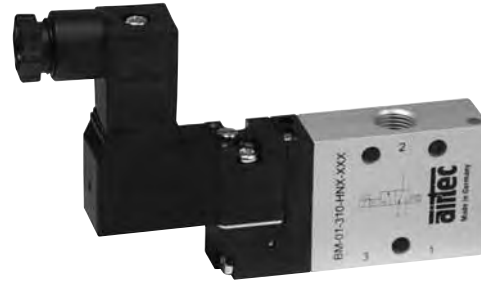


Electrically operated valves
3/2-way
G 1/8, 600 – 660 NI/min (0.610 – 0.671 Cv)



Technical data for series

BM-01



Order code

BM-01-310-HNR-162

Series and function

BM = Standard

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.097.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number	BM-01-310-HN	BM-01-312-HN
Please complete according to order code.		
Function	3/2-way NC	3/2-way NO
Connection	G 1/8	
Nominal size	5 mm	
Flow rate	660 NI/min (0.671 Cv)	600 NI/min (0.610 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)	
Control pressure	Control pressure is identical to main pressure range	
Response time at 6 bar	on 19 ms off 32 ms	on 16 ms off 30 ms
Temperature range	- 5 °C ... + 50 °C (+ 23 °F ... + 122 °F)	
Materials	Body: Al (anodized) and PA, Seals: NBR and PU, Inner parts: Al, brass and POM	
Degree of protection	IP 65 according to EN 60529	
Weight	0,108 kg (0.238 lb.)	0,110 kg (0.242 lb.)

Electrically operated valves
2 x 3/2-way
G 1/8, 550 – 650 NI/min (0.559 – 0.661 Cv)



Technical data for series

BM-01



Order code BM-01-310-HNR-162

Series and function

BM = Standard

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options


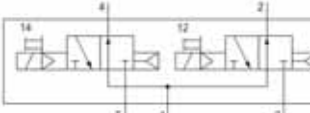

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.097.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number Please complete according to order code.	BM-01-310/2-HN	BM-01-312/2-HN	BM-01-314/2-HN
Function	 2 x 3/2-way NC	 2 x 3/2-way NO	 2 x 3/2-way NO/NC
Connection	G 1/8		
Nominal size	5 mm		
Flow rate	650 NI/min (0.661 Cv)	550 NI/min (0.559 Cv)	580 NI/min (0.589 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)		
Control pressure	Control pressure is identical to main pressure range		
Response time at 6 bar	on 18 ms off 34 ms		on 19 ms off 32 ms
Temperature range	- 5 °C ... + 50 °C (+ 23 °F ... + 122 °F)		
Materials	Body: Al (anodized) and PA, Seals: NBR and PU, Inner parts: Al, brass and POM		
Degree of protection	IP 65 according to EN 60529		
Weight	0,154 kg (0.339 lb.)		

Electrically operated valves
5/2-way
G 1/8, 780 – 800 NI/min (0.793 – 0.813 Cv)



Technical data for series

BM-01



Order code

BM-01-510-HNR-162

Series and function

BM = Standard
 BME = Valves with external pilot supply

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

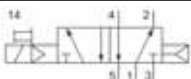


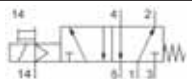

Standard voltage	Plug socket upward¹⁾	Plug socket downward¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.097.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number <small>Please complete according to order code.</small>	BM-01-510-HN	BM-01-511-HN	BM-01-520-HN	BME-01-511-HN	BME-01-520-HN
Function	 5/2-way single solenoid air spring return	 5/2-way single solenoid spring return	 5/2-way double solenoid	 5/2-way single solenoid ext. pilot supply	 5/2-way double solenoid ext. pilot supply
Connection	G 1/8				
Nominal size	5 mm				
Flow rate	780 NI/min (0.793 Cv)	800 NI/min (0.813 Cv)	790 NI/min (0.803 Cv)	800 NI/min (0.813 Cv)	790 NI/min (0.803 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)	3 ... 8 bar (43.5 ... 116 psi)	2 ... 8 bar (29 ... 116 psi)	– 0,95 ... 8 bar (– 14 ... + 116 psi)	
Control pressure	Control pressure is identical to main pressure range			3 ... 8 bar (43.5 ... 116 psi)	2 ... 8 bar (29 ... 116 psi)
Response time at 6 bar	on 17 ms off 32 ms	on 15 ms off 35 ms	13 ms	on 15 ms off 35 ms	13 ms
Temperature range	– 5 °C ... + 50 °C (+ 23 °F ... + 122 °F)				
Materials	Body: Al (anodized) and PA, Seals: NBR and PU, Inner parts: Al, brass and POM				
Degree of protection	IP 65 according to EN 60529				
Weight	0,118 kg (0.260 lb.)	0,120 kg (0.264 lb.)	0,156 kg (0.344 lb.)	0,126 kg (0.278 lb.)	0,168 kg (0.370 lb.)

Electrically operated valves
5/3-way
G 1/8, 670 – 1030 NI/min (0.681 – 1.047 Cv)



Technical data for series

BM-01



Order code BM-01-530-HNR-162

Series and function

BM = Standard
 BME = Valves with external pilot supply

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.097.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number Please complete according to order code.	BM-01-530-HN	BM-01-533-HN	BM-01-534-HN	BME-01-530-HN	BME-01-533-HN	BME-01-534-HN
Function	5/3-way center position closed	5/3-way center position exhausted	5/3-way center position pressurized	5/3-way center position closed ext. pilot supply	5/3-way center position exhausted ext. pilot supply	5/3-way center position pressurized ext. pilot supply
Connection	G 1/8					
Nominal size	5 mm					
Flow rate	690 NI/min (0.701 Cv)	670 NI/min (0.681 Cv)	1030 NI/min (1.047 Cv)	690 NI/min (0.701 Cv)	670 NI/min (0.681 Cv)	1030 NI/min (1.047 Cv)
Pressure range	3 ... 8 bar (43.5 ... 116 psi)			- 0,95 ... 8 bar (- 14 ... + 116 psi)		
Control pressure	Control pressure is identical to main pressure range 3 ... 8 bar (43.5 ... 116 psi)					
Response time at 6 bar	17 ms	on 16 ms off 43 ms	on 17 ms off 49 ms	17 ms	on 16 ms off 43 ms	on 17 ms off 49 ms
Temperature range	- 5 °C ... + 50 °C (+ 23 °F ... + 122 °F)					
Materials	Body: Al (anodized) and PA, Seals: NBR and PU, Inner parts: Al, brass and POM					
Degree of protection	IP 65 according to EN 60529					
Weight	0,154 kg (0.339 lb.)			0,166 kg (0.366 lb.)		

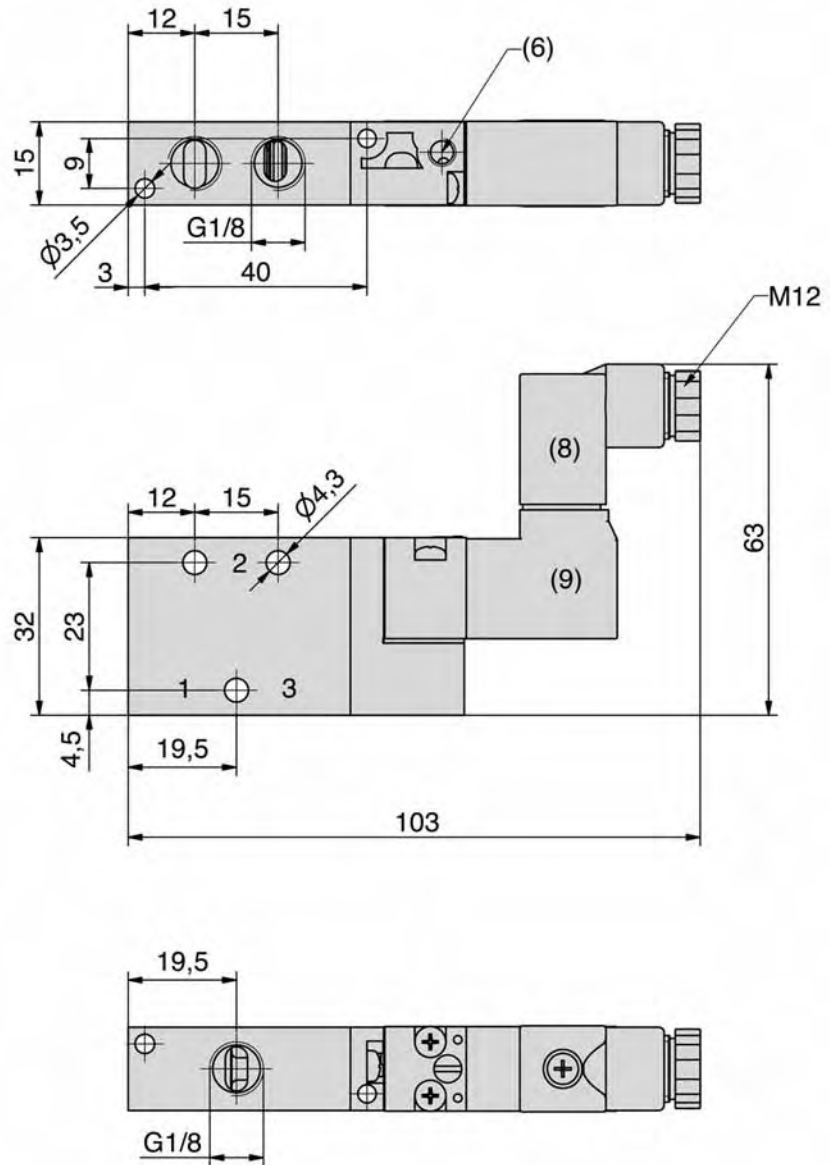
Electrically operated valves
 3/2-way
 G 1/8, 600 – 660 NI/min (0.610 – 0.671 Cv)



