Mushroom pushbutton emergency-Off – Type: 18T-22, 18T-30

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

Actuations:

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

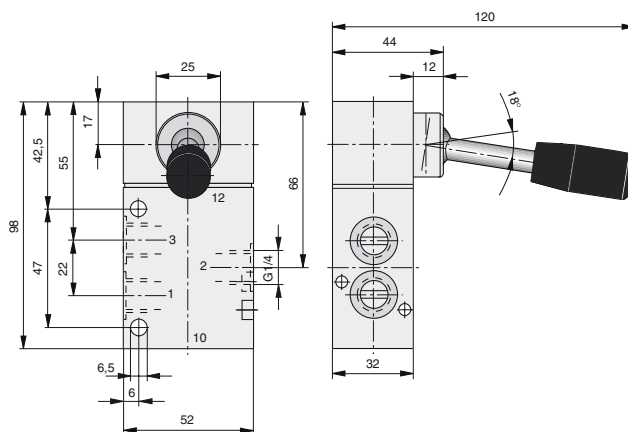
Versions:

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

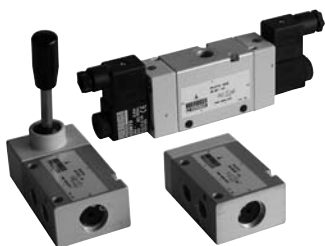
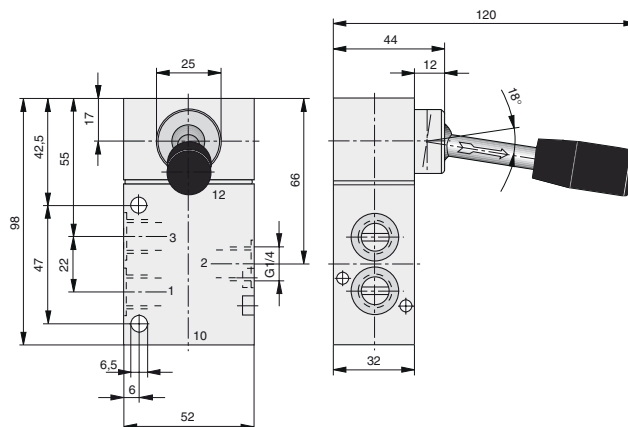
Weight (mass) kg

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



3/2 Way Valves Series S9

G1/2

Actuations:

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

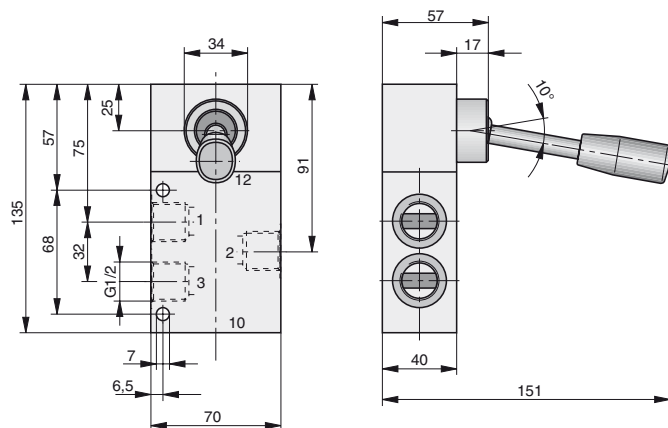
Versions:

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

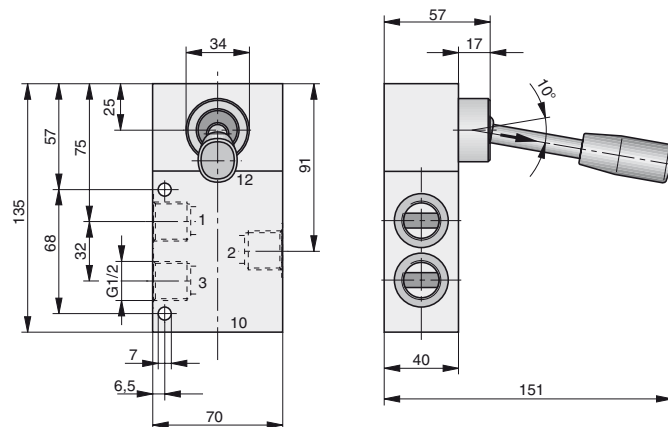
Weight (mass) kg

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

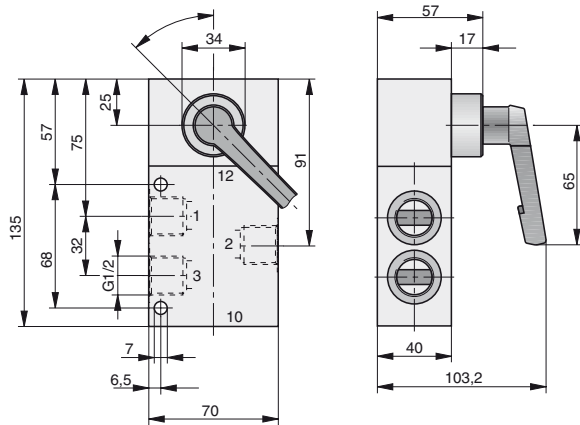
Hand lever actuated – Type: S9 311-1/2, S9 311RF-1/2



