



Electrically operated valves (NPTF) BM-91 and BM-92



Air. Pressure. Motion.

About AIRTEC

We love a challenge

Beginning in 1975 with the revolutionary AIRTEC ring, we have constantly pursued the same goal – developing pneumatic control technology to meet the highest demand of industry.

Quality and Capacity

More than 35 years later, AIRTEC has become an industry leader with global reach following a consistent service objective: To ensure that our products fit the needs of our customers.

- Innovation and skill
- Customized solutions
- Decades of experience
- Technical innovation
- Customer satisfaction
- International business network
- Reliable quality management
- Innovative product range
- Extensive sales and service network
- Reliable, high-performance partner
- Quality products that maintain their value



AIRTEC: The Facts

- Among the leaders in pneumatic control technology
- Two prime locations in Germany
- World-wide presence with sales offices and manufacturing facilities staffed by AIRTEC, and its associates
- ISO-certified quality management since 1994 (ISO 9001:2008)



AIRTEC BM Series Valves

Designed with features and benefits to make your products better

Here's why electrically operated valves made by AIRTEC make your product simply better:

Blank plate

Two 3/2-way valves in one body

Low power consumption

Adapter plate for additional air supply and exhaust

Light weight modular sub-base

High flow in compact size
1/8" up to 1.047 Cv
1/4" up to 1.687 Cv

Flexible "body ported" valves can be used with or without sub-bases

Machined aluminum bodies

Simple to assemble



Our experience speaks for itself:

Wood and Paper Products

- Plywood, Fiberboard, and Veneer Paneling
- (Pre-fabricated) Building Materials
- Packaging Materials
- Pulp, Paper, Cardboard, and Paperboard

Industrial Equipment

- Machines and Factory Equipment
- Fluid Technology Components

Food Products

- Meat and Fish Processing
- Fruit and Vegetable Processing and Handling
- Milk Processing
- Slaughteryard Equipment
- Grain Milling
- Animal Fodder Handling
- Bottle Filling Technology
- Sugar Production

Automotive Construction

- Passenger and Utility Vehicles
- Fire Engines
- Street-cleaning Vehicles
- Milk Collection Trucks
- Tank Trucks

- Transport Technology
- Livestock Transportation
- Government Utility Vehicles
- Rail Vehicles
- Agricultural Machinery and Vehicles

Ceramic Products

- Glass and Stone Products
- Wall and Floor Tiling
- Concrete, Cement, Limestone, and Plaster Products
- Brickyard Technology

Textiles

- Spinning Machines
- Weaving Machines
- Textile Refinement
- Textile Goods, Clothing and Footwear
- Leather Treatment

Chemical Products

- Coking Units
- Petroleum Processing
- Pharmaceuticals
- Chemical Products
- Rubber Ware
- Synthetic Materials

Metal Goods

- Steel and Iron
- Steel and Aluminum
- Forging, Molding, Stamping, and Drawing Equipment

- Foundries
- Surface Finishing Equipment
- Heat Treatments
- Cutlery, Tools, and Metal Fittings
- Ironwork, Metalwork, and Sheet Metal

Energy

- Gas and Water Supply
- Waste Removal and Recycling
- Sewage and Waste Disposal

Other Machines, Appliances and Equipment

- Analytic Technology
- Construction Equipment
- Aboveground and Underground Mining Equipment
- Office Equipment
- Dental and Medical Equipment
- Materials Handling Equipment
- Woodworking Machinery
- Plastic Manufacturing Machines
- Storage Technology
- Measuring and Control Equipment
- Printing Machinery
- Molding Presses
- Vacuum Technology
- Packing Equipment
- Car Washing Technology
- Industrial Tool Machinery

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



Technical data for series

BM-91

Order code

BM-91-310-HNR-162

Series, size, and function

BM = standard

Manual override

HNT = non-detented manual override

HNR = detented manual override

Coil options

| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 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 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 12.

Design and function

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

| Order number | BM-91-310-HN | BM-91-312-HN |
|--|---|-----------------------|
| Please complete according to order code. | 12 | 10 |
| Function | <p>3/2-way NC</p> | <p>3/2-way NO</p> |
| Connection | 1/8 NPTF | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +140°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
1/8 NPTF, 550 to 650 NI/min (0.559-0.661 Cv)



Technical data for series

BM-91

Order code

BM-91-310/2-HNR-162

Series, size, and function

BM = standard

Manual override

HNT = non-detented manual override

HNR = detented manual override

Coil options

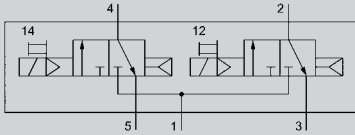
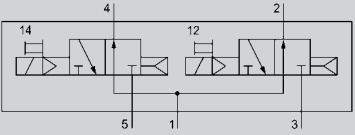
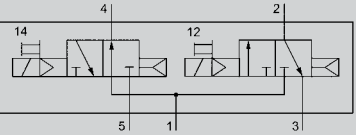
| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 12 V DC, 1 W | 161 | 131 |
| 24 V DC, 1 W | 162 | 132 |
| 24 V AC, 3 VA | 152 | 122 |
| 115 V AC, 3 VA | 156 | 126 |
| 230 V AC, 3 VA | 157 | 127 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 12.

Design and function

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

| Order number | BM-91-310/2-HN | BM-91-312/2-HN | BM-91-314/2-HN |
|--|---|---|---|
| Please complete according to order code. | | | |
| Function |  2 x 3/2-way NC |  2 x 3/2-way NO |  2 x 3/2-way NO/NC |
| Connection | 1/8 NPTF | | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +140°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
1/8 NPTF, 790 to 800 NI/min (0.803-0.813 Cv)



Technical data for series

BM-91

Order code

BM-91-511-HNR-162

Series, size, and function

BM = standard
 BME = with external pilot supply

Manual override

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

Coil options

| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 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 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 12.

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-91-511-HN | BM-91-520-HN | BME-91-511-HN | BME-91-520-HN |
|--|---|-----------------------------|---|---|
| Function | 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 | 1/8 NPTF | | | |
| Nominal size | 5 mm | | | |
| Flow rate | 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 | 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) | 2-8 bar (29-116 psi) |
| Response time at 6 bar | on 15 ms off 35 ms | 13 ms | on 15 ms off 35 ms | 13 ms |
| Temperature range | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +140°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 | 0.120 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
1/8 NPTF, 670 to 1030 NI/min (0.681-1.047 Cv)



Technical data for series

BM-91

Order code

BM-91-530-HNR-162

Series, size, and function

BM = standard
 BME = with external pilot supply

Manual override

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

Coil options

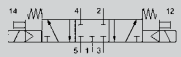
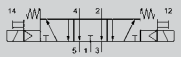
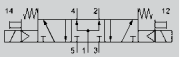
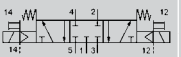

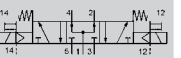
| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 12 V DC, 1 W | 161 | 131 |
| 24 V DC, 1 W | 162 | 132 |
| 24 V AC, 3 VA | 152 | 122 |
| 115 V AC, 3 VA | 156 | 126 |
| 230 V AC, 3 VA | 157 | 127 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 12.

