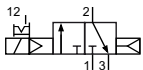


**Technical details**

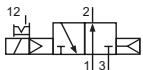
<b>Connection</b>	G1/8
<b>Nominal size</b>	4 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), plastic, seals: NBR, inner parts: Al, steel and plastic
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available. (page 10)



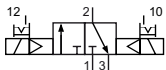
Electrically operated spool valve. The manual override is detent and is operated by screw driver.

**3/2-way-valves**


M-04-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC

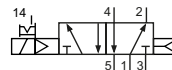


MO-04-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO

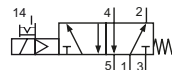


M-04-320-HN-xxx  
3/2-way, double solenoid

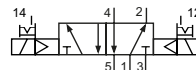
Please complete: xxx = electrical option

**5/2- and 5/3-way-valves**


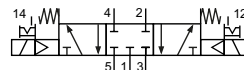
M-04-510-HN-xxx  
5/2-way, single solenoid, air spring return



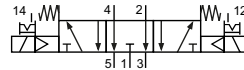
M-04-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



M-04-520-HN-xxx  
5/2-way, double solenoid



M-04-530-HN-xxx  
5/3-way, center position closed



M-04-533-HN-xxx  
5/3-way, center position exhausted

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx	
				Manual override on same side of ports 2 or 2 and 4	1, 3 or 1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-441	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-461	-431
24 V DC	4.2 W		Form B industrial norm	-442	-412
24 V DC	4.2 W		M 12	-042	-012
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-462	-432
24 V DC	2.5 W	max. 8 bar	M 12	-062	-032
24 V AC	7/4 VA		Form B industrial norm	-452	-422
115 V AC	7/4 VA		Form B industrial norm	-456	-426
230 V AC	7/4 VA		Form B industrial norm	-457	-427

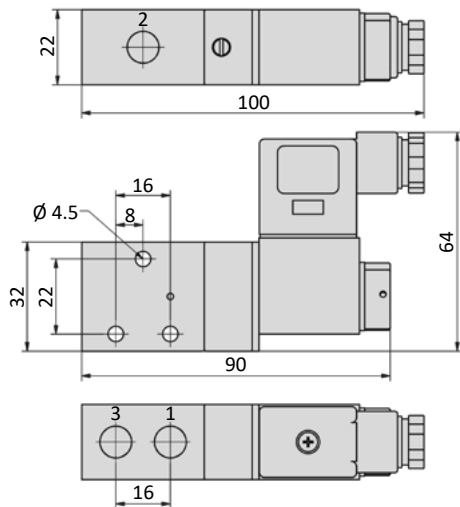
\*1 Plug socket not included, suitable plug sockets see page 5.

## Series M-04

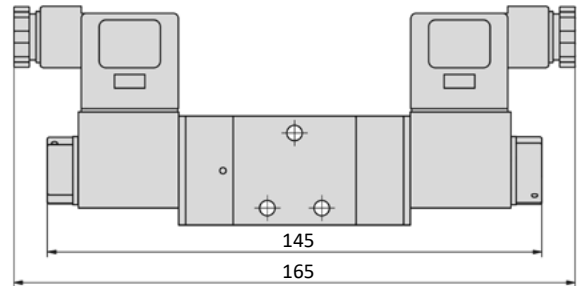
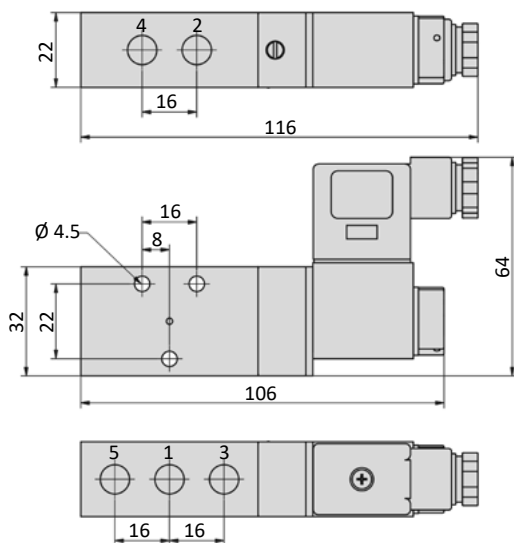
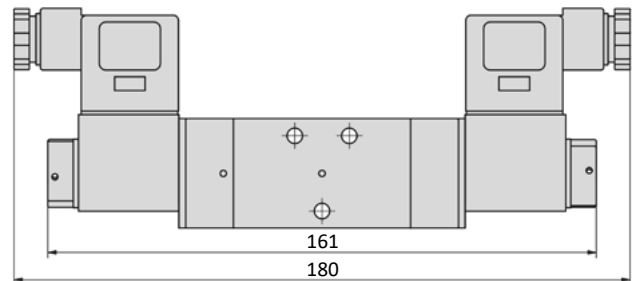
### Technical data