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

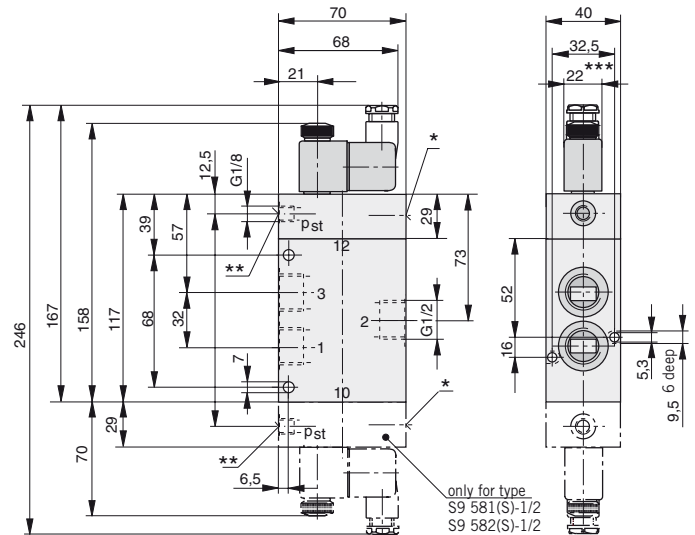


Rotary lever actuated – Type: S9 312-1/2, S9 312RF-1/2

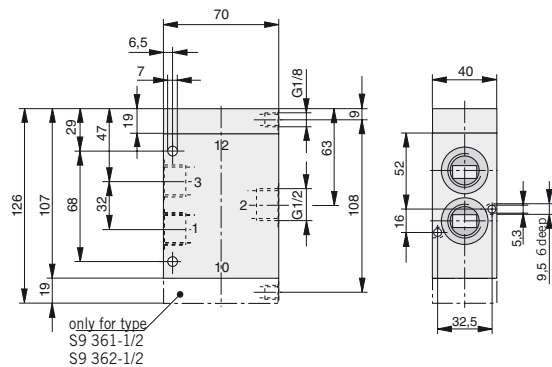


Electrically actuated

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

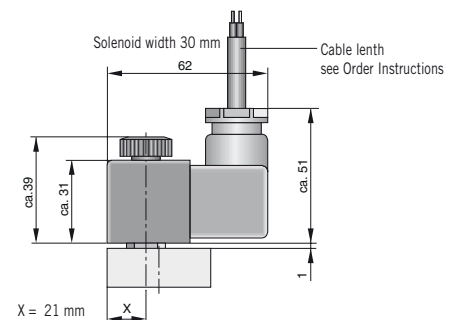


- * Manual override
- ** Operating pressure supply p_{st} only for type S9 381S
- *** Solenoid width = 30 mm on low wattage coil version

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

5/2 Way Valves Series S9

G1/8

Actuations:

- 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

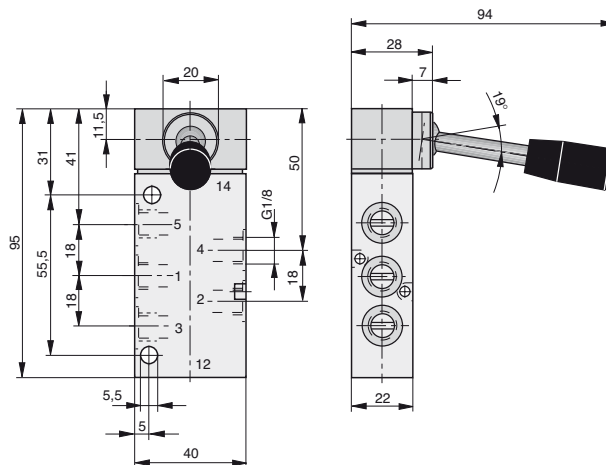
Weight (mass) kg

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

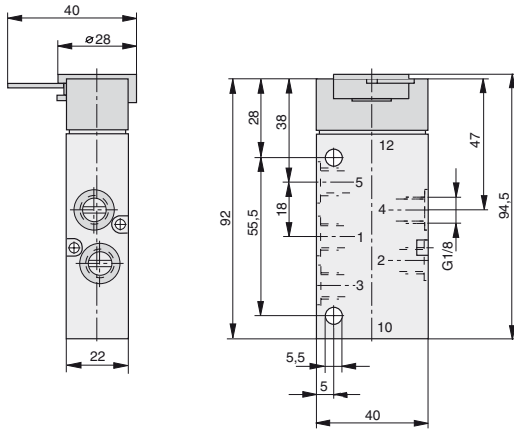
Weight (mass) and actuating forces for valves with panel mounting

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

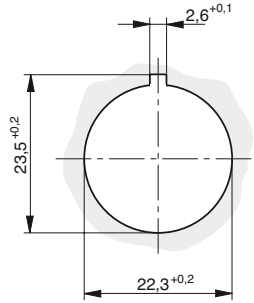


Basic valve for panel mounting actuators – Type: S9 590RF-1/8

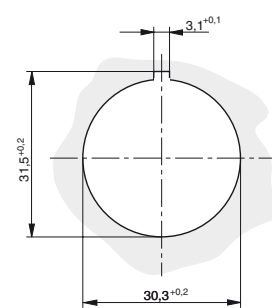


Mounting diameter

Mounting diameter Ø22 mm



Mounting diameter Ø30 mm

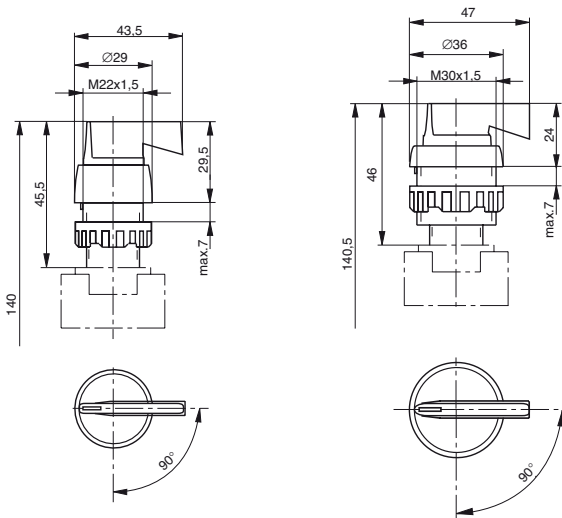


The actuators for these valves are interchangeable and can be mounted with 180° displacement on the basic valve. The actuators are not mounted upon delivery.