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-91-530-HN | BM-91-533-HN | BM-91-534-HN | BME-91-530-HN | BME-91-533-HN | BME-91-534-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 | 1/8 NPTF | | | 1/8 NPTF | | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +140°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.) | | |

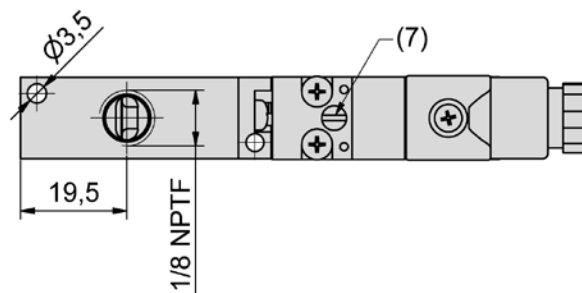
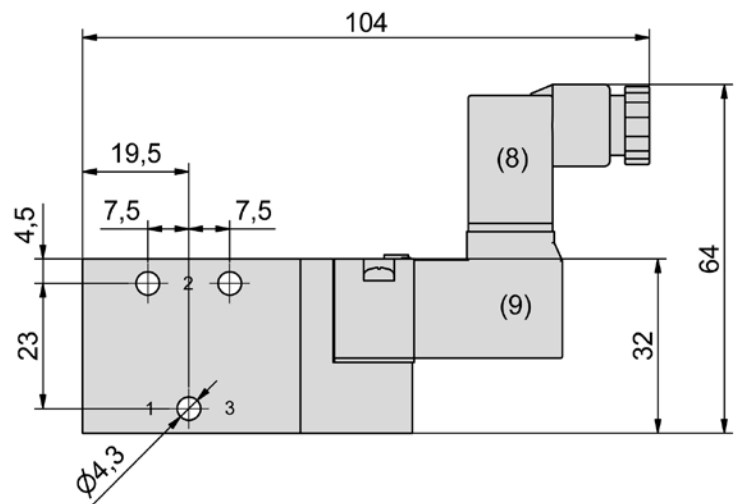
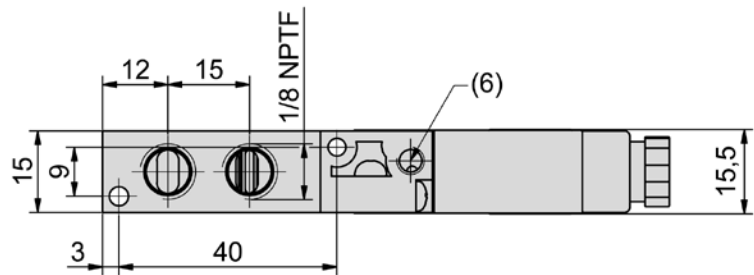
Electrically operated valves
 3/2-way
 1/8 NPTF, 550 to 650 NI/min (0.559-0.661 Cv)



Dimensions for series

BM-91

BM-91-310-HN, BM-91-312-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
1/8 NPTF, 550 to 1030 NI/min (0.559-1.047 Cv)



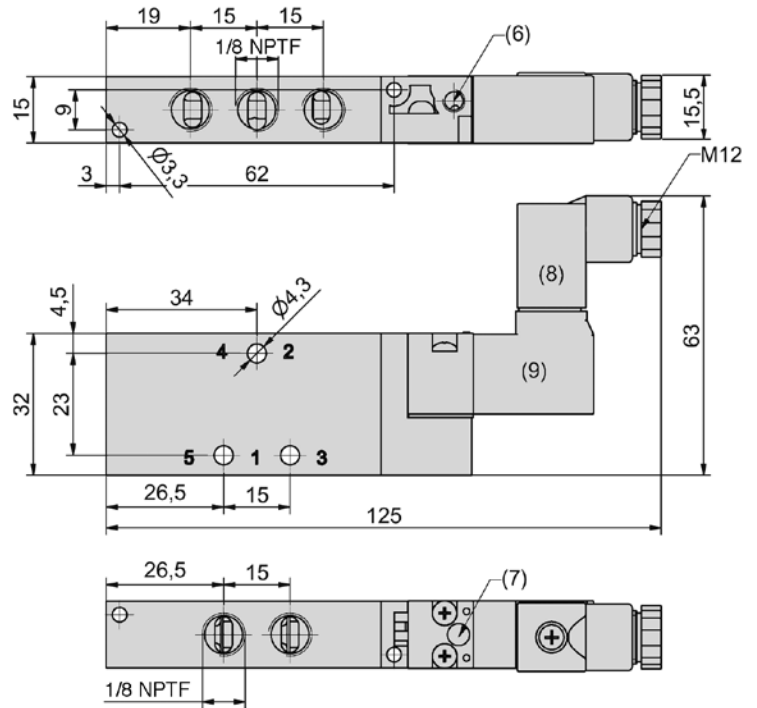
Dimensions for series

BM-91

BM-91-511-HN



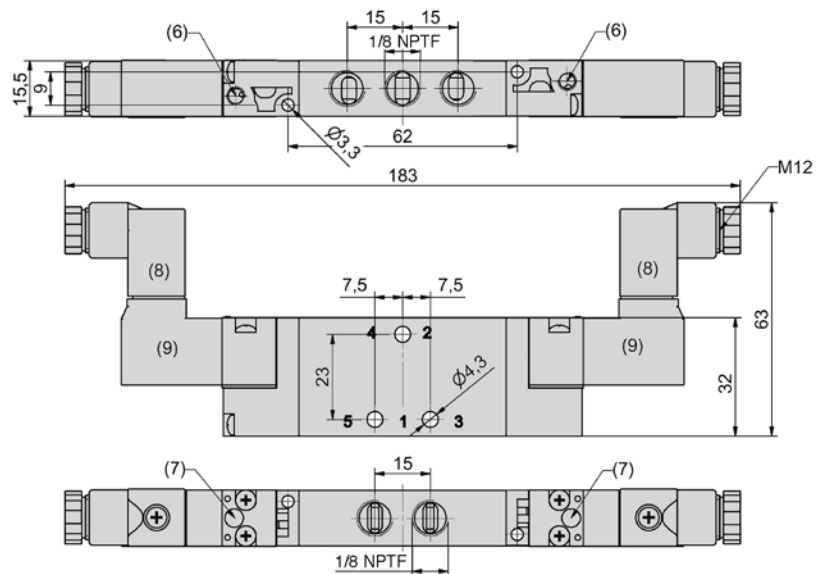
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



BM-91-310/2-HN, BM-91-312/2-HN, BM-91-314/2-HN, BM-91-520-HN, BM-91-530-HN, BM-91-533-HN, BM-91-534-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