Model-no.:	M-04-310	MO-04-310	M-04-320	M-04-510	M-04-511	M-04-520	M-04-530	M-04-533
Operating pressure* (bar)	2 ... 10	2 ... 10	2.5 ... 10	2,5 ... 10	3 ... 10	2,5 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	2 ... 10	2 ... 10	2.5 ... 10	2,5 ... 10	3 ... 10	2,5 ... 10	3 ... 10	3 ... 10
Flow rate (Nl/min)	360	360	360	360	360	360	360	360
Response time (ms) at 6 bar	on: 13 off: 16	on: 13 off: 16	on: 12 off: 12	on: 12 off: 14	on: 13 off: 16	on: 12 off: 12	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.185	0.185	0.315	0.210	0.220	0.335	0.335	0.335

\* max. 8 bar at 2.2 W and 2.5 W

**Dimensions**
**M-04-310-HN, MO-04-310-HN\***


\*For the NO version MO-04 the ports 1 and 3 are inverted.

**M-04-320-HN**

**M-04-510-HN, M-04-511-HN**

**M-04-520-HN, M-04-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

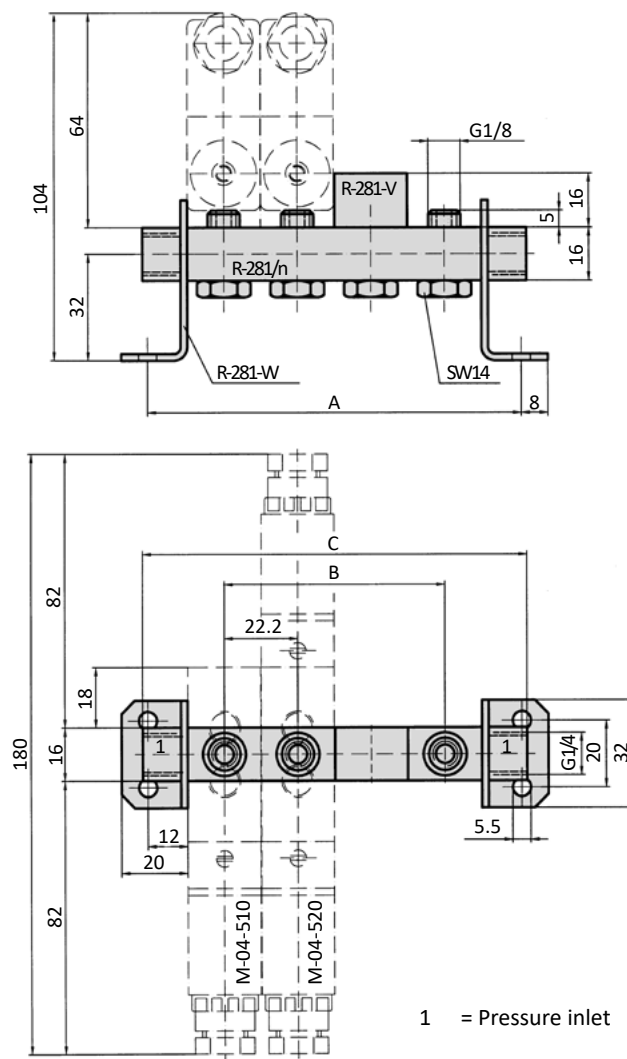
## Series M-04

### General information

The R-281/n manifold is suitable for the M-04 valve series. As well available are blind plates R-281-V for blank stations and mounting brackets R-281-W (pair). Hollow bolts and gaskets are included.



