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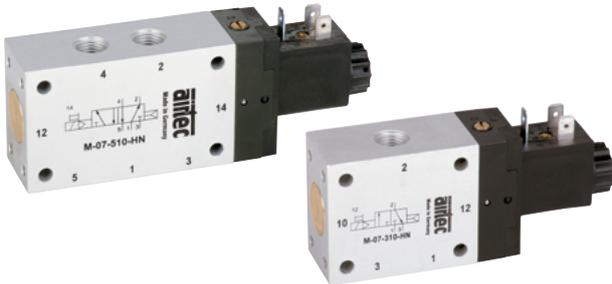
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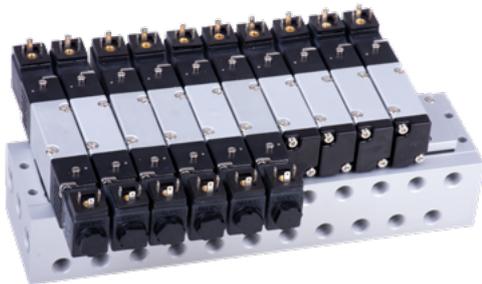
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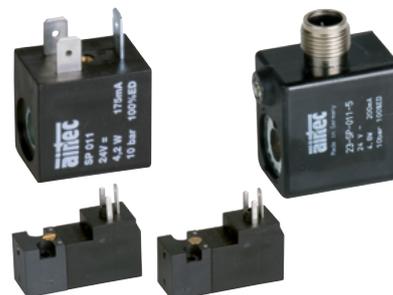
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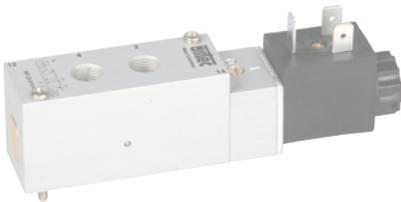
Series MF-04

[www.airtec.de](http://www.airtec.de)



Series MF-05/ MF-25

[www.airtec.de](http://www.airtec.de)



Series MF-07

[www.airtec.de](http://www.airtec.de)



Series MC-07

[www.airtec.de](http://www.airtec.de)

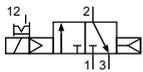


**Technical details**

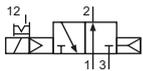
<b>Connection</b>	G1/8
<b>Nominal Size</b>	4 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)



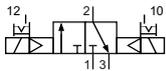
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

**3/2-way-valves**


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

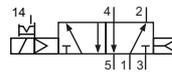


MO-04-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO

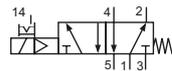


M-04-320-HN-xxx  
3/2-way, double solenoid

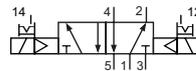
Please complete: xxx = electrical option

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


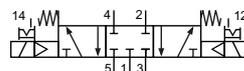
M-04-510-HN-xxx  
5/2-way, single solenoid, air spring return



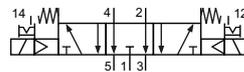
M-04-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



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	4.8 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	5 VA		Form B industrial norm	-452	-422
115 V AC	5 VA		Form B industrial norm	-456	-426
230 V AC	5 VA		Form B industrial norm	-457	-427

\*1 Plug socket not included, suitable plug sockets see page 4-99

## 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

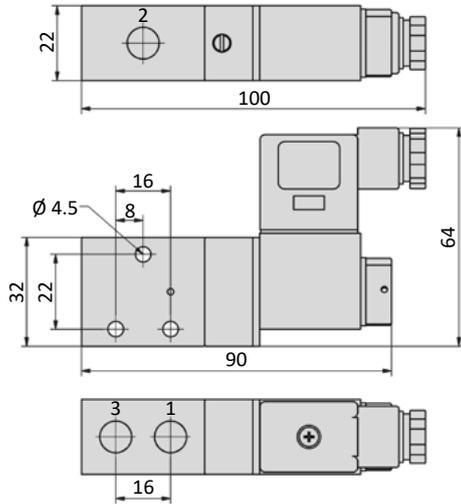
### Accessories



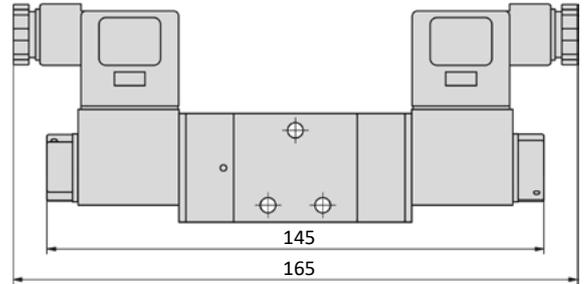
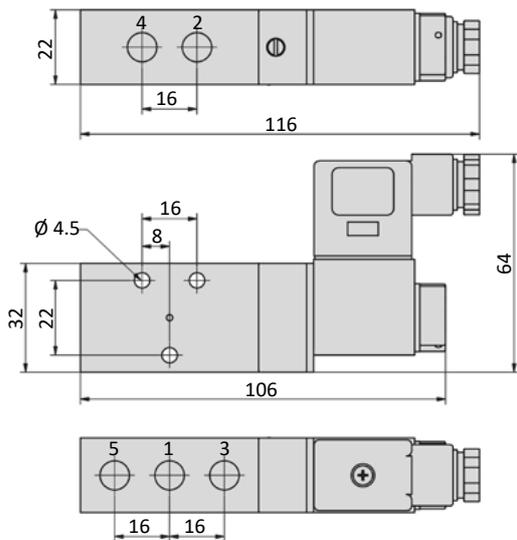
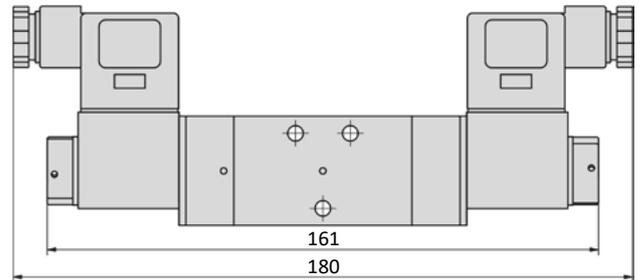
Plug sockets: see page 4-99



Manifolds: see page 4-10

**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

### Device marking

Electrically operated valves are marked as follows:

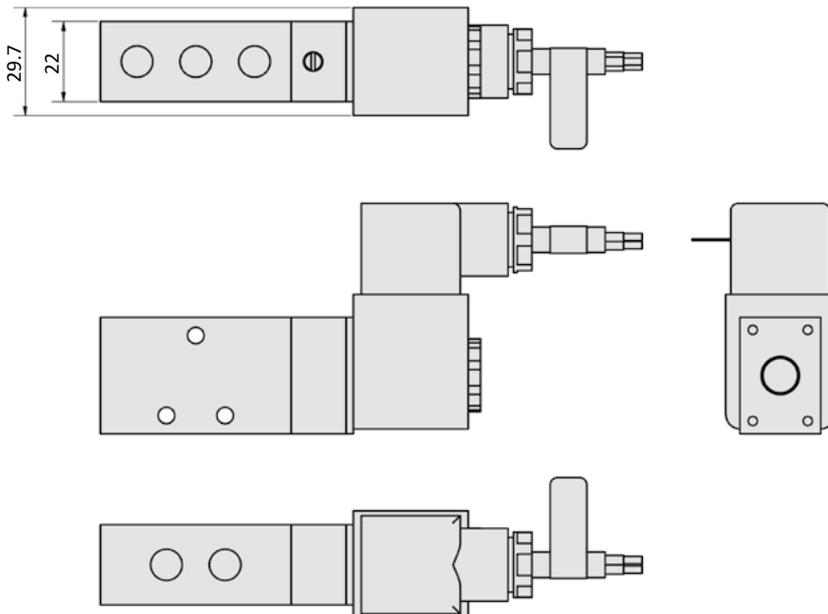
 II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

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 valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.



Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products 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-043-A12	-B42	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B57	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V42	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V57	-V27
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

# For details on the ATEX solenoid coils, see chapter 12.

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

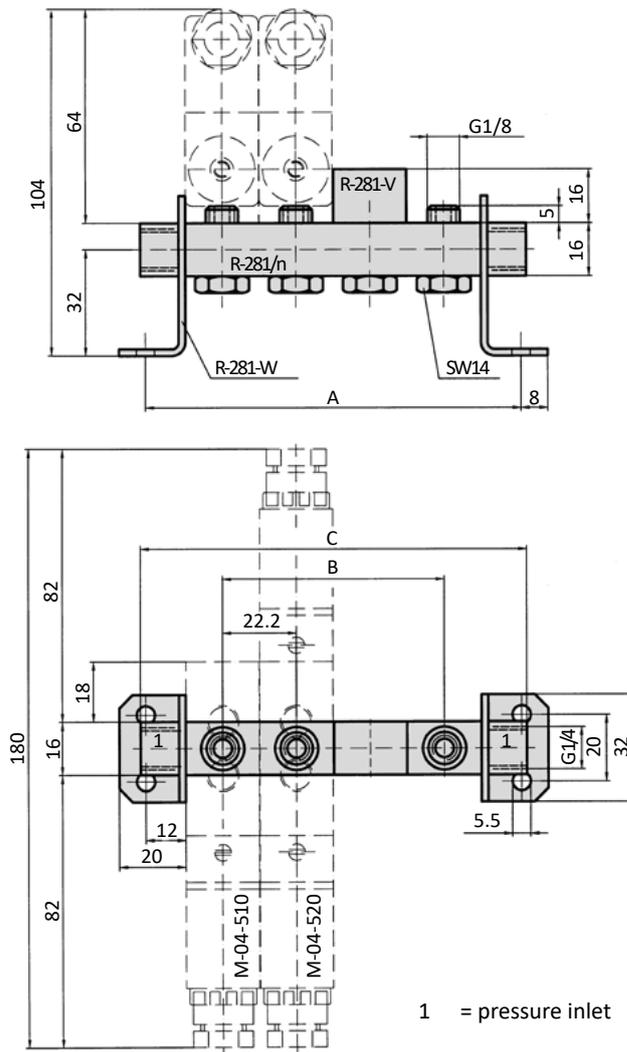
## Series M-04

### 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



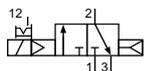
Model-no.:	A	B	C	Weight (kg)
R-281/2	68.4	22.2	72	0.053
R-281/3	90.6	44.4	94	0.074
R-281/4	112.8	66.6	116	0.095
R-281/5	135	88.8	138	0.116
R-281/6	157.2	111	160	0.137
R-281/8	201.6	155.5	204	0.179
R-281/10	246	199.8	248	0.222

**Technical details**

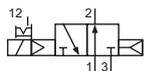
<b>Connection</b>	G1/8
<b>Nominal Size</b>	6 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)



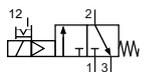
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

**3/2-way-valves**


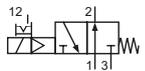
M-05-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC



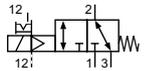
MO-05-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO



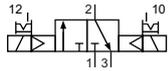
M-05-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



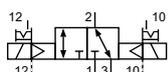
MO-05-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



ME-05-311-HN-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return

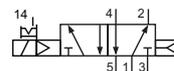


M-05-320-HN-xxx  
3/2-way, double solenoid

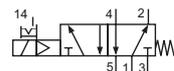


ME-05-320-HN-xxx  
3/2-way, double solenoid, external pilot pressure

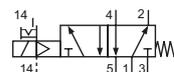
Please complete: xxx = electrical option

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


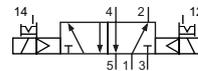
M-05-510-HN-xxx  
5/2-way, single solenoid, air spring return



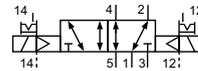
M-05-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



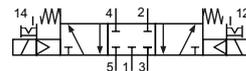
ME-05-511-HN-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



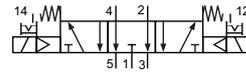
M-05-520-HN-xxx  
5/2-way, double solenoid



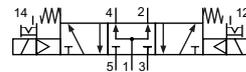
ME-05-520-HN-xxx  
5/2-way, double solenoid, external pilot pressure



M-05-530-HN-xxx  
5/3-way, center position closed



M-05-533-HN-xxx  
5/3-way, center position exhausted



M-05-534-HN-xxx  
5/3-way, center position pressurized

**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	4.8 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	5 VA		Form B industrial norm	-452	-422
115 V AC	5 VA		Form B industrial norm	-456	-426
230 V AC	5 VA		Form B industrial norm	-457	-427

\*1 Plug socket not included, suitable plug sockets see page 4-99

## Series M-05

### Technical data

<b>Model-no.:</b>	M-05-310	MO-05-310	M-05-311	MO-05-311	ME-05-311	M-05-320	ME-05-320
<b>Operating pressure* (bar)</b>	2 ... 10	2 ... 10	3 ... 10	3 ... 10	0 ... 10	2 ... 10	0 ... 10
<b>Pilot pressure* (bar)</b>	2 ... 10	2 ... 10	3 ... 10	3 ... 10	3 ... 10	2 ... 10	2 ... 10
<b>Flow rate (Nl/min)</b>	750	750	750	750	750	750	750
<b>Response time (ms) at 6 bar</b>	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 13 off: 16	on: 13 off: 18	on: 12 off: 12	on: 12 off: 12
<b>Weight (kg)</b>	0.255	0.255	0.260	0.260	0.308	0.400	0.426

<b>Model-no.:</b>	M-05-510	M-05-511	ME-05-511	M-05-520	ME-05-520	M-05-530	M-05-533	M-05-534
<b>Operating pressure* (bar)</b>	2 ... 10	3 ... 10	0 ... 10	2 ... 10	0 ... 10	3 ... 8	3 ... 8	3 ... 8
<b>Pilot pressure* (bar)</b>	2 ... 10	3 ... 10	3 ... 10	2 ... 10	2 ... 10	3 ... 8	3 ... 8	3 ... 8
<b>Flow rate (Nl/min)</b>	750	750	750	750	750	650	650	650
<b>Response time (ms) at 6 bar</b>	on: 13 off: 16	on: 13 off: 18	on: 15 off: 19	on: 12 off: 12	on: 12 off: 12	on: 13 off: 18	on: 13 off: 18	on: 13 off: 18
<b>Weight (kg)</b>	0.295	0.300	0.360	0.440	0.470	0.440	0.440	0.440

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

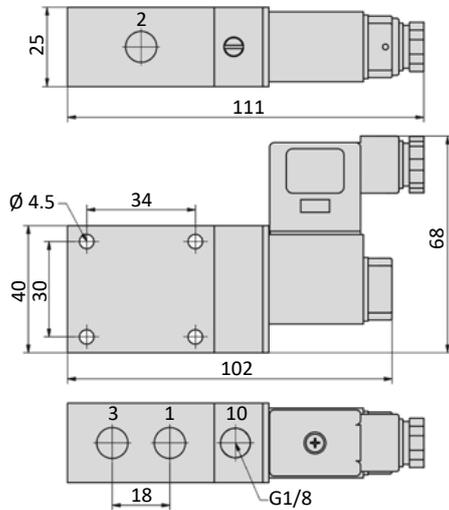
### Accessories



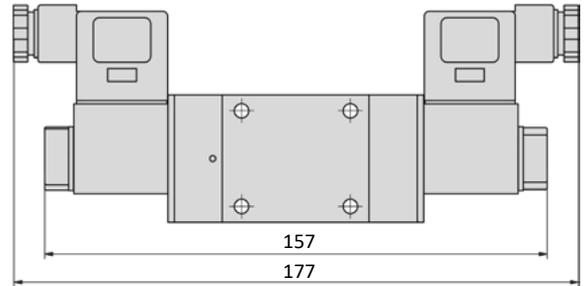
Plug sockets: see page 4-99



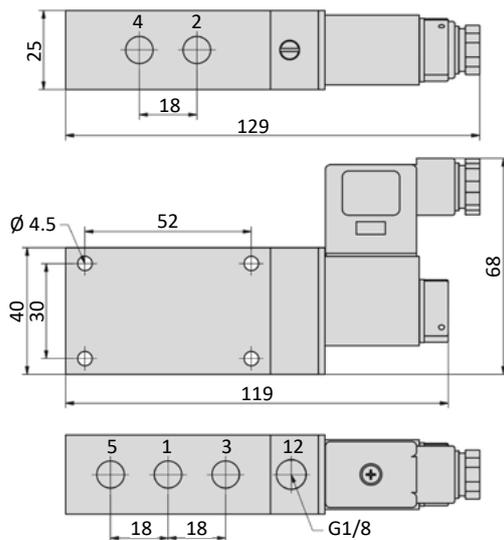
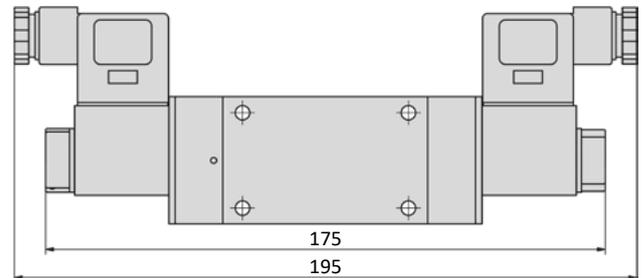
Manifolds: see page 4-16

**Dimensions**
**M-05-31x-HN, MO-05-31x-HN\*, ME-05-31x-HN**


\*For the NO version MO-05 the ports 1 and 3 are inverted.

**M-05-320-HN, ME-05-320-HN**


4

**M-05-51x-HN, ME-05-511-HN**

**M-05-520-HN, ME-05-520-HN, M-05-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 10,12,14 = connection for external pilot pressure (only at ME-valves)

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



## Series M-05

### Device marking

Electrically operated valves are marked as follows:

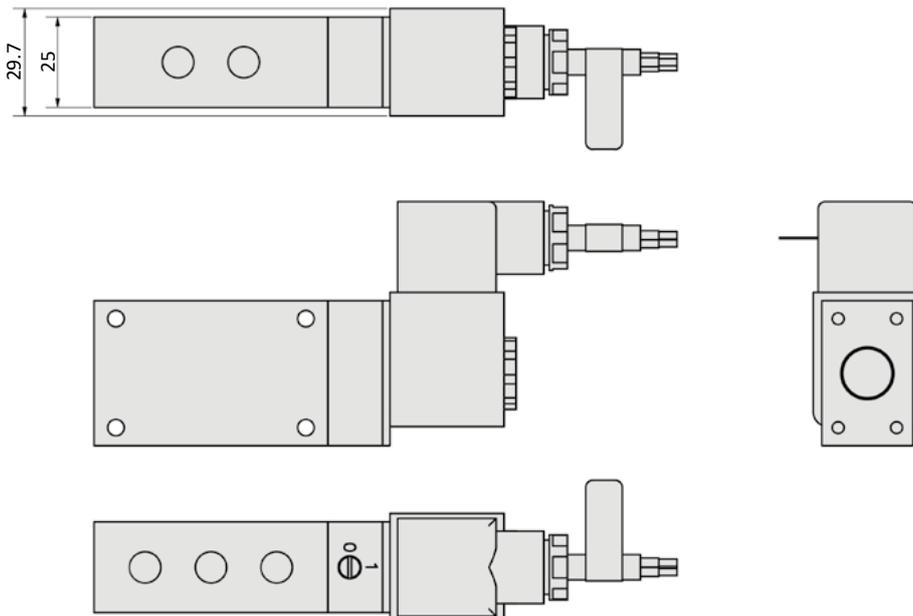
 II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

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 valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.



Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products 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-043-A12	-B42	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B57	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V42	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V57	-V27
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

# For details on the ATEX solenoid coils, see chapter 12.

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

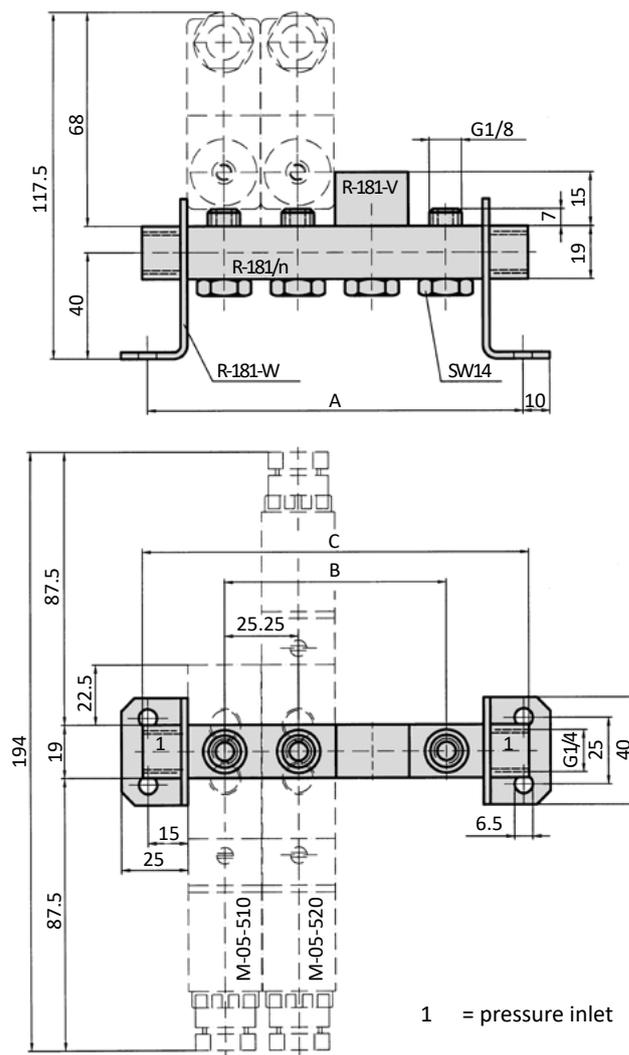
## Series M-05

### General information

The R-181/n manifold is suitable for the M-05 valve series. As well available are blind plates R-181-V for blank stations and mounting brackets R-181-W (pair). Hollow bolts and gaskets are included.  
The manifold is as well suitable for the pneumatically operated valve series P-05.



### Dimensions



Model-no.:	A	B	C	Weight (kg)
R-181/2	80.5	25.25	85	0.084
R-181/3	105.75	50.5	110	0.113
R-181/4	131	75.75	135	0.144
R-181/5	156.25	101	160	0.174
R-181/6	181.5	126.25	185	0.215
R-181/8	232	176.75	235	0.266
R-181/10	282.5	227.25	285	0.326
R-181/12	333	277.75	335	0.385

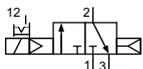
## Technical details

<b>Connection</b>	G1/4
<b>Nominal Size</b>	9 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), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)

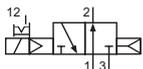


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

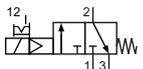
## 3/2-way-valves



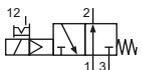
M-07-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC



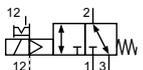
MO-07-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO



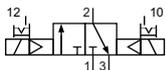
M-07-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



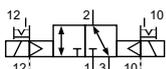
MO-07-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



ME-07-311-HN-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return



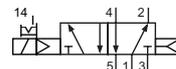
M-07-320-HN-xxx  
3/2-way, double solenoid



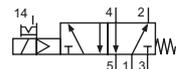
ME-07-320-HN-xxx  
3/2-way, double solenoid, external pilot pressure

Please complete: xxx = electrical option

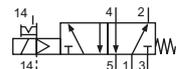
## 5/2- and 5/3-way-valves



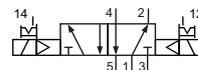
M-07-510-HN-xxx  
5/2-way, single solenoid, air spring return



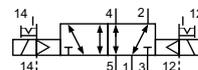
M-07-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



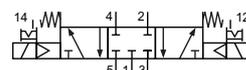
ME-07-511-HN-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



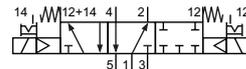
M-07-520-HN-xxx  
5/2-way, double solenoid



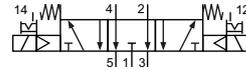
ME-07-520-HN-xxx  
5/2-way, double solenoid, external pilot pressure



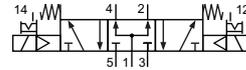
M-07-530-HN-xxx  
5/3-way, center position closed



M-07-532-HN-xxx  
5/3-way, Sicherheitsmittelstellung



M-07-533-HN-xxx  
5/3-way, center position exhausted



M-07-534-HN-xxx  
5/3-way, center position pressurized

## 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	4.8 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	5 VA		Form B industrial norm	-452	-422
115 V AC	5 VA		Form B industrial norm	-456	-426
230 V AC	5 VA		Form B industrial norm	-457	-427

\*1 Plug socket not included, suitable plug sockets see page 4-99

## Series M-07

### Technical data

Model-no.:	M-07-310	MO-07-310	M-07-311	MO-07-311	ME-07-311	M-07-320	ME-07-320
Operating pressure* (bar)	1.5 ... 10	1.5 ... 10	2.5 ... 10	2.5 ... 10	0 ... 10	1.5 ... 10	0 ... 10
Pilot pressure* (bar)	1.5 ... 10	1.5 ... 10	2.5 ... 10	2.5 ... 10	2.5 ... 10	1.5 ... 10	1.5 ... 10
Flow rate (NI/min)	1580	1580	1580	1580	1580	1580	1580
Response time (ms) at 6 bar	on: 15 off: 19	on: 15 off: 19	on: 15 off: 19	on: 15 off: 19	on: 15 off: 22	on: 14 off: 14	on: 14 off: 14
Weight (kg)	0.375	0.375	0.380	0.380	0.450	0.520	0.578

Model-no.:	M-07-510	M-07-511	ME-07-511	M-07-520	ME-07-520
Operating pressure* (bar)	1.5 ... 10	2.5 ... 10	0 ... 10	2 ... 10	0 ... 10
Pilot pressure* (bar)	1.5 ... 10	2.5 ... 10	2.5 ... 10	2 ... 10	2 ... 10
Flow rate (NI/min)	1580	1580	1580	1580	1580
Response time (ms) at 6 bar	on: 15 off: 19	on: 15 off: 22	on: 15 off: 19	on: 14 off: 14	on: 14 off: 14
Weight (kg)	0.455	0.465	0.530	0.620	0.650

Model-no.:	M-07-530	M-07-532	M-07-533	M-07-534
Operating pressure* (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Pilot pressure* (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (NI/min)	1300	1280	1300	1300
Response time (ms) at 6 bar	on: 15 off: 22	on: 35 off: 42	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.620	0.620	0.620	0.620

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

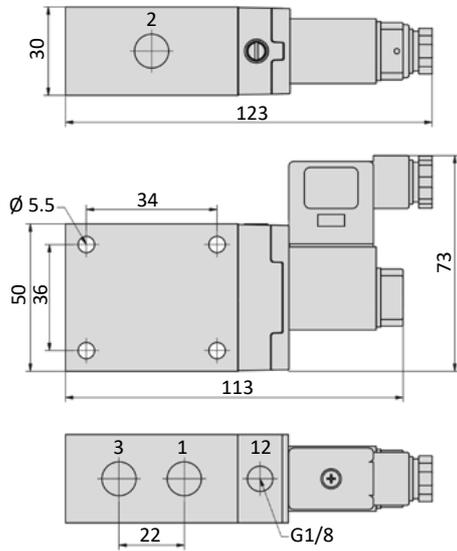
### Accessories



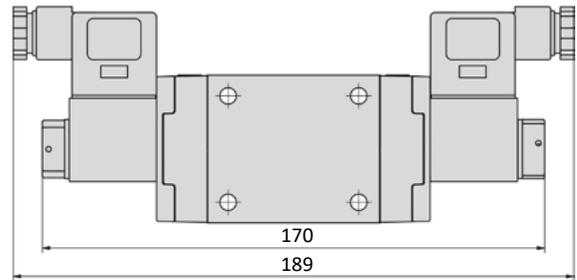
Plug sockets: see page 4-99



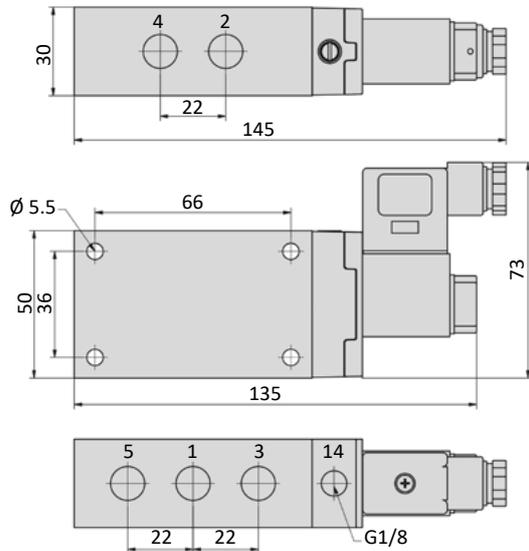
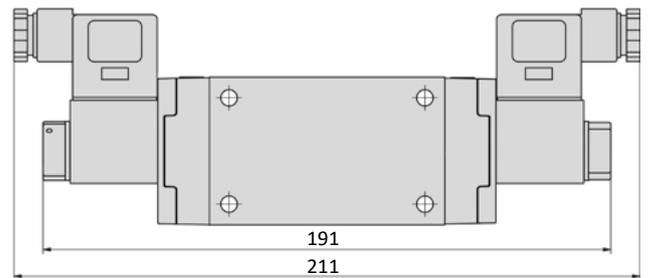
Manifolds: see page 4-22

**Dimensions**
**M-07-31x-HN, MO-07-31x-HN\*, ME-07-31x-HN**


\*For the NO version MO-07 the ports 1 and 3 are inverted.