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

Mounting diameter Ø22 mm

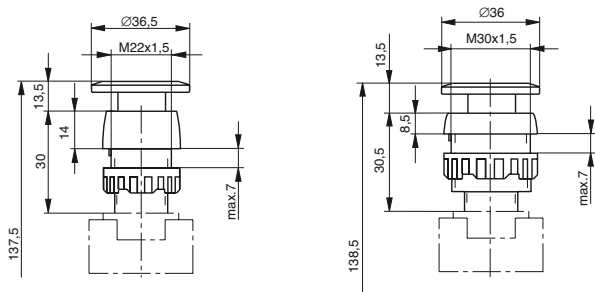
Mounting diameter Ø30 mm



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

Mounting diameter Ø22 mm

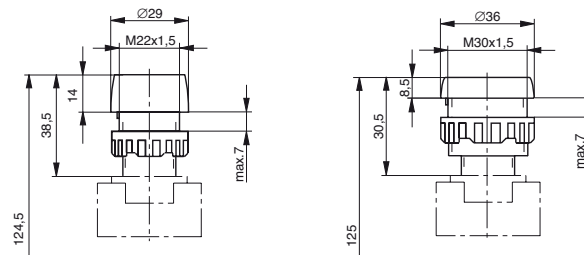
Mounting diameter Ø30 mm



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

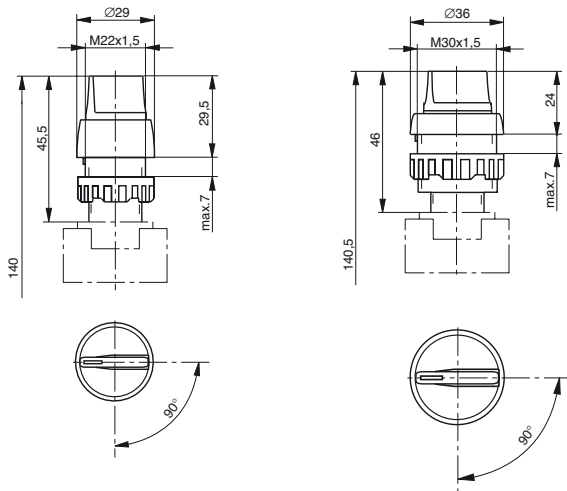
Mounting diameter Ø22 mm

Mounting diameter Ø30 mm



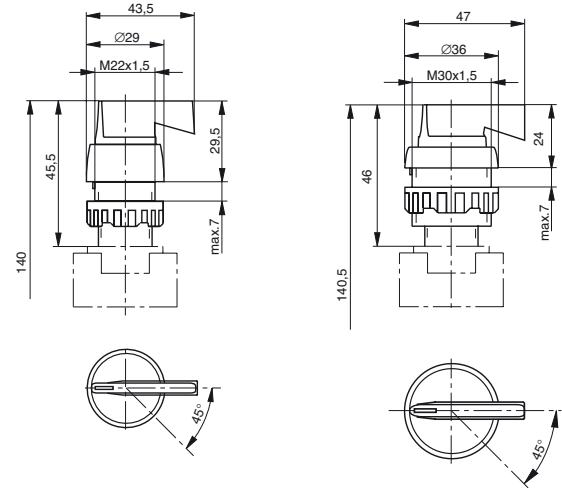
Rotary switch – Type: 17T-22, 17T-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



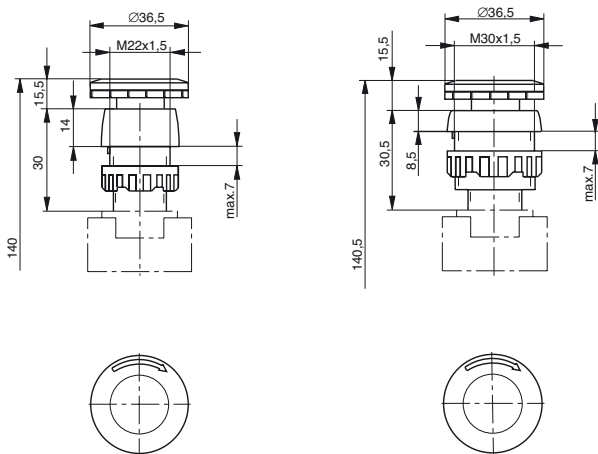
Rotary lever with spring return – Type: 12T-RF-22, 12T-RF-30

Mounting diameter Ø22 mm Mounting diameter Ø30 mm



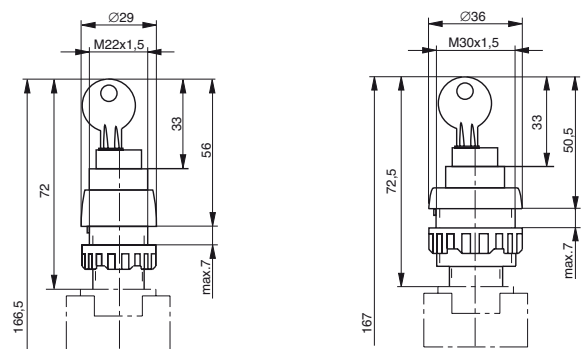
Mushroom pushbutton emergency-Off – Type: 18T-22, 18T-30

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

Actuations:

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

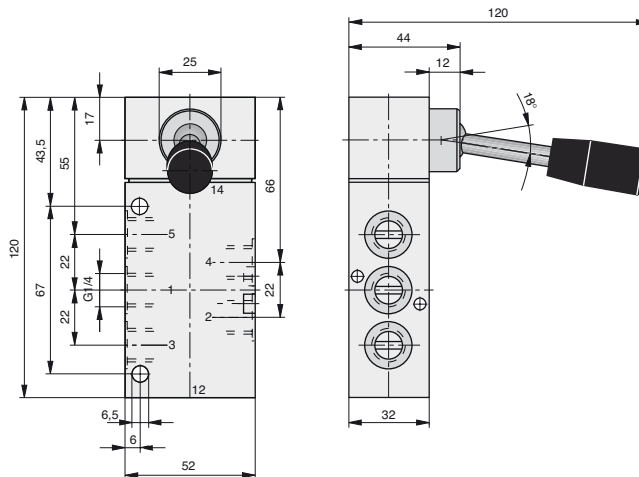
Versions

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

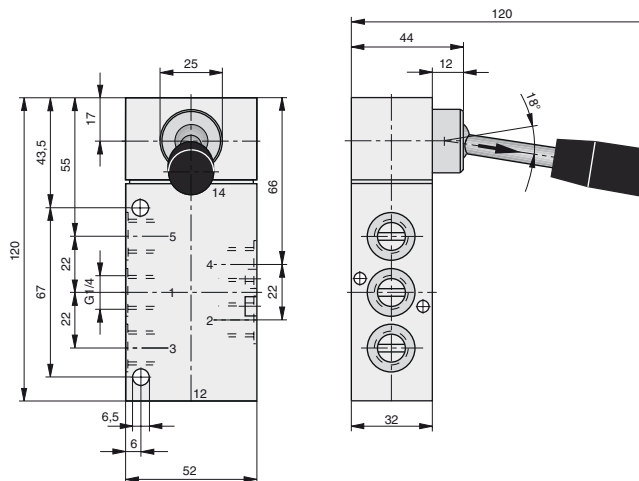
Weight (mass) kg

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

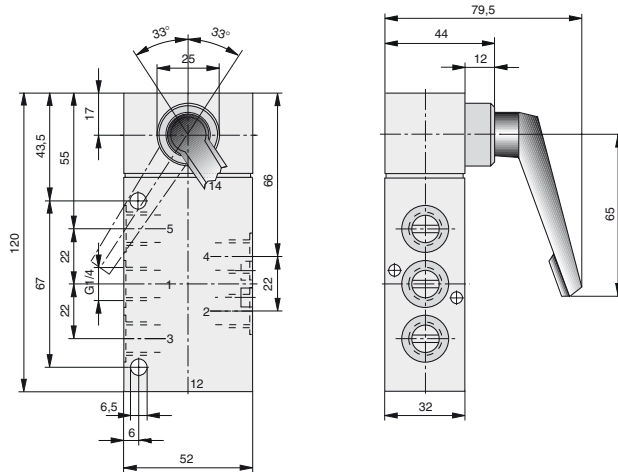
Hand lever actuated – Type: S9 511-1/4, S9 511RF-1/4



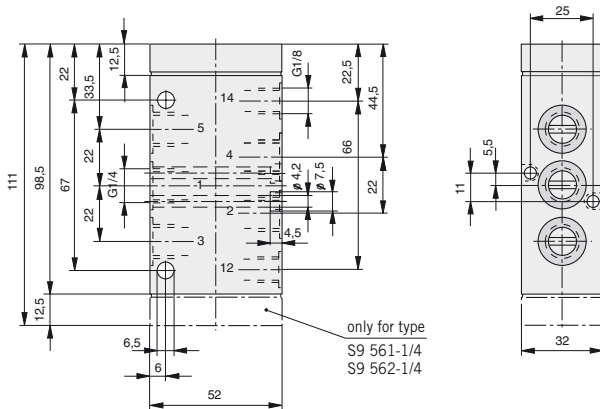
Safety hand lever actuated – Type: S9 511S-1/4



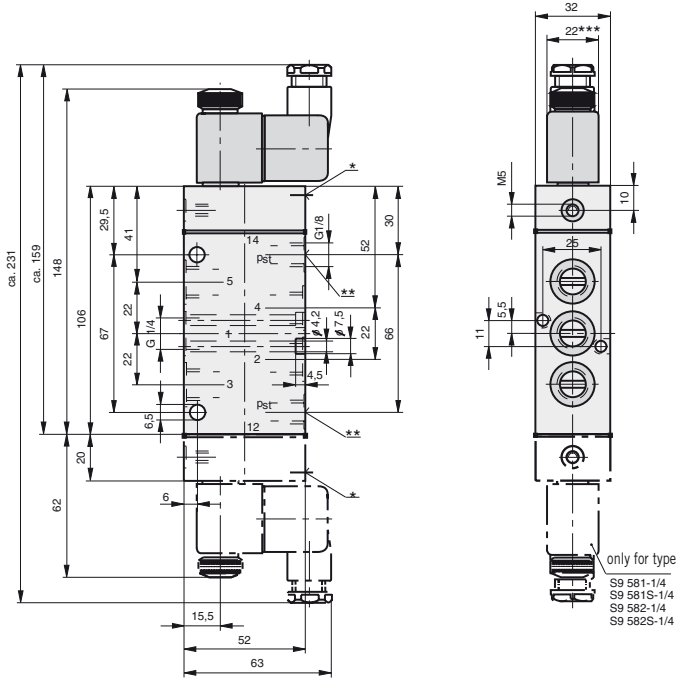
Rotary lever actuated
Type: S9 512-1/4, S9 512RF-1/4



Pneumatically actuated
Type: S9 561-1/4, S9 562-1/4, S9 561RF-1/4

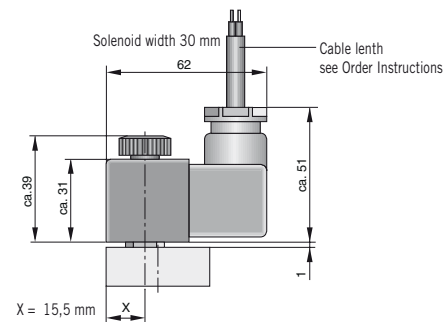


Electrically actuated
Type: S9 581(S)-1/4, S9 582(S)-1/4, S9 581(S)RF-1/4



- * Manual override
- ** Operating pressure supply p_{st} only for type S9 581S
- *** Solenoid width = 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

5/3 Way Valves Series S9

G1/8

Actuations:

- 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

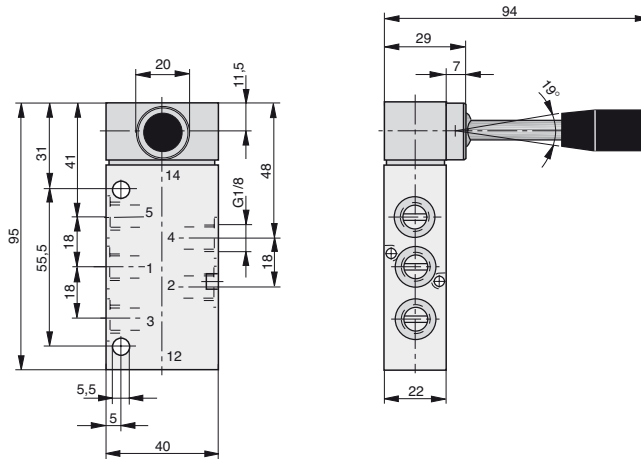
* Type code for middle position functions