### Dimensions



Model-no.:	A	B	C	Weight(kg)
R-281/2	68.4	22.2	72	0.053
R-281/3	90.6	44.4	94	0.074
R-281/4	112.8	66.6	116	0.095
R-281/5	135	88.8	138	0.116
R-281/6	157.2	111	160	0.137
R-281/8	201.6	155.5	204	0.179
R-281/10	246	199.8	248	0.222

**Form A according to DIN EN 175301-803**

Overall width	27 mm
Contact distance	18 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a profile gasket
For use with series	



Model-no.:	28-ST-03	28-ST-11-112
Voltage (AC/DC)	0 - 250 V	24 V
Status indicator	no	yes
Protective circuit	no	yes (Varistor)
Connecting cable	without	without
Wire cross section	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>
Ø Connecting cable	6 - 8 mm	6 - 8 mm

**Form B according to DIN EN 175301-803**

Overall width	22 mm
Contact distance	10 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	



Model-no.:	28-ST-01-G
Voltage (AC/DC)	0 - 250 V
Status indicator	no
Protective circuit	no
Connecting cable	without
Wire cross section	max. 1.5 mm <sup>2</sup>
Ø Connecting cable	6 - 8 mm

**Form B industrial norm**

Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03



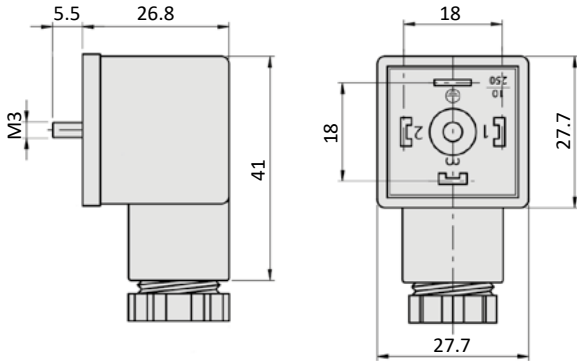
Model-no.:	28-ST-01	28-ST-04-112	28-ST-04-127	28-ST-06-112	28-ST-06-127	28-ST-06-K3-112*	28-ST-06-K3-127*
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V	230 V
Status indicator	no	yes	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m	3 m
Wire cross section	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>	3 x 0.75 mm <sup>2</sup>	3 x 0.75 mm <sup>2</sup>
Ø Connecting cable	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm	6 - 8 mm		

\* These plug sockets are fitted with integrated flat gaskets.

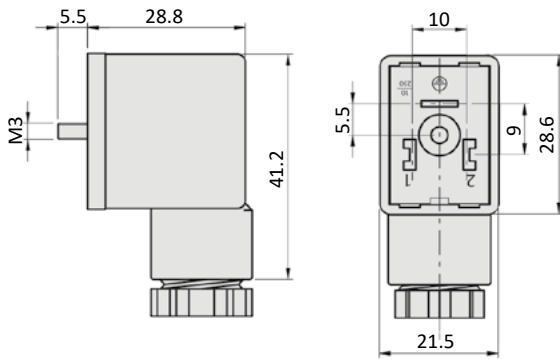
# Plug sockets

## Dimensions

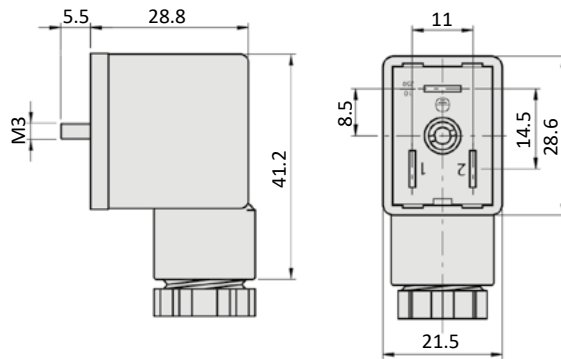
### Form A according to DIN EN 175301-803