**M-07-320-HN, ME-07-320-HN**


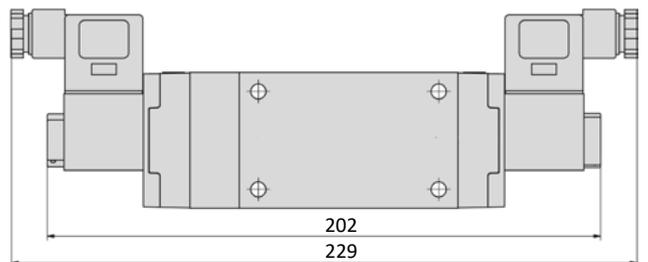
4

**M-07-51x-HN, ME-07-511-HN**

**M-07-520-HN, ME-07-520-HN, M-07-53x-HN**


- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 10,12,14 = connection for external pilot pressure (only at ME-valves)

Plug socket (not included in scope of delivery) can be repositioned by 180°.

Solenoid coil can be repositioned by 4 x 90°.

**M-07-532-HN**




## Series M-07

### Device marking

Electrically operated valves are marked as follows:

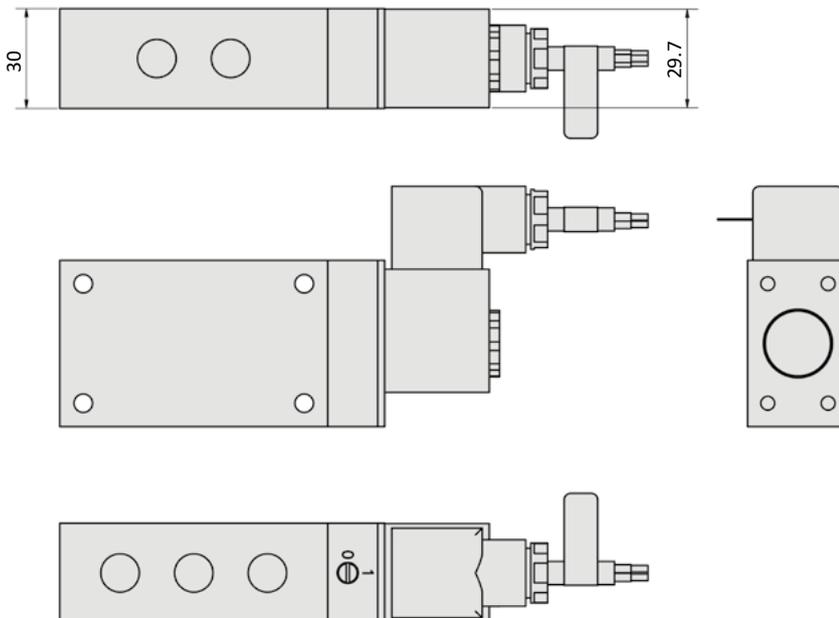
II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

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 valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.



Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products 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-043-A12	-B42	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B57	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V42	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V57	-V27
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

# For details on the ATEX solenoid coils, see chapter 12.

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



- HN * - * * *				
Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
- without	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication Manual override at 1/3/(5)	0 without
HN detent	1 with coil and plug	according to valve	DC	1 12 V
HNT non-detent	3 with coil, power consumption different from standard, without plug	shape according valve series	1 Manual override at 1/3/(5) Connector lugs at 2/(4)	2 24 V
	4 with coil, without plug	according to valve	AC	3 42 V
	5 without coil	no	2 Manual override at 1/3/(5) Connector lugs at 2/(4)	4 48 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	DC, low power	5 110 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve	3 Manual override at 1/3/(5) Connector lugs at 2/(4)	6 115 V
	9 ATEX 2GD, intrinsically safe, with enclosed plug socket, width 30 mm	23-SP-038	DC	7 230 V
	A ATEX 3GD, coil with enclosed plug socket, width 30 mm	23-SP-043	4 Manual override at 2/(4) Connector lugs at 1/3/(5)	8 240 V
	B ATEX 3GD, valve with mounted coil and enclosed plug socket, width 30 mm	23-SP-043	DC	9 20 V
	C ATEX 3GD, without plug, width 22 mm	23-SP-041	5 Manual override at 2/(4) Connector lugs at 1/3/(5)	A 4 V
	H with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G	DC, low power	B 6 V
	I with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G	6 Manual override at 2/(4) Connector lugs at 1/3/(5)	C 8 V
	J with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016	7 without indication Manual override at 2/(4)	D 61 V
	K with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016	DC	E 36 V
	L with coil, with plug with LED and protective circuit	according to valve	A Manual override at 1/3/(5) Connector lugs at 1/3/(5)	F 9 V
	M with coil, with plug with LED, without protective circuit	according to valve	AC	
	N with coil with M12 connection	according to valve	B Manual override at 1/3/(5) Connector lugs at 1/3/(5)	
	O with coil with M12 connection with LED and protective circuit	according to valve	DC, low power	
	Q with coil with with cable	according to valve	C Manual override at 1/3/(5) Connector lugs at 1/3/(5)	
	R with cable up to 1 m length	according to valve	DC	
	U ATEX 2GD, without coil (for coil 23-SP-036)	no	D Manual override at 2/(4) Connector lugs at 2/(4)	
	V ATEX 2GD, Flame proof enclosures and encapsulated with casting compound	23-SP-045	AC	
	W ATEX 2GD / 3GD, without coil (for coil 23-SP-041 and 23-SP-045)	no	E Manual override at 2/(4) Connector lugs at 2/(4)	
	X ATEX 3GD, without coil (for coil 23-SP-043 at 230V AC and 115V AC)	no	DC, low power	
	Y ATEX 2GD, without coil (for coil 23-SP-038)	no	F Manual override at 2/(4) Connector lugs at 2/(4)	
	Z ATEX 2GD / 3GD, without coil (for coil 23-SP-043 at 24V DC and 23-SP-037)	no		

*Not all options are suitable for all valve series*

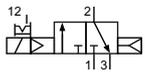
Technical details

<b>Connection</b>	G1/2
<b>Nominal Size</b>	14 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), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)

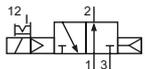


Electrically operated spool valve. The manual override is detend and is operated by screwdriver.

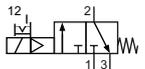
3/2-way-valves



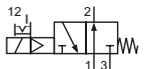
M-22-310-HN-xxx  
3/2-way, single solenoid, air spring return, NC



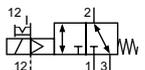
MO-22-310-HN-xxx  
3/2-way, single solenoid, air spring return, NO



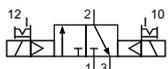
M-22-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



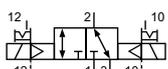
MO-22-311-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



ME-22-311-HN-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return

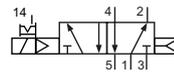


M-22-320-HN-xxx  
3/2-way, double solenoid

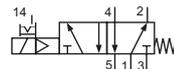


ME-22-320-HN-xxx  
3/2-way, double solenoid, external pilot pressure

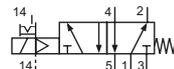
5/2- and 5/3-way-valves



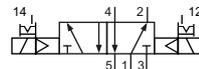
M-22-510-HN-xxx  
5/2-way, single solenoid, air spring return



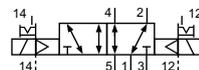
M-22-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



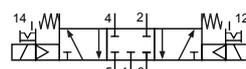
ME-22-511-HN-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



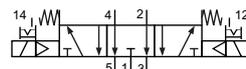
M-22-520-HN-xxx  
5/2-way, double solenoid



ME-22-520-HN-xxx  
5/2-way, double solenoid, external pilot pressure



M-22-530-HN-xxx  
5/3-way, center position closed



M-22-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Connection*1	-xxx
12 V DC	4,2 W		Form B industrial norm	-411
12 V DC	2,2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4,2 W		Form B industrial norm	-412
24 V DC	4,8 W		M 12	-O12
24 V DC	2,2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2,5 W	max. 8 bar	M 12	-O32
24 V AC	5 VA		Form B industrial norm	-422
115 V AC	5 VA		Form B industrial norm	-426
230 V AC	5 VA		Form B industrial norm	-427

\*1 Plug socket not included, suitable plug sockets see page 4-99

**Technical data**

<b>Model-no.:</b>	M-22-310	MO-22-310	M-22-311	MO-22-311	ME-22-311	M-22-320	ME-22-320
<b>Operating pressure* (bar)</b>	1 ... 10	1 ... 10	2 ... 10	2 ... 10	0 ... 10	1 ... 10	0 ... 10
<b>Pilot pressure* (bar)</b>	1 ... 10	1 ... 10	2 ... 10	2 ... 10	2 ... 10	1 ... 10	1 ... 10
<b>Flow rate (NI/min)</b>	3300	3300	3300	3300	3300	3300	3300
<b>Resonse time (ms) at 6 bar</b>	on: 30 off: 58	on: 30 off: 58	on: 28 off: 68	on: 28 off: 68	on: 28 off: 68	on: 20 off: 20	on: 20 off: 20
<b>Weight (kg)</b>	0.910	0.910	0.965	0.965	0.965	0.984	0.984

<b>Model-no.:</b>	M-22-510	M-22-511	ME-22-511	M-22-520	ME-22-520	M-22-530	M-22-533
<b>Operating pressure* (bar)</b>	1 ... 10	2 ... 10	0 ... 10	1 ... 10	0 ... 10	3 ... 10	3 ... 10
<b>Pilot pressure* (bar)</b>	1 ... 10	2 ... 10	2 ... 10	1 ... 10	1 ... 10	3 ... 10	3 ... 10
<b>Flow rate (NI/min)</b>	3300	3300	3300	3300	3300	3300	3300
<b>Resonse time (ms) at 6 bar</b>	on: 30 off: 59	on: 20 off: 80	on: 20 off: 80	on: 22 off: 22	on: 22 off: 22	on: 30 off: 50	on: 30 off: 50
<b>Weight (kg)</b>	1.150	1.180	1.160	1.260	1.260	1.250	1.250

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

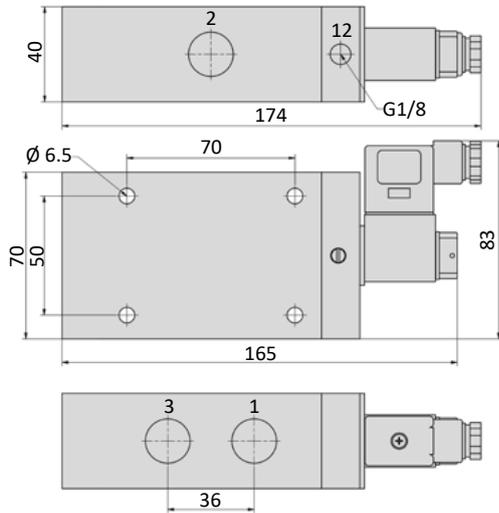
**Accessories**


Plug sockets: see page 4-99

## Series M-22

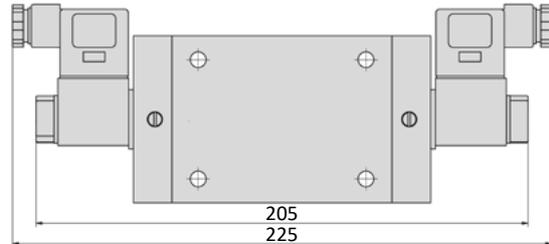
### Dimensions

#### M-22-31x-HN, MO-22-31x-HN\*, ME-22-31x-HN

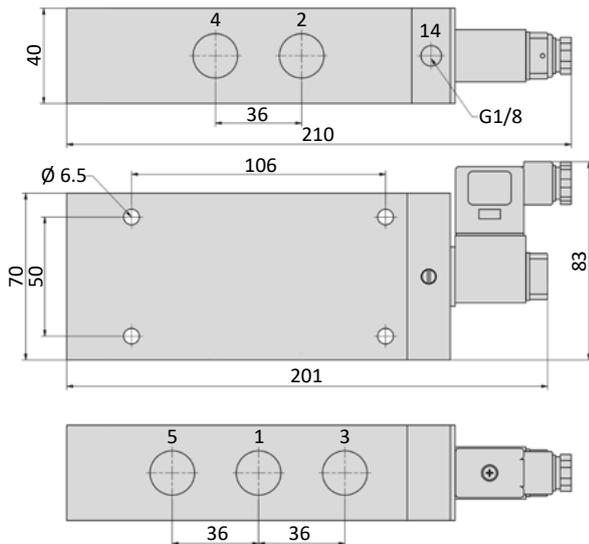


\*For the NO version MO-22 the ports 1 and 3 are inverted.

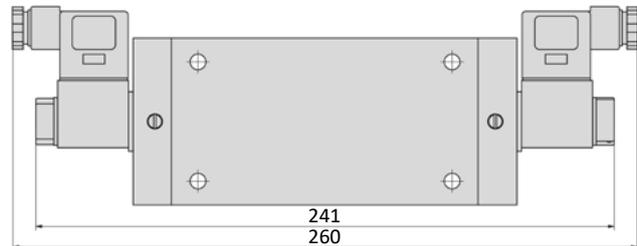
#### M-22-320-HN, ME-22-320-HN



#### M-22-51x-HN, ME-22-511-HN



#### M-22-520-HN, ME-22-520-HN, M-22-53x-HN



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 10,12,14 = connection for external pilot pressure (only at ME-valves)

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

### Device marking

Electrically operated valves are marked as follows:

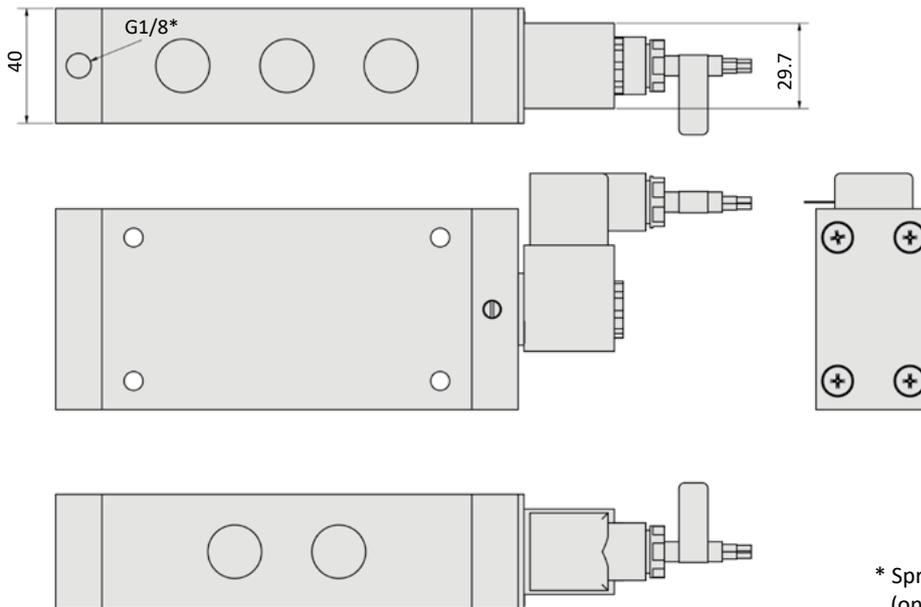
II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

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 valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.

Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products and are available at [www.airtec.de](http://www.airtec.de).



## Series M-22

## Electrical options

ATEX-category	Voltage	Power consumption	Ignition protection	Solenoid coil #	-xxx
3GD	24 V DC	2.7 W	Non-sparking device	23-SP-043-A12	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V27
2GD	12 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-011-xx*	-011-xx*
2GD	24 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-012-xx*	-012-xx*
2GD	110...120 V AC	3 VA	Encapsulated with casting compound	23-SP-037-025-xx*	-025-xx*
2GD	230 V AC	3.1 VA	Encapsulated with casting compound	23-SP-037-027-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	-912

# For details on the ATEX solenoid coils, see chapter 12.

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

- HN \* - \* \* \*

Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
- without	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication Manual override lateral	0 without
HN detent	1 with coil and plug	according to valve	DC	1 12 V
HNT non-detent	3 with coil, power consumption different from standard, without plug	shape according valve series	1 Manual override lateral Connector lugs at 2/(4)	2 24 V 3 42 V
	4 with coil, without plug	according to valve	AC	4 48 V
	5 without coil	no	2 Manual override lateral Connector lugs at 2/(4)	5 110 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	DC, low power	6 115 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve	3 Manual override lateral Connector lugs at 2/(4)	7 230 V
	9 ATEX 2GD, intrinsically safe, with enclosed plug socket, width 30 mm	23-SP-038		8 240 V
	A ATEX 3GD, coil with enclosed plug socket, width 30 mm	23-SP-043		9 20 V
	B ATEX 3GD, valve with mounted coil and enclosed plug socket, width 30 mm	23-SP-043		A 4 V
	C ATEX 3GD, without plug, width 22 mm	23-SP-041		B 6 V
	H with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G		C 8 V
	I with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G		D 61 V
	J with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016		E 36 V
	K with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016		F 9 V
	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		
	Q with coil with with cable	according to valve		
	R with cable up to 1 m length	according to valve		
	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-043 at 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-043 at 24V DC and 23-SP-037)	no		

*Not all options are suitable for all valve series*

# Series KM-09 and KM-10



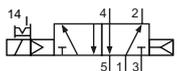
## Technical details

<b>Connection</b>	KM-09: G1/8 KM-10: G1/4
<b>Nominal Size</b>	KM-09: 6 mm KM-10: 9 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), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)

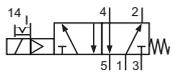


Electrically operated spool valve. The manual override is detend and is operated by screwdriver.

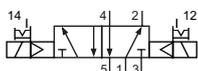
### 5/2-way-valves



KM-09-510-HN-xxx  
KM-10-510-HN-xxx  
5/2-way, single solenoid, air spring return

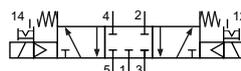


KM-09-511-HN-xxx  
KM-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return

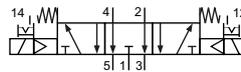


KM-09-520-HN-xxx  
KM-10-520-HN-xxx  
5/2-way, double solenoid

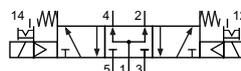
### 5/3-way-valves



KM-09-530-HN-xxx  
KM-10-530-HN-xxx  
5/3-way, center position closed



KM-09-533-HN-xxx  
KM-10-533-HN-xxx  
5/3-way, center position exhausted



KM-09-534-HN-xxx  
KM-10-534-HN-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

## 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	4.8 W		M 12	-O42	-O12
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	-O62	-O32
24 V AC	5 VA		Form B industrial norm	-452	-422
115 V AC	5 VA		Form B industrial norm	-456	-426
230 V AC	5 VA		Form B industrial norm	-457	-427

\*1 Plug socket not included, suitable plug sockets see page 4-99

**Technical data**

Model-no.:	KM-09-510	KM-09-511	KM-09-520	KM-09-530	KM-09-533	KM-09-534
Operating pressure* (bar)	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10	3 ... 10
Flow rate (NI/min)	950	810	950	680	680	680
Resonse time (ms) at 6 bar	on: 15 off: 16	on: 13 off: 28	on: 15 off: 15	on: 14 off: 16	on: 14 off: 16	on: 14 off: 16
Weight (kg)	0.230	0.231	0.330	0.330	0.330	0.330

Model-no.:	KM-10-510	KM-10-511	KM-10-520	KM-10-530	KM-10-533	KM-10-534
Operating pressure* (bar)	2,5 ... 10	2,5 ... 10	2,5 ... 10	3 ... 10	3 ... 10	3 ... 10
Pilot pressure* (bar)	2,5 ... 10	2,5 ... 10	2,5 ... 10	3 ... 10	3 ... 10	3 ... 10
Flow rate (NI/min)	2100	1800	2100	1500	1500	1500
Resonse time (ms) at 6 bar	on: 18 off: 19	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22	on: 16 off: 22	on: 16 off: 22
Weight (kg)	0.470	0.470	0.630	0.630	0.630	0.630

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

**Accessories**


Plug sockets: see page 4-99



Manifolds and Accessories: see page 4-36

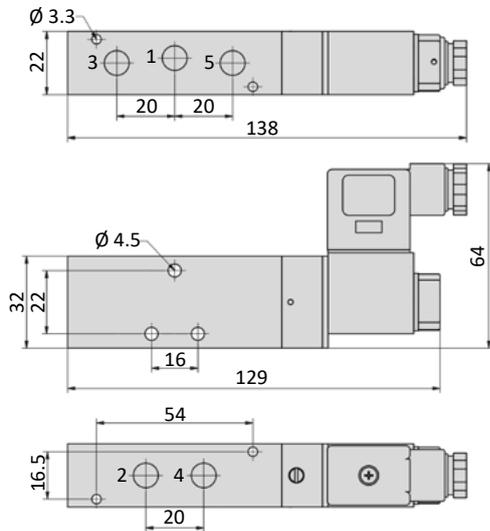


## Series KM-09 and KM-10

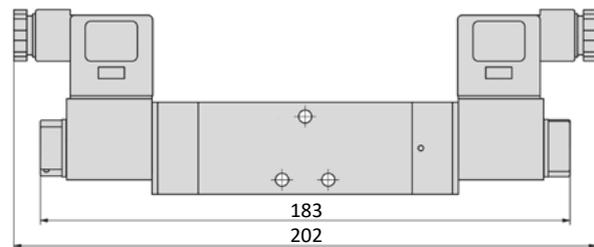


### Dimensions

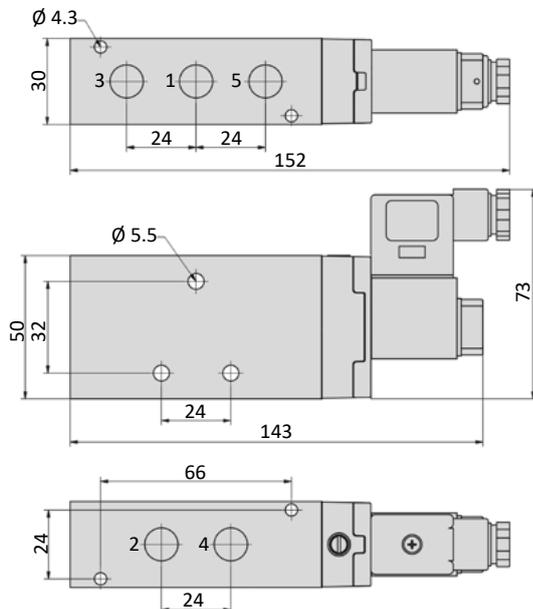
#### KM-09-51x-HN



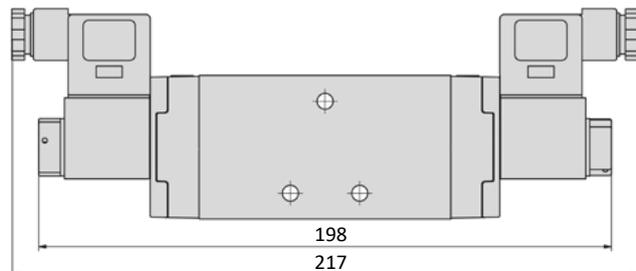
#### KM-09-520-HN, KM-09-53x-HN



#### KM-10-51x-HN



#### KM-10-520-HN, KM-10-53x-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.

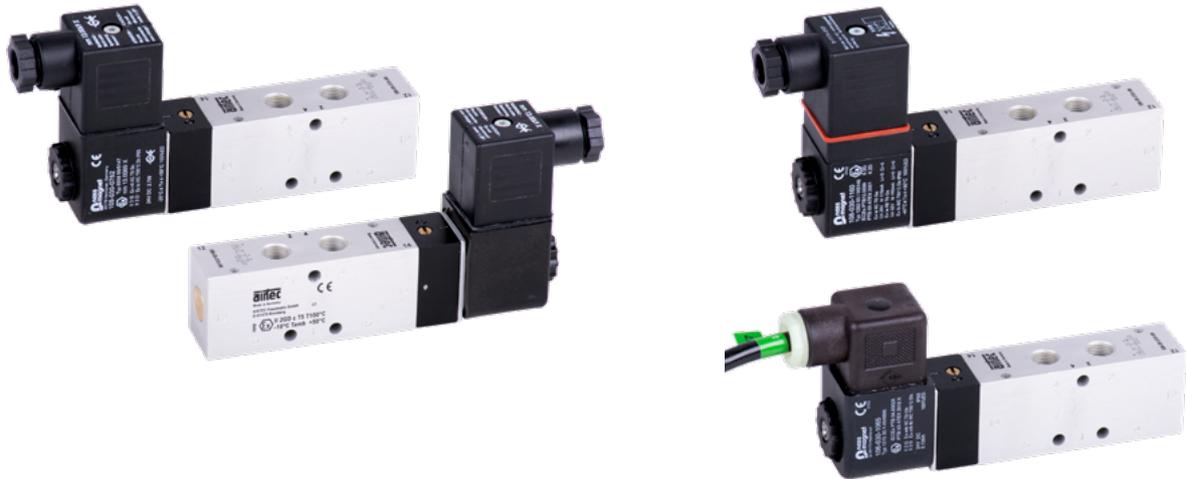
**Device marking**

Electrically operated valves are marked as follows:

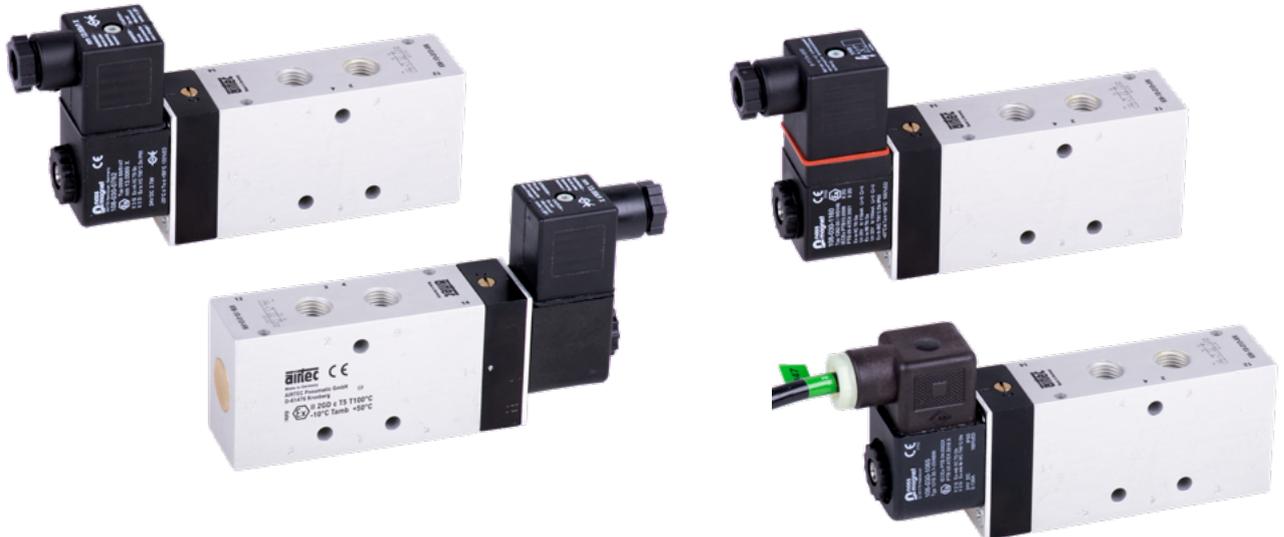


II 2G Ex h IIC T5 Gb  
 II 2D Ex h IIIC T100°C Db  
 -10°C T<sub>amb</sub> +50°C

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

**Series KM-09**


4

**Series KM-10**


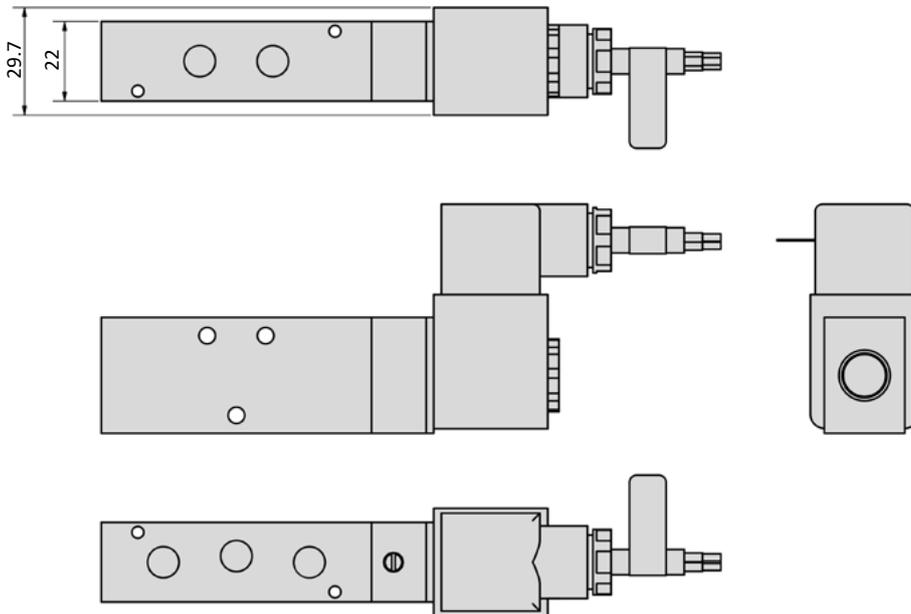
Electrically operated valves conform to equipment category 2 can be used in Zone 1 respectively in Zone 21. For the use in hazardous areas the category group of the used coil has to be taken into account. The specification of the whole equipment corresponds always to the lowest category of the single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



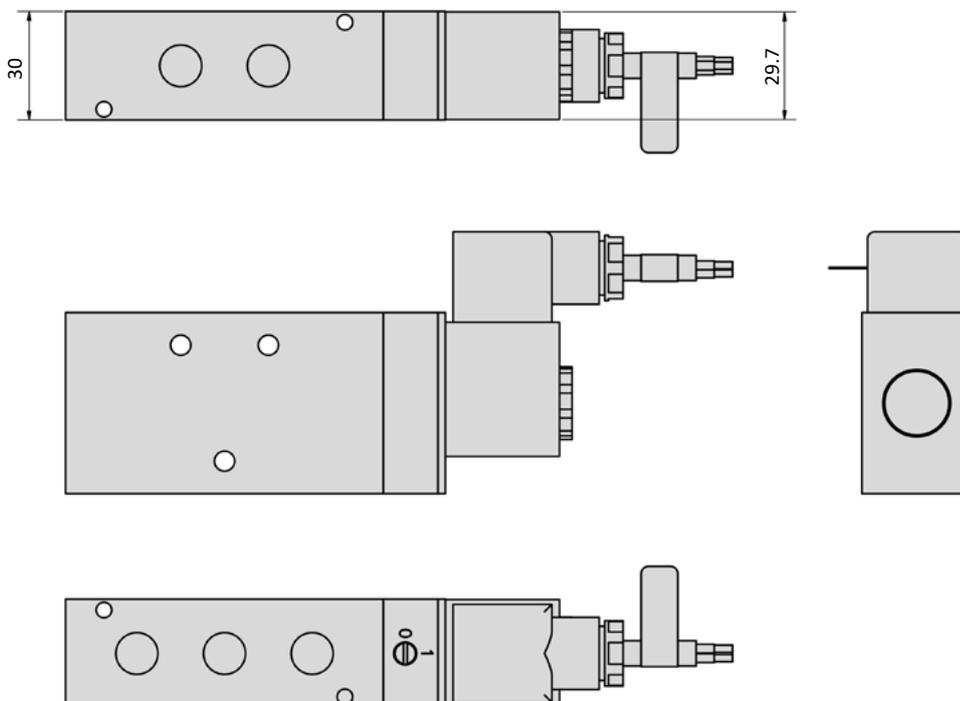
## Series KM-09 and KM-10

### Divergent dimensions

#### Series KM-09



#### Series KM-10



The valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.

Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products 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-043-A12	-B42	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B57	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V42	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V57	-V27
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

# For details on the ATEX solenoid coils, see chapter 12.

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

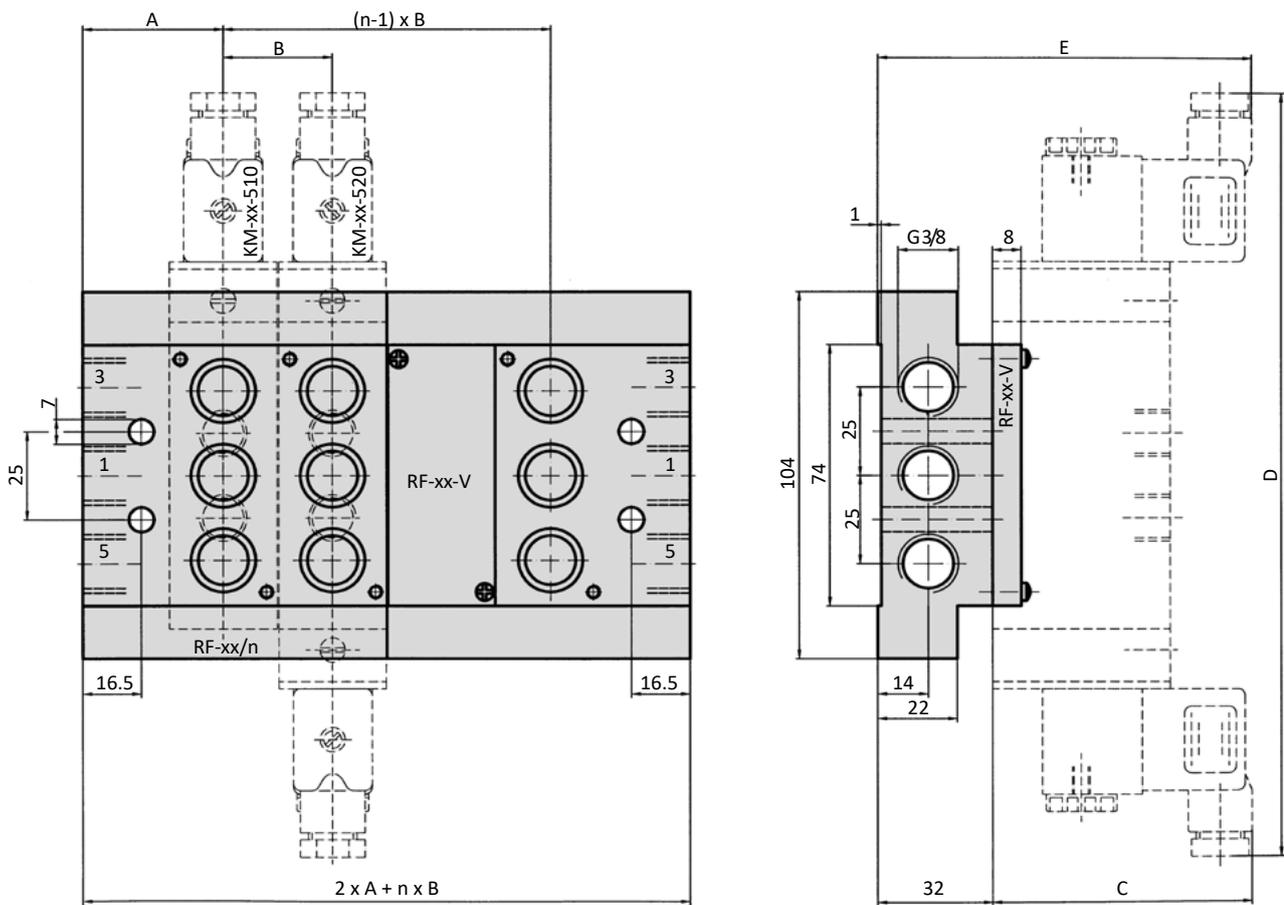
## Series KM-09 and KM-10

### General information

The RF-09/n and RF-10/n manifolds are suitable for the KM-09 and KM-10 valve series. This is a modular system and extendable.  
 The RF-09 and RF-10 can be combined into one manifold with different valve sizes.  
 Blind plates RF-09-V and RF-10-V are available for blank stations.  
 All mounting screws and O-rings are included.



### Dimensions



n = number of stations  
 1 = pressure inlet  
 3,5 = exhausts

Model-no.:	A	B	C	D	E
RF-09/n	35.25	22.5	64	202	96
RF-10/n	39.25	30.5	73	217	105

Model-no.:	n	1	2	3	4	5	6	7	8
Weight (kg)	RF-09/n	0.415	0.550	0.680	0.810	0.990	1.060	1.190	1.320
	RF-10/n	0.470	0.660	0.850	1.040	1.250	1.380	1.570	1.760

Model-no.:	n	9	10	11	12	13	14	15	16
Weight (kg)	RF-09/n	1.500	1.565	1.700	1.830	2.010	2.075	2.210	2.340
	RF-10/n	1.970	2.100	2.290	2.480	2.690	2.820	3.010	3.200

## Voltage code Series KM-09 and KM-10

- HN * - * * *				
Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
- without	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication Manual override at 1/3/5	0 without
HN detent	1 with coil and plug	according to valve	DC	1 12 V
HNT non-detent	3 with coil, power consumption different from standard, without plug	shape according valve series	1 Manual override at 1/3/5 Connector lugs at 2/4	2 24 V
	4 with coil, without plug	according to valve	AC	3 42 V
	5 without coil	no	2 Manual override at 1/3/5 Connector lugs at 2/4	4 48 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	DC, low power	5 110 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve	3 Manual override at 1/3/5 Connector lugs at 2/4	6 115 V
	9 ATEX 2GD, intrinsically safe, with enclosed plug socket, width 30 mm	23-SP-038	DC	7 230 V
	A ATEX 3GD, coil with enclosed plug socket, width 30 mm	23-SP-043	4 Manual override at 2/4 Connector lugs at 2/4	8 240 V
	B ATEX 3GD, valve with mounted coil and enclosed plug socket, width 30 mm	23-SP-043	DC	9 20 V
	C ATEX 3GD, without plug, width 22 mm	23-SP-041	5 Manual override at 2/4 Connector lugs at 2/4	A 4 V
	H with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G	AC	B 6 V
	I with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G	5 Manual override at 2/4 Connector lugs at 2/4	C 8 V
	J with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016	DC, low power	D 61 V
	K with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016	6 Manual override at 2/4 Connector lugs at 2/4	E 36 V
	L with coil, with plug with LED and protective circuit	according to valve	7 without indication Manual override at 2/4	F 9 V
	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		
	Q with coil with with cable	according to valve		
	R with cable up to 1 m length	according to valve		
	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-043 at 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-043 at 24V DC and 23-SP-037)	no		

*Not all options are suitable for all valve series*

## Series ICK-09 and ICK-10

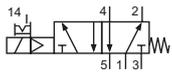
### Technical details

<b>Connection</b>	ICK-09: G1/8 ICK-10: G1/4
<b>Nominal Size</b>	ICK-09: 6 mm ICK-10: 9 mm
<b>Temperature range</b>	-30°C ... +80°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), seals: NBR and PU, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529

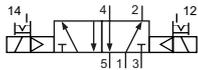


Electrically operated spool valve. The manual override is detend and is operated by screwdriver.

### 5/2-way-valves

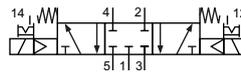


ICK-09-511-HN-xxx  
ICK-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



ICK-09-520-HN-xxx  
ICK-10-520-HN-xxx  
5/2-way, double solenoid

### 5/3-way-valves



ICK-09-530-HN-xxx  
ICK-10-530-HN-xxx  
5/3-way, center position closed

Please complete: xxx = electrical option

### Electrical options

Nominal voltage	Power consumption	Specifics	Connection*1	-xxx Manual override on same side of ports	
				2 and 4	1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-F41	-F11
24 V DC	4.2 W		Form B industrial norm	-F42	-F12

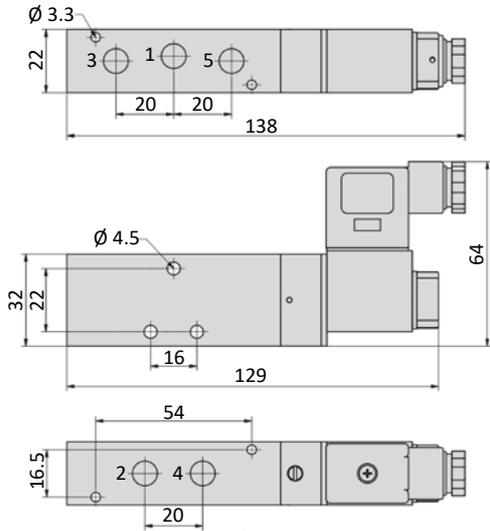
\*1 Plug socket not included, suitable plug sockets see page 4-99

### Technical data

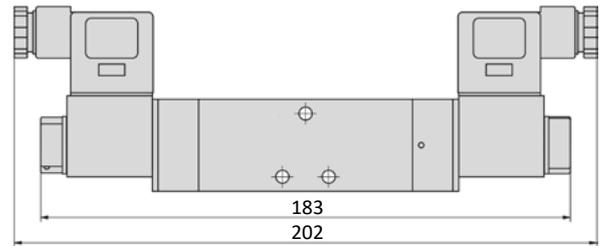
Model-no.:	ICK-09-511	ICK-09-520	ICK-09-530	ICK-10-511	ICK-10-520	ICK-10-530
<b>Operating pressure (bar)</b>	3 ... 8	3 ... 8	3 ... 8	2,5 ... 8	2,5 ... 8	3 ... 8
<b>Pilot pressure (bar)</b>	3 ... 8	3 ... 8	3 ... 8	2,5 ... 8	2,5 ... 8	3 ... 8
<b>Flow rate (NI/min)</b>	810	950	680	1600	1600	1500
<b>Resonse time (ms) at 6 bar</b>	on: 13 off: 28	on: 15 off: 15	on: 14 off: 16	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22
<b>Weight (kg)</b>	0.231	0.330	0.330	0.470	0.630	0.630

## Dimensions

### ICK-09-511-HN

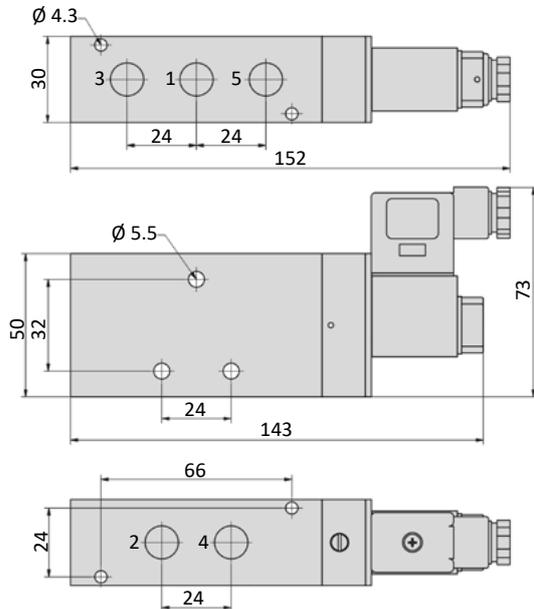


### ICK-09-520-HN, ICK-09-530-HN

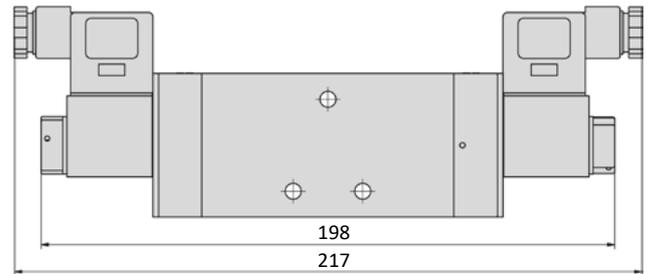


4

### ICK-10-511-HN



### ICK-10-520-HN, ICK-10-530-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.

## Accessories

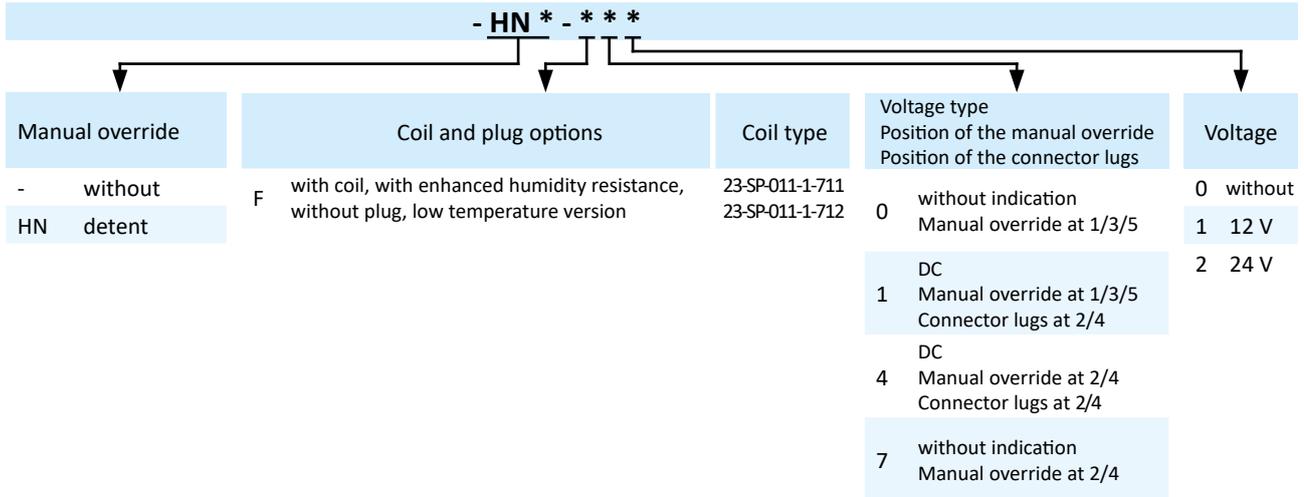


Plug sockets: see page 4-99

Manifolds and Accessories: see page 4-36

## Voltage code

Series ICK-09 and ICK-10



*Not all options are suitable for all valve series*

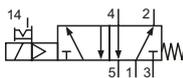
Technical details

<b>Connection</b>	G1/4
<b>Nominal Size</b>	9 mm
<b>Temperature range</b>	-30°C ... +80°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: stainless steel 1.4571, seals: FKM and PU, inner parts: stainless steel 1.4305
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available. *ATEX versions have a different temperature range. (chap. 12)

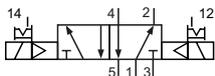


Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

5/2-way-valves

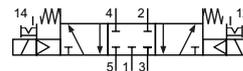


KMX-10-511-HN-xxx  
5/2-way, single solenoid, mechanical spring return



KMX-10-520-HN-xxx  
5/2-way, double solenoid

5/3-way-valves



KMX-10-530-HN-xxx  
5/3-way, center position closed

Please complete: xxx = electrical option

Electrical options

Nominal voltage	Power consumption	Specifics	Connection*1	-xxx Manual override on same side of ports	
				2 and 4	1, 3 and 5
12 V DC	4.2 W		Form B industrial norm	-F41	-F11
24 V DC	4.2 W		Form B industrial norm	-F42	-F12

\*1 Plug socket not included, suitable plug sockets see page 4-99

Technical data

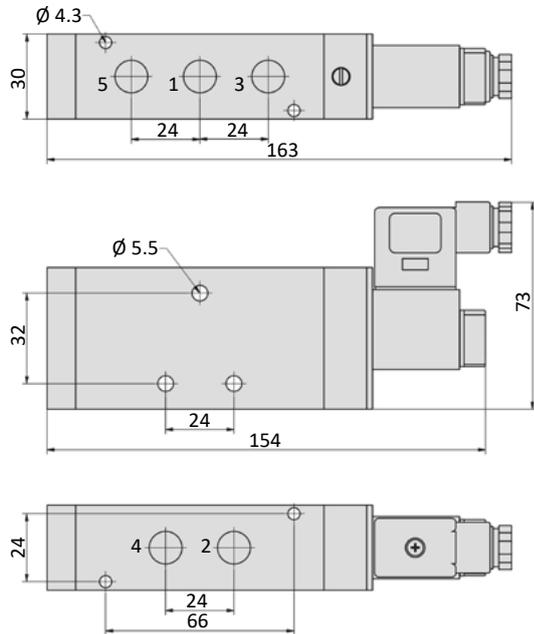
Model-no.:	KMX-10-511	KMX-10-520	KMX-10-530
<b>Operating pressure (bar)</b>	3 ... 8	3 ... 8	3 ... 8
<b>Pilot pressure (bar)</b>	3 ... 8	3 ... 8	3 ... 8
<b>Flow rate (NI/min)</b>	1600	1600	1500
<b>Resonse time (ms) at 6 bar</b>	on: 16 off: 27	on: 18 off: 18	on: 16 off: 22
<b>Weight (kg)</b>	1.220	1.350	0.630

# Series KMX-10

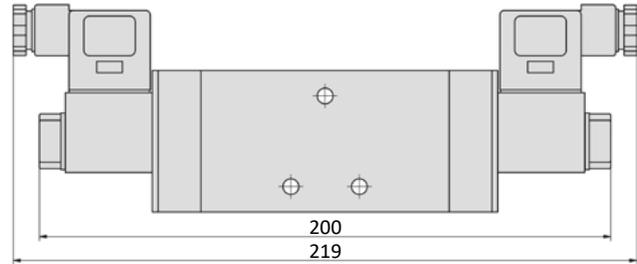


## Dimensions

### KMX-10-511-HN



### KMX-10-520-HN, KMX-10-530-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.

## Accessories



Plug sockets: see page 4-99

- **HN** \* - \* \* \*

Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
- without	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication Manual override at 1/3/5	0 without
HN detent	9 ATEX 2GD, intrinsically safe, with enclosed plug socket, width 30 mm	23-SP-038	1 DC Manual override at 1/3/5 Connector lugs at 2/4	1 12 V
	A ATEX 3GD, coil with enclosed plug socket, width 30 mm	23-SP-043	2 AC Manual override at 1/3/5 Connector lugs at 2/4	2 24 V
	B ATEX 3GD, valve with mounted coil and enclosed plug socket, width 30 mm	23-SP-043	3 Manual override at 1/3/5 Connector lugs at 2/4	3 42 V
	C ATEX 3GD, without plug, width 22 mm	23-SP-041	4 DC Manual override at 1/3/5 Connector lugs at 2/4	4 48 V
	F with coil, with enhanced humidity resistance, without plug, low temperature version	23-SP-011-1-711 23-SP-011-1-712	5 DC, low power Manual override at 1/3/5 Connector lugs at 2/4	5 110 V
	U ATEX 2GD, without coil (for coil 23-SP-036)	no	6 DC, low power Manual override at 1/3/5 Connector lugs at 2/4	6 115 V
	V ATEX 2GD, Flame proof enclosure and encapsulated with casting compound	23-SP-045	7 DC Manual override at 2/4 Connector lugs at 2/4	7 230 V
	W ATEX 2GD / 3GD, without coil (for coil 23-SP-041 and 23-SP-045)	no	8 DC Manual override at 2/4 Connector lugs at 2/4	8 240 V
	X ATEX 3GD, without coil (for coil 23-SP-043 at 230V AC and 115V AC)	no	9 DC Manual override at 2/4 Connector lugs at 2/4	9 20 V
	Y ATEX 2GD, without coil (for coil 23-SP-038)	no	A AC Manual override at 2/4 Connector lugs at 2/4	A 4 V
	Z ATEX 2GD / 3GD, without coil (for coil 23-SP-043 at 24V DC and 23-SP-037)	no	B AC Manual override at 2/4 Connector lugs at 2/4	B 6 V
			C DC, low power Manual override at 2/4 Connector lugs at 2/4	C 8 V
			D DC, low power Manual override at 2/4 Connector lugs at 2/4	D 61 V
			E without indication Manual override at 2/4	E 36 V
			F without indication Manual override at 2/4	F 9 V

*Not all options are suitable for all valve series*

# Series BM-01 and BM-02



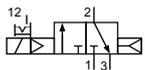
## Technical details

<b>Connection</b>	BM-01: G1/8 BM-02: G1/4
<b>Nominal Size</b>	BM-01: 5 mm BM-02: 7 mm
<b>Temperature range</b>	-10°C ... +60°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, FKM and PU, inner parts: Al, steel and plastic
<b>Protection</b>	IP 65 according to EN 60529

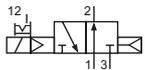


Electrically operated spool valve. The manual override is non-detent (HNT) or detent (HNR) and is operated by bolt or screwdriver.

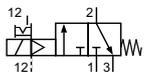
### 3/2-way-valves



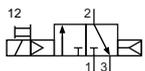
BM-01-310-HNR-xxx  
BM-02-310-HNR-xxx  
3/2-way, single solenoid, air spring return, NC



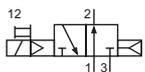
BM-01-312-HNR-xxx  
BM-02-312-HNR-xxx  
3/2-way, single solenoid, air spring return, NO



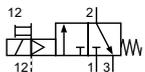
BME-01-311-HNR-xxx  
BME-02-311-HNR-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return, NC



BM-01-310-HNT-xxx  
BM-02-310-HNT-xxx  
3/2-way, single solenoid, air spring return, NC



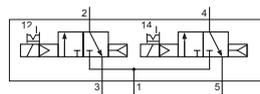
BM-01-312-HNT-xxx  
BM-02-312-HNT-xxx  
3/2-way, single solenoid, air spring return, NO



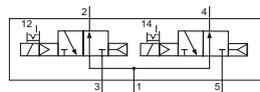
BME-01-311-HNT-xxx  
BME-02-311-HNT-xxx  
3/2-way, single solenoid, external pilot pressure, mechanical spring return, NC

Please complete: xxx = electrical option

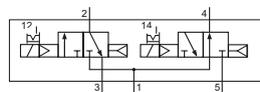
### 2 x 3/2-way-valves



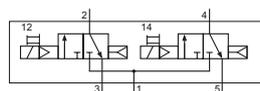
BM-01-310/2-HNR-xxx  
BM-02-310/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, NC



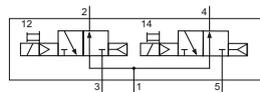
BM-01-312/2-HNR-xxx  
BM-02-312/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, NO



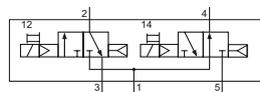
BM-01-314/2-HNR-xxx  
BM-02-314/2-HNR-xxx  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO



BM-01-310/2-HNT-xxx  
BM-02-310/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, NC



BM-01-312/2-HNT-xxx  
BM-02-312/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, NO



BM-01-314/2-HNT-xxx  
BM-02-314/2-HNT-xxx  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

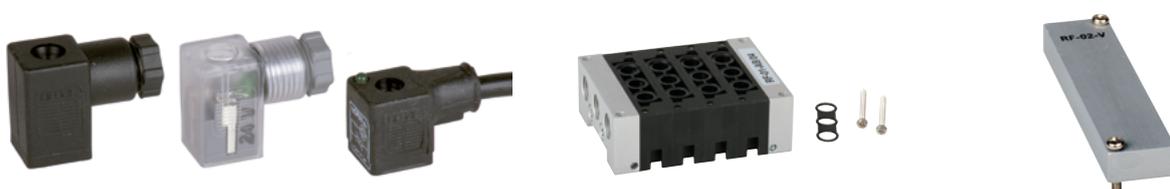
**Electrical options**

Nominal voltage	Power consumption	Specifics	Connection* <sup>1</sup>	-XXX electrical pins on same side of ports	
				2 or 2 and 4	1, 3 or 1, 3 and 5
12 V DC	1 W		Form C	-461	-431
24 V DC	1 W		Form C	-462	-432
24 V DC	1 W		M12	-N62	-
24 V DC	2,5 W	max. pressure 10 bar	M12	-N42	-
24 V DC	1 W		M8	-T62	-
24 V DC	2,5 W	max. pressure 10 bar	M8	-T42	-
24 V AC	3 VA		Form C	-452	-422
115 V AC	3 VA		Form C	-456	-426
230 V AC	3 VA	max. pressure 10 bar	Form C	-457	-427

\*<sup>1</sup> Plug socket not included, suitable plug socket see page 4-101.