Dimensions for series

BM-01

BM-01-310-HN, BM-01-312-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = Pilot air exhaust, M5
- (7) = Manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = Solenoid, pins for plug socket connection upward or downward

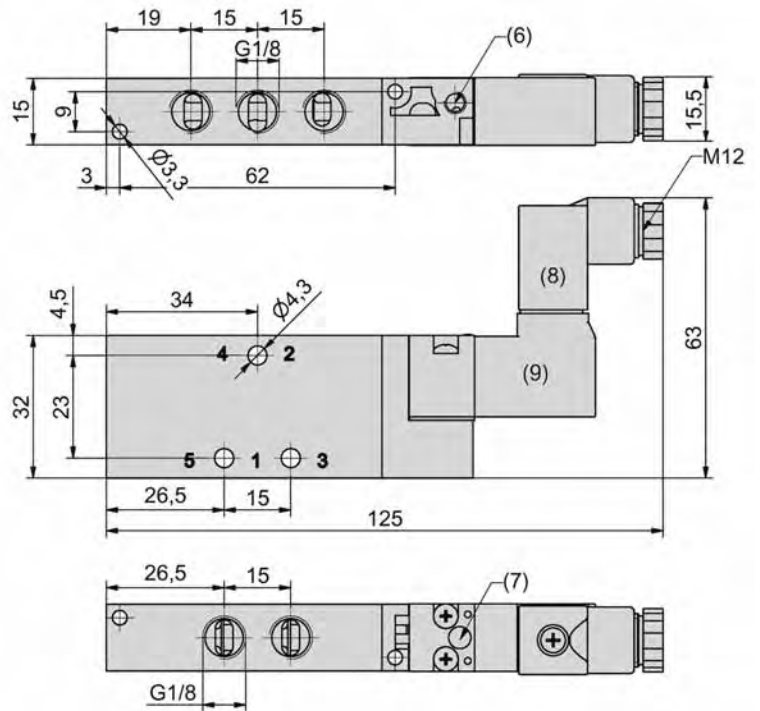
Electrically operated valves
2 x 3/2-, 5/2- and 5/3-way
G 1/8, 550 – 1030 NI/min (0.559 – 1.047 Cv)



Dimensions for series

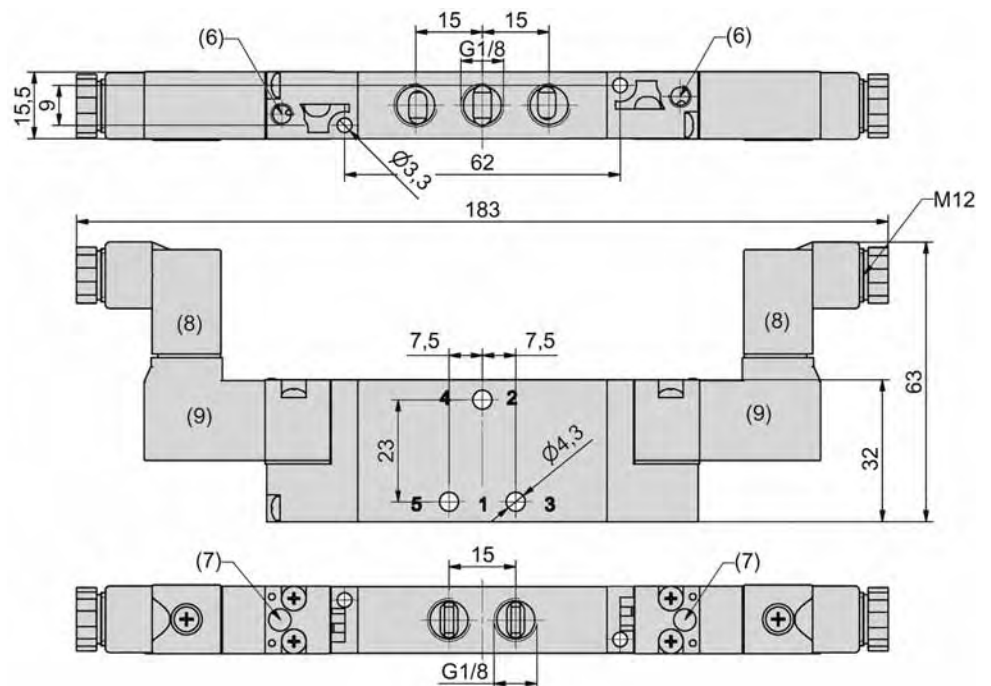
BM-01

BM-01-510-HN, BM-01-511-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = Pilot air exhaust, M5
- (7) = Manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = Solenoid, pins for plug socket connection upward or downward

BM-01-310/2-HN, BM-01-312/2-HN, BM-01-314/2-HN, BM-01-520-HN, BM-01-530-HN, BM-01-533-HN, BM-01-534-HN

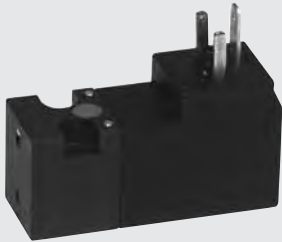


- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = Pilot air exhaust, M5
- (7) = Manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = Solenoid, pins for plug socket connection upward or downward

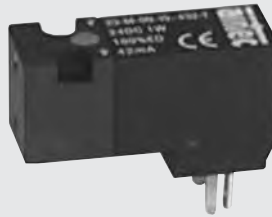
Accessories for series

BM-01, BME-01

Solenoid



Solenoid with pins for plug socket connection on the same side as manual override (upward).
23-M-09-19-...
page 4.284



Solenoid with pins for plug socket connection on the opposite side of the manual override (downward).
23-M-09-19-...
page 4.284

Plug sockets



Standard plug socket
28-ST-02-1
page 4.284



Plug socket with LED
28-ST-09-1-...
page 4.284



Plug socket with LED and circuit protection
28-ST-10-1-...
page 4.284

Accessories for series

BM-01, BME-01

Manifolds



Manifold will be delivered completely assembled with valves if requested.



Manifold with n/stations. Ports on the side.
RF-01-AB/n



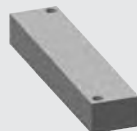
Manifold with n/stations. Ports on the side and the top.
RF-01-CD/n



Manifold with n/stations. Ports on both sides and top.
RF-01-AD/n



One station element.
RF-01-Z



Blind plate for blank valve station.
RF-01-V



Adapter plate for additional air supply and exhaust.
RF-01-PE



End plate A with side ports.
RF-01-EA



End plate B with side ports.
RF-01-EB



End plate C with side and top ports.
RF-01-EC



End plate D with side and top ports.
RF-01-ED

Additional single elements: **RF-01-ZE** "Add-on" element to add one valve station.
RF-01-DT Seal plate for two different pressures.
RE-26-RSV Check valve for dynamic exhaust pressures.

User information

Modular manifold system for valve series BM-01. The assembled manifold consists of one station elements (RF-01-Z) and end plates with common supply and exhaust ports. The end plates contain ports to the side (RF-01-EA, RF-01-EB) or at the top and the side (RF-01-EC, RF-01-ED).

The manifolds are quickly assembled with the 4 screws and a hexagonal nut. Adding or removing stations is possible at any time.

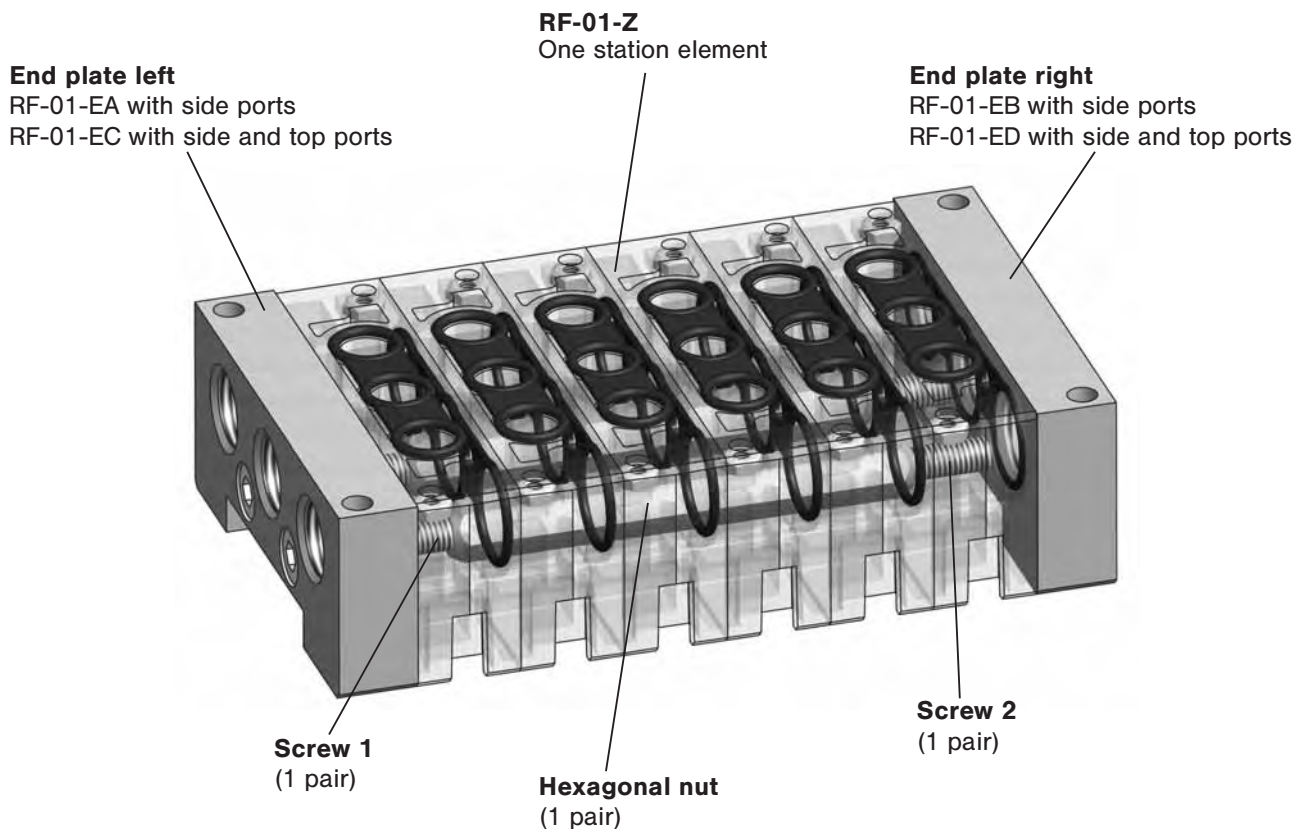
The manifold can be either DIN-rail mounted, screw on by 4 M5 screws or flange mounting via M4 screws.