### Form B according to DIN EN 175301-803

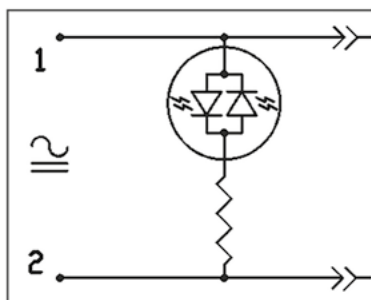


### Form B industrial norm

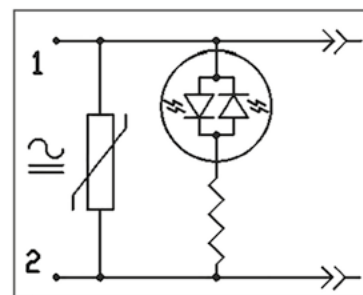


## Electrically circuits

### Status indicator (LED)



### Status indicator (LED) and protective circuit (varistor)



## Form A according to DIN EN 175301-803

Overall width	30 mm
Contact distance	18 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-40°C ... +50°C
Voltage tolerance	± 10 %
For use with series	no standard



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-016-712	23-SP-016-722	23-SP-016-726	23-SP-016-727
Voltage	24 V DC	24 V AC	110/115 V AC	230 V AC/ 110 V DC
Power consumption DC	4.5 W	-	-	5.3 W
Power consumption AC	-	8.0 VA	7.6 VA/ 8.6 VA	7.9 VA
Specifics	enhanced humidity resistance			

## Form B according to DIN EN 175301-803

Overall width	22 mm
Contact distance	10 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-40°C ... +50°C
Voltage tolerance	± 10 %
For use with series	no standard



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-011-G-412	23-SP-011-G-427
Voltage	24 V DC	230 V AC
Power consumption DC	4.2 W	-
Power consumption AC	-	5 VA

## Solenoid coils

### Form B industrial norm

Overall width	22 mm
Contact distance	11 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Voltage tolerance	± 10 %
For use with series	M-04, M-05, M-07, M-22, KM-09, KM-10, MS-18, KN-05, MN-06, MI-01, MI-02, MI-03



Model-no.:	23-SP-011-411	23-SP-011-412	23-SP-011-422	23-SP-011-426	23-SP-011-427	23-SP-012-431	23-SP-012-432
Voltage	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC	12 V DC	24 V DC
Power consumption DC	4.2 W	4.2 W	-	-	-	2.2 W	2.2 W
Power consumption AC	-	-	5 VA	5 VA	5 VA	-	-
Temperature range*	-40°C...+50°C	-40°C...+50°C	-40°C...+50°C	-40°C...+50°C	-40°C...+50°C	-40°C...+50°C	-40°C...+50°C

Model-no.:	23-SP-011-1-711	23-SP-011-1-712	23-SP-011-1-725	23-SP-011-1-727	23-SP-012-1-732
Voltage	12 V DC	24 V DC	110/115 V AC	230 V AC	24 V DC
Power consumption DC	4.2 W	4.2 W	-	-	3 W
Power consumption AC	-	-	6.0 VA/ 7.6 VA	7.9 VA	-
Temperature range*	-50°C...+80°C	-50°C...+80°C	-20°C...+50°C	-20°C...+50°C	-50°C...+80°C
Specifics	enhanced humidity resistance				

\* The max. applicable operating temperature depends on the temperature specification of the used valve.

### M12 connection

Overall width	22 mm
Contact distance	-
Contacts	2P
Protection	IP 65 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-20°C ... +50°C
Voltage tolerance	± 10 %
For use with series	



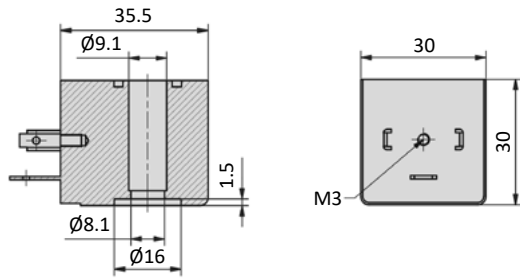
\* The max. applicable operating temperature, depends on the temperature specification of the used valve.

Model-no.:	23-SP-011-5-012	23-SP-012-5-032
Voltage	24 V DC	24 V DC
Power consumption DC	4.8 W	2.5 W
Power consumption AC	-	-
Specifics	Mounting on manifold not allowed. With integrated LED and protective circuit.	Min. mounting distance for manifold mounting is 20 mm. With integrated LED and protective circuit.