G = middle position closed

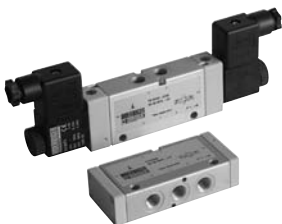
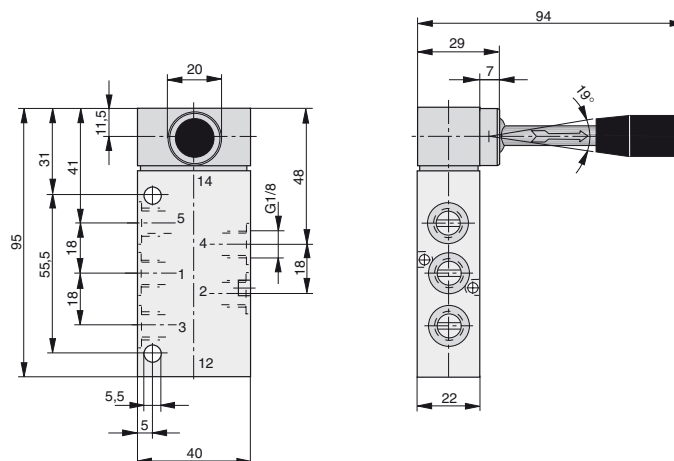
E = middle position exhausted

B = middle position pressurized

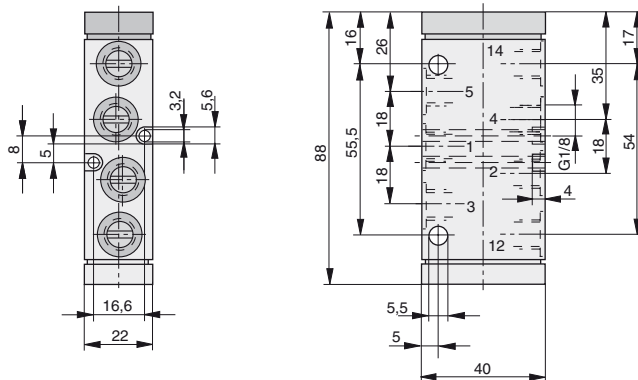
Hand lever actuated – Type: S9 511.-1/8, S9 511RF.-1/8



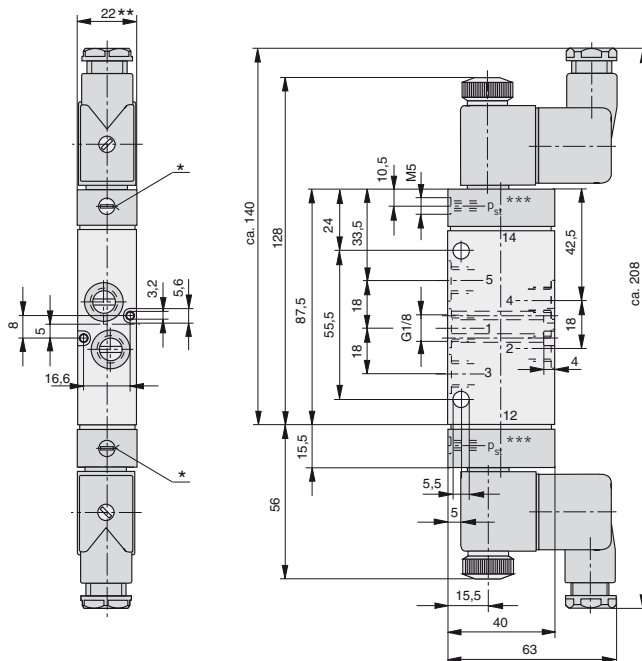
Safety hand lever actuated – Type: S9 511S.-1/8



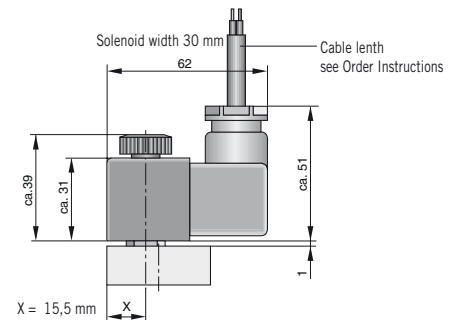
Pneumatically actuated – Type: S9 561RF.-1/8



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

Actuations:

- 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

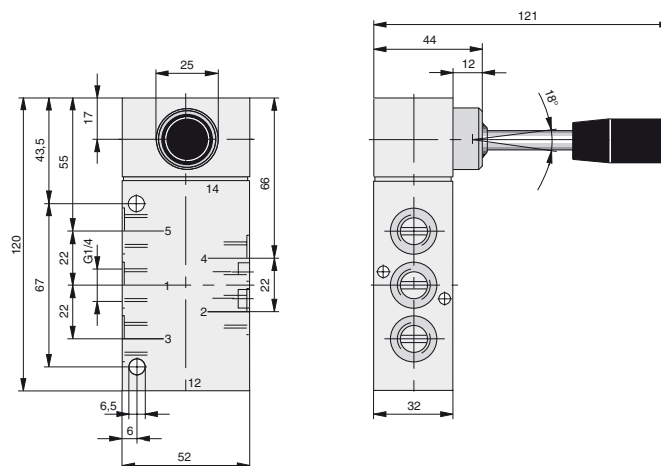
* Type code for middle position functions

G = middle position closed

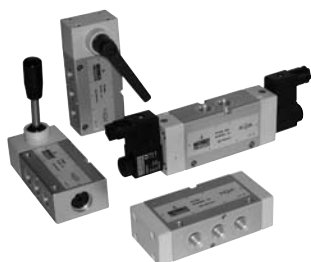
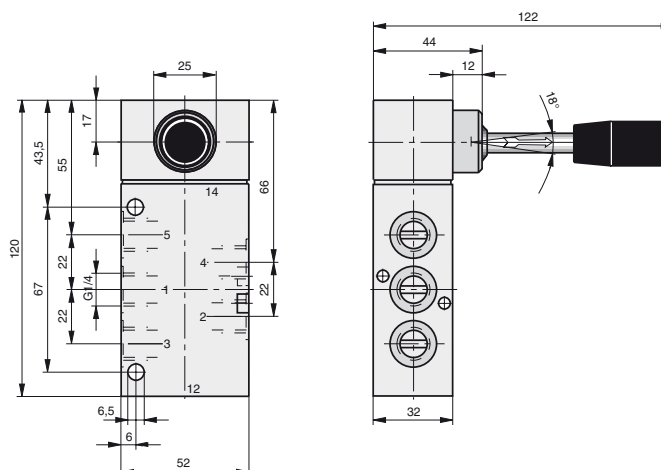
E = middle position exhausted