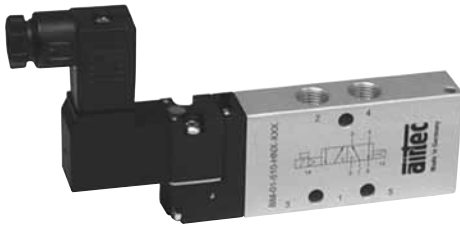


**Electrically operated valves
with ext. pilot supply**
1/8 NPTF, 670 to 1030 NI/min (0.681-1.047 Cv)

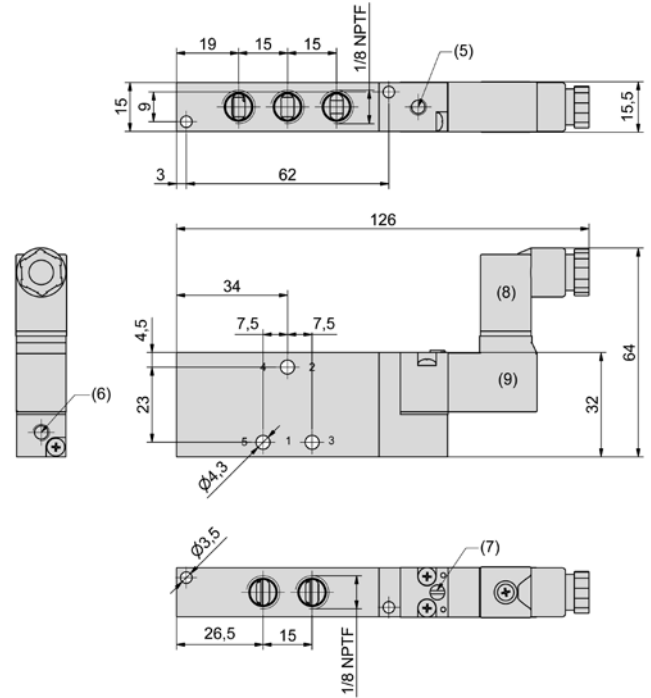


Dimensions for series
BME-91

BME-91-511-HN



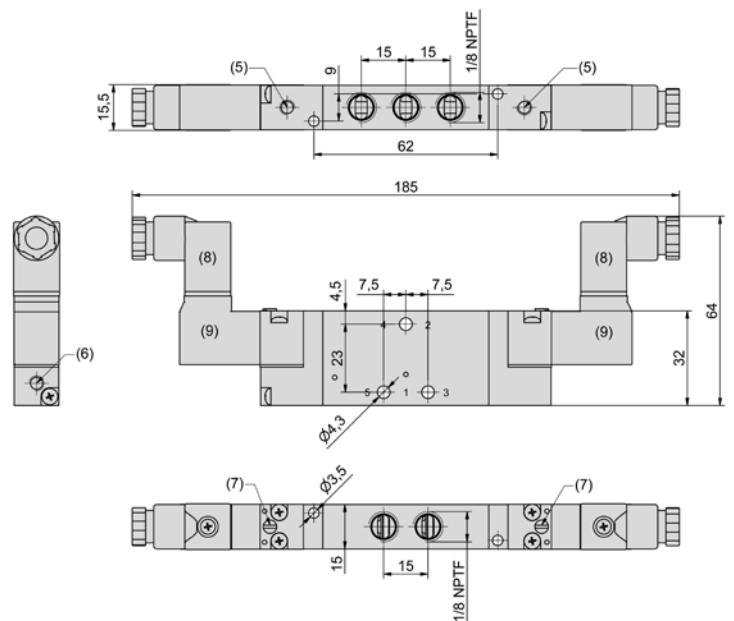
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



BME-91-520-HN, BME-91-530-HN, BME-91-533-HN, BME-91-534-HN



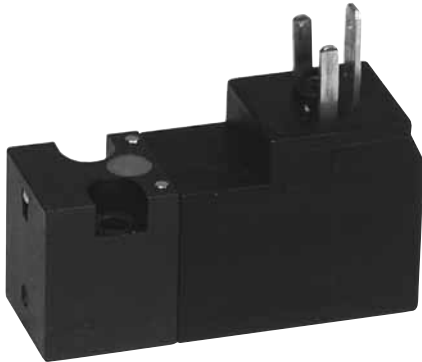
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



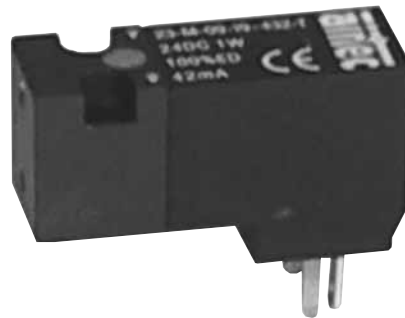
Series

BM-91, BME-91

Solenoids



Solenoid with pins for plug socket connection on the same side as manual override (upward).
23-M-09-19-...
page 27

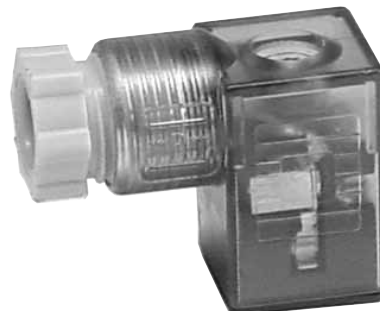


Solenoid with pins for plug socket connection on the opposite side of the manual override (downward).
23-M-09-19-...
page 27

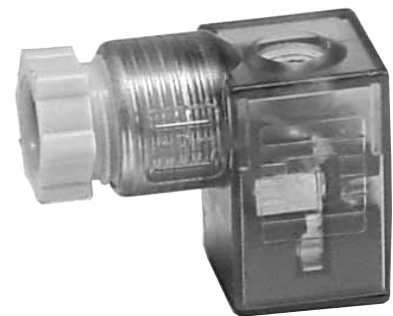
Plug sockets



Standard plug socket
28-ST-02-1
page 27



Plug socket with LED
28-ST-09-1-...
page 27

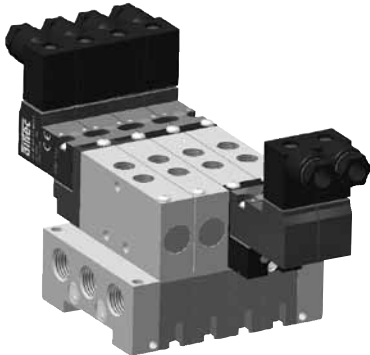


Plug socket with LED and circuit protection
28-ST-10-1-...
page 27

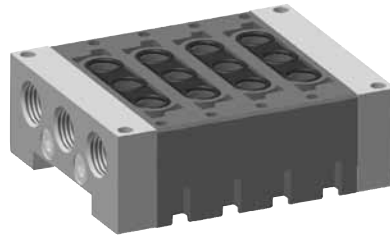
Series

BM-91, BME-91

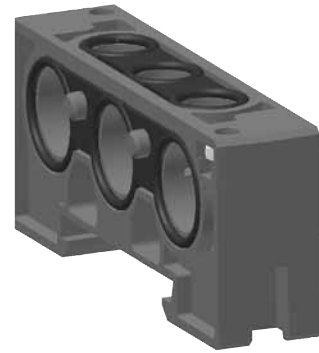
Manifolds



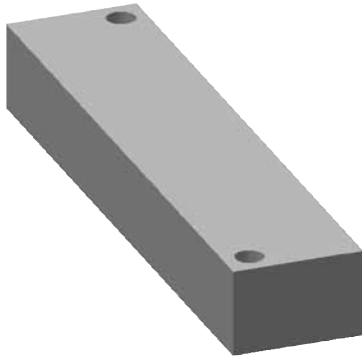
Manifold will be delivered completely assembled with valves if requested.



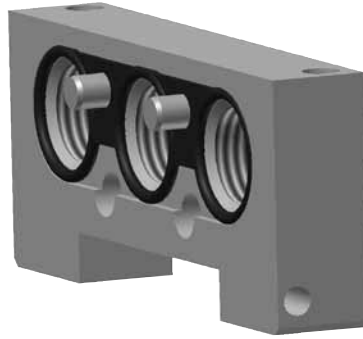
Manifold with n stations.
Ports on the side.
RF-91-AB/n



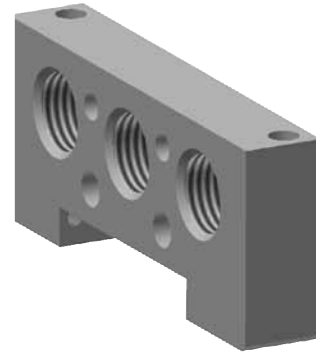
Single-station element.
RF-01-Z



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



End plate A with side ports.
RF-91-EA



End plate B with side ports.
RF-91-EB

Additional single elements: **RF-01-ZE** "Add-on" element to add one valve station.
RF-01-DT Seal plate for two different pressures.
RE-46-RSV Check valve for dynamic exhaust pressures

User information

Modular manifold system for valve series BM-91. The assembled manifold consists of single-station elements (RF-01-Z) and end plates with common supply and exhaust ports. The end plates contain ports to the side (RF-91-EA, RF-91-EB).