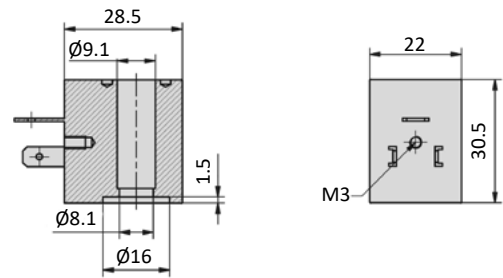


## Dimensions

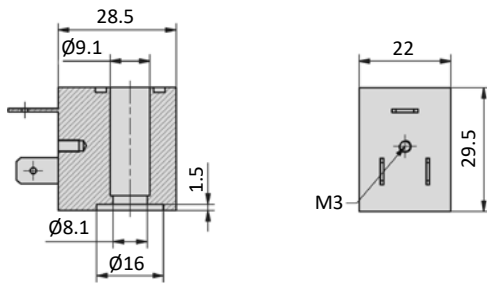
### Form A according to DIN EN 175301-803



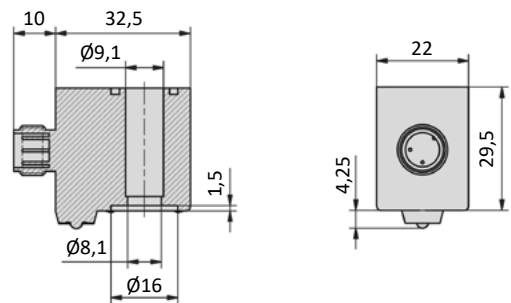
### Form B according to DIN EN 175301-803



### Form B industrial norm



### M12 connection





## Series M-04

### Device marking

Electrically operated valves are marked as follows:

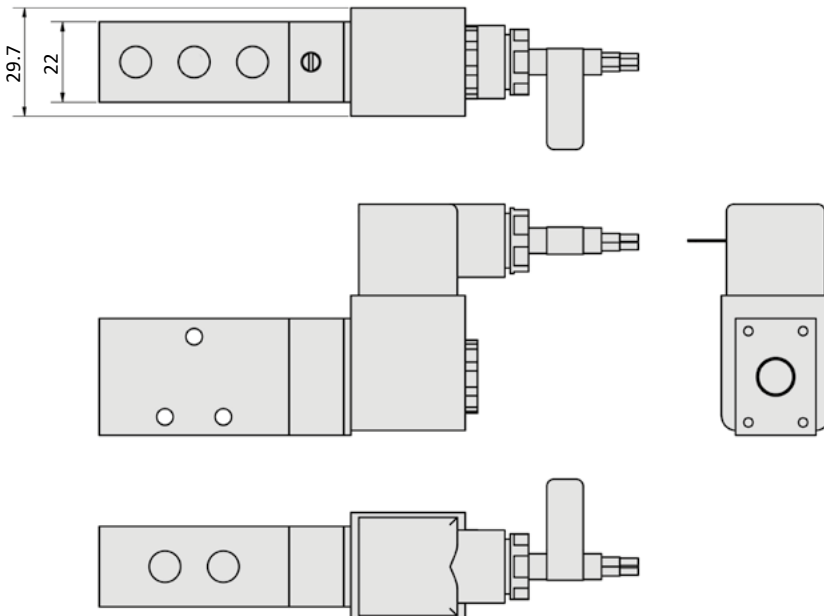
II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

Marking according to DIN EN ISO 80079-36/ -37.



Electrically operated valves conform to equipment category 2 can be used in Zone 1 respectively in Zone 21. For the use in hazardous areas the category group of the used coil has to be taken into account. The specification of the whole equipment corresponds always to the lowest category of the single components.

### Divergent dimensions



The use of special electrical equipment and operators requires in certain cases a design change of the valve. All changes are shown on the following pages.



The operating instructions for the valve and the electrical equipment must be taken into account before putting into operation. These are included with each valve and are available at [www.airtec.de](http://www.airtec.de).