The necessary seals and screws for valve mounting are included in the scope of delivery.

Accessories for series

BM-01, BME-01

Manifold design



User information

To add stations to the manifold without changing screws and nut, the set RF-01-ZE is available. This contains a one station element, a screw to extend the hexagonal nut and seals and screws for valve mounting.

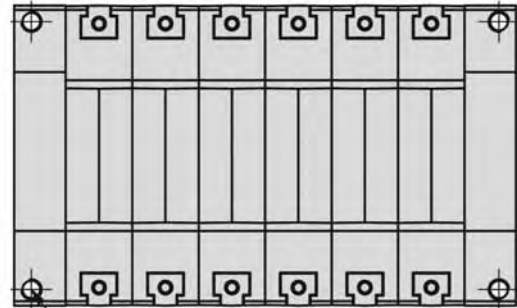
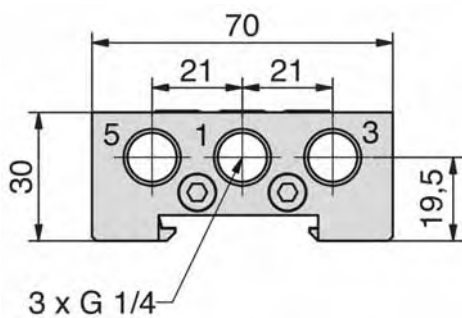
Order number	Hexagonal nut	Screw 1	Screw 2
RF-01-AB/02	21-R-07-07/05	M 5 x 16	M 5 x 16
RF-01-AB/03	21-R-07-07/05	M 5 x 25	M 5 x 25
RF-01-AB/04	21-R-07-07/05	M 5 x 30	M 5 x 30
RF-01-AB/05	21-R-07-07/2	M 5 x 20	M 5 x 20
RF-01-AB/06	21-R-07-07/2	M 5 x 25	M 5 x 25
RF-01-AB/07	21-R-07-07/2	M 5 x 35	M 5 x 35
RF-01-AB/08	21-R-07-07/2	M 5 x 40	M 5 x 40
RF-01-AB/09	21-R-07-07/4	M 5 x 16	M 5 x 16
RF-01-AB/10	21-R-07-07/4	M 5 x 25	M 5 x 25
RF-01-AB/11	21-R-07-07/4	M 5 x 35	M 5 x 35
RF-01-AB/12	21-R-07-07/4	M 5 x 40	M 5 x 40

Order number	Hexagonal nut	Screw 1	Screw 2
RF-01-CD/02	21-R-07-07/05	M 5 x 30	M 5 x 30
RF-01-CD/03	21-R-07-07/05	M 5 x 35	M 5 x 35
RF-01-CD/04	21-R-07-07/05	M 5 x 45	M 5 x 45
RF-01-CD/05	21-R-07-07/2	M 5 x 30	M 5 x 30
RF-01-CD/06	21-R-07-07/2	M 5 x 40	M 5 x 40
RF-01-CD/07	21-R-07-07/2	M 5 x 45	M 5 x 45
RF-01-CD/08	21-R-07-07/2	M 5 x 55	M 5 x 55
RF-01-CD/09	21-R-07-07/4	M 5 x 30	M 5 x 30
RF-01-CD/10	21-R-07-07/4	M 5 x 40	M 5 x 40
RF-01-CD/11	21-R-07-07/4	M 5 x 45	M 5 x 45
RF-01-CD/12	21-R-07-07/4	M 5 x 55	M 5 x 55

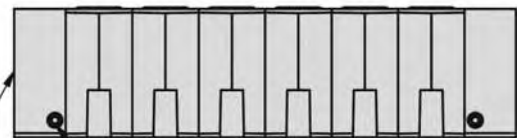
Order number	Hexagonal nut	Screw 1	Screw 2
RF-01-AD/02	21-R-07-07/05	M 5 x 16	M 5 x 30
RF-01-AD/03	21-R-07-07/05	M 5 x 25	M 5 x 35
RF-01-AD/04	21-R-07-07/05	M 5 x 30	M 5 x 45
RF-01-AD/05	21-R-07-07/2	M 5 x 20	M 5 x 30
RF-01-AD/06	21-R-07-07/2	M 5 x 25	M 5 x 40
RF-01-AD/07	21-R-07-07/2	M 5 x 35	M 5 x 45
RF-01-AD/08	21-R-07-07/2	M 5 x 40	M 5 x 55
RF-01-AD/09	21-R-07-07/4	M 5 x 16	M 5 x 30
RF-01-AD/10	21-R-07-07/4	M 5 x 25	M 5 x 40
RF-01-AD/11	21-R-07-07/4	M 5 x 35	M 5 x 45
RF-01-AD/12	21-R-07-07/4	M 5 x 40	M 5 x 55

Dimensions for manifolds

RF-01-AB

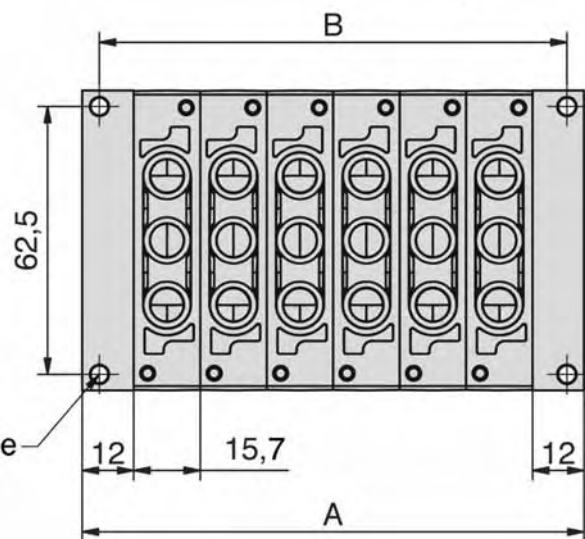


M5-14 deep



set screws
for DIN rail mounting

3 x G1/4



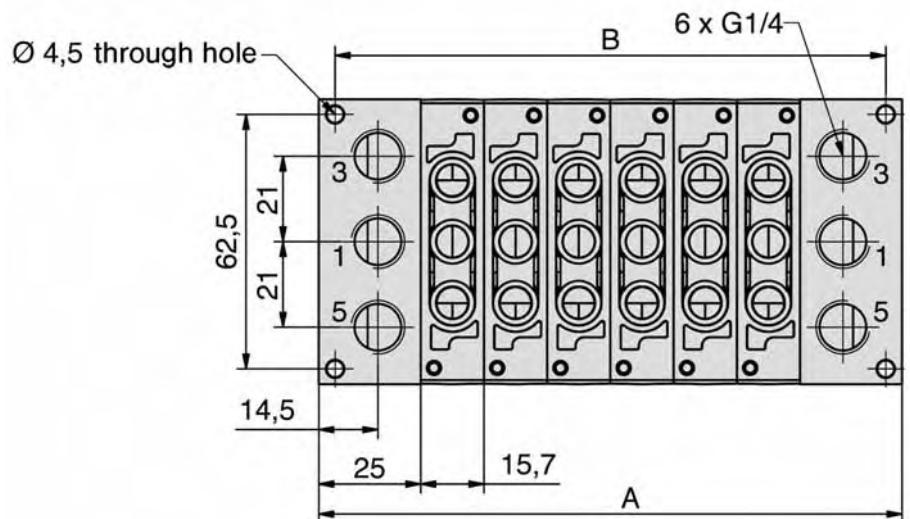
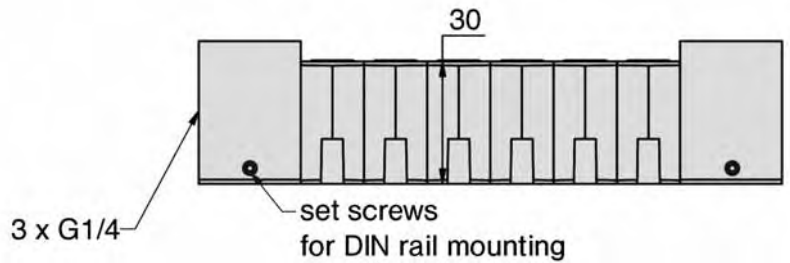
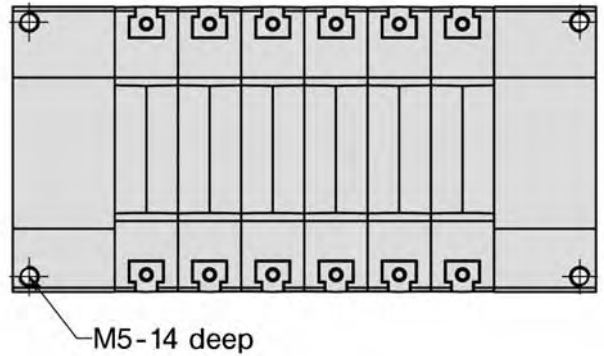
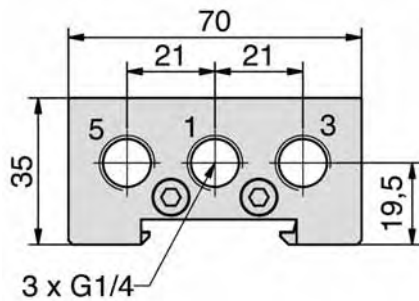
Ø 4,5 through hole