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

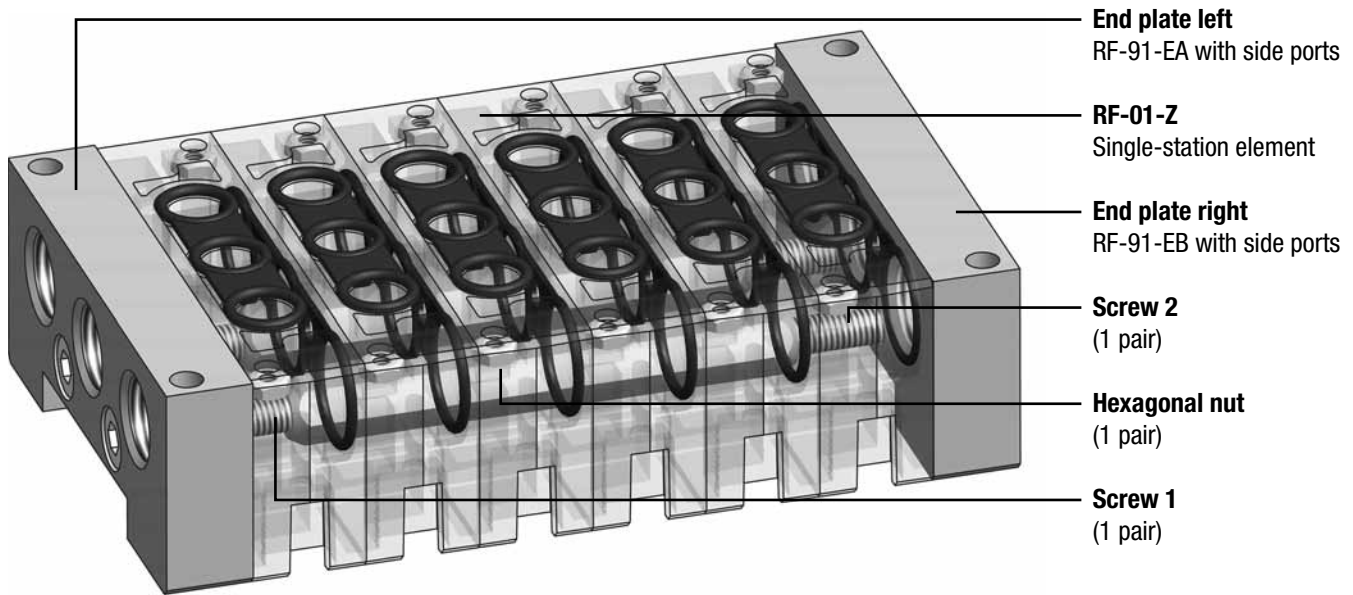
The manifold can be either DIN-rail mounted, screwed on by 4 M5 screws or flange mounting via M4 screws.

Necessary seals and screws for valve mounting are included upon delivery.

Series

BM-91, BME-91

Manifold design



User information

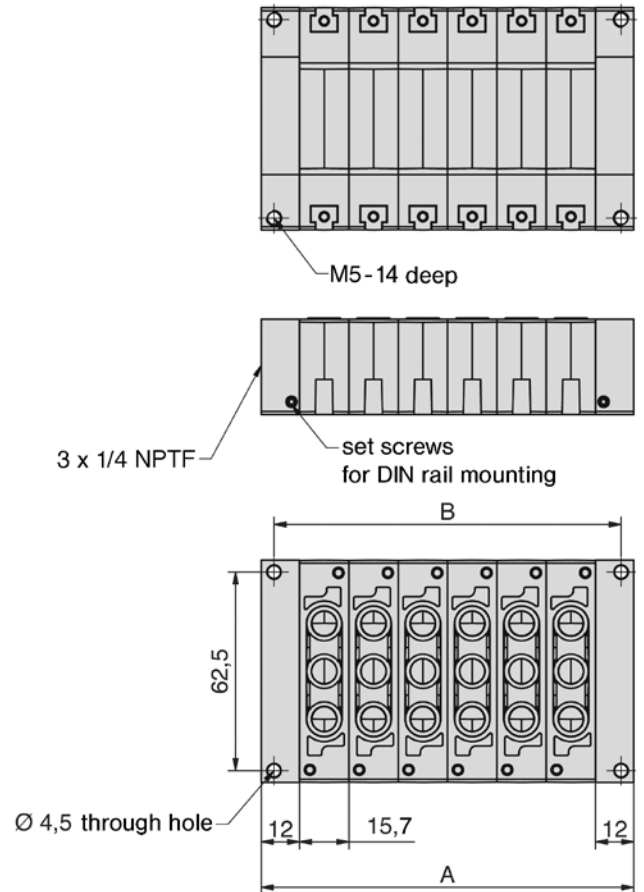
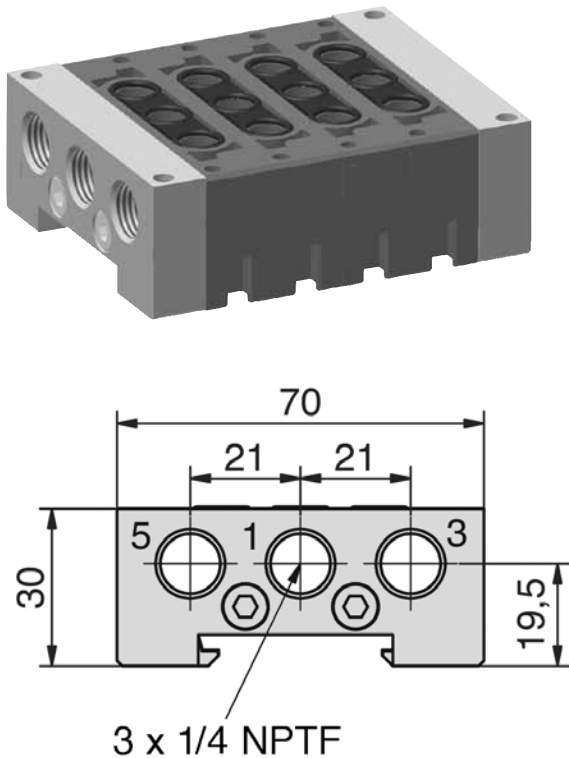
To add stations to the manifold without changing screws and nut, the set RF-01-ZE is available. This contains a single-station element, a screw to extend the hexagonal nut and seals and screws for valve mounting.

| Order number | Hexagonal nut | Screw 1 | Screw 2 |
|--------------|---------------|---------|---------|
| RF-91-AB/02 | 21-R-07-07/05 | M5 x 16 | M5 x 16 |
| RF-91-AB/03 | 21-R-07-07/05 | M5 x 25 | M5 x 25 |
| RF-91-AB/04 | 21-R-07-07/05 | M5 x 30 | M5 x 30 |
| RF-91-AB/05 | 21-R-07-07/2 | M5 x 20 | M5 x 20 |
| RF-91-AB/06 | 21-R-07-07/2 | M5 x 25 | M5 x 25 |
| RF-91-AB/07 | 21-R-07-07/2 | M5 x 35 | M5 x 35 |
| RF-91-AB/08 | 21-R-07-07/2 | M5 x 40 | M5 x 40 |
| RF-91-AB/09 | 21-R-07-07/4 | M5 x 16 | M5 x 16 |
| RF-91-AB/10 | 21-R-07-07/4 | M5 x 25 | M5 x 25 |
| RF-91-AB/11 | 21-R-07-07/4 | M5 x 35 | M5 x 35 |
| RF-91-AB/12 | 21-R-07-07/4 | M5 x 40 | M5 x 40 |