B = middle position pressurized

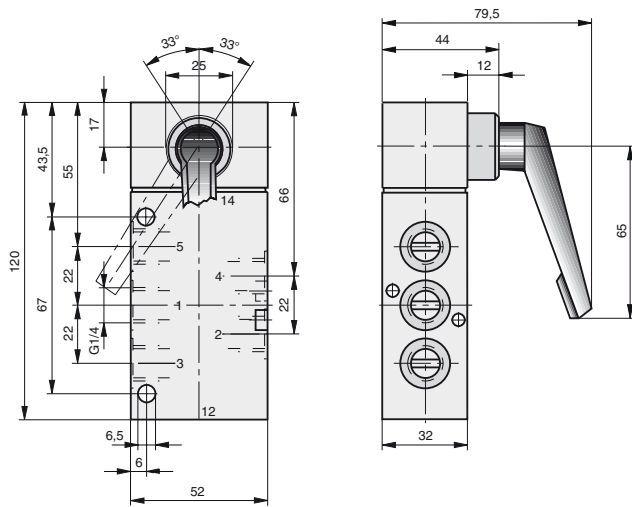
Hand lever actuated – Type: S9 511.-1/4, S9 511RF.-1/4



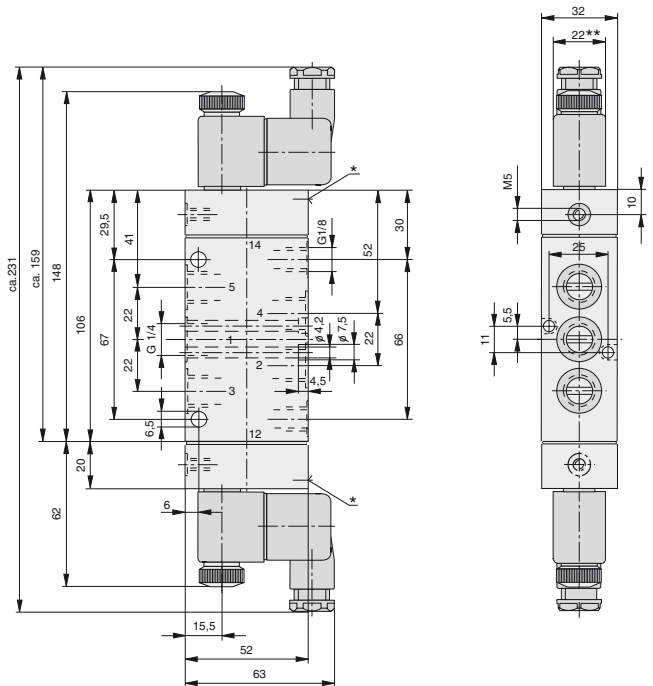
Safety hand lever actuated – Type: S9 511S.-1/4



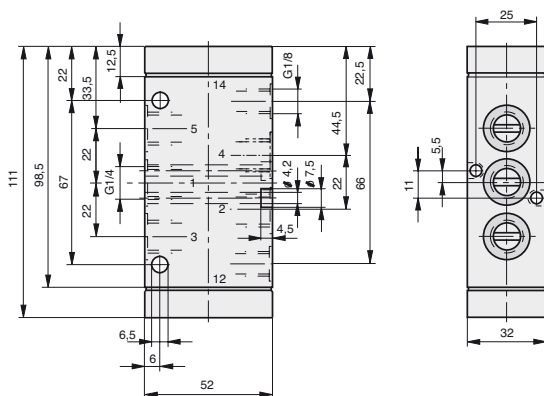
Rotary lever actuated – Type: S9 512.-1/4, S9 512RF.-1/4



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

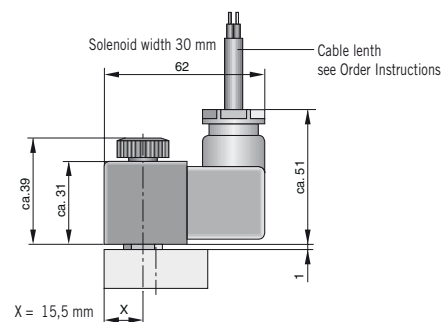


Pneumatically actuated – Type: S9 561RF.-1/4



- * 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

Actuations:

- 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

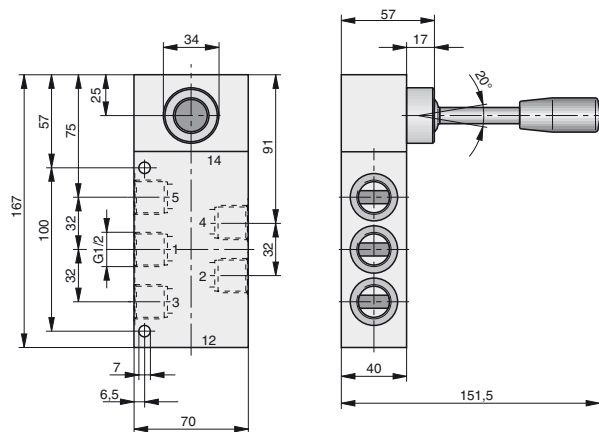
* Type code for middle position functions