Materials: End plate Al (anodized), 1 station element PA,
Seals NBR, Screws steel zinc plated

Order number	A	B	Weight
RF-01-AB/02	55.4 + 0.3 /- 0.2	47.2 + 0.2 /- 0.1	0.150 kg (0.331 lb.)
RF-01-AB/03	71.1 + 0.35/- 0.2	63.1 + 0.25/- 0.1	0.190 kg (0.419 lb.)
RF-01-AB/04	86.8 + 0.4 /- 0.2	78.8 + 0.3 /- 0.1	0.230 kg (0.507 lb.)
RF-01-AB/05	102.5 + 0.45/- 0.2	94.5 + 0.35/- 0.1	0.270 kg (0.595 lb.)
RF-01-AB/06	118.2 + 0.5 /- 0.2	110.2 + 0.4 /- 0.1	0.310 kg (0.683 lb.)
RF-01-AB/07	133.9 + 0.55/- 0.2	125.9 + 0.45/- 0.1	0.350 kg (0.772 lb.)
RF-01-AB/08	149.6 + 0.6 /- 0.2	141.6 + 0.5 /- 0.1	0.390 kg (0.860 lb.)
RF-01-AB/09	165.3 + 0.65/- 0.2	157.3 + 0.55/- 0.1	0.430 kg (0.948 lb.)
RF-01-AB/10	181 + 0.7 /- 0.2	173 + 0.6 /- 0.1	0.470 kg (1.036 lbs.)
RF-01-AB/11	196.7 + 0.75/- 0.2	188.7 + 0.65/- 0.1	0.510 kg (1.124 lbs.)
RF-01-AB/12	212.4 + 0.8 /- 0.2	204.4 + 0.7 /- 0.1	0.550 kg (1.212 lbs.)

Dimensions for manifolds

RF-01-CD

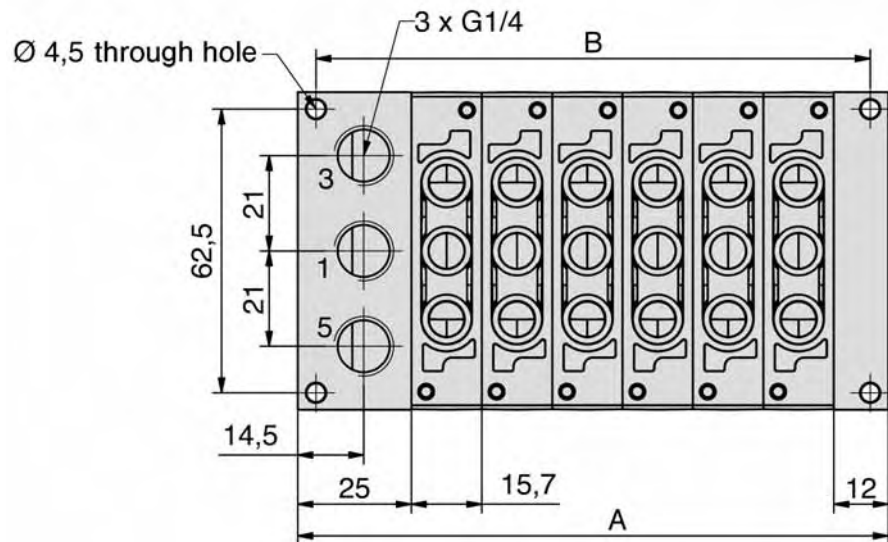
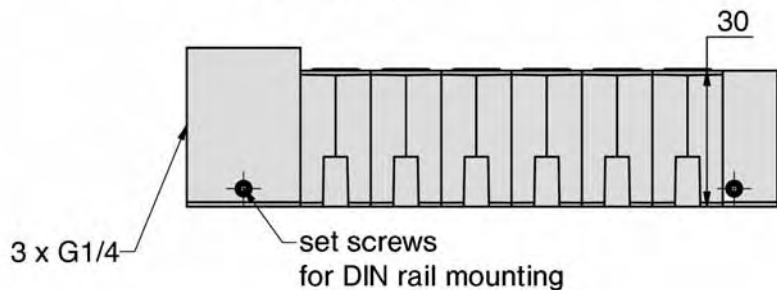
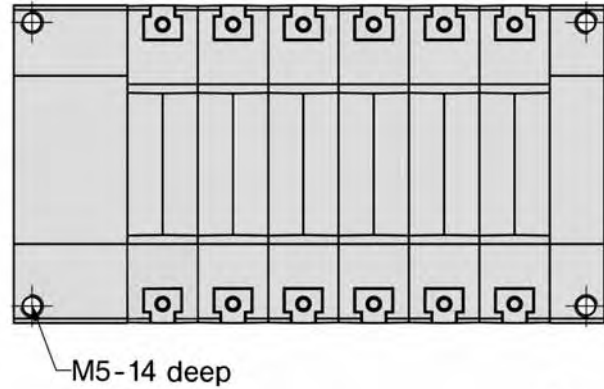
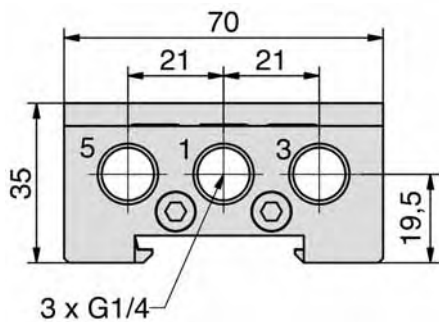


Materials: End plate Al (anodized), 1 station element PA,
Seals NBR, Screws steel zinc plated

Order number	A	B	Weight
RF-01-CD/02	81.4 + 0.3 /- 0.2	73.4 + 0.2 /- 0.1	0.300 kg (0.661 lb.)
RF-01-CD/03	97.1 + 0.35/- 0.2	89.1 + 0.25/- 0.1	0.340 kg (0.750 lb.)
RF-01-CD/04	112.8 + 0.4 /- 0.2	104.8 + 0.3 /- 0.1	0.380 kg (0.838 lb.)
RF-01-CD/05	128.5 + 0.45/- 0.2	120.5 + 0.35/- 0.1	0.420 kg (0.926 lb.)
RF-01-CD/06	144.2 + 0.5 /- 0.2	136.2 + 0.4 /- 0.1	0.460 kg (1.014 lbs.)
RF-01-CD/07	159.9 + 0.55/- 0.2	151.9 + 0.45/- 0.1	0.500 kg (1.102 lbs.)
RF-01-CD/08	175.6 + 0.6 /- 0.2	167.6 + 0.5 /- 0.1	0.540 kg (1.190 lbs.)
RF-01-CD/09	191.3 + 0.65/- 0.2	183.3 + 0.55/- 0.1	0.580 kg (1.278 lbs.)
RF-01-CD/10	207 + 0.7 /- 0.2	199 + 0.6 /- 0.1	0.620 kg (1.367 lbs.)
RF-01-CD/11	222.7 + 0.75/- 0.2	214.7 + 0.65/- 0.1	0.660 kg (1.455 lbs.)
RF-01-CD/12	238.4 + 0.8 /- 0.2	230.4 + 0.7 /- 0.1	0.700 kg (1.543 lbs.)

Dimensions for manifolds

RF-01-AD



Materials: End plate Al (anodized),
1 station element PA,
Seals NBR, Screws steel zinc plated

Order number	A	B	Weight
RF-01-AD/02	68.4 + 0.3 /- 0.2	60.4 + 0.2 /- 0.1	0.230 kg (0.507 lb.)
RF-01-AD/03	84.1 + 0.35/- 0.2	76.1 + 0.25/- 0.1	0.270 kg (0.595 lb.)
RF-01-AD/04	99.8 + 0.4 /- 0.2	91.8 + 0.3 /- 0.1	0.310 kg (0.683 lb.)
RF-01-AD/05	115.5 + 0.45/- 0.2	107.5 + 0.35/- 0.1	0.350 kg (0.772 lb.)
RF-01-AD/06	131.2 + 0.5 /- 0.2	123.2 + 0.4 /- 0.1	0.390 kg (0.860 lb.)
RF-01-AD/07	146.9 + 0.55/- 0.2	138.9 + 0.45/- 0.1	0.430 kg (0.948 lb.)
RF-01-AD/08	162.6 + 0.6 /- 0.2	154.6 + 0.5 /- 0.1	0.470 kg (1.036 lbs.)
RF-01-AD/09	178.3 + 0.65/- 0.2	170.3 + 0.55/- 0.1	0.510 kg (1.124 lbs.)
RF-01-AD/10	194 + 0.7 /- 0.2	186 + 0.6 /- 0.1	0.550 kg (1.212 lbs.)
RF-01-AD/11	209.7 + 0.75/- 0.2	201.7 + 0.65/- 0.1	0.590 kg (1.301 lbs.)
RF-01-AD/12	225.4 + 0.8 /- 0.2	217.4 + 0.7 /- 0.1	0.630 kg (1.389 lbs.)