**Technical data**

<b>Model-no.:</b>	BM-01-310	BM-01-312	BME-01-311	BM-01-310/2	BM-01-312/2	BM-01-314/2
<b>Operating pressure (bar)</b>	2 ... 8	2 ... 8	-0,95 ... 8	2 ... 8	2 ... 8	2 ... 8
<b>Pilot pressure (bar)</b>	2 ... 8	2 ... 8	3 ... 8	2 ... 8	2 ... 8	2 ... 8
<b>Flow rate (NI/min)</b>	660	600	660	650	550	580
<b>Resonse time (ms) at 6 bar</b>	on: 19 off: 32	on: 16 off: 30	on: 15 off: 35	on: 18 off: 34	on: 18 off: 34	on: 18 off: 34
<b>Weight (kg)</b>	0.108	0.110	0.115	0.154	0.154	0.154
<b>Model-no.:</b>	BM-02-310	BM-02-312	BME-02-311	BM-02-310/2	BM-02-312/2	BM-02-314/2
<b>Operating pressure (bar)</b>	2 ... 8	2 ... 8	-0,95 ... 8	2 ... 8	2 ... 8	2 ... 8
<b>Pilot pressure (bar)</b>	2 ... 8	2 ... 8	3 ... 8	2 ... 8	2 ... 8	2 ... 8
<b>Flow rate (NI/min)</b>	1090	920	1050	1050	1030	NC: 1050, NO: 920
<b>Resonse time (ms) at 6 bar</b>	on: 19 off: 23	on: 25 off: 27	on: 15 off: 27	on: 22 off: 24	on: 22 off: 24	on: 22 off: 24
<b>Weight (kg)</b>	0.150	0.150	0.150	0.250	0.250	0.250

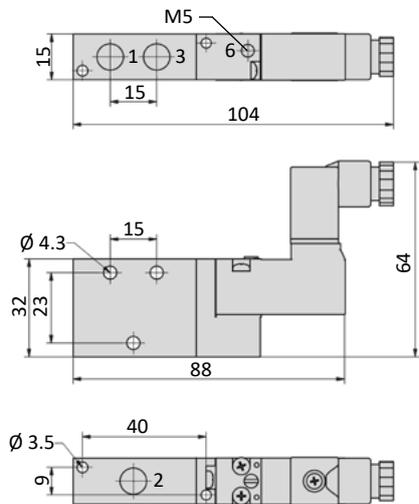
**Accessories**


Plug sockets: see page 4-101

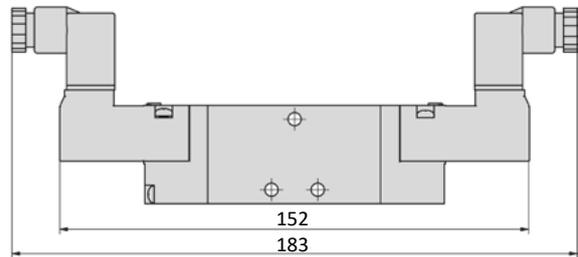
Manifolds and Accessories: see page 4-56

Dimensions

BM-01-31x-HNx

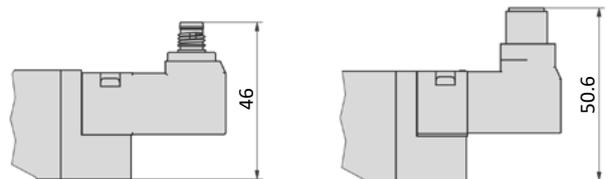


BM-01-31x/2-HNx

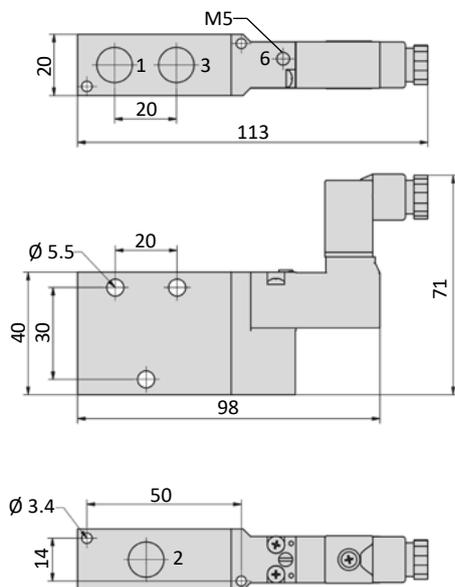


Version M8

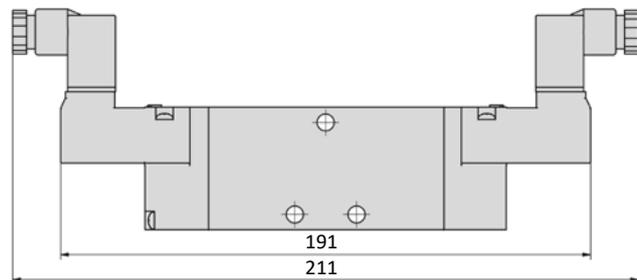
Version M12



BM-02-31x-HNx

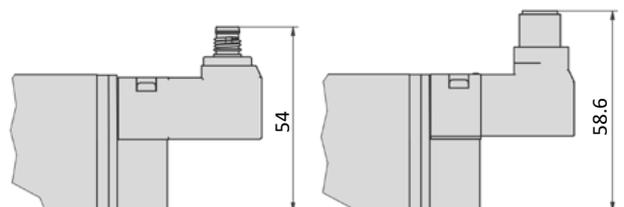


BM-02-31x/2-HNx



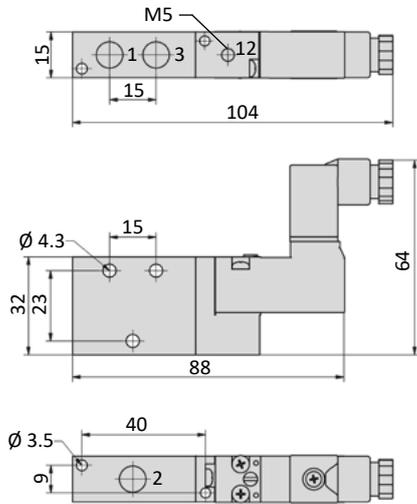
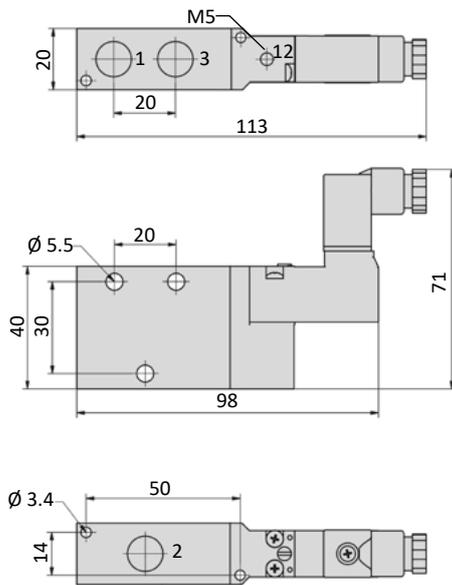
Version M8

Version M12



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = connection for Vorsteuerluft

Plug socket (not included in scope of delivery) can be repositioned by 180°.

**Dimensions**
**BME-01-311-HNx**

**BME-02-311-HNx**


- 1 = pressure inlet
- 2 = outlets
- 3 = exhausts
- 12 = connection for external pilot pressure

Plug socket (not included in scope of delivery) can be repositioned by 180°.

# Series BM-01 and BM-02



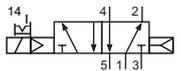
## Technical details

<b>Connection</b>	BM-01: G1/8 BM-02: G1/4
<b>Nominal Size</b>	BM-01: 5 mm BM-02: 7 mm
<b>Temperature range</b>	-10°C ... +60°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, FKM and PU, inner parts: Al, steel and plastic
<b>Protection</b>	IP 65 according to EN 60529

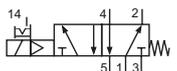


Electrically operated spool valve. The manual override is non-detent (HNT) or detent (HNR) and is operated by bolt or screwdriver.

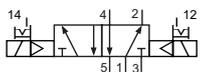
### 5/2-way valves



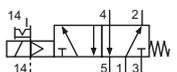
BM-01-510-HNR-xxx  
BM-02-510-HNR-xxx  
5/2-way, single solenoid, air spring return



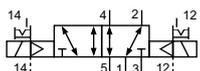
BM-01-511-HNR-xxx  
BM-02-511-HNR-xxx  
5/2-way, single solenoid, mechanical spring return



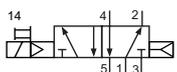
BM-01-520-HNR-xxx  
BM-02-520-HNR-xxx  
5/2-way, double solenoid



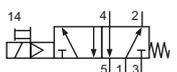
BME-01-511-HNR-xxx  
BME-02-511-HNR-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



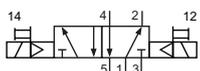
BME-01-520-HNR-xxx  
BME-02-520-HNR-xxx  
5/2-way, double solenoid, external pilot pressure



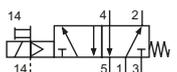
BM-01-510-HNT-xxx  
BM-02-510-HNT-xxx  
5/2-way, single solenoid, air spring return



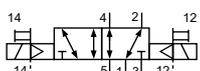
BM-01-511-HNT-xxx  
BM-02-511-HNT-xxx  
5/2-way, single solenoid, mechanical spring return



BM-01-520-HNT-xxx  
BM-02-520-HNT-xxx  
5/2-way, double solenoid



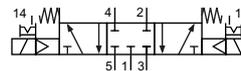
BME-01-511-HNT-xxx  
BME-02-511-HNT-xxx  
5/2-way, single solenoid, external pilot pressure, mechanical spring return



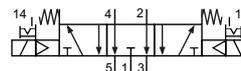
BME-01-520-HNT-xxx  
BME-02-520-HNT-xxx  
5/2-way, double solenoid, external pilot pressure

Please complete: xxx = electrical option

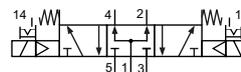
### 5/3-way valves



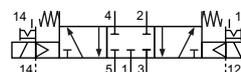
BM-01-530-HNR-xxx  
BM-02-530-HNR-xxx  
5/3-way, center position closed



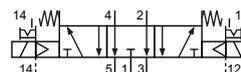
BM-01-533-HNR-xxx  
BM-02-533-HNR-xxx  
5/3-way, center position exhausted



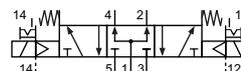
BM-01-534-HNR-xxx  
BM-02-534-HNR-xxx  
5/3-way, center position pressurized



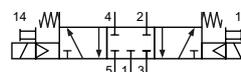
BME-01-530-HNR-xxx  
BME-02-530-HNR-xxx  
5/3-way, center position closed, external pilot pressure



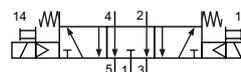
BME-01-533-HNR-xxx  
BME-02-533-HNR-xxx  
5/3-way, center position exhausted, external pilot pressure



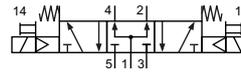
BME-01-534-HNR-xxx  
BME-02-534-HNR-xxx  
5/3-way, center position pressurized, external pilot pressure



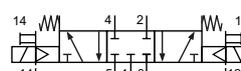
BM-01-530-HNT-xxx  
BM-02-530-HNT-xxx  
5/3-way, center position closed



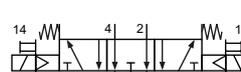
BM-01-533-HNT-xxx  
BM-02-533-HNT-xxx  
5/3-way, center position exhausted



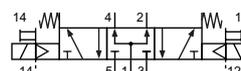
BM-01-534-HNT-xxx  
BM-02-534-HNT-xxx  
5/3-way, center position pressurized



BME-01-530-HNT-xxx  
BME-02-530-HNT-xxx  
5/3-way, center position closed, external pilot pressure



BME-01-533-HNT-xxx  
BME-02-533-HNT-xxx  
5/3-way, center position exhausted, external pilot pressure



BME-01-534-HNT-xxx  
BME-02-534-HNT-xxx  
5/3-way, center position pressurized, external pilot pressure

**Electrical options**

Nominal voltage	Power consumption	Specifics	Connection* <sup>1</sup>	-XXX electrical pins on same side of ports	
				2 or 2 and 4	1, 3 or 1, 3 and 5
12 V DC	1 W		Form C	-461	-431
24 V DC	1 W		Form C	-462	-432
24 V DC	1 W		M12	-N62	-
24 V DC	2,5 W	max. pressure 10 bar	M12	-N42	-
24 V DC	1 W		M8	-T62	-
24 V DC	2,5 W	max. pressure 10 bar	M8	-T42	-
24 V AC	3 VA		Form C	-452	-422
115 V AC	3 VA		Form C	-456	-426
230 V AC	3 VA	max. pressure 10 bar	Form C	-457	-427

\*<sup>1</sup> Plug socket not included, suitable plug socket see page 4-101.

**Technical data**

Model-no.:	BM-01-510	BM-01-511	BM-01-520	BME-01-511	BME-01-520
Operating pressure (bar)	2 ... 8	3 ... 8	2 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	2 ... 8
Flow rate (NI/min)	780	800	790	800	790
Response time (ms) at 6 bar	on: 17 off: 32	on: 15 off: 35	on: 13 off: 13	on: 15 off: 35	on: 13 off: 13
Weight (kg)	0.118	0.120	0.156	0.126	0.168

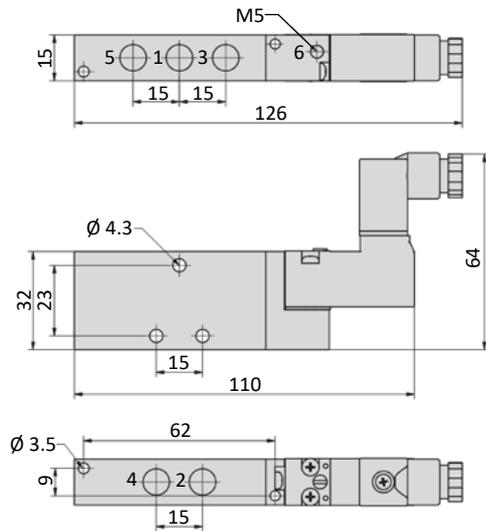
Model-no.:	BM-01-530	BM-01-533	BM-01-534	BME-01-530	BME-01-533	BME-01-534
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (NI/min)	690	670	1030	690	670	1030
Response time (ms) at 6 bar	on: 17 off: 17	on: 16 off: 43	on: 17 off: 49	on: 17 off: 17	on: 16 off: 43	on: 17 off: 49
Weight (kg)	0.154	0.154	0.154	0.166	0.166	0.166

Model-no.:	BM-02-510	BM-02-511	BM-02-520	BME-02-511	BME-02-520
Operating pressure (bar)	2 ... 8	3 ... 8	2 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	2 ... 8	3 ... 8	2 ... 8	3 ... 8	2 ... 8
Flow rate (NI/min)	1700	1600	1540	1600	1540
Response time (ms) at 6 bar	on: 23 off: 33	on: 13 off: 35	on: 11 off: 11	on: 13 off: 35	on: 11 off: 11
Weight (kg)	0.220	0.220	0.270	0.220	0.270

Model-no.:	BM-02-530	BM-02-533	BM-02-534	BME-02-530	BME-02-533	BME-02-534
Operating pressure (bar)	3 ... 8	3 ... 8	3 ... 8	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8	3 ... 8
Flow rate (NI/min)	1300	1470	1660	1300	1470	1660
Response time (ms) at 6 bar	on: 20 off: 26	on: 26 off: 28	on: 26 off: 33	on: 20 off: 26	on: 26 off: 28	on: 26 off: 33
Weight (kg)	0.260	0.260	0.260	0.260	0.260	0.260

## Dimensions

### BM-01-51x-HNx

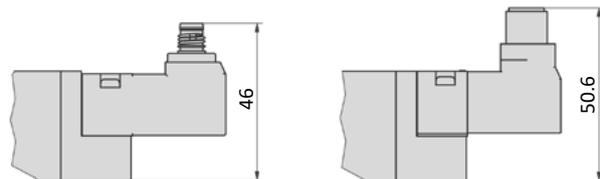


### BM-01-520-HNx, BM-01-53x-HNx

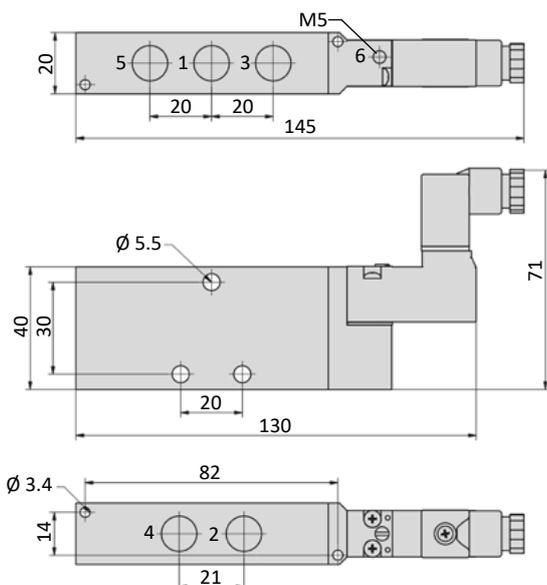


#### Version M8

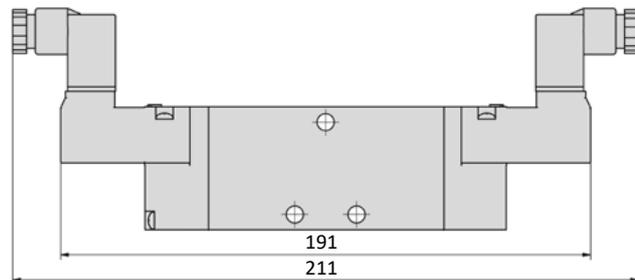
#### Version M12



### BM-02-51x-HNx

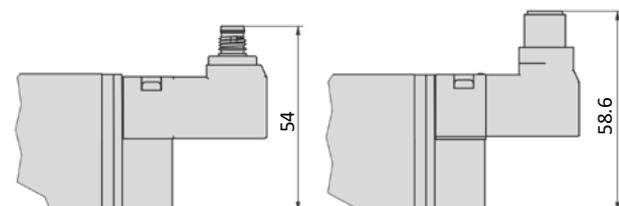


### BM-02-520-HNx, BM-02-53x-HNx



#### Version M8

#### Version M12



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 6 = connection for Vorsteuerluft

Plug socket (not included in scope of delivery) can be repositioned by 180°.

## Accessories



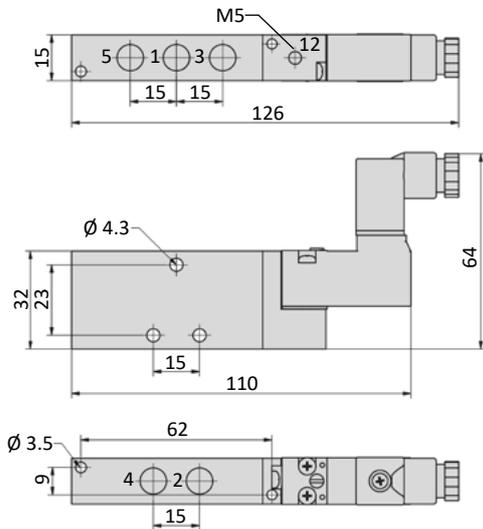
Plug sockets: see page 4-101



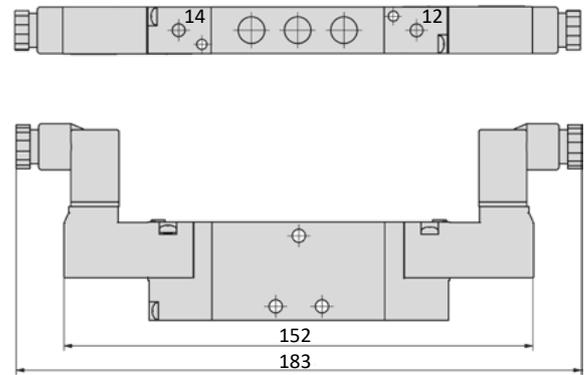
Manifolds and Accessories: see page 4-56

**Dimensions**

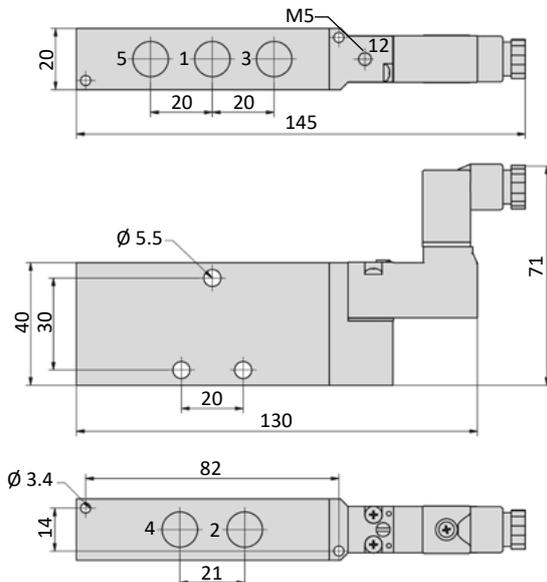
**BME-01-51x-HNx**



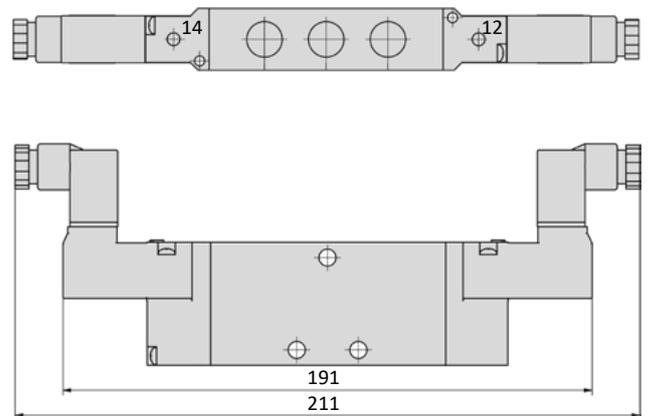
**BME-01-520-HNx, BME-01-53x-HNx**



**BME-02-51x-HNx**



**BME-02-520-HNx, BME-02-53x-HNx**



- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts
- 12,14 = connection for external pilot pressure

Plug socket (not included in scope of delivery) can be repositioned by 180°.

**Accessories**



Plug sockets: see page 4-101

Manifolds and Accessories: see page 4-56

# Series BM-01 and BM-02

## Models with M8 pilot valve



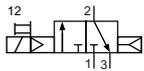
### Technical details

<b>Connection</b>	BM-01: G1/8 BM-02: G1/4
<b>Nominal Size</b>	BM-01: 5 mm BM-02: 7 mm
<b>Temperature range</b>	-10°C ... +60°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, FKM and PU, inner parts: Al, steel and plastic
<b>Nominal voltage</b>	24 V DC
<b>Power consumption DC</b>	1 W per pilot valve
<b>Permissible voltage tolerance</b>	± 10 %

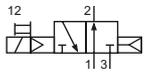


Electrically operated spool valve. The valves are equipped with an M8 solenoid system with a non-detent manual override (HNT). The actuation is carried out by means of a suitable tool.

### 3/2-way-valves

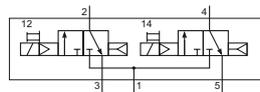


BM-01-310-HNT-T32  
BM-02-310-HNT-T32  
3/2-way, single solenoid, air spring return, NC

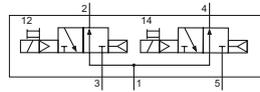


BM-01-312-HNT-T32  
BM-02-312-HNT-T32  
3/2-way, single solenoid, air spring return, NO

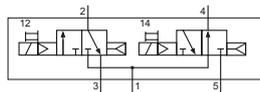
### 2 x 3/2-way-valves



BM-01-310/2-HNT-T32  
BM-02-310/2-HNT-T32  
2 x 3/2-way, single solenoid, air spring return, NC

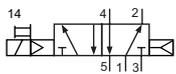


BM-01-312/2-HNT-T32  
BM-02-312/2-HNT-T32  
2 x 3/2-way, single solenoid, air spring return, NO

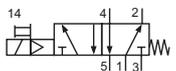


BM-01-314/2-HNT-T32  
BM-02-314/2-HNT-T32  
2 x 3/2-way, single solenoid, air spring return, 1 x NC, 1 x NO

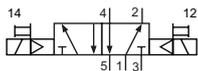
### 5/2-way-valves



BM-01-510-HNT-T32  
BM-02-510-HNT-T32  
5/2-way, single solenoid, air spring return

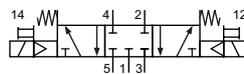


BM-01-511-HNT-T32  
BM-02-511-HNT-T32  
5/2-way, single solenoid, mechanical spring return

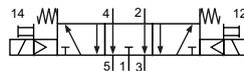


BM-01-520-HNT-T32  
BM-02-520-HNT-T32  
5/2-way, double solenoid

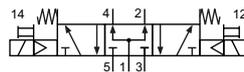
### 5/3-way-valves



BM-01-530-HNT-T32  
BM-02-530-HNT-T32  
5/3-way, center position closed



BM-01-533-HNT-T32  
BM-02-533-HNT-T32  
5/3-way, center position exhausted



BM-01-534-HNT-T32  
BM-02-534-HNT-T32  
5/3-way, center position pressurized

## Series BM-01 and BM-02

Models with M8 pilot valve

### Technical data

Model-no.:	BM-01-310	BM-01-312	BM-01-310/2	BM-01-312/2	BM-01-314/2
Operating pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Pilot pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Flow rate (NI/min)	660	600	650	550	580
Response time (ms) at 6 bar	on: 19 off: 32	on: 16 off: 30	on: 18 off: 34	on: 18 off: 34	on: 18 off: 34
Weight (kg)	0.108	0.110	0.154	0.154	0.154

Model-no.:	BM-02-310	BM-02-312	BM-02-310/2	BM-02-312/2	BM-02-314/2
Operating pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Pilot pressure (bar)	2 ... 8	2 ... 8	2 ... 8	2 ... 8	2 ... 8
Flow rate (NI/min)	1090	920	1050	1030	NC: 1050. NO: 920
Response time (ms) at 6 bar	on: 19 off: 23	on: 25 off: 27	on: 22 off: 24	on: 22 off: 24	on: 22 off: 24
Weight (kg)	0.150	0.150	0.250	0.250	0.250

Model-no.:	BM-01-510	BM-01-511	BM-01-520	BM-01-530	BM-01-533	BM-01-534
Operating pressure (bar)	2 ... 7	3 ... 7	1 ... 7	3 ... 7	3 ... 7	3 ... 7
Pilot pressure (bar)	2 ... 7	3 ... 7	1 ... 7	3 ... 7	3 ... 7	3 ... 7
Flow rate (NI/min)	780	800	790	690	670	1030
Response time (ms) at 6 bar	on: 12 off: 23	on: 12 off: 27	on: 12 off: 12	on: 14 off: 32	on: 14 off: 32	on: 14 off: 32
Weight (kg)	0.098	0.100	0.116	0.114	0.114	0.114

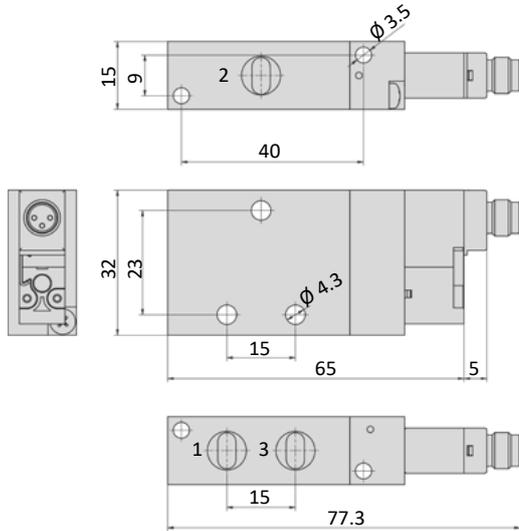
Model-no.:	BM-02-510	BM-02-511	BM-02-520	BM-02-530	BM-02-533	BM-02-534
Operating pressure (bar)	2 ... 7	3 ... 7	2 ... 7	3 ... 7	3 ... 7	3 ... 7
Pilot pressure (bar)	2 ... 7	3 ... 7	2 ... 7	3 ... 7	3 ... 7	3 ... 7
Flow rate (NI/min)	1700	1600	1540	1300	1470	1660
Response time (ms) at 6 bar	on: 12 off: 23	on: 12 off: 27	on: 14 off: 14	on: 16 off: 50	on: 16 off: 50	on: 16 off: 50
Weight (kg)	0.190	0.190	0.210	0.200	0.200	0.200

# Series BM-01 and BM-02

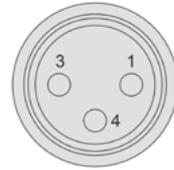
Models with M8 pilot valve

## Dimensions

### BM-01-31x-HNT-T32

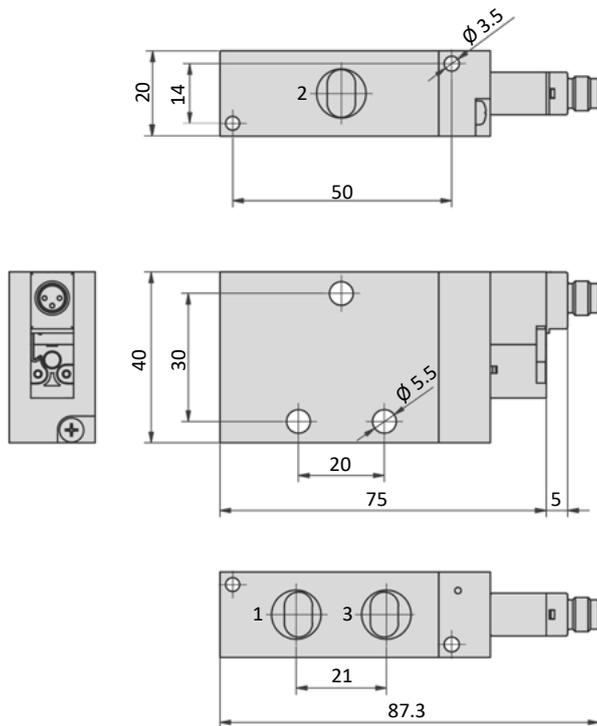


### Pin assignment



- 1 = + or -
- 3 = + or -
- 4 = not used

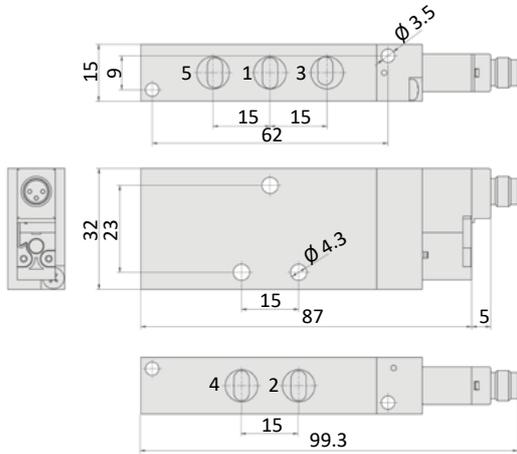
### BM-02-31x-HNT-T32



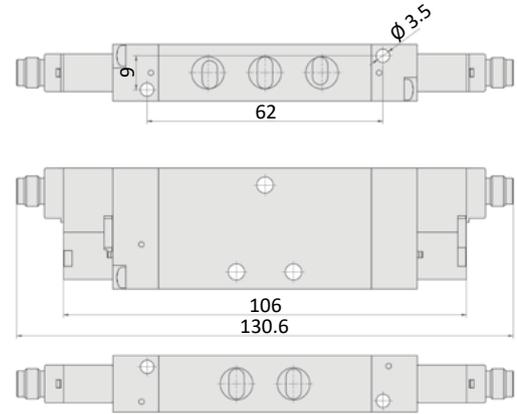
- 1 = pressure inlet
- 2 = outlets
- 3 = exhausts

**Dimensions**

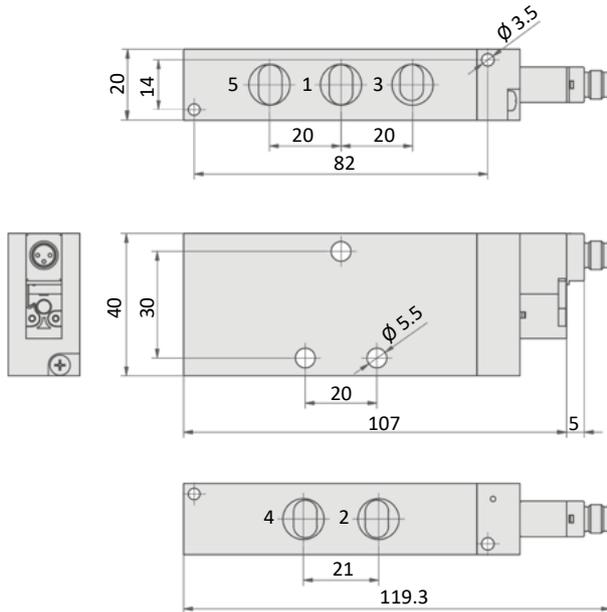
**BM-01-51x-HNT-T32**



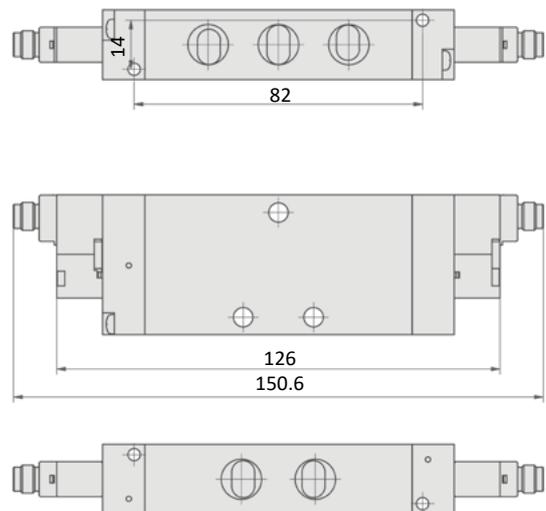
**BM-01-520-HNT-T32, BM-01-53x-HNT-T32**



**BM-02-51x-HNT-T32**



**BM-02-520-HNT-T32, BM-02-53x-HNT-T32**



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

**Accessories**



Connection cable: see page 4-114

## Series BM-01 and BM-02

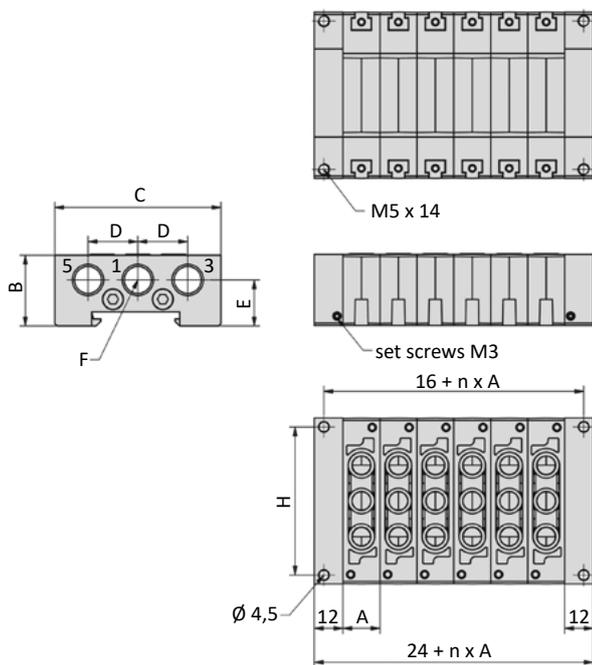
### General information

The RF-01-xx/n and RF-02-xx/n manifolds are suitable for the BM-01 and BM-02 valve series. The system is modular and can be extended up to 12 stations. Blind plates RF-01-V and RF-02-V are available. All mounting screws and gaskets are included.