Manifolds for
electrically operated valves
series BM-91, BME-91



Dimensions for manifolds
RF-91-AB



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

| Order number | A | B | Weight |
|--------------|----------------------|----------------------|-----------------------|
| RF-91-AB/02 | 55.4 + 0.3 / - 0.2 | 47.2 + 0.2 / - 0.1 | 0.150 kg (0.331 lb.) |
| RF-91-AB/03 | 71.1 + 0.35 / - 0.2 | 63.1 + 0.25 / - 0.1 | 0.190 kg (0.419 lb.) |
| RF-91-AB/04 | 86.8 + 0.4 / - 0.2 | 78.8 + 0.3 / - 0.1 | 0.230 kg (0.507 lb.) |
| RF-91-AB/05 | 102.5 + 0.45 / - 0.2 | 94.5 + 0.35 / - 0.1 | 0.270 kg (0.595 lb.) |
| RF-91-AB/06 | 118.2 + 0.5 / - 0.2 | 110.2 + 0.4 / - 0.1 | 0.310 kg (0.683 lb.) |
| RF-91-AB/07 | 133.9 + 0.55 / - 0.2 | 125.9 + 0.45 / - 0.1 | 0.350 kg (0.772 lb.) |
| RF-91-AB/08 | 149.6 + 0.6 / - 0.2 | 141.6 + 0.5 / - 0.1 | 0.390 kg (0.860 lb.) |
| RF-91-AB/09 | 165.3 + 0.65 / - 0.2 | 157.3 + 0.55 / - 0.1 | 0.430 kg (0.948 lb.) |
| RF-91-AB/10 | 181 + 0.7 / - 0.2 | 173 + 0.6 / - 0.1 | 0.470 kg (1.036 lbs.) |
| RF-91-AB/11 | 196.7 + 0.75 / - 0.2 | 188.7 + 0.65 / - 0.1 | 0.510 kg (1.124 lbs.) |
| RF-91-AB/12 | 212.4 + 0.8 / - 0.2 | 204.4 + 0.7 / - 0.1 | 0.550 kg (1.212 lbs.) |

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



Technical data for series

BM-92

Order code

BM-92-310-HNR-162

Series, size, and function

BM = standard

Manual override

HNT = non-detented manual override

HNR = detented manual override

Coil options

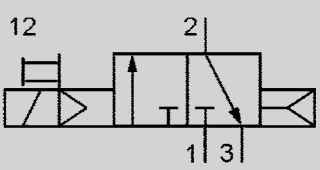
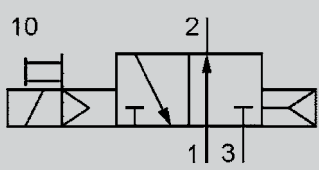
| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 12 V DC, 1 W | 161 | 131 |
| 24 V DC, 1 W | 162 | 132 |
| 24 V AC, 3 VA | 152 | 122 |
| 115 V AC, 3 VA | 156 | 126 |
| 230 V AC, 3 VA | 157 | 127 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 23.

Design and function

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

| Order number | BM-92-310-HN | BM-92-312-HN |
|--|---|---|
| Please complete according to order code. | 12 | 10 |
| Function |  3/2-way NC |  3/2-way NO |
| Connection | 1/4 NPTF | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +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
1/4 NPTF, 920 to 1050 NI/min (0.935-1.067 Cv)



Technical data for series

BM-92

Order code

BM-92-310/2-HNR-162

Series, size, and function

BM = standard

Manual override

HNT = non-detented manual override

HNR = detented manual override

Coil options

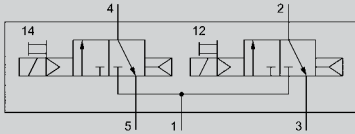
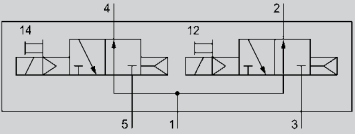
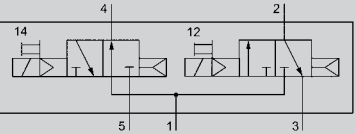
| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 12 V DC, 1 W | 161 | 131 |
| 24 V DC, 1 W | 162 | 132 |
| 24 V AC, 3 VA | 152 | 122 |
| 115 V AC, 3 VA | 156 | 126 |
| 230 V AC, 3 VA | 157 | 127 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 23.

Design and function

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

| Order number | BM-92-310/2-HN | BM-92-312/2-HN | BM-92-314/2-HN |
|--|---|---|---|
| Please complete according to order code. | | | |
| Function |  2 x 3/2-way NC |  2 x 3/2-way NO |  2 x 3/2-way NO/NC |
| Connection | 1/4 NPTF | | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +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
1/4 NPTF, 1540 to 1600 NI/min (1.565-1.626 Cv)



Technical data for series

BM-92

Order code

BM-92-511-HN-162

Series, size, and function

BM = standard
 BME = with external pilot supply

Manual override

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

Coil options

| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 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 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 23.

Design and function

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

| Order number | BM-92-511-HN | BM-92-520-HN | BME-92-511-HN | BME-92-520-HN |
|--|---|-------------------------|---|---|
| Please complete according to order code. | | | | |
| Function | 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 | 1/4 NPTF | | | |
| Nominal size | 7 mm | | | |
| Flow rate | 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 | 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 13 ms off 35 ms | 11 ms | on 13 ms off 35 ms | 11 ms |
| Temperature range | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +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
1/4 NPTF, 1300 to 1660 NI/min (1.321-1.687 Cv)



Technical data for series

BM-92

Order code

BM-92-530-HNR-162

Series, size, and function

BM = standard
 BME = with external pilot supply

Manual override

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

Coil options

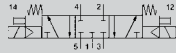
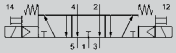
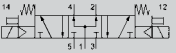
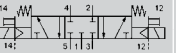
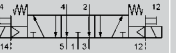
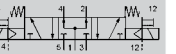
| Standard voltage | Plug socket upward* | Plug socket downward* |
|------------------|---------------------|-----------------------|
| 12 V DC, 1 W | 161 | 131 |
| 24 V DC, 1 W | 162 | 132 |
| 24 V AC, 3 VA | 152 | 122 |
| 115 V AC, 3 VA | 156 | 126 |
| 230 V AC, 3 VA | 157 | 127 |



* Manual override (HN) is on the side of ports 2 and 4 by default. It can easily be repositioned by 180° (side of 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 23.