Accessories for electrically operated valves serie BM-01 and BM-02



Solenoid coil 23-M-09-19 (Contact distance 8 mm)



Solenoid pins at the same side as the manual override (HN).



Solenoid pins at the opposite side as the manual override (HN).

The connection patten of the pins is according to EN 175301-803 form C.

Duty cycle 100 %.

Order number	Standard voltage	Power consumption	Manual override (HN)	Position contact pins
23-M-09-19-461-T	12 V DC	1 W	Non detented	same side as HN
23-M-09-19-431-T				opposite side as HN
23-M-09-19-461-R			Detented	same side as HN
23-M-09-19-431-R				opposite side as HN
23-M-09-19-462-T	24 V DC	1 W	Non detented	same side as HN
23-M-09-19-432-T				opposite side as HN
23-M-09-19-462-R			Detented	same side as HN
23-M-09-19-432-R				opposite side as HN
23-M-09-19-452-T	24 V AC	3 VA	Non detented	same side as HN
23-M-09-19-422-T				opposite side as HN
23-M-09-19-452-R			Detented	same side as HN
23-M-09-19-422-R				opposite side as HN
23-M-09-19-456-T	115 V AC	3 VA	Non detented	same side as HN
23-M-09-19-426-T				opposite side as HN
23-M-09-19-456-R			Detented	same side as HN
23-M-09-19-426-R				opposite side as HN
23-M-09-19-457-T	230 V AC	3 VA	Non detented	same side as HN
23-M-09-19-427-T				opposite side as HN
23-M-09-19-457-R			Detented	same side as HN
23-M-09-19-427-R				opposite side as HN

Plug socket 28-ST-02-1 (Pin distance 8 mm)



AIRTEC solenoid sockets with seal type 28-ST-02-1 are a standard feature of all solenoid valves series using coil type 23-M-09-19-...

Cable- ϕ : max. 6.5 mm (0.26 in).

Conductor size: max. is 0.75 mm² (8 gauge).

Degree of protection: IP 65 according to VDE 0470/EN 60529.

Useable for all available coil voltages.

Plug socket 28-ST-09 and 28-ST-10 (Contact distance 8 mm)



AIRTEC solenoid sockets type 28-ST-09-1 and 28-ST-10-1 have a green LED.

28-ST-10-1 has an additional integrated circuit to protect against voltage peaks.

Please indicate requested voltage with order.

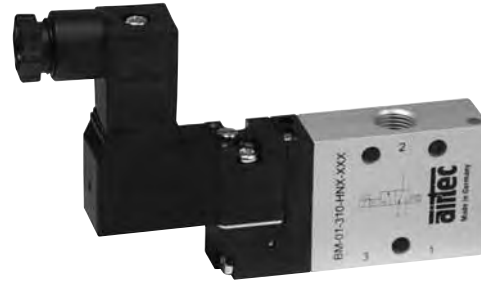
Order number	28-ST-09-1-112	28-ST-09-1-127	28-ST-10-1-112	28-ST-10-1-127
Standard voltage	24 V AC/DC	230 V AC	24 V AC/DC	230 V AC

Electrically operated valves
3/2-way
G 1/4, 920 – 1090 NI/min (0.935 – 1.001 Cv)



Technical data for series

BM-02



Order code BM-02-310-HNR-162

Series and function

BM = Standard

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.137.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number	BM-02-310-HN	BM-02-312-HN
Please complete according to order code.		
Function	3/2-way NC	3/2-way NO
Connection	G 1/4	
Nominal size	8 mm	
Flow rate	1090 NI/min (1.001 Cv)	920 NI/min (0.935 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)	
Control pressure	Control pressure is identical to main pressure range	
Response time at 6 bar	on 19 ms off 23 ms	on 25 ms off 23 ms
Temperature range	- 5 °C ... + 60 °C (+ 23 °F ... + 140 °F)	
Materials	Body: Al (anodized) and PA-GF, Seals: NBR and PU, Inner parts: Al, brass and POM	
Degree of protection	IP 65 according to EN 60529	
Weight	0.150 kg (0.331 lb.)	

Electrically operated valves
2 x 3/2-way
G 1/4, 920 – 1050 NI/min (0.935 – 1.067 Cv)



Technical data for series

BM-02



Order code BM-02-310-HNR-162

Series and function

BM = Standard

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward¹⁾	Plug socket downward¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.137.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number Please complete according to order code.	BM-02-310/2-HN	BM-02-312/2-HN	BM-02-314/2-HN
Function	 2 x 3/2-way NC	 2 x 3/2-way NO	 2 x 3/2-way NO/NC
Connection	G 1/4		
Nominal size	7 mm		
Flow rate	1050 NI/min (1.067 Cv)	1030 NI/min (1.047 Cv)	NC 1050 NI/min, NO 920 NI/min (NC 1.067 Cv, NO 0.935 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)		
Control pressure	Control pressure is identical to main pressure range		
Response time at 6 bar	on 22 ms off 24 ms		
Temperature range	- 5 °C ... + 60 °C (+ 23 °F ... + 140 °F)		
Materials	Body: Al (anodized) and PA-GF, Seals: NBR and PU, Inner parts: Al, brass and POM		
Degree of protection	IP 65 according to EN 60529		
Weight	0.250 kg (0.551 lb.)		

Electrically operated valves
5/2-way
G 1/4, 1540 – 1700 NI/min (1.565 – 1.728 Cv)



Technical data for series

BM-02



Order code

BM-02-510-HNR-162

Series and function

BM = Standard
 BME = Valves with external pilot supply

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.137.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number Please complete according to order code.	BM-02-510-HN	BM-02-511-HN	BM-02-520-HN	BME-02-511-HN	BME-02-520-HN
Function	5/2-way single solenoid air spring return	5/2-way single solenoid spring return	5/2-way double solenoid	5/2-way single solenoid ext. pilot supply	5/2-way double solenoid ext. pilot supply
Connection	G 1/4				
Nominal size	7 mm				
Flow rate	1700 NI/min (1.728 Cv)	1600 NI/min (1.626 Cv)	1540 NI/min (1.565 Cv)	1600 NI/min (1.626 Cv)	1540 NI/min (1.565 Cv)
Pressure range	2 ... 8 bar (29 ... 116 psi)	3 ... 8 bar (43.5 ... 116 psi)	2 ... 8 bar (29 ... 116 psi)	– 0,95 ... 8 bar (– 14 ... + 116 psi)	
Control pressure	Control pressure is identical to main pressure range			3 ... 8 bar (43.5 ... 116 psi)	2 ... 8 bar (29 ... 116 psi)
Response time at 6 bar	on 23 ms off 33 ms	on 13 ms off 35 ms	11 ms	on 13 ms off 35 ms	11 ms
Temperature range	– 5 °C ... + 60 °C (+ 23 °F ... + 140 °F)				
Materials	Body: Al (anodized) and PA-GF, Seals: NBR and PU, Inner parts: Al, brass and POM				
Degree of protection	IP 65 according to EN 60529				
Weight	0.220 kg (0.485 lb.)		0.270 kg (0.595 lb.)	0.220 kg (0.485 lb.)	0.270 kg (0.595 lb.)

Electrically operated valves
5/3-way
G 1/4, 1300 – 1660 NI/min (1.321 – 1.687 Cv)



Technical data for series

BM-02



Order code BM-02-530-HNR-162

Series and function

BM = Standard
 BME = Valves with external pilot supply

Manual override

HNT = non-detented manual override
 HNR = detented manual override

Coil options

Standard voltage	Plug socket upward ¹⁾	Plug socket downward ¹⁾
12 V DC, 1 W	161	131
24 V DC, 1 W	162	132
24 V AC, 3 VA	152	122
115 V AC, 3 VA	156	126
230 V AC, 3 VA	157	127

¹⁾ The solenoid can be supplied with plug socket connection and manual override on the same side as ports 2 and 4 or on the same side as ports 1, 3 and 5.

When the valve is requested without the plug socket, the first digit of the order code for standard coils must be changed from 1 to 4. For optional plug sockets see page 4.137.

Design and function

Spool valve actuated by an electrical signal. Please specify required control voltage when ordering.

Order number Please complete according to order code.	BM-02-530-HN	BM-02-533-HN	BM-02-534-HN	BME-02-530-HN	BME-02-533-HN	BME-02-534-HN
Function	5/3-way center position closed	5/3-way center position exhausted	5/3-way center position pressurized	5/3-way center position closed ext. pilot supply	5/3-way center position exhausted ext. pilot supply	5/3-way center position pressurized ext. pilot supply
Connection	G 1/4					
Nominal size	7 mm					
Flow rate	1300 NI/min (1.321 Cv)	1470 NI/min (1.494 Cv)	1660 NI/min (1.687 Cv)	1300 NI/min (1.321 Cv)	1470 NI/min (1.494 Cv)	1660 NI/min (1.687 Cv)
Pressure range	3 ... 8 bar (43.5 ... 116 psi)			- 0,95 ... 8 bar (- 14 ... + 116 psi)		
Control pressure	Control pressure is identical to main pressure range					
Response time at 6 bar	on 20 ms off 26 ms	on 26 ms off 28 ms	on 26 ms off 33 ms	on 20 ms off 26 ms	on 26 ms off 28 ms	on 26 ms off 33 ms
Temperature range	- 5 °C ... + 60 °C (+ 23 °F ... + 140 °F)					
Materials	Body: Al (anodized) and PA-GF, Seals: NBR and PU, Inner parts: Al, brass and POM					
Degree of protection	IP 65 according to EN 60529					
Weight	0.260 kg (0.573 lb.)					