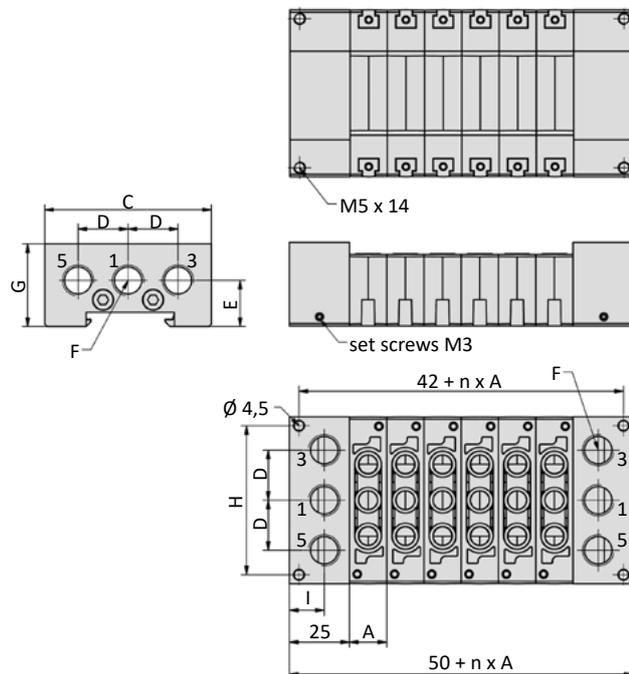


### Dimensions

#### RF-01-AB, RF-02-AB



#### RF-01-CD, RF-02-CD



n = number of stations  
 1 = pressure inlet  
 3,5 = exhausts

Model-no.:	A	B	C	D	E	F	G	H	I
RF-01-xx/n	15.7	30	70	21	19.5	G1/4	35	62.5	14.5
RF-02-xx/n	20.5	32	90	25	20	G3/8	38	82	12.5

Model-no.:	nn	02	03	04	05	06	07	08	09	10	11	12
Weight (kg)	RF-01-AB/nn	0.150	0.190	0.230	0.270	0.310	0.350	0.390	0.430	0.470	0.510	0.550
	RF-02-AB/nn	0.230	0.270	0.310	0.350	0.390	0.430	0.470	0.510	0.550	0.590	0.630

Model-no.:	nn	02	03	04	05	06	07	08	09	10	11	12
Weight (kg)	RF-01-CD/nn	0.300	0.340	0.380	0.420	0.460	0.500	0.540	0.580	0.620	0.660	0.700
	RF-02-CD/nn	0.420	0.460	0.500	0.540	0.580	0.620	0.660	0.700	0.740	0.780	0.820

## Voltage code Series BM-01 and BM-02

- HN * - * * *			
Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs
HN prepared for HN	1 with pilot valve and plug socket	according to valve	DC 1 HN at 2/(4) Connector lugs at 1/3/5)
HNR detend	4 with pilot valve, without plug socket	according to valve	AC 2 HN at 2/(4) Connector lugs at 1/3/5)
HNT non-detend	6 without pilot valve		DC, low power 3 HN at 2/(4) Connector lugs at 1/3/5)
	N with pilot valve with M12 connector	according to valve	DC 4 HN at 2/(4) Connector lugs at 2/(4)
	R with pilot valve with moulded cable to 1 m length	according to valve	AC 5 HN at 2/(4) Connector lugs at 2/(4)
	T with pilot valve with M8 connector	according to valve	DC, low power 6 HN at 2/(4) Connector lugs at 2/(4)
			7 without indication

*Not all options are suitable for all valve series*

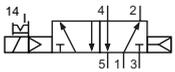
## Technical details

<b>Connection</b>	86-MVZ-10: M5 86-MVZ-15: G1/8
<b>Temperature range</b>	-5°C ... +50°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 40 according to EN 60529

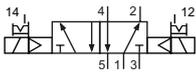


Electrically operated spool valve. The manual override is detent/ non-detent and is operated by screwdriver.

### 5/2-way-valves

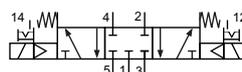


86-MVZ-10-510-HN-T12  
86-MVZ-15-510-HN-T12  
5/2-way, single solenoid, air spring return

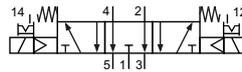


86-MVZ-10-520-HN-T12  
86-MVZ-15-520-HN-T12  
5/2-way, double solenoid

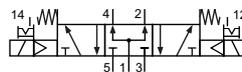
### 5/3-way-valves



86-MVZ-10-530-HN-T12  
86-MVZ-15-530-HN-T12  
5/3-way, center position closed



86-MVZ-10-533-HN-T12  
86-MVZ-15-533-HN-T12  
5/3-way, center position exhausted



86-MVZ-10-534-HN-T12  
86-MVZ-15-534-HN-T12  
5/3-way, center position pressurized

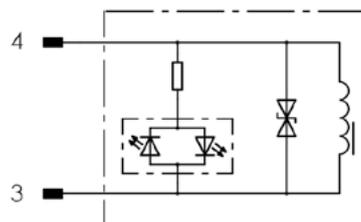
## Electrical options

Nominal voltage	Power consumption	Specifics	electrical connection
24 V DC	0,85 W	with integrated LED, orange and protective circuit	M8

### Pin assignment



1 = not used  
3 = - / +  
4 = + / -



## Technical data

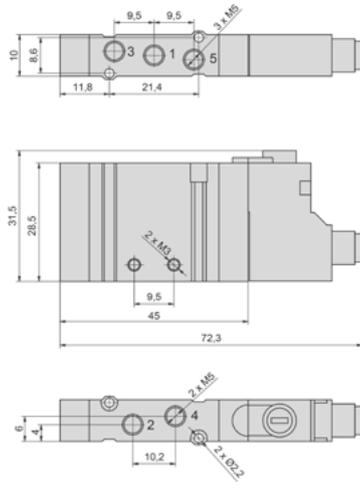
Model-no.:	86-MVZ-10-510	86-MVZ-10-520	86-MVZ-10-530	86-MVZ-10-533	86-MVZ-10-534
<b>Operating pressure (bar)</b>	1,5...8	1...8	2...8	2...8	2...8
<b>Max. switching frequency (Hz)</b>	5	5	5	5	5
<b>Flow rate (NI/min)</b>	160	160	130	130	130

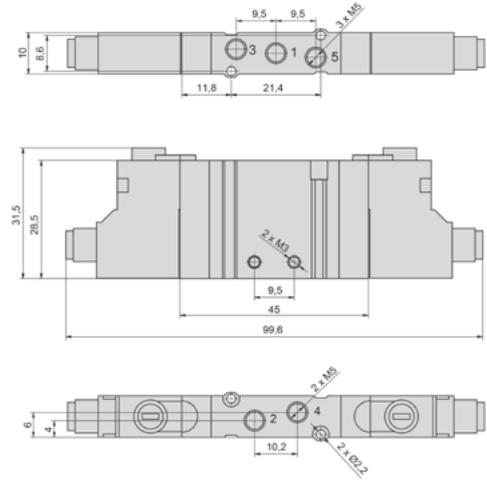
Model-no.:	86-MVZ-15-510	86-MVZ-15-520	86-MVZ-15-530	86-MVZ-15-533	86-MVZ-15-534
<b>Operating pressure (bar)</b>	1,5...8	1...8	2...8	2...8	2...8
<b>Max. switching frequency (Hz)</b>	5	5	5	5	5
<b>Flow rate (NI/min)</b>	500	500	420	420	420

**Dimensions**

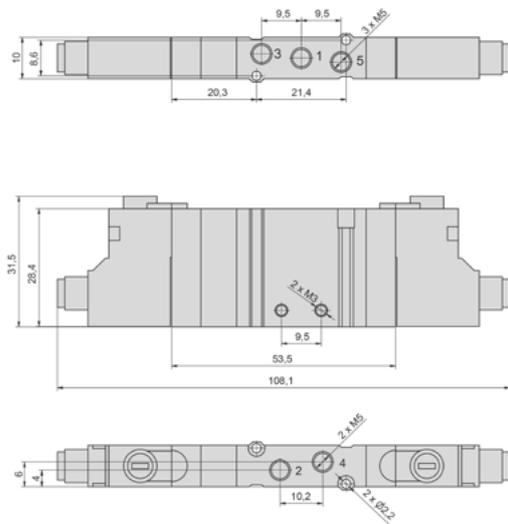
**86-MVZ-10-510**



**86-MVZ-10-520**



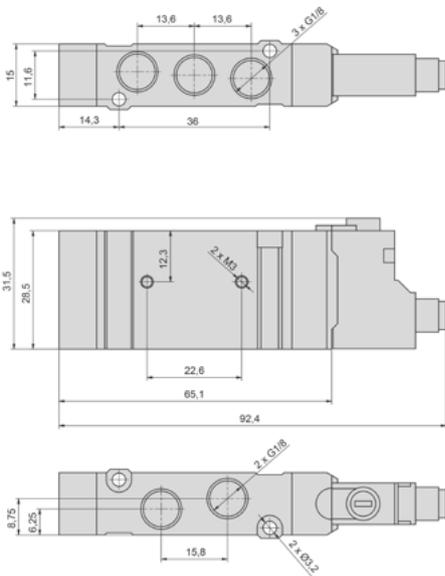
**86-MVZ-10-53x**



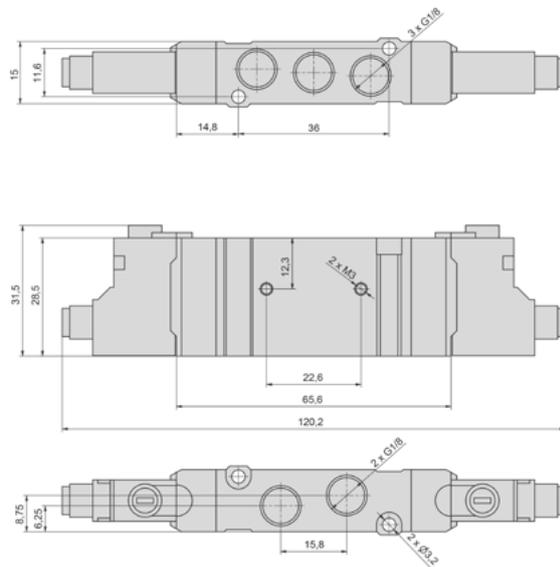
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Dimensions

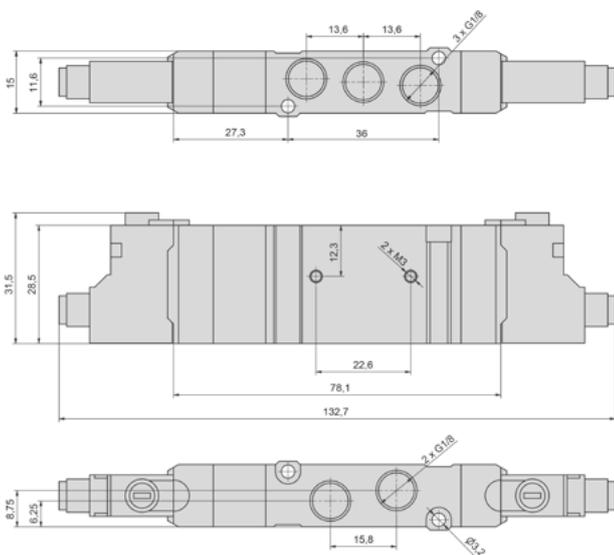
86-MVZ-15-510



86-MVZ-15-520



86-MVZ-15-53x



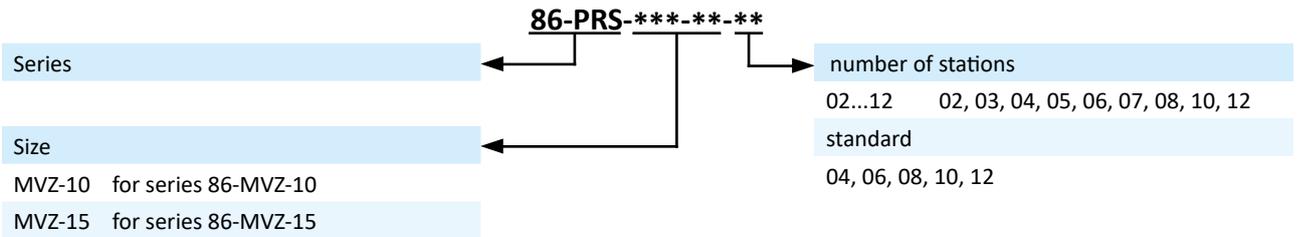
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

**General information**

Manifolds 86-PRS are available for series 86-MVZ valves.  
 The mounting material for the valves (fastening screws and moulded seals) is included in the scope of delivery.  
 Blind plates for free valve stations 86-PRS-xxx-V are available as a supplement.



**Order code**

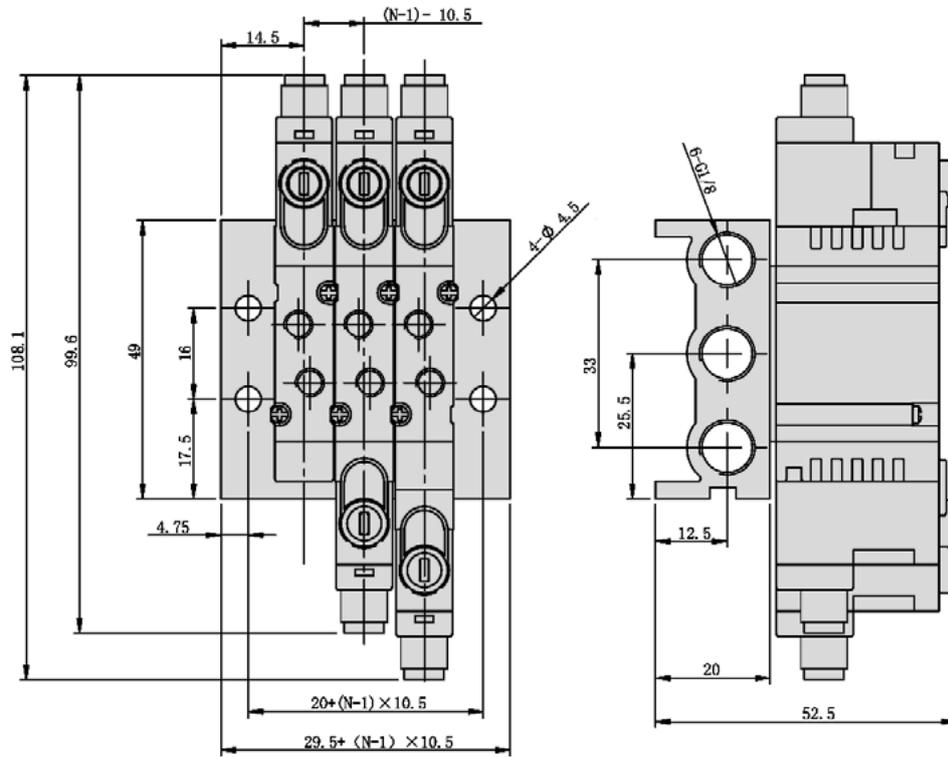


# Series 86-MVZ

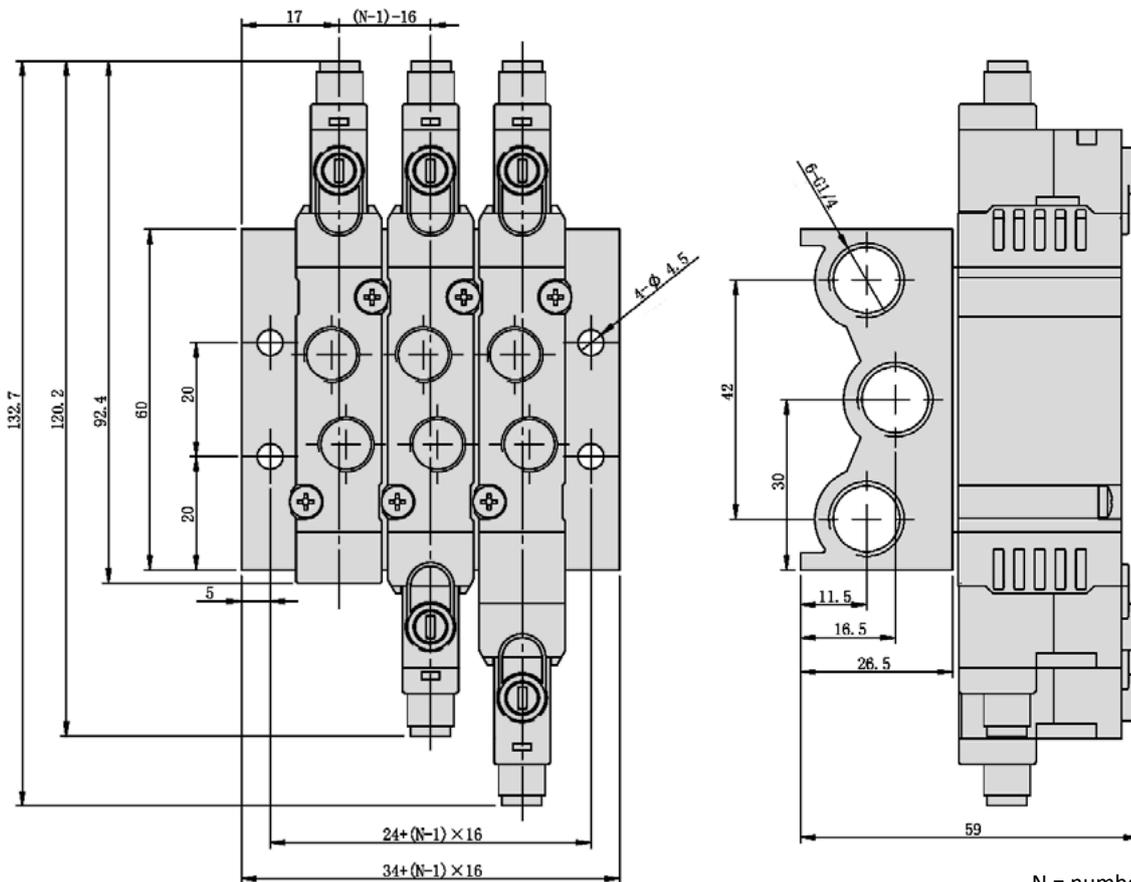


## Dimensions

### 86-PRS-MVZ-10



### 86-PRS-MVZ-15



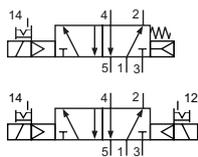
N = number of stations

**Technical details**

<b>Connection</b>	G1/8
<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

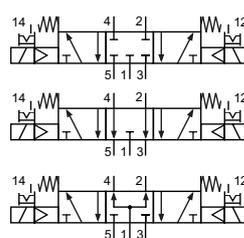


Electrically operated spool valve. The manual override is detent/ non-detent and is operated by screwdriver.

**5/2-way-valves**


**86-MC-5-18-511-M12**  
5/2-way, single solenoid, mechanical spring return and air spring return

**86-MC-5-18-520-M12**  
5/2-way, double solenoid

**5/3-way-valves**


**86-MC-5-18-530-M12**  
5/3-way, center position closed

**86-MC-5-18-533-M12**  
5/3-way, center position exhausted

**86-MC-5-18-534-M12**  
5/3-way, center position pressurized

**Electrical options**

Nominal voltage	Power consumption	Specifics	Connection*1	-M12 Manual override opposite the pneumatic connections
24 V DC	2.5 W		Form C industrial norm	-M12

\*1 Supplied including socket, with LED display

**Technical data**

Model-no.:	86-MC-5-18-511	86-MC-5-18-520	86-MC-5-18-530	86-MC-5-18-533	86-MC-5-18-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal Size (mm)</b>	4	4	3.5	3.5	3.5
<b>Flow rate (NI/min)</b>	650	650	480	480	480
<b>Resonse time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.115	0.170	0.190	0.190	0.190

## Series 86-MC-5-18

### General information

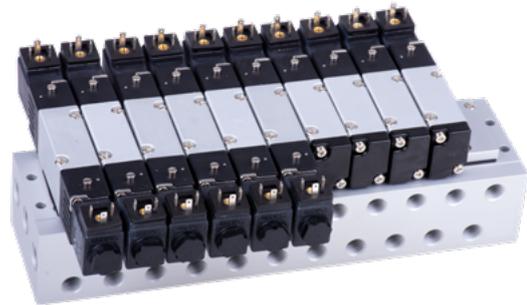
Manifolds are available for series 86-MC-5-18 valves

86-PRS-MC-18/nn are available.

The mounting material for the valves (fastening screws and moulded seals) is included in the scope of delivery.

Blind plates for free valve stations 86-PRS-MC-V are available as a supplement.

The manifolds can be supplied fully assembled in accordance with the order code.



### Order code

Series		86-MC-18/**-*****		Bestückung	
Series				nC	n Valves, 5/3-way, center position closed
Size / connections				nE	n Valves, 5/3-way, center position exhausted
18	connections G1/4			nP	n Valves, 5/3-way, center position pressurized
Number of stations				nD	n Valves, 5/2-way, double solenoid
04	4 stations			nS	n Valves, 5/2-way, single solenoid
06	6 stations			nB	n blind plates
08	8 stations				
10	10 stations				
11	11 stations				
12	12 stations				

### Accessories



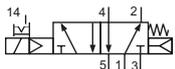
Plug sockets: see page 4-104

**Technical details**

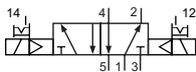
<b>Connection</b>	G1/8
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.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


**4**

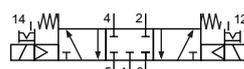
Electrically operated spool valve. The manual override is detent/ non-detent and is operated by screwdriver.