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-92-530-HN | BM-92-533-HN | BM-92-534-HN | BME-92-530-HN | BME-92-533-HN | BME-92-534-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 | 1/4 NPTF | | | -0.95-8 bar (-14-116 psi) | | |
| 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 | | | 3-8 bar (43.5-116 psi) | | |
| 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 | Standard: -5°C to +50°C (+23°F to +122°F); Optional low temperature version: -25°C to +60°C (-13°F to +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
 1/4 NPTF, 920 to 1090 NI/min (0.935-1.001 Cv)



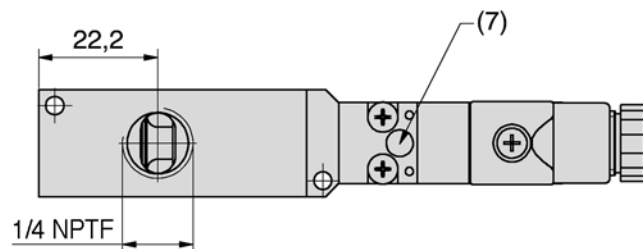
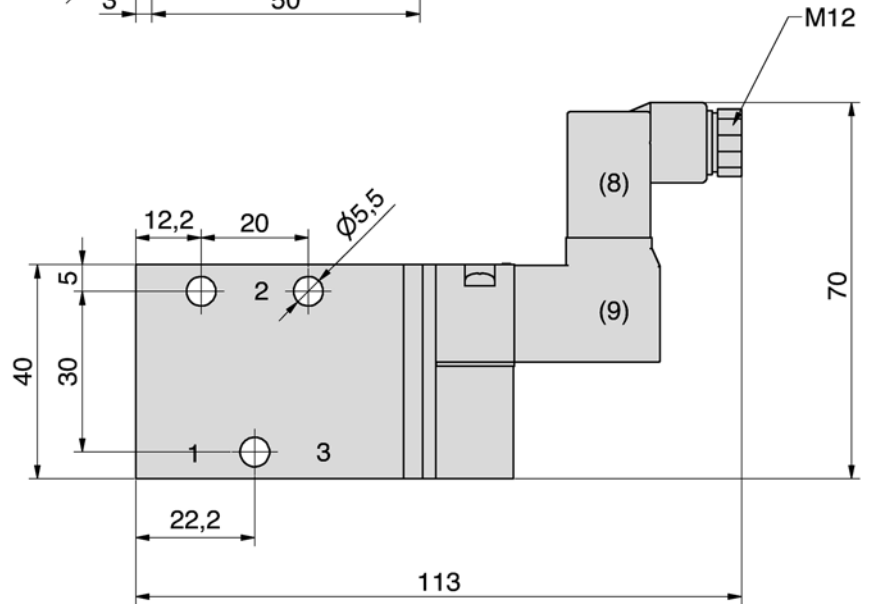
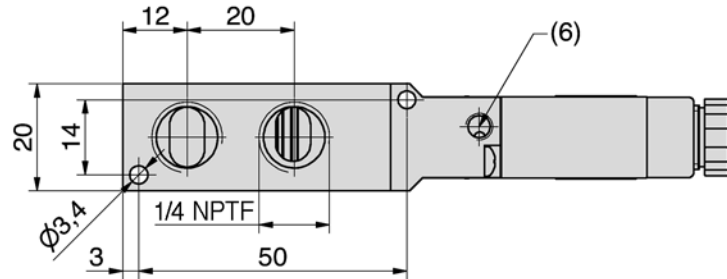
Dimensions for series

BM-92

BM-92-310-HN, BM-92-312-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
1/4 NPTF, 1030 to 1600 NI/min (1.047-1.626 Cv)



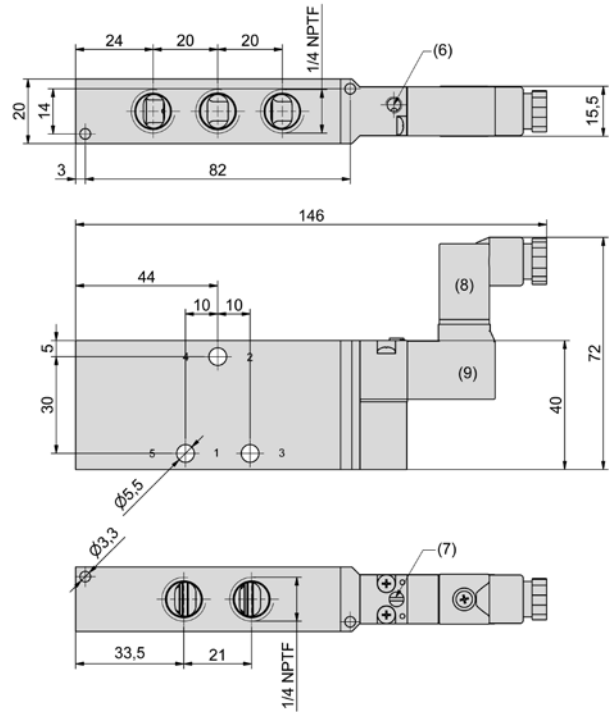
Dimensions for series

BM-92

BM-92-511-HN



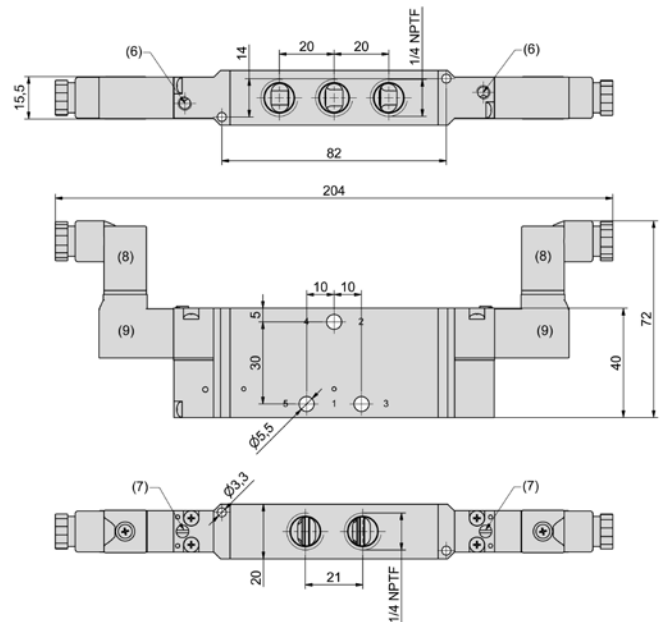
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



BM-92-310/2-HN, BM-92-312/2-HN, BM-92-314/2-HN, BM-92-520-HN, BM-92-530-HN, BM-92-533-HN, BM-92-534-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



Electrically operated valves
5/2-way with ext. pilot supply
1/4 NPTF, 1600 NI/min (1.626 Cv)