G = middle position closed

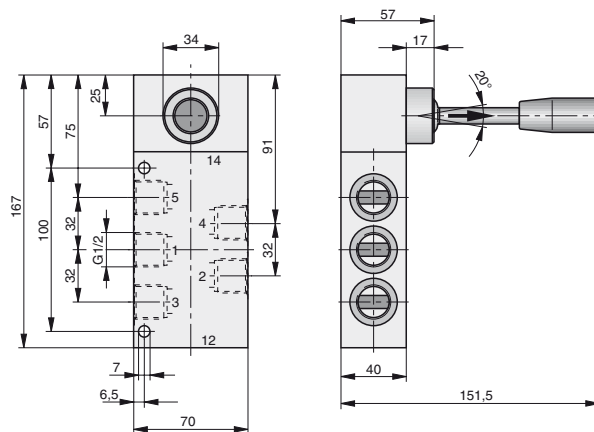
E = middle position exhausted

B = middle position pressurized

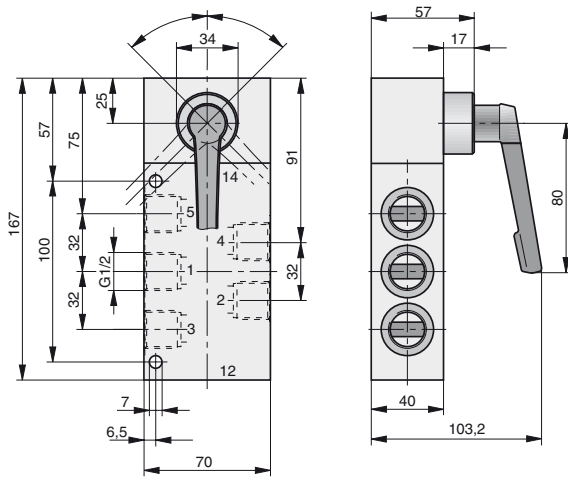
Hand lever actuated – Type: S9 511.-1/2, S9 511RF.-1/2



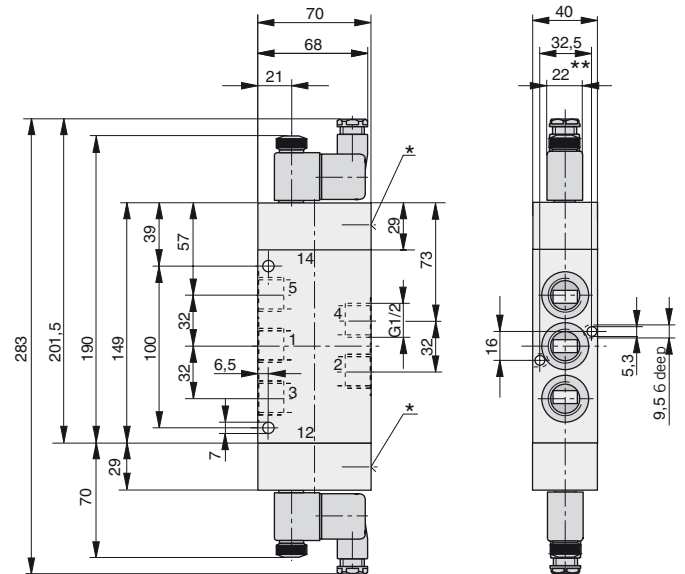
Safety hand lever actuated – Type: S9 511S.-1/2



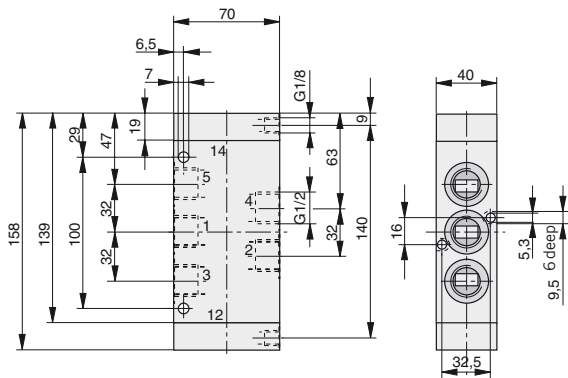
Rotary lever actuated – Type: S9 512.-1/2, S9 512RF.-1/2



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

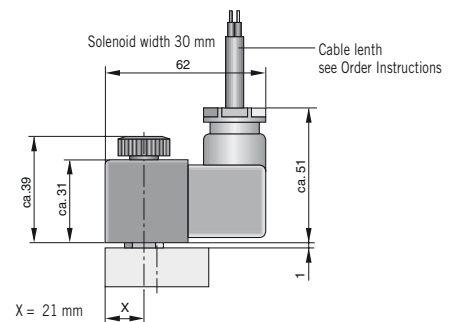


Pneumatically actuated – Type: S9 561RF.-1/2



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

Solenoid for use in EX areas Dimensions

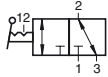
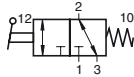
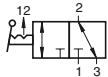
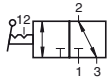
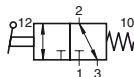
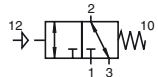
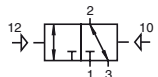
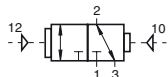
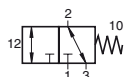









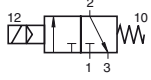
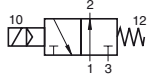
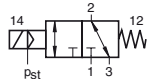
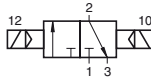
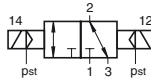
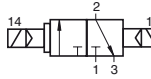
For more information on valves to ATEX standards see page 46, 47, 77

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

Dimensions in mm

3/2 Way Valves – Standard versions

Actuation	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	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	
	with external pilot air			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
Electrical by impulse			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, with external pilot air			S9 381S-1/8-..	PA 10299-..33	49	
			S9 381S-1/4-..	PA 12718-..33	53	
			S9 381S-1/2-..	PA 16414-..33	55	
Electrical by impulse, with biased position			S9 381S-1/8-..	PA 10301-..33	49	
			S9 381S-1/4-..	PA 12720-..33	53	
			S9 381S-1/2-..	PA 16417-..33	55	
with external pilot air			S9 382-1/4-..	PA 12721-..33	53	
			S9 382-1/2-..	PA 16418-..33	55	
			S9 382S-1/4-..	PA 12722-..33	53	
	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	24V =		48	ATEX
- with cable 1.2 m				
- 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:

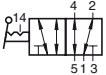


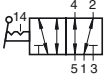










- for valves Series S9-G1/8, S9-G1/4, S9-G1/2

Please add behind the Standard Order No. "ATEX"







Type: S9 381RF-1/8-NC-4633

Order No. PA10297-4633ATEX

Order Instructions – 5/2 Way Valves – Standard versions

Actuation	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	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