**5/2-way-valves**


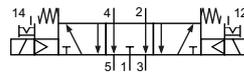
86-MV-5-18-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return



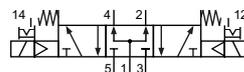
86-MV-5-18-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-18-530-xxx  
5/3-way, center position closed



86-MV-5-18-533-xxx  
5/3-way, center position exhausted



86-MV-5-18-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Manual override on same side of ports 2 and 4
24 V DC	2.5 W		Form C industrial norm	-M42
220 V AC	2.5 VA		Form C industrial norm	-M57

\*1 Plug socket with integrated LED are part of delivery

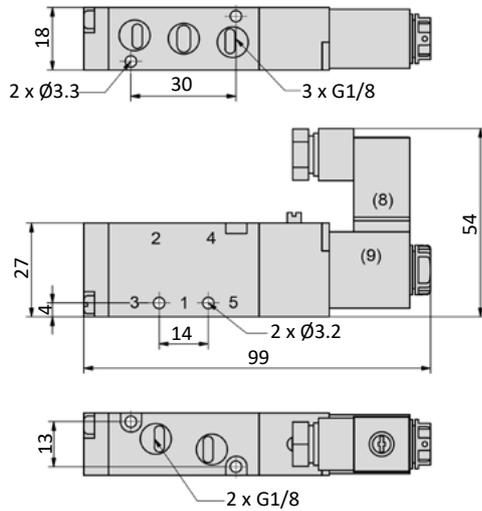
**Technical data**

Model-no.:	86-MV-5-18-511	86-MV-5-18-520	86-MV-5-18-530	86-MV-5-18-533	86-MV-5-18-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	4	4	3.5	3.5	3.5
<b>Flow rate (NI/min)</b>	650	650	480	480	480
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.115	0.170	0.190	0.190	0.190

## Series 86-MV-5-18

### Dimensions

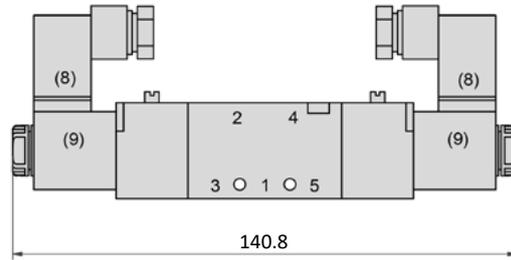
#### 86-MV-5-18-511



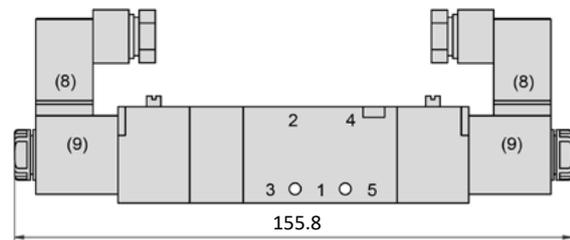
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

#### 86-MV-5-18-520



#### 86-MV-5-18-53x



### Accessories



Plug sockets: see page 4-104



Manifolds: see page 4-77

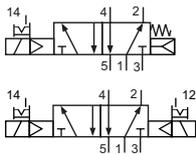
**Technical details**

<b>Connection</b>	G1/8
<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



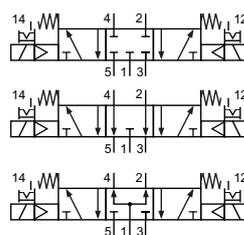
4

Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

**5/2-way-valves**


86-MV-5-28-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return

86-MV-5-28-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-28-530-xxx  
5/3-way, center position closed

86-MV-5-28-533-xxx  
5/3-way, center position exhausted

86-MV-5-28-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

\*1 Plug socket with integrated LED are part of delivery

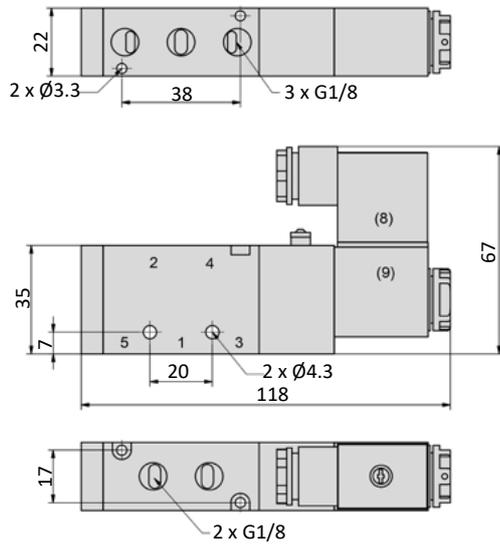
**Technical data**

Model-no.:	86-MV-5-28-511	86-MV-5-28-520	86-MV-5-28-530	86-MV-5-28-533	86-MV-5-28-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	4.5	4.5	4	4	4
<b>Flow rate (NI/min)</b>	750	750	650	650	650
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.212	0.320	0.363	0.363	0.363

# Series 86-MV-5-28

## Dimensions

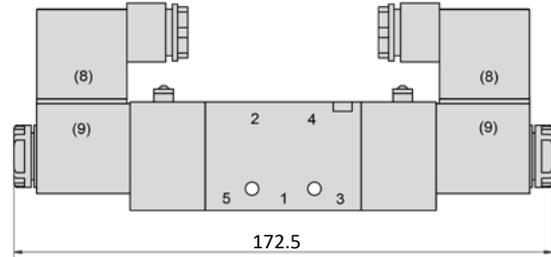
### 86-MV-5-28-511



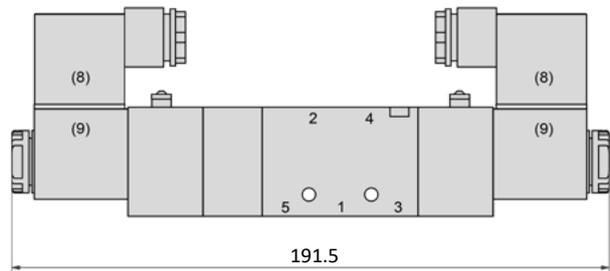
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

### 86-MV-5-28-520



### 86-MV-5-28-53x



## Accessories



Plug sockets: see page 4-104



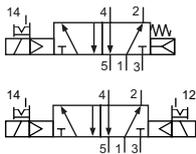
Manifolds: see page 4-77

**Technical details**

<b>Connection</b>	pressure inlets G1/4, exhausts G1/8
<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

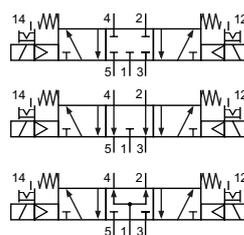


Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

**4**
**5/2-way-valves**


86-MV-5-14-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return

86-MV-5-14-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-14-530-xxx  
5/3-way, center position closed

86-MV-5-14-533-xxx  
5/3-way, center position exhausted

86-MV-5-14-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

\*1 Plug socket with integrated LED are part of delivery

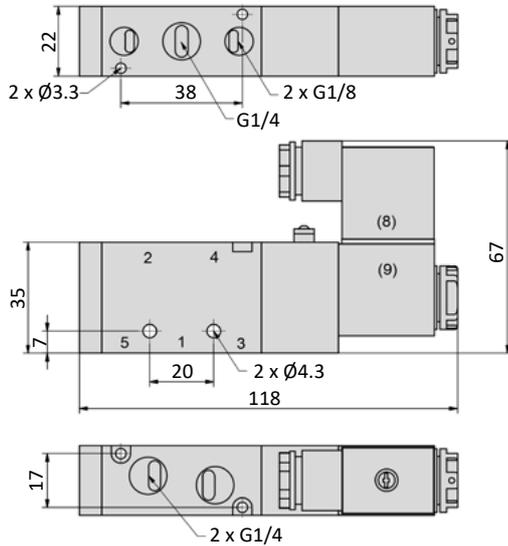
**Technical data**

Model-no.:	86-MV-5-14-511	86-MV-5-14-520	86-MV-5-14-530	86-MV-5-14-533	86-MV-5-14-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	4.5	4.5	4	4	4
<b>Flow rate (NI/min)</b>	870	870	650	650	650
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.208	0.318	0.358	0.358	0.358

## Series 86-MV-5-14

### Dimensions

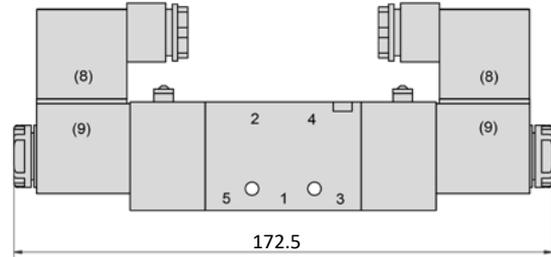
#### 86-MV-5-14-511



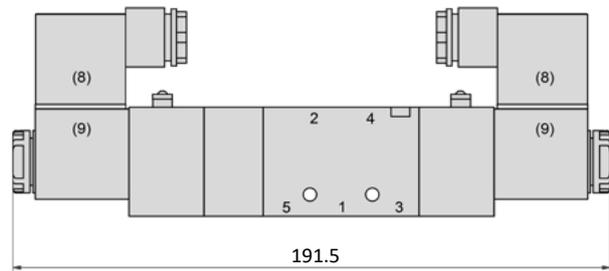
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

#### 86-MV-5-14-520



#### 86-MV-5-14-53x



### Accessories



Plug sockets: see page 4-104



Manifolds: see page 4-77

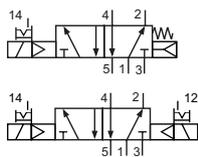
**Technical details**

<b>Connection</b>	G1/4
<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



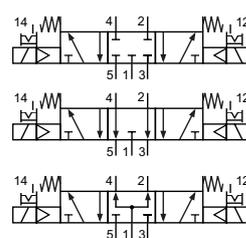
4

Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

**5/2-way-valves**


86-MV-5-24-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return

86-MV-5-24-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-24-530-xxx  
5/3-way, center position closed

86-MV-5-24-533-xxx  
5/3-way, center position exhausted

86-MV-5-24-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection* <sup>1</sup>	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

\*<sup>1</sup> Plug socket with integrated LED are part of delivery

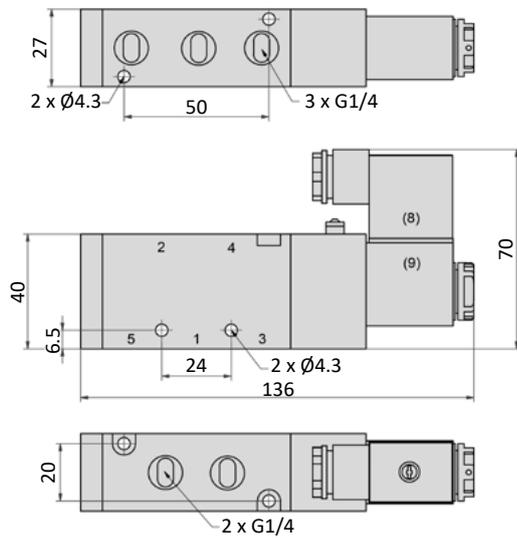
**Technical data**

Model-no.:	86-MV-5-24-511	86-MV-5-24-520	86-MV-5-24-530	86-MV-5-24-533	86-MV-5-24-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	6	6	5	5	5
<b>Flow rate (NI/min)</b>	1350	1350	980	980	980
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.290	0.400	0.460	0.460	0.460

## Series 86-MV-5-24

### Dimensions

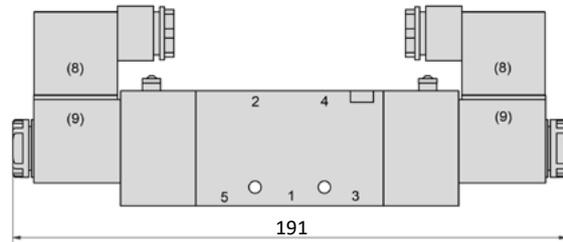
#### 86-MV-5-24-511



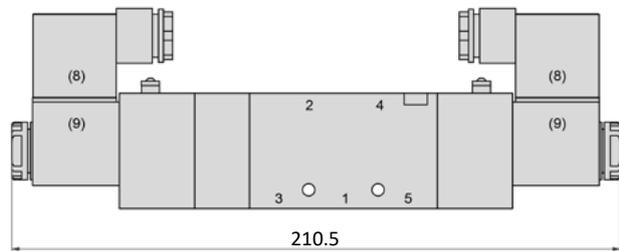
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

#### 86-MV-5-24-520



#### 86-MV-5-24-53x



### Accessories



Plug sockets: see page 4-104



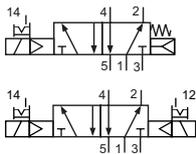
Manifolds: see page 4-77

**Technical details**

<b>Connection</b>	pressure inlets G3/8, exhausts G1/4
<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

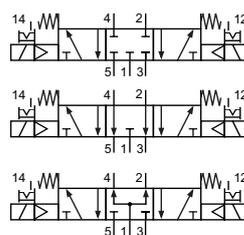


Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

**4**
**5/2-way-valves**


86-MV-5-38-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return

86-MV-5-38-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-38-530-xxx  
5/3-way, center position closed

86-MV-5-38-533-xxx  
5/3-way, center position exhausted

86-MV-5-38-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

\*1 Plug socket with integrated LED are part of delivery

**Technical data**

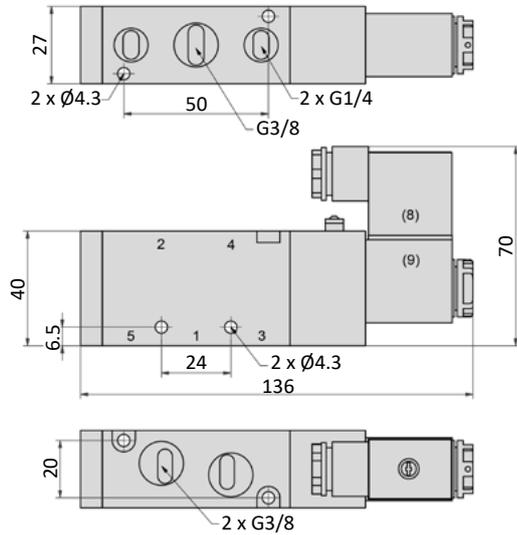
Model-no.:	86-MV-5-38-511	86-MV-5-38-520	86-MV-5-38-530	86-MV-5-38-533	86-MV-5-38-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	6	6	5	5	5
<b>Flow rate (NI/min)</b>	1600	1600	980	980	980
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.285	0.395	0.454	0.454	0.454

## Series 86-MV-5-38



### Dimensions

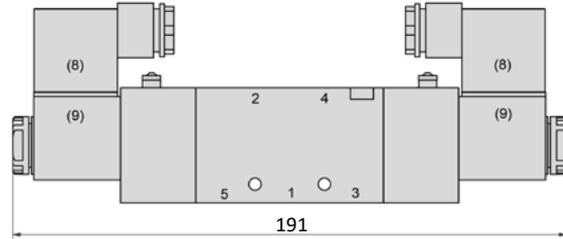
#### 86-MV-5-38-511



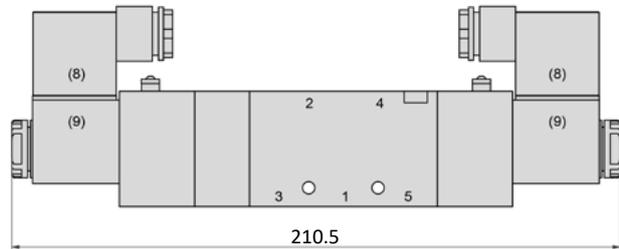
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

#### 86-MV-5-38-520



#### 86-MV-5-38-53x



### Accessories



Plug sockets: see page 4-104



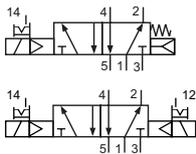
Manifolds: see page 4-77

**Technical details**

<b>Connection</b>	G1/2
<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

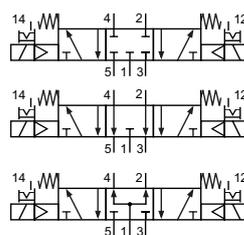


Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

**4**
**5/2-way-valves**


86-MV-5-12-511-xxx  
5/2-way, single solenoid, mechanical spring return and air spring return

86-MV-5-12-520-xxx  
5/2-way, double solenoid

**5/3-way-valves**


86-MV-5-12-530-xxx  
5/3-way, center position closed

86-MV-5-12-533-xxx  
5/3-way, center position exhausted

86-MV-5-12-534-xxx  
5/3-way, center position pressurized

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection* <sup>1</sup>	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

\*<sup>1</sup> Plug socket with integrated LED are part of delivery

**Technical data**

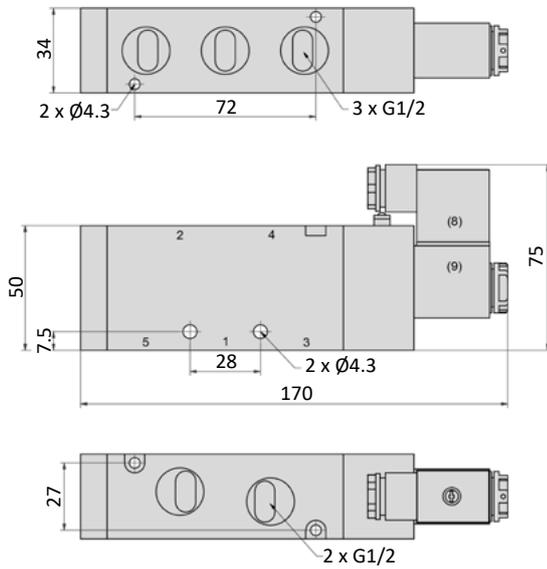
Model-no.:	86-MV-5-12-511	86-MV-5-12-520	86-MV-5-12-530	86-MV-5-12-533	86-MV-5-12-534
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal size (mm)</b>	8	8	6.5	6.5	6.5
<b>Flow rate (NI/min)</b>	2500	2500	1600	1600	1600
<b>Response time (ms) at 6 bar</b>	20	20	20	20	20
<b>Weight (kg)</b>	0.506	0.626	0.714	0.714	0.714

# Series 86-MV-5-12



## Dimensions

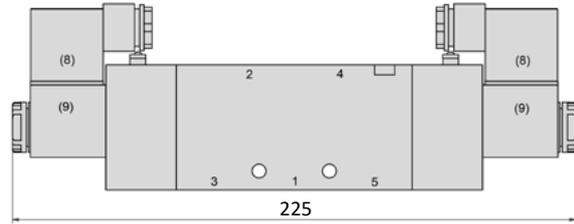
### 86-MV-5-12-511



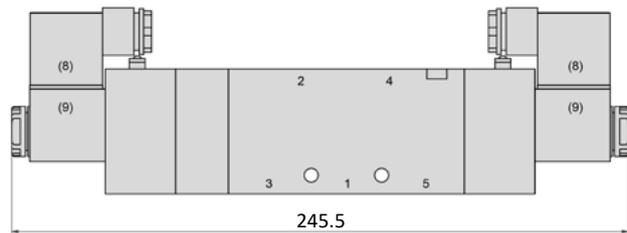
- 1 = pressure inlet
- 2,4 = outlets
- 3,5 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

### 86-MV-5-12-520



### 86-MV-5-12-53x



## Accessories



Plug sockets: see page 4-104



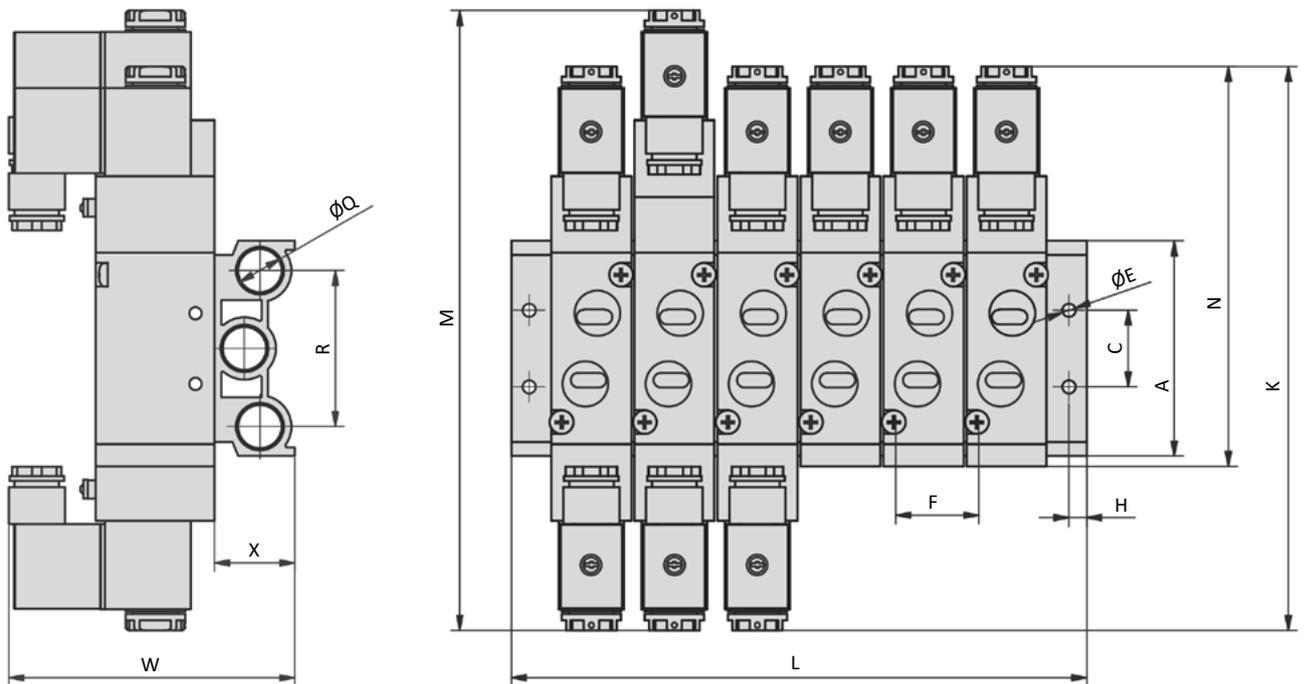
Manifolds: see page 4-77

**General information**

Manifolds 86-PRS are available for series 86-MV-5 valves.  
 The mounting material for the valves (fastening screws and moulded seals) is included in the scope of delivery.  
 Blind plates for free valve stations 86-PRS-xxx-V are available as a supplement.


**Order code**
**86-PRS-\*\*\*-\*\*\***

Series	Number of stations
100 for series 86-MV-5-18	02...20
200 for series 86-MV-5-28, 86-MV-5-14	Size Standard
300 for series 86-MV-5-24, 86-MV-5-38	100 02, 04, 06, 08, 10, 12, 14, 16
400 for series 86-MV-5-12	200 02, 04, 05, 06, 08, 10, 12, 14, 16
	300 02, 04, 06
	400 02, 04

**Dimensions**


## Series 86-MV-3



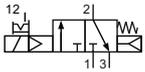
## Technical details

<b>Connection</b>	86-MV-3-18: G1/8 86-MV-3-14: G1/4
<b>Temperature range</b>	+5°C ... +50°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

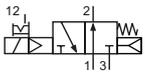


Electrically operated spool valve. The manual override is detent/ non-detent. It is operated manually or by screwdriver.

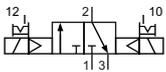
## 3/2-way-valves



86-MV-3-18-311-xxx  
86-MV-3-14-311-xxx  
3/2-way, single solenoid, mechanical spring return and air spring return, NC



86-MV-3-18-311-O-xxx  
86-MV-3-14-311-O-xxx  
3/2-way, single solenoid, mechanical spring return and air spring return, NO



86-MV-3-18-320-xxx  
86-MV-3-14-320-xxx  
3/2-way, double solenoid

Please complete: xxx = electrical option

## Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-XXX Manual override on same side of ports 2 and 4
24 V DC	3 W		Form B industrial norm	-M42
220 V AC	3.5 VA		Form B industrial norm	-M57

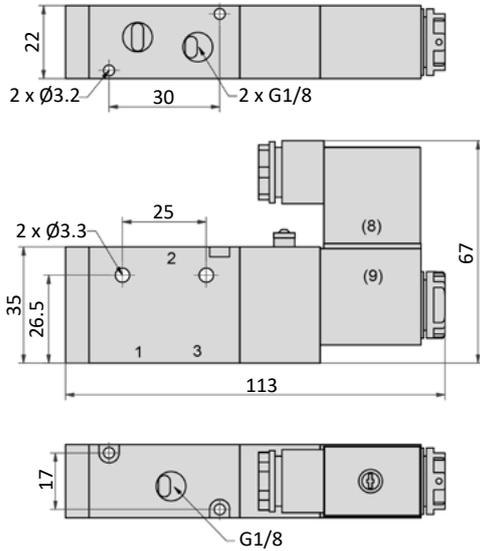
\*1 Plug socket with integrated LED are part of delivery

## Technical data

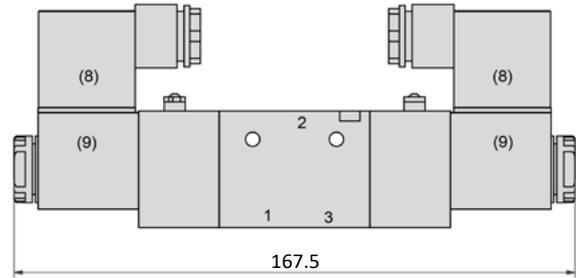
Model-no.:	86-MV-3-18-311	86-MV-3-18-311-O	86-MV-3-18-320	86-MV-3-14-311	86-MV-3-14-311-O	86-MV-3-14-320
<b>Operating pressure (bar)</b>	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8	1.5...8
<b>Nominal Size (mm)</b>	4	4	4	4.5	4.5	4.5
<b>Flow rate (NI/min)</b>	760	760	760	870	870	870
<b>Resonse time (ms) at 6 bar</b>	20	20	20	20	20	20
<b>Weight (kg)</b>	0.201	0.201	0.290	0.197	0.197	0.286

**Dimensions**

**86-MV-3-18-311**



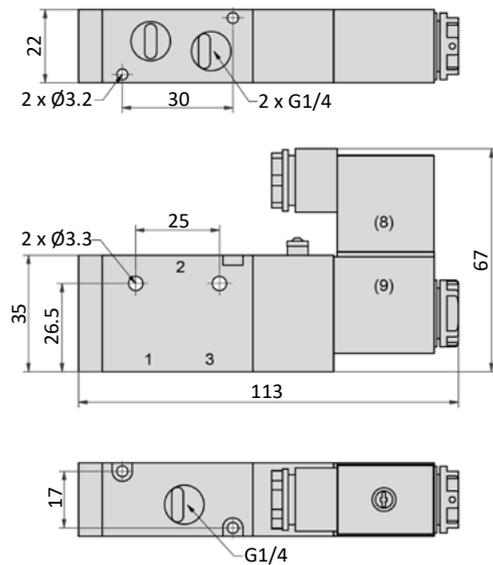
**86-MV-3-18-320**



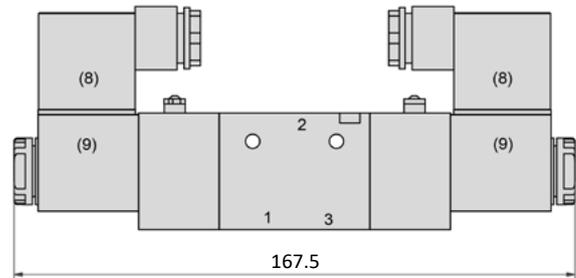
- 1 = pressure inlet
- 2 = outlets
- 3 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

**86-MV-3-14-311**



**86-MV-3-14-320**



- 1 = pressure inlet
- 2 = outlets
- 3 = exhausts

Plug socket can be repositioned by 180°.  
Solenoid coil can be repositioned by 4 x 90°.

**Accessories**



Plug sockets: see page 4-104

# Voltage code

Series 86-MV-3 and 86-MV-5

- HN * - * * *				
Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
HN detent and non-detent	1 with coil and plug	according to valve	0 without indication	0 without
	4 with coil, without plug	according to valve	Manual override at 1/3/5	1 12 V
	5 without coil	no	DC	2 24 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	1 Manual override at 1/3/5 Connector lugs at 1/3/5	3 42 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve	AC	4 48 V
	H with coil shape B according to DIN EN 175301-803, with plug	23-SP-011-G	2 Manual override at 1/3/5 Connector lugs at 1/3/5	5 110 V
	I with coil shape B according to DIN EN 175301-803, without plug	23-SP-011-G	DC	6 115 V
	J with coil shape A according to DIN EN 175301-803, without plug (if not standard)	23-SP-016	4 Manual override at 2/4 Connector lugs at 2/4	7 230 V
	K with coil shape A according to DIN EN 175301-803, with plug (if not standard)	23-SP-016	AC	
	L with coil, with plug with LED and protective circuit	according to valve	5 Manual override at 2/4 Connector lugs at 2/4	
	M with coil, with plug with LED, without protective circuit	according to valve	AC	
	N with coil with M12 connection	according to valve	5 Manual override at 2/4 Connector lugs at 2/4	
	O with coil with M12 connection with LED and protective circuit	according to valve	AC	
	Q with coil with with cable	according to valve	7 without indication Manual override at 2/4	
R with cable up to 1 m length	according to valve	DC		
T with pilot valve with M8 connector	according to valve	A Manual override at 1/3/5 Connector lugs at 2/4		
		B Manual override at 1/3/5 Connector lugs at 2/4		
		DC		
		D Manual override at 2/4 Connector lugs at 1/3/5		
		AC		
		E Manual override at 2/4 Connector lugs at 1/3/5		

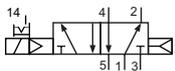
*Not all options are suitable for all valve series*

**Technical details**

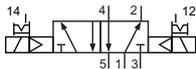
<b>Connection</b>	M5
<b>Nominal Size</b>	3 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529



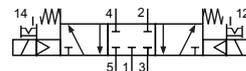
Electrically operated spool valve. The manual override is detent and is operated by screwdriver.

**5/2-way-valves**


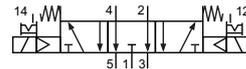
M-20-510-HN-xxx  
5/2-way, single solenoid, air spring return



M-20-520-HN-xxx  
5/2-way, double solenoid

**5/3-way-valves**


M-20-530-HN-xxx  
5/3-way, center position closed



M-20-533-HN-xxx  
5/3-way, center position exhausted

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Specifics	Connection*1	-xxx
12 V DC	2 W		Form C industrial norm	-411
24 V DC	2 W		Form C industrial norm	-412

\*1 Plug socket not included, suitable plug socket see page 4-104.

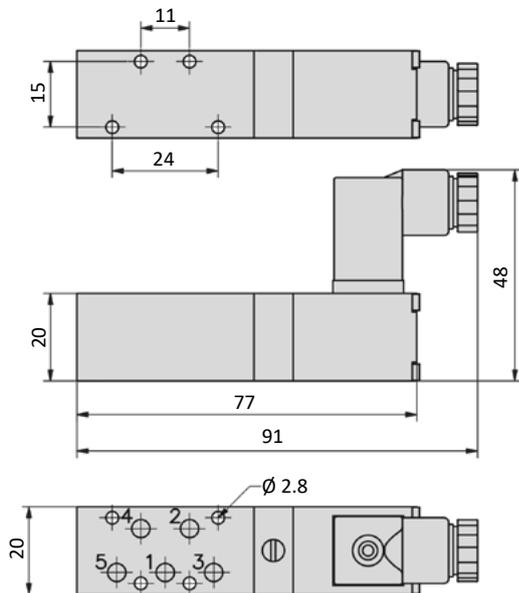
## Series M-20

### Technical data

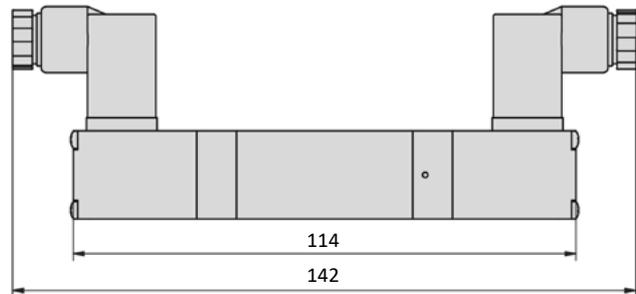
Model-no.:	M-20-510	M-20-520	M-20-530	M-20-533
Operating pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Flow rate (NI/min)	220	220	220	220
Response time (ms) at 6 bar	on: 12 off: 12	on: 11 off: 11	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.098	0.156	0.162	0.162

### Dimensions

#### M-20-510-HN



#### M-20-520-HN, M-20-53x-HN



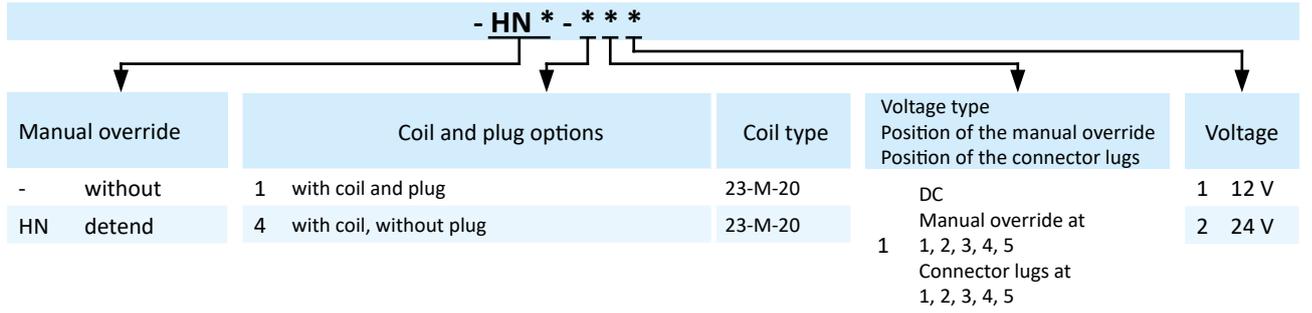
1 = pressure inlet  
2,4 = outlets  
3,5 = exhausts

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

### Accessories



Plug sockets: see page 4-101



# Series MC-20 and MD-20



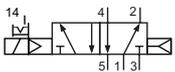
## Technical details

<b>Connection</b>	Grandplatte
<b>Nominal Size</b>	3 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), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529

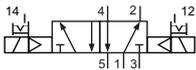


Electrically operated spool valve. The manual override is detend and is operated by screwdriver. Gaskets and screws are part of delivery.