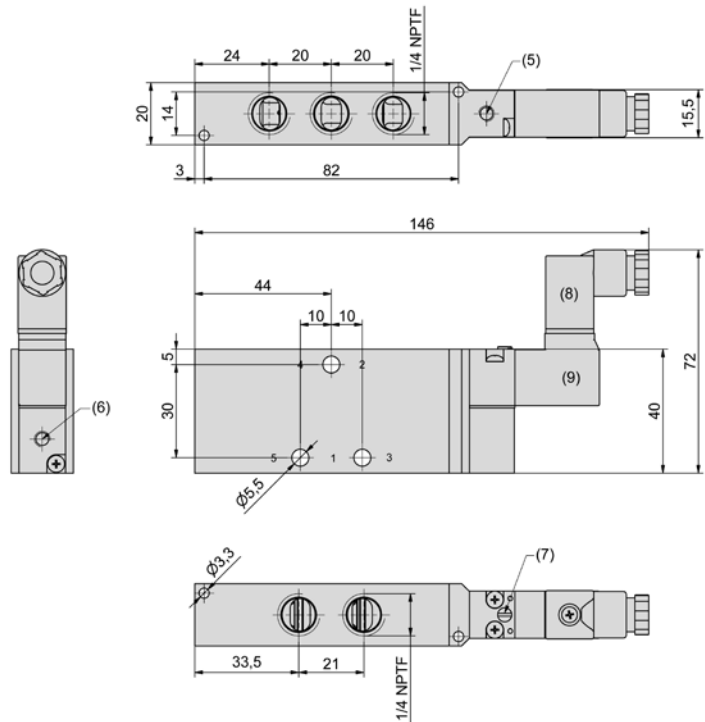


Dimensions for series
BME-92

BME-92-511-HN



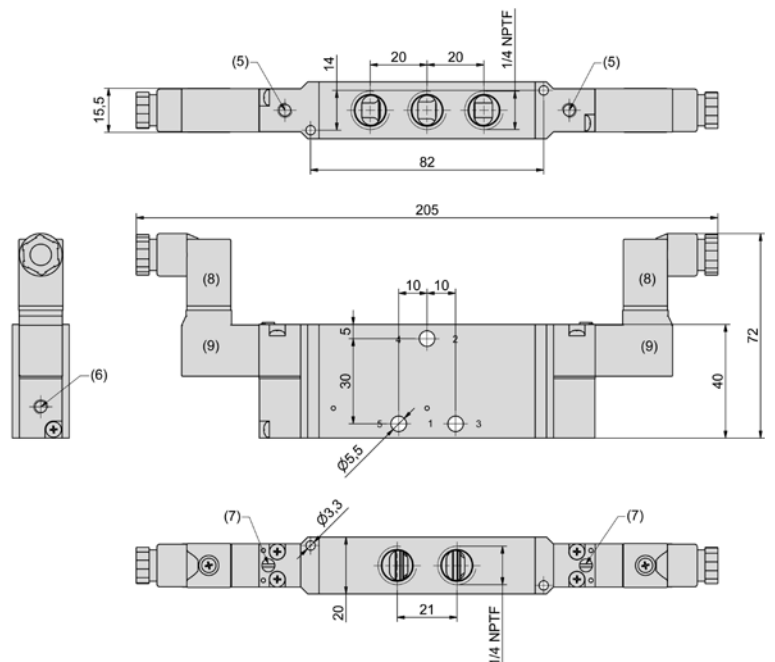
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



BME-92-520-HN, BME-92-530-HN, BME-92-533-HN, BME-92-534-HN



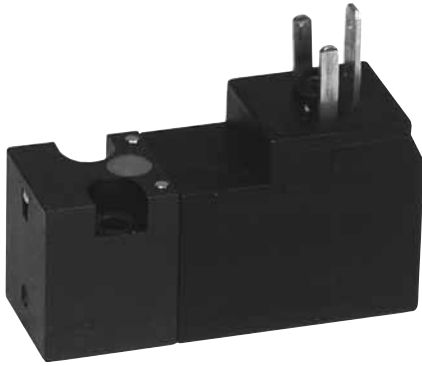
- 1 = pressure inlet
- 2, 4 = outlets
- 3, 5 = exhausts
- (5) = ext. pilot supply, M5
- (6) = pilot air exhaust, M5
- (7) = manual override, detented or non-detented
- (8) = plug socket can be repositioned by 180°
- (9) = solenoid, pins for plug socket connection upward or downward



Series

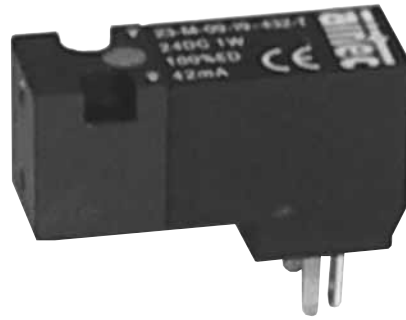
BM-92, BME-92

Solenoid



Solenoid with pins for plug socket connection on the same side as manual override (upward).

23-M-09-19-...
page 27



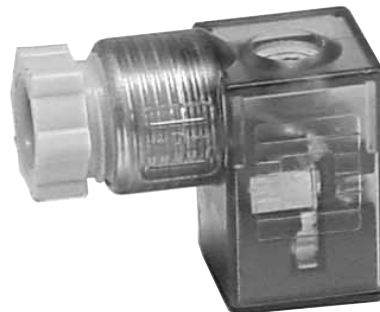
Solenoid with pins for plug socket connection on the opposite side of the manual override (downward).

23-M-09-19-...
page 27

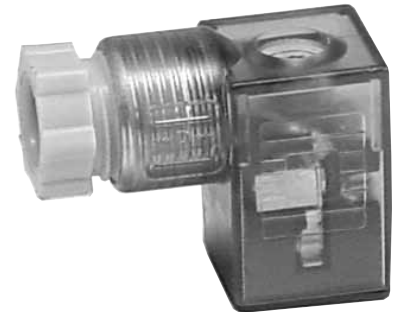
Plug sockets



Standard plug socket
28-ST-02-1
page 27



Plug socket with LED
28-ST-09-1-...
page 27

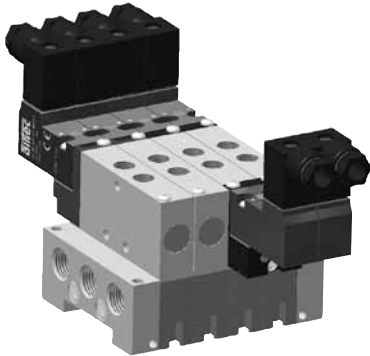


Plug socket with LED
and circuit protection
28-ST-10-1-...
page 27

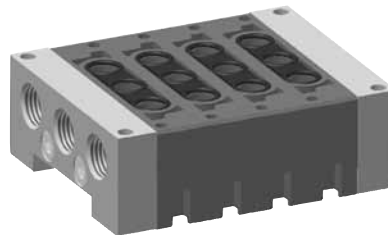
Series

BM-92, BME-92

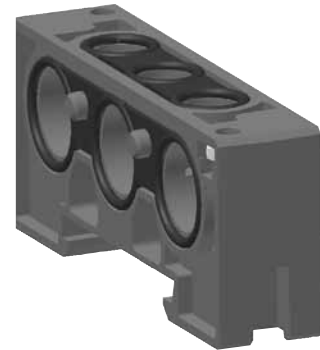
Manifolds



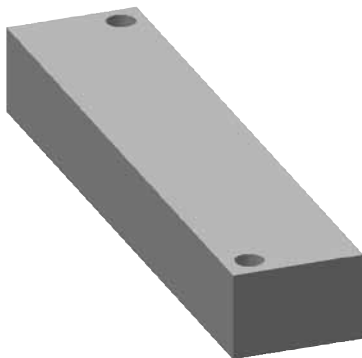
Manifold will be delivered completely assembled with valves if requested.