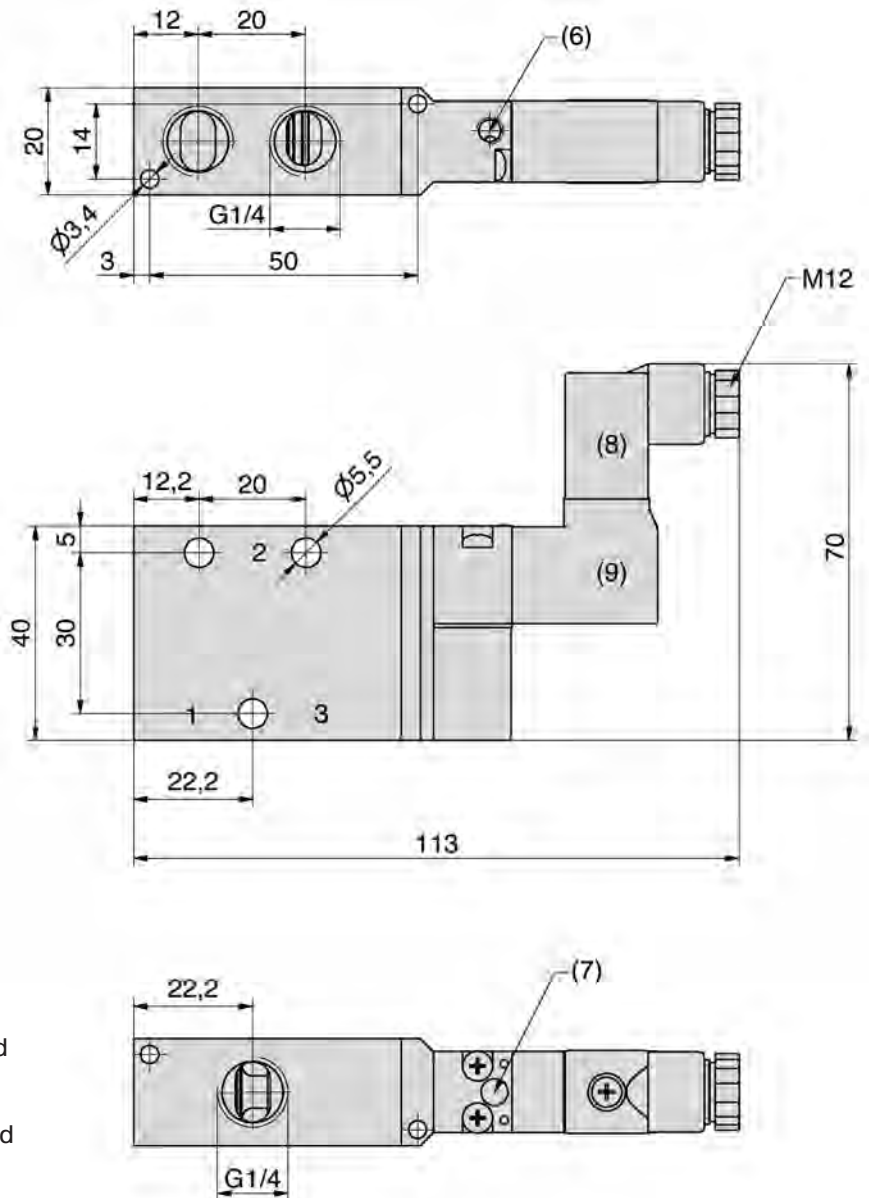
Electrically operated valves
 3/2-way
 G 1/4, 750 – 920 NI/min (0.762 - 0.935 Cv)



Dimensions for series

BM-02

BM-02-310-HN, BM-02-312-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = Pilot air exhaust, M5
- (7) = Manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = Solenoid, pins for plug socket connection upward or downward

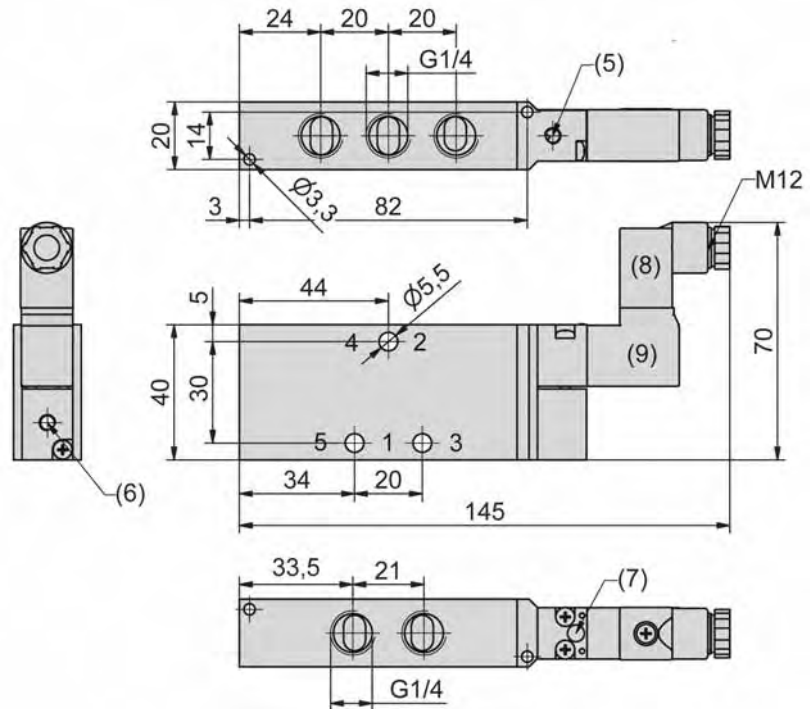
**Electrically operated valves
5/2-way with ext. pilot supply
G 1/4, 1300 – 1660 NI/min (1.321 - 1.687 Cv)**



Dimensions for series

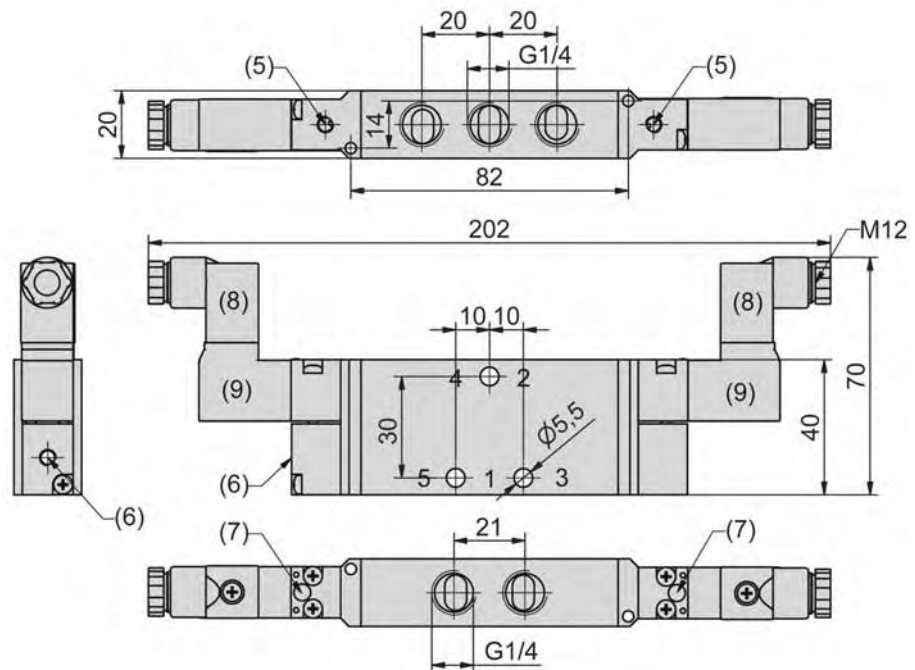
BME-02

BME-02-511-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = Pilot air exhaust, M5
- (7) = Manual override,
detented or non-detented
- (8) = plug socket can be repositioned
by 180°
- (9) = Solenoid, pins for plug socket
connection upward or downward

BME-02-520-HN, BME-02-530-HN, BME-02-533-HN, BME-02-534-HN



- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = Pilot air exhaust, M5
- (7) = Manual override,
detented or non-detented

- (8) = plug socket can be repositioned by 180°
- (9) = Solenoid, pins for plug socket
connection upward or downward

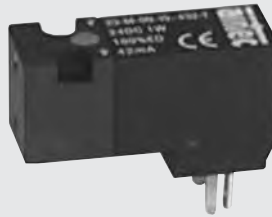
Accessories for series

BM-02, BME-02

Solenoid



Solenoid with pins for plug socket connection on the same side as manual override (upward).
23-M-09-19-...
page 4.284



Solenoid with pins for plug socket connection on the opposite side of the manual override (downward).
23-M-09-19-...
page 4.284

Plug sockets



Standard plug socket
28-ST-02-1
page 4.284



Plug socket with LED
28-ST-09-1-...
page 4.284



Plug socket with LED and circuit protection
28-ST-10-1-...
page 4.284

Accessories for series

BM-02, BME-02

Manifolds



Manifold will be delivered completely assembled with valves if requested.



Manifold with n/stations. Ports on the side.
RF-02-AB/n



Manifold with n/stations. Ports on the side and the top.
RF-02-CD/n



Manifold with n/stations. Ports on both sides and top.
RF-02-AD/n



One station element.
RF-02-Z



Blind plate for blank valve station.
RF-02-V



Adapter plate for additional air supply and exhaust.
RF-02-PE



End plate A with side ports.
RF-02-EA



End plate B with side ports.
RF-02-EB



End plate C with side and top ports.
RF-02-EC



End plate D with side and top ports.
RF-02-ED

Additional single elements: **RF-02-ZE** "Add-on" element to add one valve station.
RF-02-DT Seal plate for two different pressures.
RF-02-RSV Check valve for dynamic exhaust pressures.
RF-01-M5 Mounting bolt (1 pair)

User information

Modular manifold system for valve series BM-01. The assembled manifold consists of one station elements (RF-01-Z) and end plates with common supply and exhaust ports. The end plates contain ports to the side (RF-01-EA, RF-01-EB) or at the top and the side (RF-01-EC, RF-01-ED).