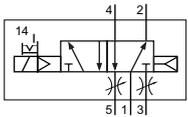
### 5/2-way valves



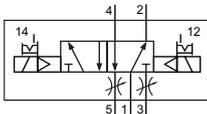
MC-20-510-HN-xxx  
5/2-way, single solenoid, air spring return



MC-20-520-HN-xxx  
5/2-way, double solenoid



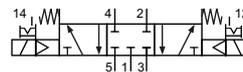
MD-20-510-HN-xxx  
5/2-way, single solenoid, air spring return, with exhaust throttles



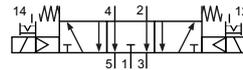
MD-20-520-HN-xxx  
5/2-way, double solenoid, with exhaust throttles

Please complete: xxx = electrical option

### 5/3-way valves



MC-20-530-HN-xxx  
5/3-way, center position closed



MC-20-533-HN-xxx  
5/3-way, center position exhausted

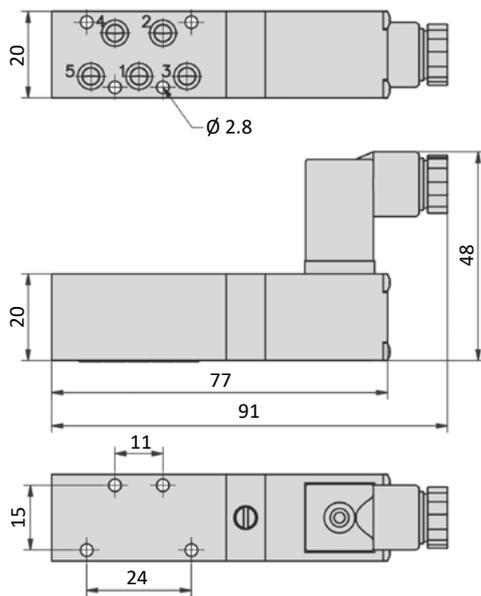
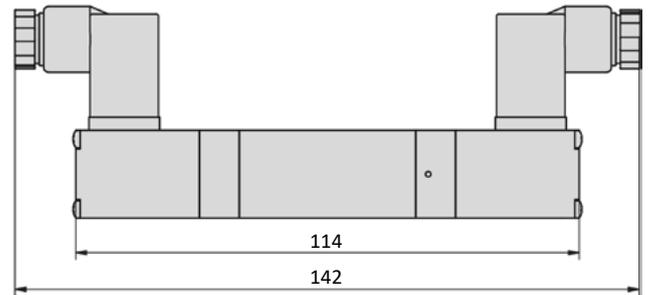
## Electrical options

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx Plug connections	
				opposite 1,2,3,4,5	at 1,2,3,4,5
12 V DC	1 W		Form C industrial norm	-411	-441
24 V DC	1 W		Form C industrial norm	-412	-442

\*1 Plug socket not included, suitable plug sockets see page 4-101.

**Technical data**

Model-no.:	MC-20-510 MD-20-510	MC-20-520 MD-20-520	MC-20-530	MC-20-533
Operating pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Pilot pressure (bar)	2.5 ... 8	2.5 ... 8	3 ... 8	3 ... 8
Flow rate (NI/min)	220	220	220	220
Response time (ms) at 6 bar	on: 12 off: 12	on: 11 off: 11	on: 15 off: 22	on: 15 off: 22
Weight (kg)	0.100	0.156	0.162	0.162

**Dimensions**
**MC-20-510-HN, MD-20-510-HN**

**MC-20-520-HN, MD-20-520-HN, MC-20-53x-HN**


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

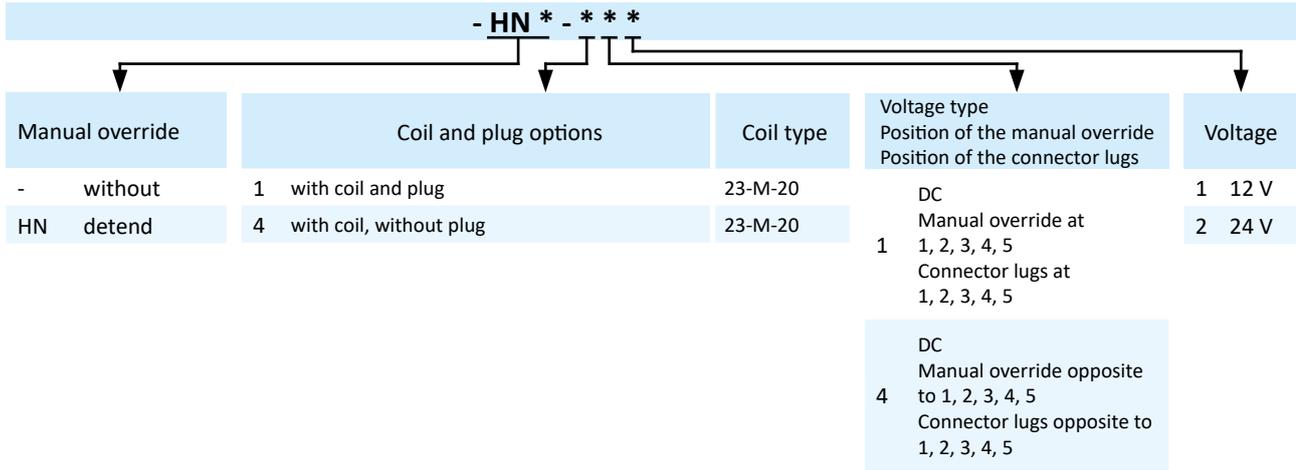
Plug socket (not included in scope of delivery) can be repositioned by 180°.  
Solenoid coil and manual override can be repositioned by 4 x 90°.

**Accessories**


Plug sockets: see page 4-101

## Voltage code

Series MC-20 and MD-20

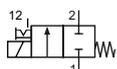


**Technical details**

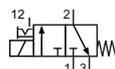
<b>Connection</b>	G1/8
<b>Nominal Size</b>	1,4 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: NBR and POM, inner parts: Al, brass, stainless steel
<b>Protection</b>	IP 65 according to EN 60529
	Valves in accordance with 2014/34/EU (ATEX) available (chap. 12)



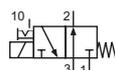
Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

**2/2-way-valves**


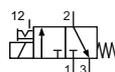
MS-18-210-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

**3/2-way-valves**


MS-18-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



MSO-18-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



MS-18-310/n-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

Please complete:    xxx = electrical option  
                              n = number of stations ( 2 to 6 )

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection*1	-xxx
12 V DC	4.2 W		Form B industrial norm	-411
12 V DC	2.2 W	max. 8 bar	Form B industrial norm	-431
24 V DC	4.2 W		Form B industrial norm	-412
24 V DC	4.2 W		M 12	-O12
24 V DC	2.2 W	max. 8 bar	Form B industrial norm	-432
24 V DC	2.5 W	max. 8 bar	M 12	-O32
24 V AC	5 VA	max. 7 bar for MSO-18	Form B industrial norm	-422
24 V AC	12.5/8.5 VA	up to 10 bar for MSO-18	Form B industrial norm	-322
115 V AC	5 VA	max. 7 bar for MSO-18	Form B industrial norm	-426
115 V AC	12.5/8.5 VA	up to 10 bar for MSO-18	Form B industrial norm	-326
230 V AC	5 VA	max. 7 bar for MSO-18	Form B industrial norm	-427
230 V AC	12.5/8.5 VA	up to 10 bar for MSO-18	Form B industrial norm	-327

\*1 Plug socket not included. suitable plug sockets see see page 4-99.

## Series MS-18

### Technical data

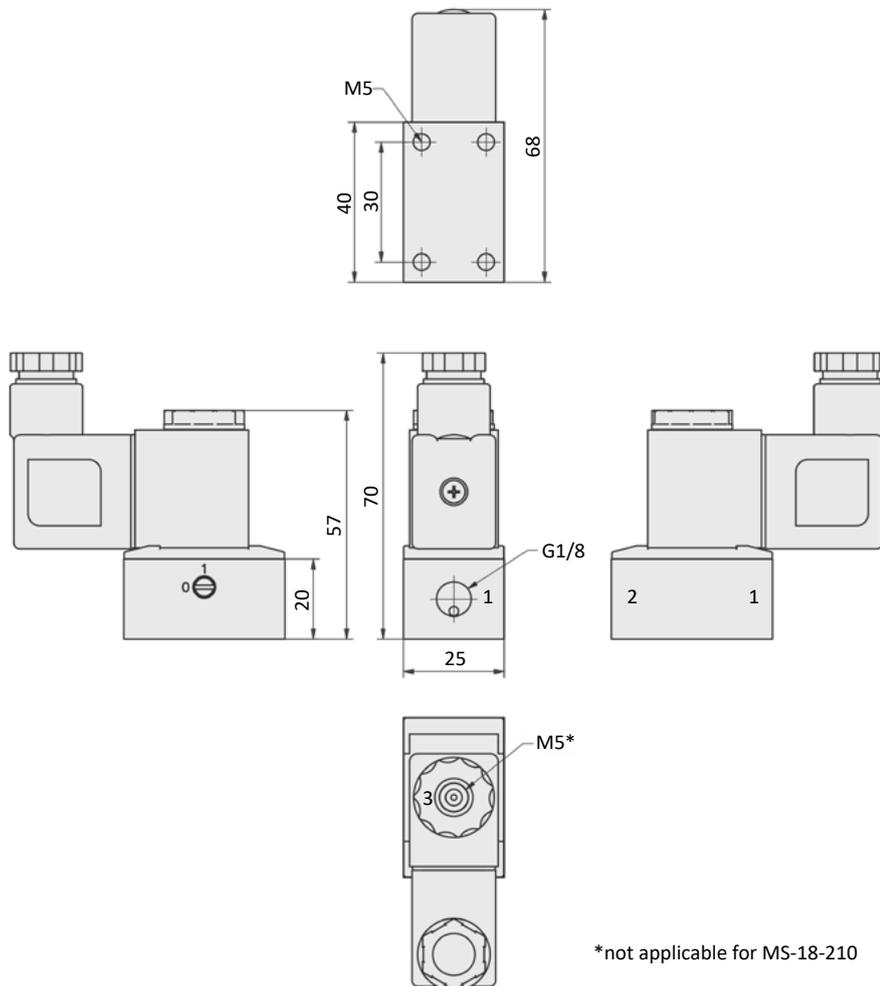
Model-no.:	MS-18-310	MSO-18-310	MS-18-310/n
Pressure range* (bar)	- 0.95 ... 10	- 0.95 ... 10**	- 0.95 ... 10
Flow rate (NI/min)	56	56	56
Response time (ms) at 6 bar	on: 10 off: 12	on: 10 off: 12	on: 10 off: 12
Weight (kg)	0.150	0.150	0.150 + 0.140 * n

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

\*\* for AC and coil 5 VA max. 7 bar.

### Dimensions

#### MS-18-210-HN, MS-18-310-HN

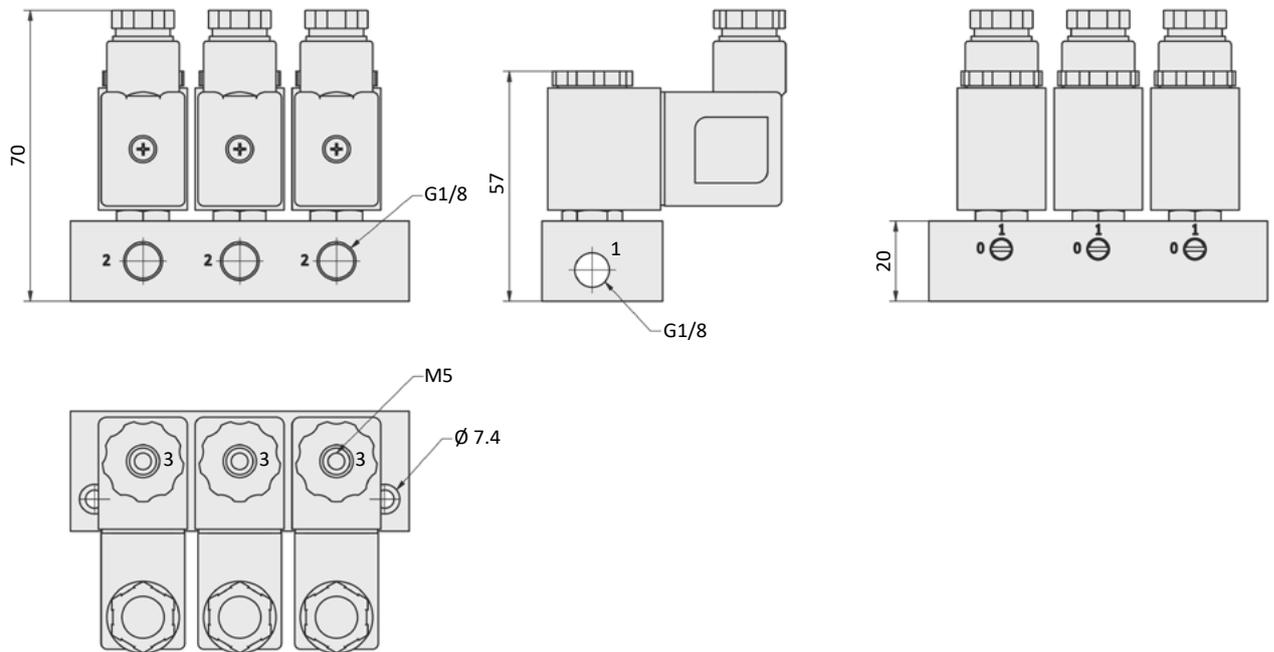
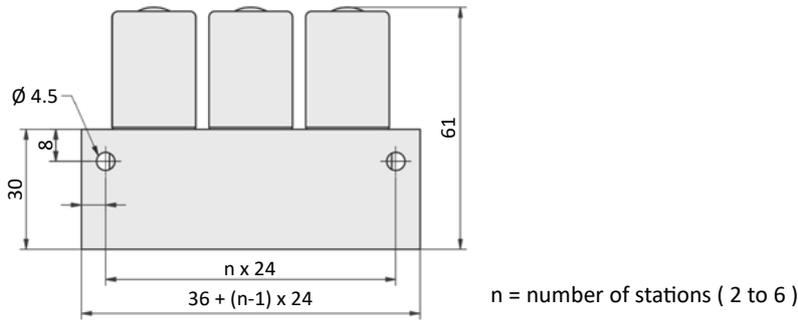


- 1 = pressure inlet ( outlet by MSO )
- 2 = outlet
- 3 = exhaust ( pressure inlet by MSO )

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

Dimensions

MS-18-310/n-HN



- 1 = pressure inlet ( outlet by MSO )
- 2 = outlet
- 3 = exhaust ( pressure inlet by MSO )

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

Accessories



Plug sockets: see page 4-99



## Series MS-18

### Device marking

Electrically operated valves are marked as follows:

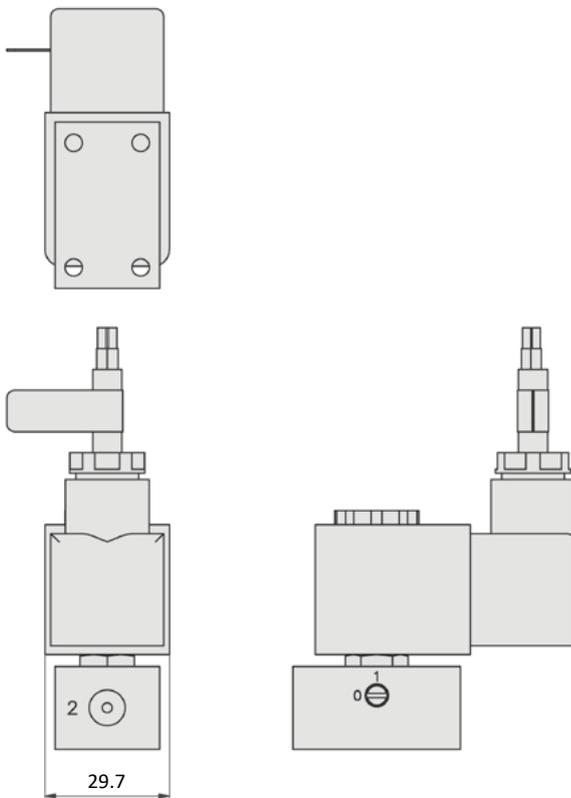
Marking according to DIN EN ISO 80079-36/ -37.

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



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 valves are equipped with special electrical equipment. As a result, the dimensions of these components may change. In addition to the valve dimensions, please note the dimensions of the solenoid coils on the following pages.



Please observe the respective operating instructions and declarations of conformity. These are enclosed with the products and are available at [www.airtec.de](http://www.airtec.de).

**Electrical options**

ATEX-category	Voltage	Power consumption	Ignition protection	Solenoid coil #	-xxx
3GD	24 V DC	2.7 W	Non-sparking device	23-SP-043-A12	-B12
3GD	230 V AC	4 VA	Non-sparking device	23-SP-043-A27	-B27
2GD	24 V DC	3 W	encapsulated with casting compound and flameproof enclosure	23-SP-045-V12	-V12
2GD	230 V AC	3.8 VA	encapsulated with casting compound and flameproof enclosure	23-SP-045-V27	-V27
2GD	12 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-011-xx*	-011-xx*
2GD	24 V DC	3.3 W	Encapsulated with casting compound	23-SP-037-012-xx*	-012-xx*
2GD	110...120 V AC	3 VA	Encapsulated with casting compound	23-SP-037-025-xx*	-025-xx*
2GD	230 V AC	3.1 VA	Encapsulated with casting compound	23-SP-037-027-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	-912

# For details on the ATEX solenoid coils, see chapter 12.

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

# Voltage code

Series MS-18

- HN * - * * *				
Manual override	Coil and plug options	Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
- without	0 ATEX 2GD, encapsulated with casting compound width 30 mm	23-SP-037	0 without indication Manual override lateral	0 without
HN detent	1 with coil and plug	according to valve	1 DC Manual override lateral	1 12 V
HNT non-detent	3 with coil, power consumption different from standard, without plug	shape according valve series	1 Connector lugs at 1 (at MS-18-310/n at 2)	2 24 V 3 42 V 4 48 V
	4 with coil, without plug	according to valve	2 AC Manual override lateral	5 110 V 6 115 V
	5 without coil	no	2 Connector lugs at 1 (at MS-18-310/n at 2)	7 230 V
	7 with coil, with enhanced humidity resistance, without plug	according to valve	3 DC, low power Manual override lateral	8 240 V 9 20 V
	8 with coil, with enhanced humidity resistance, with plug	according to valve	3 Connector lugs at 1 (at MS-18-310/n at 2)	A 4 V B 6 V C 8 V D 61 V E 36 V F 9 V
	9 ATEX 2GD, intrinsically safe, with enclosed plug socket, width 30 mm	23-SP-038		
	A ATEX 3GD, coil with enclosed plug socket, width 30 mm	23-SP-043		
	B ATEX 3GD, valve with mounted coil and enclosed plug socket, width 30 mm	23-SP-043		
	C ATEX 3GD, without plug, width 22 mm	23-SP-041		
	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		
	Q with coil with with cable	according to valve		
	R with cable up to 1 m length	according to valve		
	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-043 at 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-043 at 24V DC and 23-SP-037)	no		

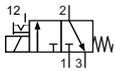
*Not all options are suitable for all valve series*

**Technical details**

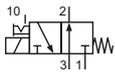
<b>Connection</b>	M5
<b>Nominal size</b>	1.2 mm
<b>Temperature range</b>	-10°C ... +70°C
<b>Medium</b>	Filtered, oil-free and dried compressed air according to ISO 8573-1:2010, Class 7:2:4, instrument air, free of aggressive additives. Differing the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: NBR, inner parts: Al, steel and plastic
<b>Protection</b>	IP 65 according to EN 60529



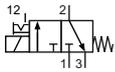
Electrically operated poppet valve. The manual override is detent and is operated by screwdriver.

**3/2-way-valves**


MS-20-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC



MSO-20-310-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NO



MS-20-310/n-HN-xxx  
3/2-way, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option  
n = number of stations ( 2 to 6 )

**Electrical options**

Nominal voltage	Power consumption	Specifics	Plug connection* <sup>1</sup>	-xxx
12 V DC	2 W		Form C industrial norm	-411
24 V DC	2 W		Form C industrial norm	-412

\*<sup>1</sup> Plug socket not included, suitable plug sockets see page 4-101.

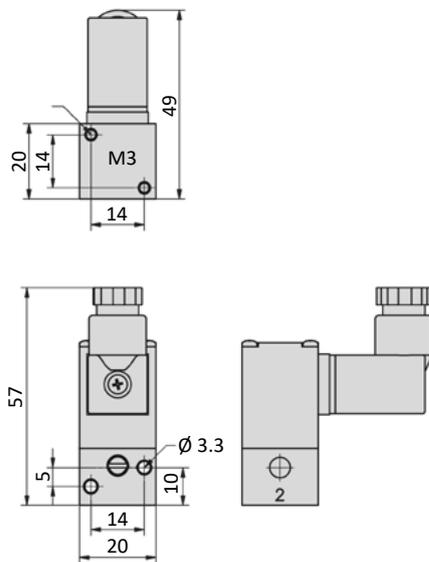
## Series MS-20

### Technical data

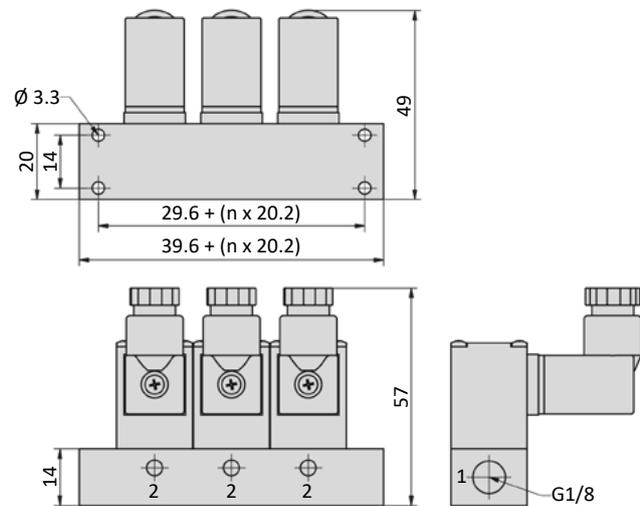
Model-no.:	MS-20-310	MSO-20-310	MS-20-310/n
Pressure range (bar)	-0.95 ... 8	-0.95 ... 8	-0.95 ... 8
Pilot pressure (bar)	-	-	-
Flow rate (NI/min)	38	38	38
Response time (ms) at 6 bar	on: 8 off: 8	on: 8 off: 8	on: 8 off: 8
Weight (kg)	0.064	0.064	0.01 + 0.066 x n

### Dimensions

#### MS-20-310-HN, MSO-20-310-HN



#### MS-20-310/n-HN



n = number of stations ( 2 to 6 )

- 1 = pressure inlet ( outlet by MSO )
- 2 = outlet
- 3 = exhaust ( pressure inlet by MSO )

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

### Accessories



Plug sockets: page 4-101

- HN \* - \* \* \*

Manual override		Coil and plug options		Coil type	Voltage type Position of the manual override Position of the connector lugs	Voltage
-	without	1	with coil and plug	23-M-20	DC Manual override lateral Connector lugs on side of manual override	1 12 V
HN	detend	4	with coil, without plug	23-M-20	DC Manual override lateral Connector lugs opposite to manual override	2 24 V

# Series 86-MS-3V



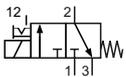
## Technical details

<b>Connection</b>	G1/8
<b>Temperature range</b>	-10°C ... +60°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. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (painted), seals: NBR, inner parts: Al, steel and plastic
<b>Protection</b>	IP 65 according to EN 60529



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

## 3/2-way valves



86-MS-3V-yy-xxx  
 3/2-Wege, single solenoid, mechanical spring return, NC

Please complete: xxx = electrical option  
 yy = number of stations (01 ... 20)

## Electrical options

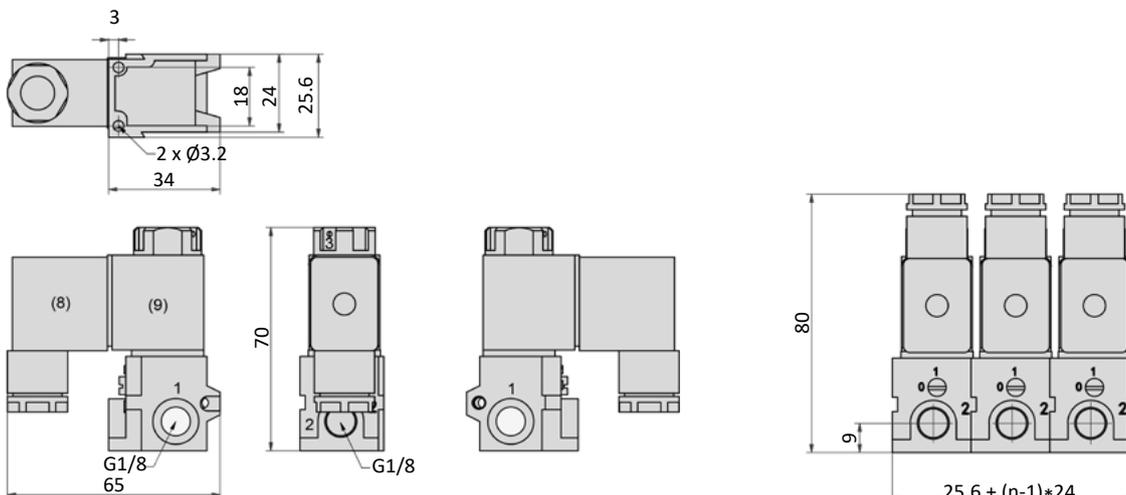
Nominal voltage	Power consumption	Specifics	Plug connection*1	-XXX Manual override on same side of port 2
24 V DC	4.8 W		Form B industrial norm	-M42
220 V AC	5.5 VA		Form B industrial norm	-M57

\*1 Plug socket with integrated LED are part of delivery

## Technical data

<b>Model-no.:</b>	86-MS-3V-yy
<b>Operating pressure (bar)</b>	0...8
<b>Nominal size (mm)</b>	1
<b>Flow rate (NI/min)</b>	50
<b>Response time (ms) at 6 bar</b>	20
<b>Weight (kg)</b>	0.176 * yy, (yy = number of stations (01 ... 20))

## Dimensions



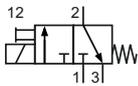
**Technical details**

<b>Temperature range</b>	-20°C ... +80°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. Alternatively the pressure dew point must be at least 10°C below lowest occurring ambient temperature.
<b>Materials</b>	Body: Al (anodized), seals: HNBR, FKM, inner parts: Al, brass and steel
<b>Protection</b>	IP 65 according to EN 60529



Electrically operated high speed poppet valve.  
The manual override is non detent

4

**3/2-way-valves**


SMS-170-18-xxx  
3/2-way, single solenoid, mechanical  
spring return, NC

Please complete: xxx = electrical option

**Electrical options**

Nominal voltage	Power consumption	Voltage tolerance	Connection*1	-XXX
12 V DC	4.5 W	± 10 %	Form B industrial norm	-M11
24 V DC	4.5 W	± 10 %	Form B industrial norm	-M12