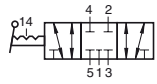
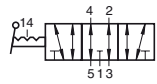
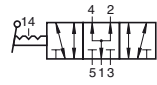
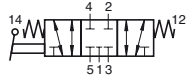
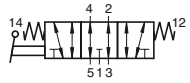
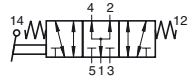
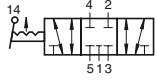
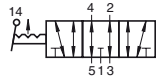
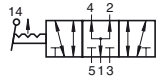
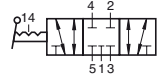
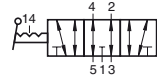
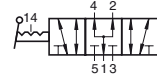
Example for valves in ATEX-Version:

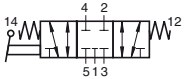
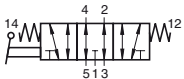
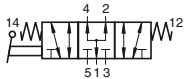
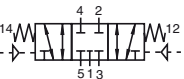
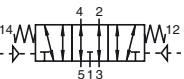
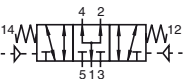
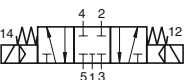
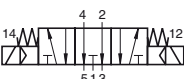
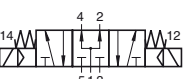
- for valves Series S9-G1/8, S9-G1/4, S9-G1/2
Please add behind the Standard Order No. "ATEX"

Type: S9 581RF-1/8-4633

Order No. PA10312-4633ATEX

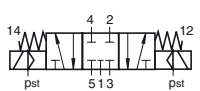
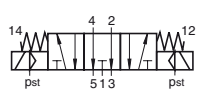
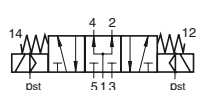
Order Instructions – 5/3 Way Valves – Standard versions

Actuation	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	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	
	spring return to middle position		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	
	spring return to middle position		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	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

3/2, 5/2 and 5/3 Way Valves Series S9

G1/8, G1/4

Actuations:

Pneumatic

- AND
- OR
- TIMER

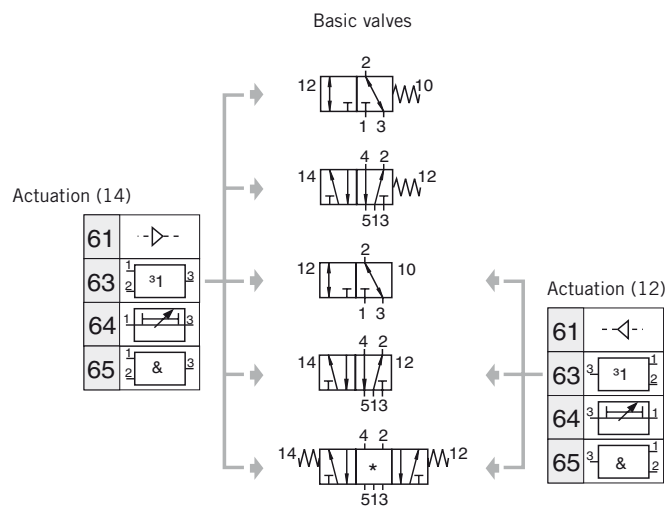
Versions:

- Freely selectable types
- See Order information
- All Timer-Versions on request

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

Possible combinations:



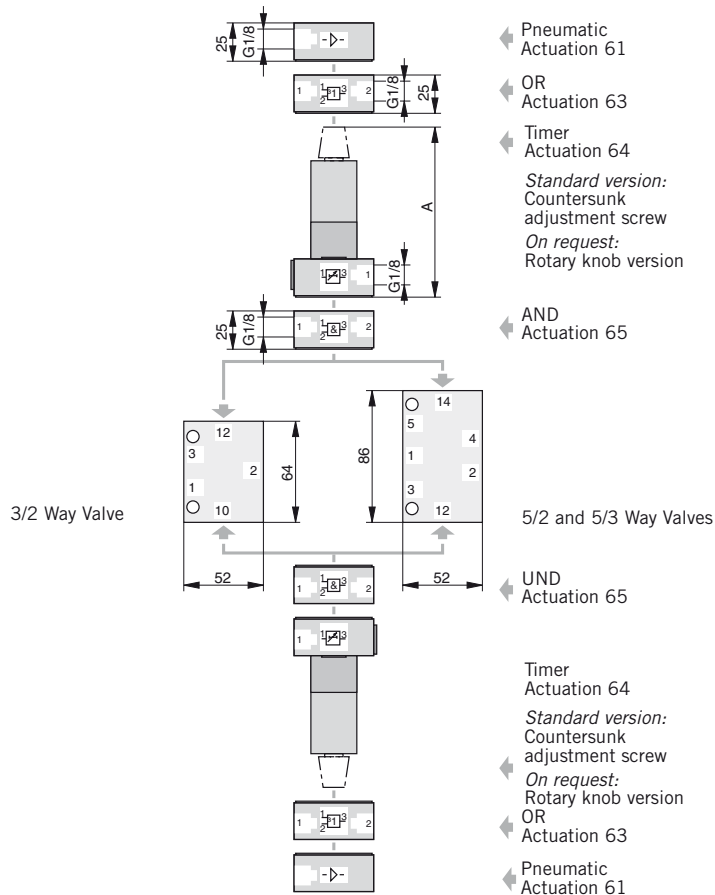
For more information on standard valves see Instructions sheets on page 44-69

- * RFG = middle position closed
- RFE = middle position exhausted
- RFB = middle position pressurized



Dimensions in mm

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



Dimension Table and adjustment ranges

Adjustment range	Dimension A [mm]
0.1 to 15	103 (133*)
0.1 to 30	117 (147*)
0.1 to 60	150 (180*)

* Version with rotary knob (optional)

Dimension Table and adjustment ranges

Adjustment range	Dimension A [mm]
0.1 to 15	103 (133*)
0.1 to 30	117 (147*)
0.1 to 60	150 (180*)

* Version with rotary knob (optional)

Order Instructions



Version	
3	3 Way Valve
5	5 Way Valve

Port size	
1/8	G1/8
1/4	G1/4

Actuation (14)	
61	Pneumatic
63	OR
64	Timer* – all Timer-Versions on request
65	AND

Mid position function (only with 5/3 Way Valves)	
RFG	closed
RFE	vented
RFB	pressurized

* only with connection size G1/4

Actuation (14)	
RF	spring return
61	pneumatic
63	OR
64	Timer* – all Timer-Versions on request
65	AND

* only with Connection size G1/4

Dimensions in mm