The manifolds are quickly assembled with the 4 screws and a hexagonal nut. Adding or removing stations is possible at any time.

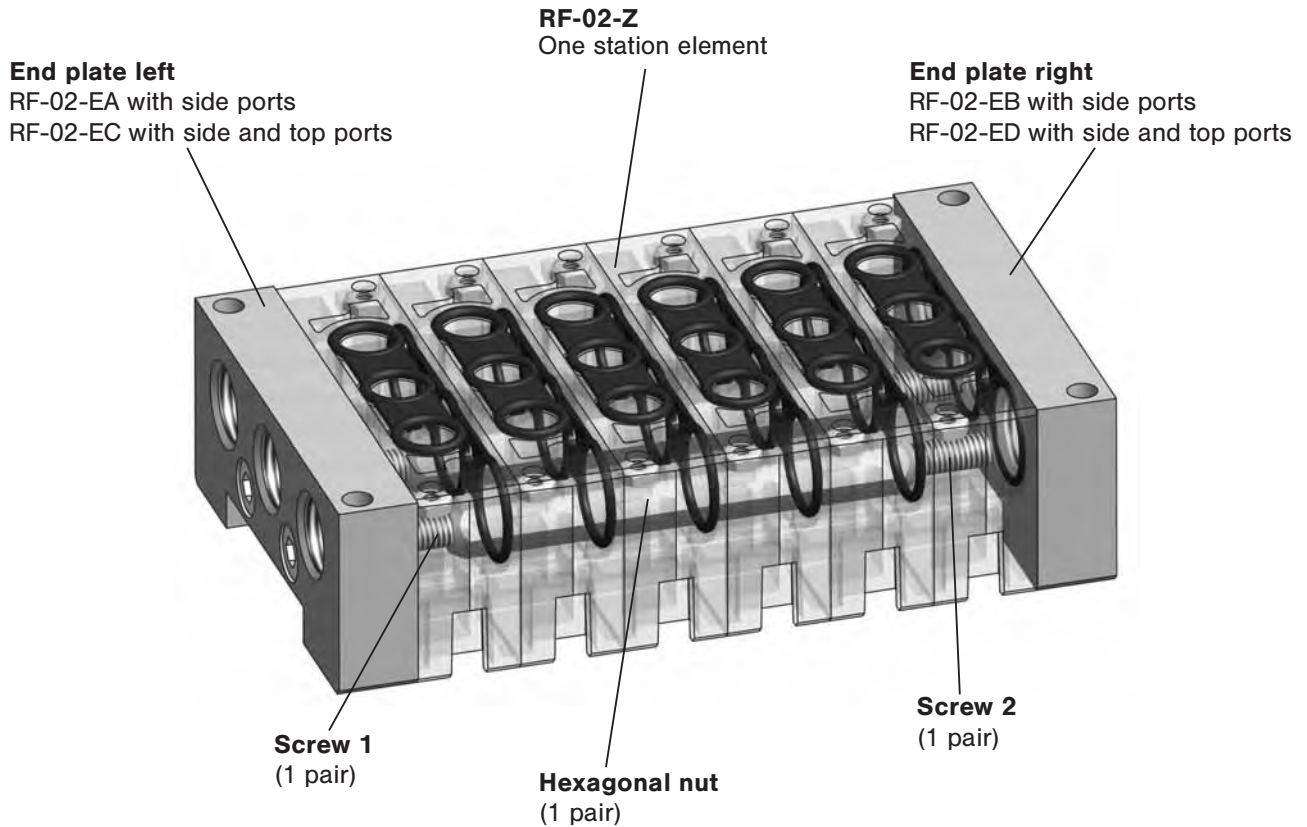
The manifold can be either DIN-rail mounted, screw on by 4 M5 screws or flange mounting via M4 screws.

The necessary seals and screws for valve mounting are included in the scope of delivery.

Accessories for series

BM-02, BME-02

Manifold design



User information

To add stations to the manifold without changing screws and nut, the set RF-01-ZE is available. This contains a one station element, a screw to extend the hexagonal nut and seals and screws for valve mounting.

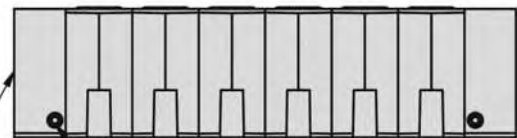
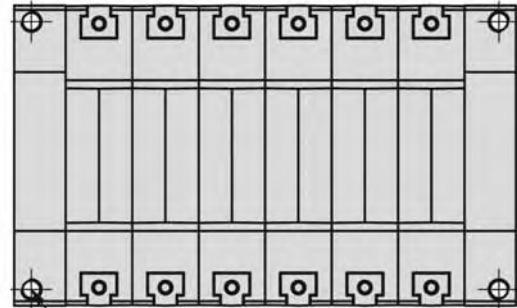
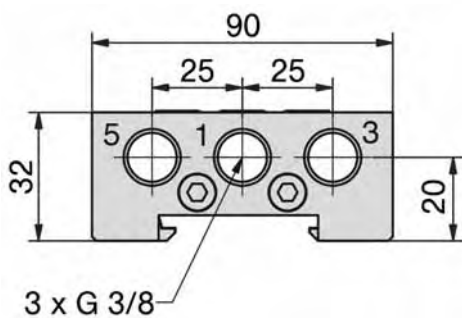
Order number	Hexagonal nut	Screw 1	Screw 2
RF-02-AB/02	21-R-07-07/05	M 5 x 20	M 5 x 20
RF-02-AB/03	21-R-07-07/05	M 5 x 30	M 5 x 30
RF-02-AB/04	21-R-07-07/2	M 5 x 20	M 5 x 20
RF-02-AB/05	21-R-07-07/2	M 5 x 30	M 5 x 30
RF-02-AB/06	21-R-07-07/2	M 5 x 40	M 5 x 40
RF-02-AB/07	21-R-07-07/4	M 5 x 20	M 5 x 20
RF-02-AB/08	21-R-07-07/4	M 5 x 30	M 5 x 30
RF-02-AB/09	21-R-07-07/4	M 5 x 40	M 5 x 40
RF-02-AB/10	21-R-07-07/6	M 5 x 16	M 5 x 16
RF-02-AB/11	21-R-07-07/6	M 5 x 25	M 5 x 25
RF-02-AB/12	21-R-07-07/6	M 5 x 35	M 5 x 35

Order number	Hexagonal nut	Screw 1	Screw 2
RF-02-CD/02	21-R-07-07/05	M 5 x 35	M 5 x 35
RF-02-CD/03	21-R-07-07/05	M 5 x 45	M 5 x 45
RF-02-CD/04	21-R-07-07/2	M 5 x 35	M 5 x 35
RF-02-CD/05	21-R-07-07/2	M 5 x 45	M 5 x 45
RF-02-CD/06	21-R-07-07/2	M 5 x 55	M 5 x 55
RF-02-CD/07	21-R-07-07/4	M 5 x 30	M 5 x 30
RF-02-CD/08	21-R-07-07/4	M 5 x 40	M 5 x 40
RF-02-CD/09	21-R-07-07/4	M 5 x 50	M 5 x 50
RF-02-CD/10	21-R-07-07/6	M 5 x 30	M 5 x 30
RF-02-CD/11	21-R-07-07/6	M 5 x 40	M 5 x 40
RF-02-CD/12	21-R-07-07/6	M 5 x 50	M 5 x 50

Order number	Hexagonal nut	Screw 1	Screw 2
RF-02-AD/02	21-R-07-07/05	M 5 x 20	M 5 x 35
RF-02-AD/03	21-R-07-07/05	M 5 x 30	M 5 x 45
RF-02-AD/04	21-R-07-07/2	M 5 x 20	M 5 x 35
RF-02-AD/05	21-R-07-07/2	M 5 x 30	M 5 x 45
RF-02-AD/06	21-R-07-07/2	M 5 x 40	M 5 x 55
RF-02-AD/07	21-R-07-07/4	M 5 x 20	M 5 x 30
RF-02-AD/08	21-R-07-07/4	M 5 x 30	M 5 x 40
RF-02-AD/09	21-R-07-07/4	M 5 x 40	M 5 x 50
RF-02-AD/10	21-R-07-07/6	M 5 x 16	M 5 x 30
RF-02-AD/11	21-R-07-07/6	M 5 x 25	M 5 x 40
RF-02-AD/12	21-R-07-07/6	M 5 x 35	M 5 x 50