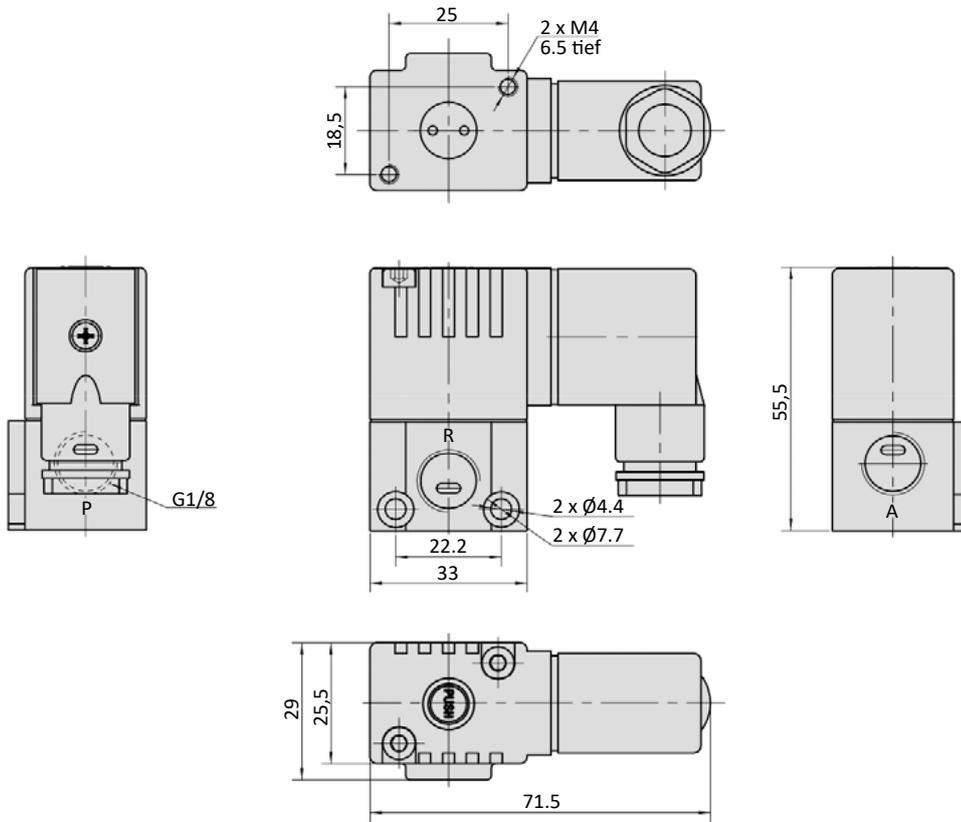
\*1 Supplied including socket, with LED display

**Technical data**

<b>Model-no.:</b>	SMS-170-18-xxx
<b>Operating pressure (bar)</b>	0 ... 10
<b>Flow rate (NI/min)</b>	180
<b>Resonse time (ms) at 6 bar</b>	12
<b>Max. switching frequency (Hz)</b>	40
<b>Connection</b>	G1/8
<b>Weight (kg)</b>	0.156

# Series SMS-170

## Dimensions



- P = pressure inlet
- A = outlets
- R = exhausts

## Accessories



Plug sockets: see page 4-104

**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	no standard



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	no standard



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>	3 x 0.75 mm <sup>2</sup>	3 x 0.75 mm <sup>2</sup>				
Ø Connecting cable	6 - 8 mm						

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

## Plug sockets

### Form B industrial norm with UL-approval

<b>Overall width</b>	22 mm
<b>Contact distance</b>	11 mm
<b>Contacts</b>	2P + E
<b>Protection</b>	IP 65 according to EN 60529 requires a flat gasket



<b>Model-no.:</b>	28-ST-01-1
<b>Voltage (AC/DC)</b>	0 - 250 V
<b>Status indicator</b>	non
<b>Protective circuit</b>	non
<b>Connecting cable</b>	without
<b>Wire cross section</b>	max. 1,5 mm <sup>2</sup>
<b>Ø Connecting cable</b>	6 - 8 mm

## Form C according to DIN EN 175301-803

Overall width	15 mm
Contact distance	8 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	BM-01, BM-02



Model-no.:	28-ST-02-1	28-ST-09-1-112	28-ST-09-1-127	28-ST-10-1-112	28-ST-10-1-127	28-ST-10-1-K3-112 *
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V
Status indicator	no	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m
Wire cross section	max. 0.75 mm <sup>2</sup>	3 x 0.5 mm <sup>2</sup>				
Ø Connecting cable	4 - 6 mm					

Model-no.:	28-ST-02-1-05
Voltage (AC/DC)	24 V
Status indicator	yes
Protective circuit	yes (varistor)
Connection	M8



## Form C industrial norm

Overall width	15 mm
Contact distance	9.4 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	M-20, MC-20, MD-20, MS-20



Model-no.:	28-ST-02-01	28-ST-09-112	28-ST-09-127	28-ST-10-112	28-ST-10-127	28-ST-10-K3-112 *
Voltage (AC/DC)	0 - 250 V	10 - 50 V	70 - 250 V	24 V	230 V	24 V
Status indicator	no	yes	yes	yes	yes	yes
Protective circuit	no	no	no	yes (varistor)	yes (varistor)	yes (varistor)
Connecting cable	without	without	without	without	without	3 m
Wire cross section	max. 0.75 mm <sup>2</sup>	3 x 0.5 mm <sup>2</sup>				
Ø Connecting cable	4 - 6 mm					

Model-no.:	28-ST-02-2-05	28-ST-02-2-07
Voltage (AC/DC)	24 V	24 V
Status indicator	yes	yes
Protective circuit	yes (varistor)	yes (varistor)
Connection	M8	M12

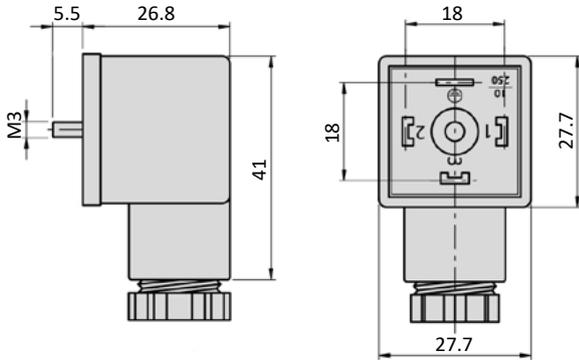


\* These plug sockets are fitted with integrated flat gaskets.

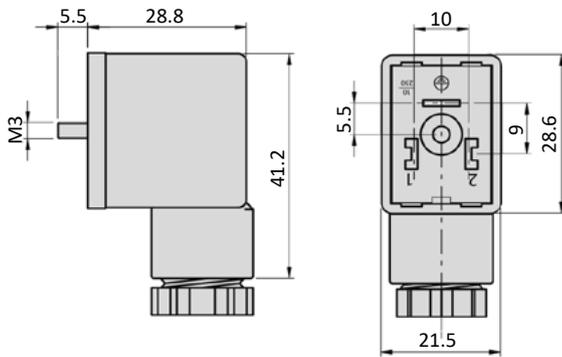
# Plug sockets

## Dimensions

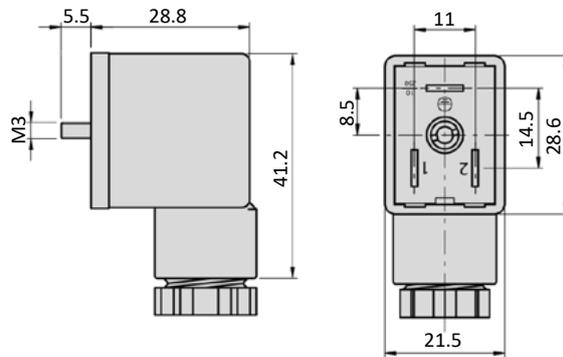
### Form A according to DIN EN 175301-803



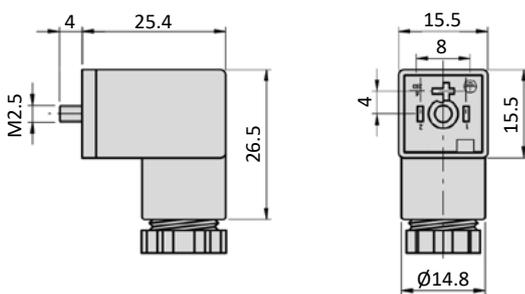
### Form B according to DIN EN 175301-803



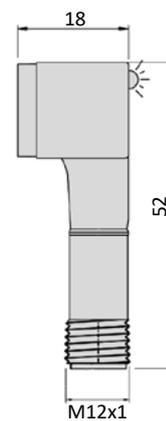
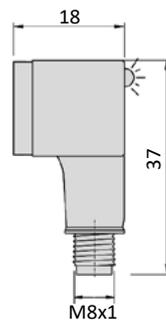
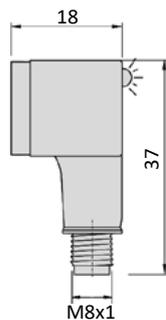
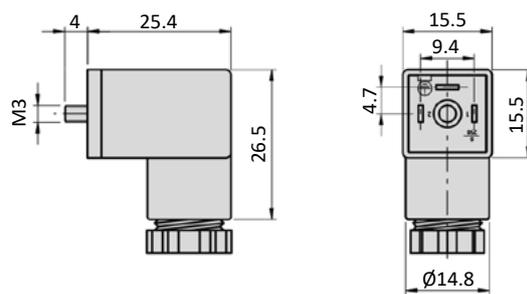
### Form B industrial norm



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

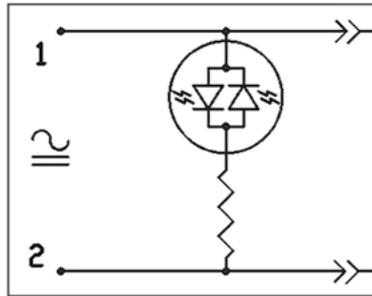


### Form C industrial norm

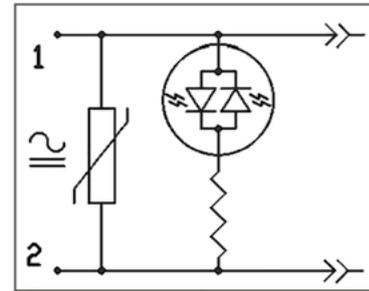


## Electrically circuits

### Status indicator (LED)



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



## Plug sockets

### 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	86-MV-5-28, 86-MV-5-14, 86-MV-5-24, 86-MV-5-38, 86-MV-5-12, 86-MV-3, 86-MN-4, 86-MS-3V



Model-no.:	28-ST-01	86-ST-04-112	28-ST-04-127
Voltage (AC/DC)	0 - 250 V	24 V DC	220 V AC
Status indicator	no	yes	yes
Protective circuit	no	no	no
Connecting cable	without	without	without
Wire cross section	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>	max. 1.5 mm <sup>2</sup>
Ø Connecting cable	6 - 8 mm	6 - 8 mm	6 - 8 mm

### Form C industrial norm

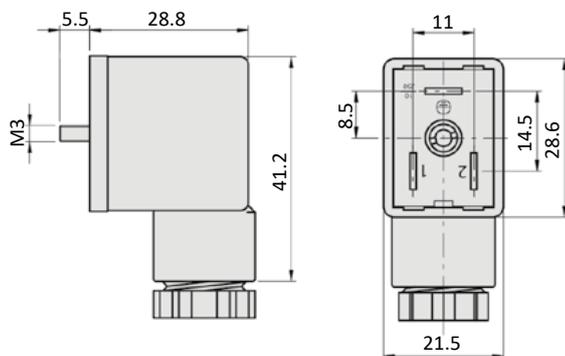
Overall width	15 mm
Contact distance	9.4 mm
Contacts	2P + E
Protection	IP 65 according to EN 60529 requires a flat gasket
For use with series	86-MV-5-18



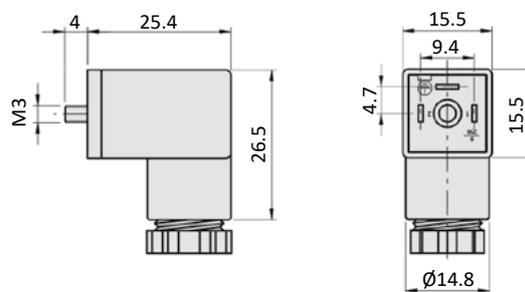
Model-no.:	28-ST-02-01	86-ST-09-112	86-ST-09-127
Voltage (AC/DC)	0 - 250 V	24 V DC	220 V AC
Status indicator	no	yes	yes
Protective circuit	no	no	no
Connecting cable	without	without	without
Wire cross section	max. 0.75 mm <sup>2</sup>	max. 0.75 mm <sup>2</sup>	max. 0.75 mm <sup>2</sup>
Ø Connecting cable	4 - 6 mm	4 - 6 mm	4 - 6 mm

## Dimensions

### Form B industrial norm



### Form C industrial norm



## 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						

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*	-40°C...+80°C	-40°C...+80°C	-20°C...+50°C	-20°C...+50°C	-40°C...+80°C
Specifics	enhanced humidity resistance				

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

### Form B industrial norm with UL-approval

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-027-412-02-UL	23-SP-027-427-02-UL
Voltage	24 V DC	230 V AC
Power consumption DC	6.5 W	-
Power consumption AC	-	8.5 VA

## 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	

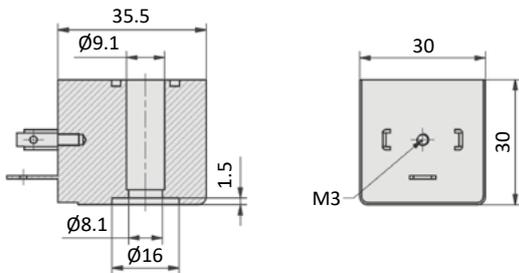


\* The max. applicable operating temperature, depends on the temperature specification of the used valve.

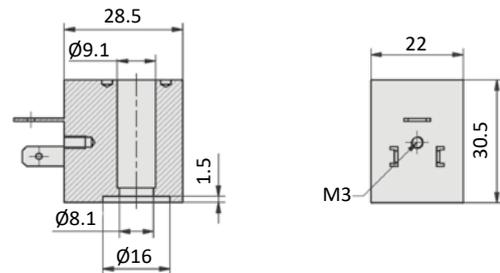
Model-no.:	23-SP-011-5-012	23-SP-012-5-032
Voltage	24 V DC	24 V DC
Power consumption DC	4.8 W	2.5 W
Power consumption AC	-	-
Specifics	Mounting on manifold not allowed. With integrated LED and protective circuit.	Min. mounting distance for manifold mounting is 20 mm. With integrated LED and protective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

## Dimensions

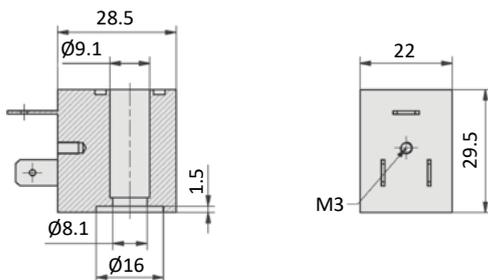
### Form A according to DIN EN 175301-803



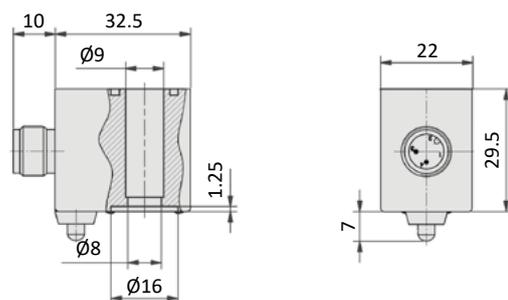
### Form B according to DIN EN 175301-803



### Form B industrial norm



### M12 connection



## Solenoid coils

### Form C industrial norm

<b>Overall width</b>	20 mm
<b>Contact distance</b>	9,4 mm
<b>Contacts</b>	2P + E
<b>Protection</b>	IP 65 according to EN 60529 with connected plug socket
<b>Duty cycle</b>	100 %
<b>Temperature range*</b>	-20°C...+50°C
<b>Voltage tolerance</b>	± 10 %
<b>For use with series</b>	M-20, MS-20, MC-20, MD-20

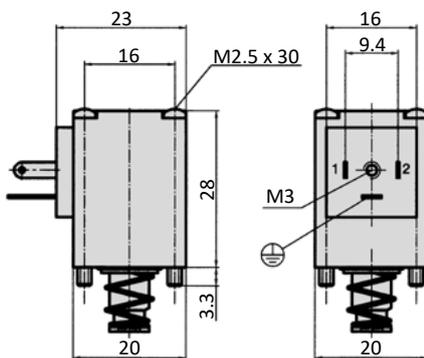


\* The max. applicable operating temperature, depends on the temperature specification of the used valve.

<b>Model-no.:</b>	23-M-20-411	23-M-20-412
<b>Voltage</b>	12 V DC	24 V DC
<b>Power consumption DC</b>	2 W	2 W
<b>Power consumption AC</b>	-	-

### Dimensions

#### Form C industrial norm



## 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 %
Temperature range*	-20°C...+50°C
Voltage tolerance	± 10 %
For use with series	86-MV-5-28, 86-MV-5-14, 86-MV-5-24, 86-MV-5-38, 86-MV-5-12, 86-MV-3, 86-MN-4



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

Model-no.:	86-SP-011-412	86-SP-011-427
Voltage	24 V DC	220 V AC
Power consumption DC	3 W	-
Power consumption AC	-	3.5 VA

## Form C industrial norm

Overall width	15 mm
Contact distance	9.4 mm
Contacts	2P + E
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	86-MV-5-18



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

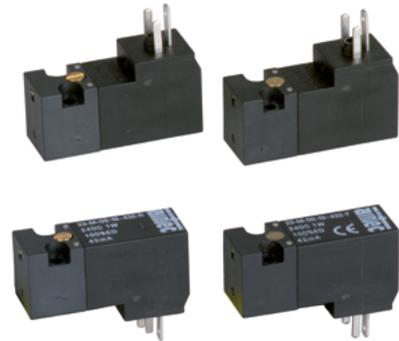
Model-no.:	86-SP-021-412	86-SP-021-427
Voltage	24 V DC	220 V AC
Power consumption DC	2.5 W	-
Power consumption AC	-	2.5 VA

# Pilot valves

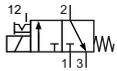
## Plug connection shape C according to DIN EN 175301-803

<b>Overall width</b>	15 mm
<b>Contact distance</b>	8 mm
<b>Contacts</b>	2P + E
<b>Protection</b>	IP 65 according to EN 60529 with connected plug socket
<b>Duty cycle</b>	100 %
<b>Temperature range*</b>	-10°C ... +50°C
<b>Voltage tolerance</b>	± 10 %
<b>For use with series</b>	BM-01, BM-02

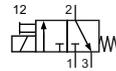
\* The max. applicable operating temperature depends on the temperature specification of the used valve.



## 3/2-way valves



23-M-09-19-xxx-R  
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



23-M-09-19-xxx-T  
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

Please complete: xxx = electrical option

<b>Model-no.:</b>	23-M-09-19-461-y	23-M-09-19-462-y	23-M-09-19-452-y	23-M-09-19-456-y	23-M-09-19-457-y
<b>Voltage</b>	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
<b>Power consumption DC</b>	1 W	1 W	-	-	-
<b>Power consumption AC</b>	-	-	3 VA	3 VA	3 VA

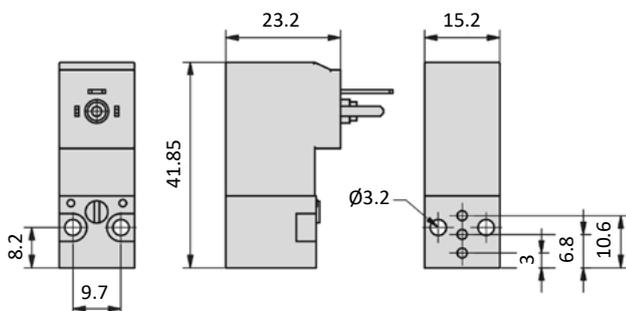
electric connector on side of manual override

<b>Model-no.:</b>	23-M-09-19-431-y	23-M-09-19-432-y	23-M-09-19-422-y	23-M-09-19-426-y	23-M-09-19-427-y
<b>Voltage</b>	12 V DC	24 V DC	24 V AC	115 V AC	230 V AC
<b>Power consumption DC</b>	1 W	1 W	-	-	-
<b>Power consumption AC</b>	-	-	3 VA	3 VA	3 VA

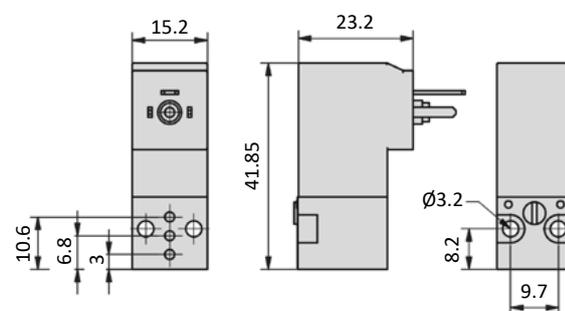
electric connector opposite of manual override  
y = manual override (R = detent, T = non-detent)

## Dimensions

electric connector on side of manual override



electric connector opposite side of manual override



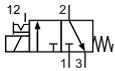
**M12 connection**

Overall width	15 mm
Contact distance	-
Contacts	M12 plug
Protection	IP 67 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-10°C ... +50°C
Voltage tolerance	± 10 %
For use with series	BM-01, BM-02

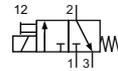


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

**3/2-way valves**



23-M-09-19-xxx-R  
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



23-M-09-19-xxx-T  
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

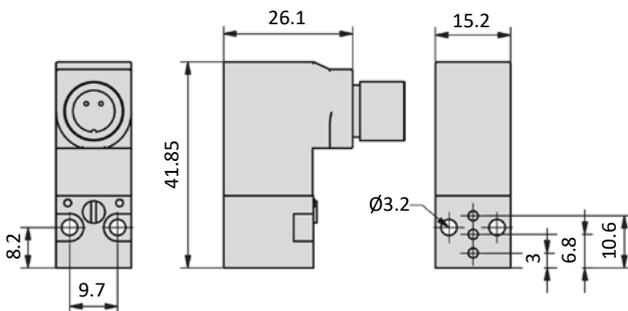
Please complete: xxx = electrical option

Model-no.:	23-M-09-19-N42-02-T	23-M-09-19-N62-R	23-M-09-19-N62-T
Voltage	24 V DC	24 V DC	24 V DC
Power consumption DC	2.5 W	1 W	1 W
Power consumption AC	-	-	-
Operating pressure (bar)	0...10 bar	0...8 bar	0...8 bar

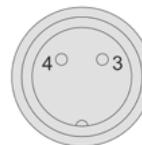
electric connector on side of manual override

**Dimensions**

electric connector on side of manual override



**Pin assignment**



3 = + or -  
4 = + or -



# Pilot valves

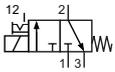
## M8 connection

Overall width	15 mm
Contact distance	-
Contacts	M8 plug
Protection	IP 67 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-10°C...+50°C
Voltage tolerance	± 10 %
For use with series	BM-01, BM-02

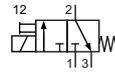


\* The max. applicable operating temperature depends on the temperature specification of the used valve.

## 3/2-way-valves



23-M-09-19-Txx-R  
3/2-way, single solenoid, mechanical spring return, NC, manual override detent



23-M-09-19-Txx-T  
3/2-way, single solenoid, mechanical spring return, NC, manual override non-detent

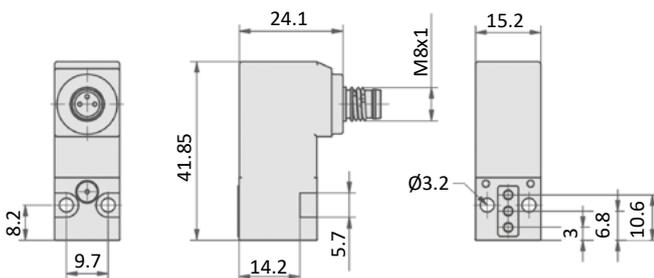
Please complete: xxx = electrical option

Model-no.:	23-M-09-19-T42-01-T	23-M-09-19-T62-R	23-M-09-19-T62-T
Voltage	24 V DC	24 V DC	24 V DC
Power consumption DC	2,5 W	1 W	1 W
Power consumption AC	-	-	-
Operating pressure (bar)	0...10 bar	0...8 bar	0...8 bar

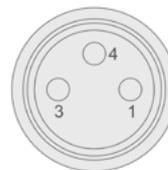
electrical connection on side of manual override

## Dimensions

### electric connector on side of manual override



### Pin assignment



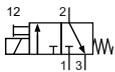
1 = + or -  
3 = not used  
4 = + or -

**M8 connection**

Overall width	10 mm
Contact distance	-
Contacts	M8 plug
Protection	IP 40 according to EN 60529 with connected plug socket
Duty cycle	100 %
Temperature range*	-5°C...+50°C
Voltage tolerance	± 10 %
For use with series	BM-01, BM-02

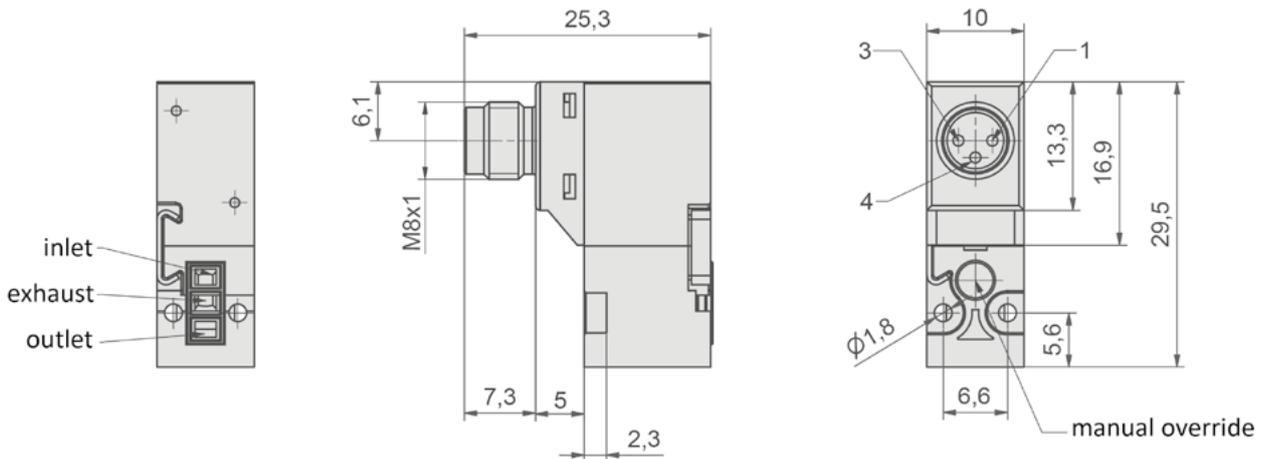
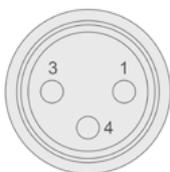


4

**3/2-way-valve**


23-M-10-T32-T  
 3/2-way, single solenoid, mechanical spring return, NC, manual override detent

Model-no.:	23-M-10-T32-T
Voltage	24 V DC
Power consumption DC	1 W
Nominal Size (mm)	0,7
Operating pressure (bar)	1,5...7 bar

**Dimensions**
**electric connector on side of manual override**

**Pin assignment**


1 = + or -  
 3 = + or -  
 4 = not used

## Plug sockets

### Connection cable M8

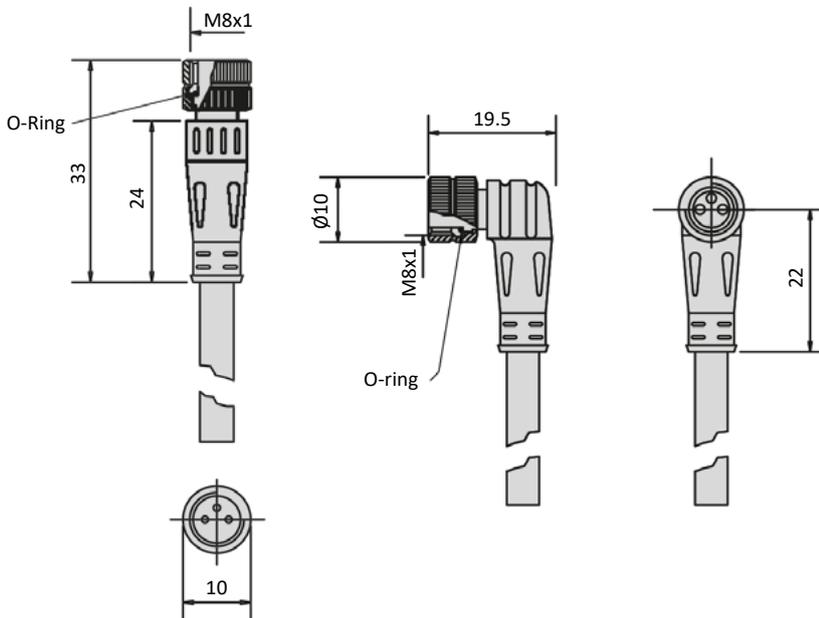
<b>Contacts</b>	M8 Plug socket
<b>Protection</b>	IP 67 according to EN 60529 in conjunction with suitable connection plug
<b>Duty cycle</b>	100 %
<b>Temperature range*</b>	-25°C...+90°C
<b>max. voltage</b>	60 V AC / DC
<b>Use for</b>	Solenoids with M8 plug, cylinder switch with M8 plug



Model-no.:	KA-10-01	KA-30-01	KA-50-01	KA-100-01
<b>Contacts</b>	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight	M8 Socket, straight
<b>Mounting</b>	Coupling nut	Coupling nut	Coupling nut	Coupling nut
<b>Cable</b>	3-pin	3-pin	3-pin	3-pin
<b>Length (L)</b>	1 m	3 m	5 m	10 m

Model-no.:	KA-11-01	KA-31-01	KA-51-01	KA-101-01
<b>Contacts</b>	M8 Socket, elbow 90°			
<b>Mounting</b>	Coupling nut	Coupling nut	Coupling nut	Coupling nut
<b>Cable</b>	3-pin	3-pin	3-pin	3-pin
<b>Length (L)</b>	1 m	3 m	5 m	10 m

### Dimensions



### Pin assignment



- 1 = brown
- 3 = blue
- 4 = black