**Electrical options**

ATEX-category	Voltage	Power consumption	Ignition protection	Solenoid coil	-XXX Manual override on same side of ports	
					2 or 2 and 4	1. 3 or 1. 3 and 5
3GD	24 V DC	2.7 W	Non-sparking device	23-SP-040-B12	-B42	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-040-B27	-B57	-B27
2GD	12 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-011-xx*	-041-xx*	-011-xx*
2GD	24 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-012-xx*	-042-xx*	-012-xx*
2GD	110...120 V AC	3 VA	Encapsulated with casting compound	23-SP-037-025-xx*	-055-xx*	-025-xx*
2GD	230 V AC	3.1 VA	Encapsulated with casting compound	23-SP-037-027-xx*	-057-xx*	-027-xx*
2GD	U ≤ 28 V DC / U ≤ 32 V DC	I ≤ 115 mA / I ≤ 195 mA	Intrinsically safe	23-SP-038-01-912	-942	-912

\* xx = length of connecting cable: 03 = 3 m. 05 = 5 m. 10 = 10 m (available length see page 12)



## Series M-04

## Solenoid coils

## 23-SP-037

<b>Ignition protection class</b>	Encapsulated with casting compound mb (gases) mb tb (dust)
<b>Classification</b>	II 2G Ex mb IIC T5 II 2D Ex mb tb IIIC T95°C IP65
<b>Overall width</b>	30 mm
<b>Temperature range*</b>	-20°C...+50°C (battery fitted -20°C...+40°C)
<b>Temperature range medium</b>	-10°C...+50°C (battery fitted -10°C...+40°C)

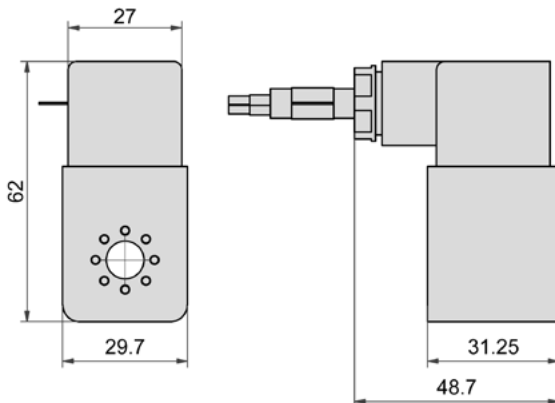


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

Model-no.:	23-SP-037-011-xx	23-SP-037-012-xx	23-SP-037-025-03	23-SP-037-027-xx
<b>Voltage</b>	12 V DC	24 V DC	110...120 V AC	230 V AC
<b>Power consumption</b>	3,3 W	3,3 W	3 VA	3,1 VA
<b>Rated current</b>	275 mA	136 mA	27 mA	14 mA
<b>Connecting cable (xx)</b>	03 = 3 m	03 = 3 m, 05 = 5 m, 10 = 10 m	03 = 3 m	03 = 3 m, 05 = 5 m

## Dimensions

## 23-SP-037



## Solenoid coils

## 23-SP-038

<b>Ignition protection class</b>	Intrinsically safe ia (gases) t (dust)
<b>Classification</b>	II 2G Ex ia IIC T6 Ga ( $\leq 28$ V DC) II 2G Ex ia IIB T6 Ga ( $\leq 32$ V DC) II 2D Ex t IIIC T80°C Db IP65
<b>Overall width</b>	30 mm
<b>Temperature range*</b>	-40°C...+50°C
<b>Temperature range medium</b>	-10°C...+50°C (battery fitted -10°C...+40°C)



\* The max. applicable operating temperature depends on the temperature specification of the used valve.

<b>Model-no.:</b>	23-SP-038-01-912
<b>Voltage</b>	$U \leq 28$ V DC / $U \leq 32$ V DC
<b>Rated current</b>	$I \leq 115$ mA / $I \leq 195$ mA
<b>Rated current</b>	375 mA
<b>Connection</b>	plug (part of delivery)

## 23-SP-040

<b>Ignition protection class</b>	Non-sparking device na (gases) tc (dust)
<b>Classification</b>	II 3G Ex nA IIC T6 Gc II 3D Ex tc IIIC T95°C Dc IP65
<b>Overall width</b>	30 mm
<b>Temperature range*</b>	-20°C...+50°C
<b>Temperature range medium</b>	-10°C...+50°C (battery fitted not allowed)