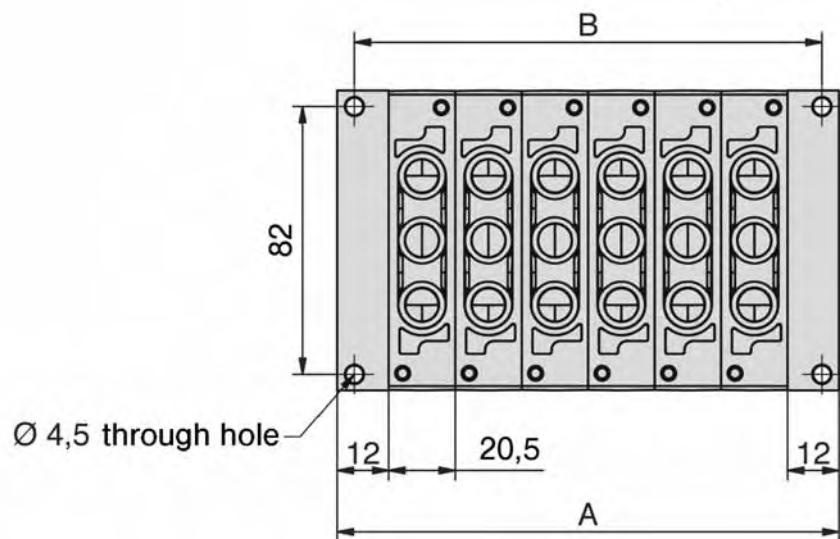
Dimensions for manifolds

RF-02-AB



3 x G 3/8

set screws
for DIN rail mounting

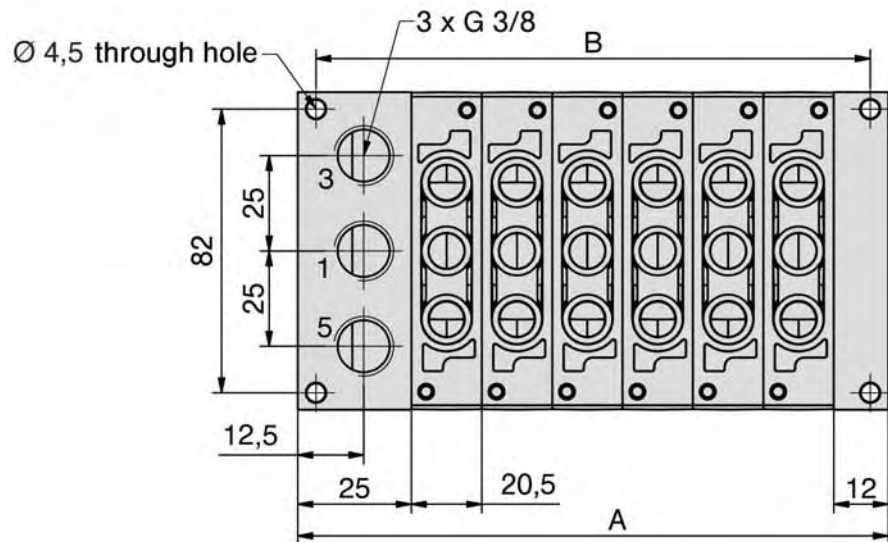
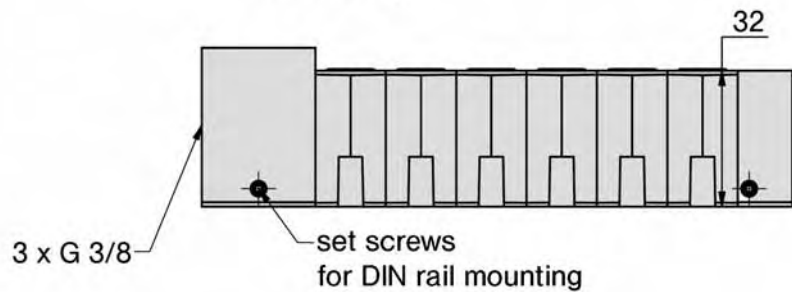
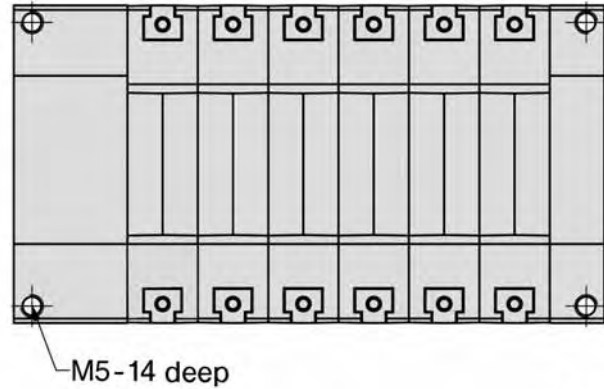
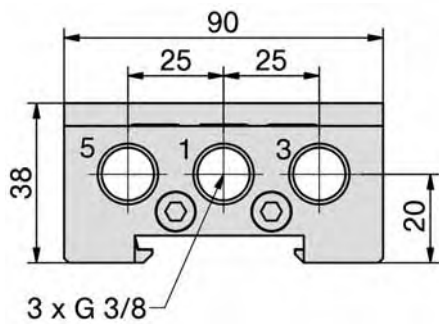


Materials: End plate Al (anodized), 1 station element PA,
Seals NBR, Screws steel zinc plated

Order number	A	B	Weight
RF-02-AB/02	65 ± 0.3	57 ± 0.3	0.230 kg (0.507 lb.)
RF-02-AB/03	85.5 ± 0.35	77.5 ± 0.35	0.270 kg (0.595 lb.)
RF-02-AB/04	106 ± 0.4	98 ± 0.4	0.310 kg (0.683 lb.)
RF-02-AB/05	126.5 ± 0.45	118.5 ± 0.45	0.350 kg (0.772 lb.)
RF-02-AB/06	147 ± 0.5	139 ± 0.5	0.390 kg (0.860 lb.)
RF-02-AB/07	167.5 ± 0.55	159.5 ± 0.55	0.430 kg (0.948 lb.)
RF-02-AB/08	188 ± 0.6	180 ± 0.6	0.470 kg (1.036 lbs.)
RF-02-AB/09	208.5 ± 0.65	200.5 ± 0.65	0.510 kg (1.124 lbs.)
RF-02-AB/10	229 ± 0.7	221 ± 0.7	0.550 kg (1.212 lbs.)
RF-02-AB/11	249.5 ± 0.75	241.5 ± 0.75	0.590 kg (1.301 lbs.)
RF-02-AB/12	270 ± 0.8	262 ± 0.8	0.630 kg (1.389 lbs.)

Dimensions for manifolds

RF-02-AD



Materials: End plate Al (anodized),
1 station element PA,
Seals NBR, Screws steel zinc plated

Order number	A	B	Weight
RF-02-AD/02	78 ± 0.3	70 ± 0.3	0.320 kg (0.705 lb.)
RF-02-AD/03	98.5 ± 0.35	90.5 ± 0.35	0.360 kg (0.794 lb.)
RF-02-AD/04	119 ± 0.4	111 ± 0.4	0.400 kg (0.882 lb.)
RF-02-AD/05	139.5 ± 0.45	131.5 ± 0.45	0.440 kg (0.970 lb.)
RF-02-AD/06	160 ± 0.5	152 ± 0.5	0.480 kg (1.058 lbs.)
RF-02-AD/07	180.5 ± 0.55	172.5 ± 0.55	0.520 kg (1.146 lbs.)
RF-02-AD/08	201 ± 0.6	193 ± 0.6	0.560 kg (1.234 lbs.)
RF-02-AD/09	221.5 ± 0.65	213.5 ± 0.65	0.600 kg (1.323 lbs.)
RF-02-AD/10	242 ± 0.7	234 ± 0.7	0.640 kg (1.411 lbs.)
RF-02-AD/11	262.5 ± 0.75	254.5 ± 0.75	0.680 kg (1.499 lbs.)
RF-02-AD/12	283 ± 0.8	275 ± 0.8	0.720 kg (1.587 lbs.)

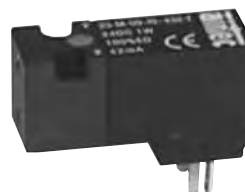
Accessories for electrically operated valves serie BM-01 and BM-02



Solenoid coil 23-M-09-19 (Contact distance 8 mm)



Solenoid pins at the same side as the manual override (HN).



Solenoid pins at the opposite side as the manual override (HN).

The connection patten of the pins is according to EN 175301-803 form C.

Duty cycle 100 %.

Order number	Standard voltage	Power consumption	Manual override (HN)	Position contact pins
23-M-09-19-461-T	12 V DC	1 W	Non detented	same side as HN
23-M-09-19-431-T				opposite side as HN
23-M-09-19-461-R			Detented	same side as HN
23-M-09-19-431-R				opposite side as HN
23-M-09-19-462-T	24 V DC	1 W	Non detented	same side as HN
23-M-09-19-432-T				opposite side as HN
23-M-09-19-462-R			Detented	same side as HN
23-M-09-19-432-R				opposite side as HN
23-M-09-19-452-T	24 V AC	3 VA	Non detented	same side as HN
23-M-09-19-422-T				opposite side as HN
23-M-09-19-452-R			Detented	same side as HN
23-M-09-19-422-R				opposite side as HN
23-M-09-19-456-T	115 V AC	3 VA	Non detented	same side as HN
23-M-09-19-426-T				opposite side as HN
23-M-09-19-456-R			Detented	same side as HN
23-M-09-19-426-R				opposite side as HN
23-M-09-19-457-T	230 V AC	3 VA	Non detented	same side as HN
23-M-09-19-427-T				opposite side as HN
23-M-09-19-457-R			Detented	same side as HN
23-M-09-19-427-R				opposite side as HN

Plug socket 28-ST-02-1 (Pin distance 8 mm)



AIRTEC solenoid sockets with seal type 28-ST-02-1 are a standard feature of all solenoid valves series using coil type 23-M-09-19-...

Cable- ϕ : max. 6.5 mm (0.26 in).

Conductor size: max. is 0.75 mm² (8 gauge).

Degree of protection: IP 65 according to VDE 0470/EN 60529.

Useable for all available coil voltages.

Plug socket 28-ST-09 and 28-ST-10 (Contact distance 8 mm)



AIRTEC solenoid sockets type 28-ST-09-1 and 28-ST-10-1 have a green LED.

28-ST-10-1 has an additional integrated circuit to protect against voltage peaks.

Please indicate requested voltage with order.

Order number	28-ST-09-1-112	28-ST-09-1-127	28-ST-10-1-112	28-ST-10-1-127
Standard voltage	24 V AC/DC	230 V AC	24 V AC/DC	230 V AC