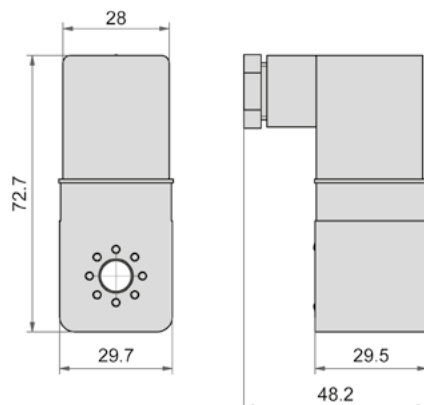


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

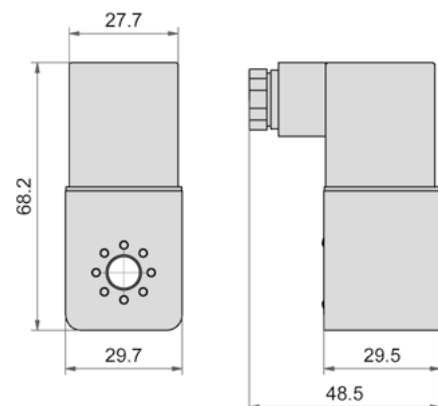
<b>Model-no.:</b>	23-SP-040-B12	23-SP-040-B27
<b>Voltage</b>	24 V DC	230 V AC
<b>Power consumption</b>	2.7 W	4 VA
<b>Rated current</b>	112 mA	15...18 mA
<b>Connection</b>	plug (part of delivery)	plug (part of delivery)

## Dimensions

## 23-SP-038



## 23-SP-040



## Voltage code

- HN * - * * *				
Manual override	Coil and plug options	Coil type	Manual override position on side of	Voltage
HN detent	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication ports 1/3/(5)	0 without indication
HNR detent	1 with coil and plug	according to valve	1 DC ports 1/3/(5)	1 12 V
HNT non-detent	2		2 AC ports 1/3/(5)	2 24 V
	3 with coil, power consumption different from standard, without plug	shape according valve series	3 DC, low power consumption ports 1/3/(5)	3 42 V
	4 with coil, without plug	according to valve	4 DC ports 2/(4)	4 48 V
	5 without coil	no	5 AC ports 2/(4)	5 110 V
	6 without pilot valve	no	6 DC, low power consumption ports 2/(4)	6 115 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	7 without indication ports 2/(4)	7 230 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve		8 240 V
	9 ATEX 2GD, intrinsically safe, with plug width 30 mm	23-SP-038		9
	A ATEX 3GD, without plug, width 30 mm	23-SP-040		A 4 V
	B ATEX 3GD, with plug, width 30 mm	23-SP-040		B 6 V
	C ATEX 3GD, without plug, width 22 mm	23-SP-041		C 8 V
	D			D 61 V
	E			E 36 V
	F with coil, with enhanced humidity resistance, without plug, low temperature version	23-SP-011-1-711 23-SP-011-1-712		F 9 V
	G			
	H with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G		
	I with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G		
	J with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016		
	K with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016		
	L with coil, with plug with LED and protective circuit	according to valve		
	M with coil, with plug with LED, without protective circuit	according to valve		
	N with coil with M12 connection	according to valve		
	O with coil with M12 connection with LED and protective circuit	according to valve		
	P without connector bridge, without plug			
	Q with coil with with cable	according to valve		
	R with cable up to 1 m length	according to valve		
	S with connector bridge, without plug			
	T			
	U ATEX 2GD, without coil (for coil 23-SP-036)	no		
	V ATEX 2GD, Flame proof enclosures and encapsulated with casting compound	23-SP-045		
	W ATEX 2GD / 3GD, without coil (for coil 23-SP-041 and 23-SP-045)	no		
	X ATEX 3GD, without coil (for coil 23-SP-040 in 230V AC and 115V AC)	no		
	Y ATEX 2GD, without coil (for coil 23-SP-038)	no		
	Z ATEX 2GD / 3GD, without coil (for coil 23-SP-040 in 24V DC and 23-SP-037)	no		

Not all options are suitable for all valve series