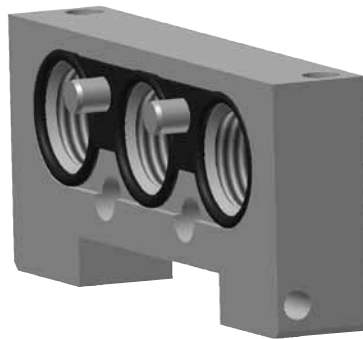
Manifold with n stations. Ports on the side.
RF-92-AB/n



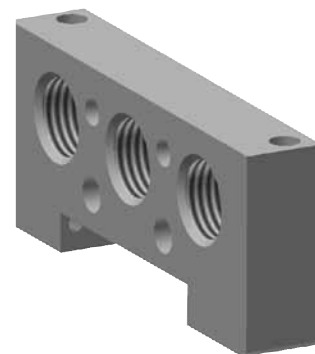
Single-station element.
RF-02-Z



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



End plate A with side ports.
RF-92-EA



End plate B with side ports.
RF-92-EB

| | | |
|------------------------------------|------------------|--|
| 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) |

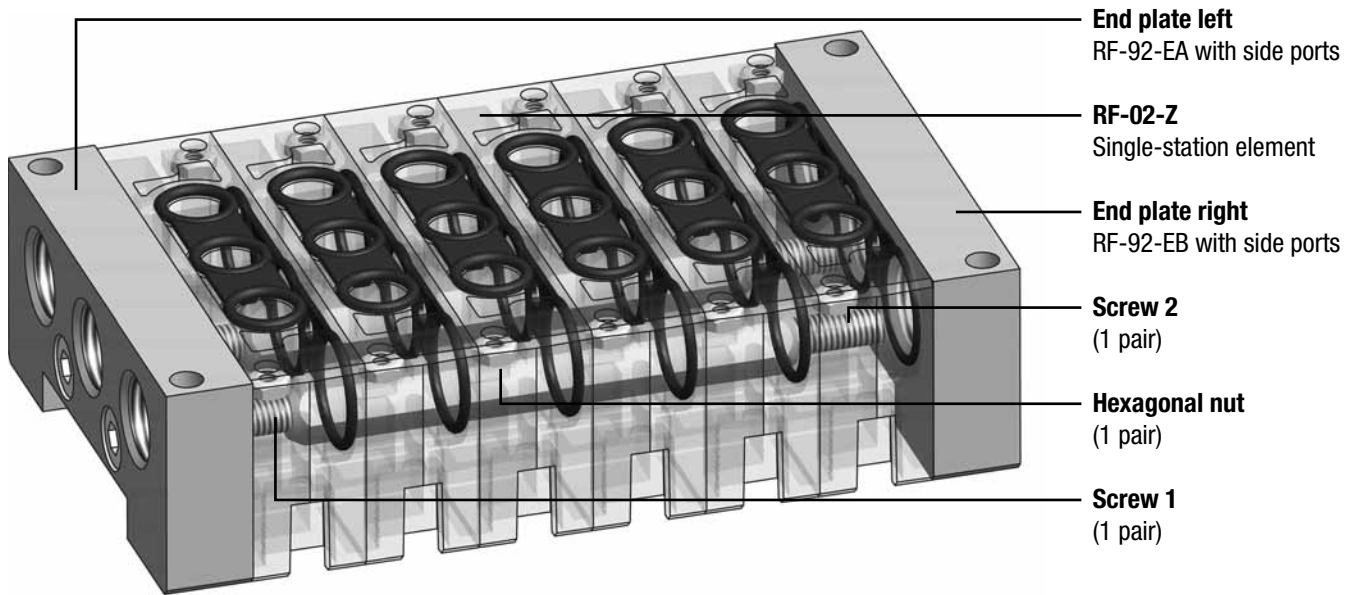
User information

Modular manifold system for valve series BM-92. The assembled manifold consists of single-station elements (RF-02-Z) and end plates with common supply and exhaust ports. The end plates contain ports to the side (RF-92-EA, RF-92-EB). 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, screwed on by 4 M5 screws or flange mounting via M4 screws. Necessary seals and screws for valve mounting are included upon delivery.

Series

BM-92, BME-92

Manifold design

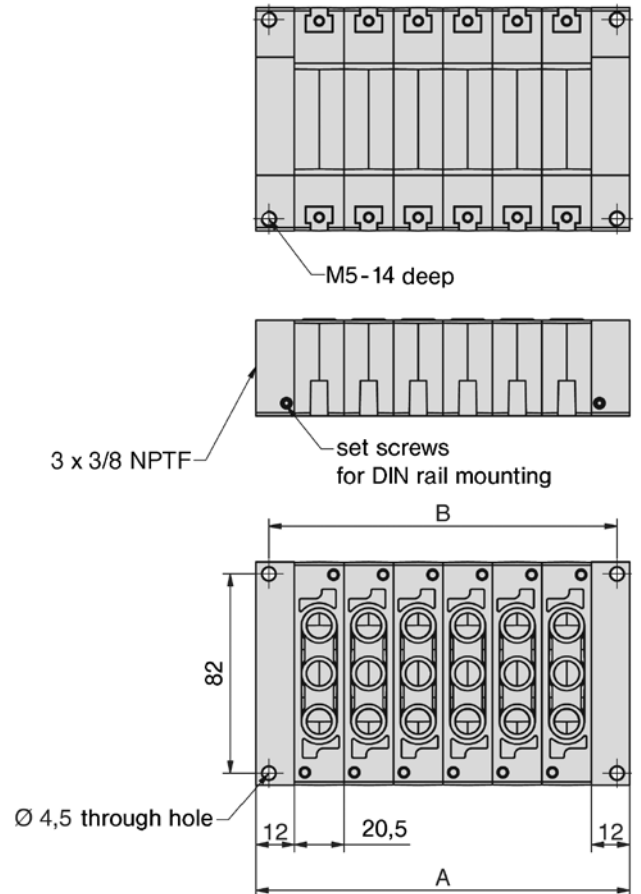
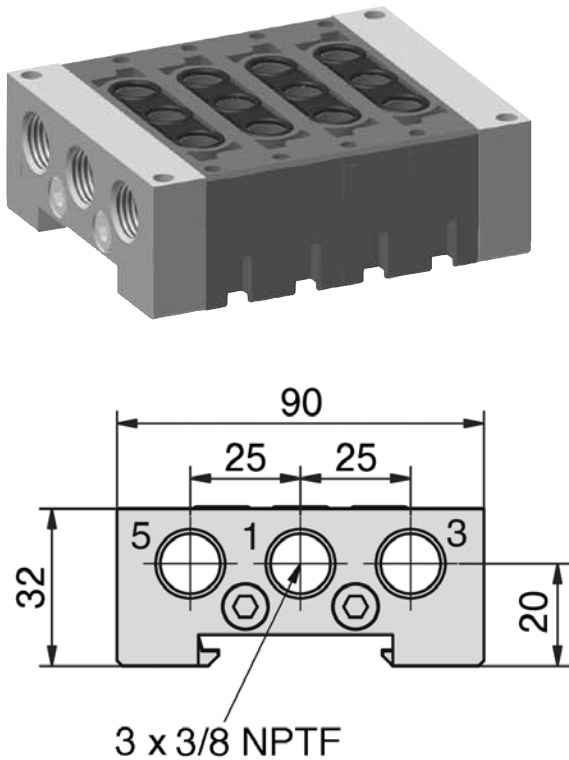


User information

To add stations to the manifold without changing screws and nut, the set RF-02-ZE is available. This contains a single-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-92-AB/02 | 21-R-07-07/05 | M5 x 20 | M5 x 20 |
| RF-92-AB/03 | 21-R-07-07/05 | M5 x 30 | M5 x 30 |
| RF-92-AB/04 | 21-R-07-07/2 | M5 x 20 | M5 x 20 |
| RF-92-AB/05 | 21-R-07-07/2 | M5 x 30 | M5 x 30 |
| RF-92-AB/06 | 21-R-07-07/2 | M5 x 40 | M5 x 40 |
| RF-92-AB/07 | 21-R-07-07/4 | M5 x 20 | M5 x 20 |
| RF-92-AB/08 | 21-R-07-07/4 | M5 x 30 | M5 x 30 |
| RF-92-AB/09 | 21-R-07-07/4 | M5 x 40 | M5 x 40 |
| RF-92-AB/10 | 21-R-07-07/6 | M5 x 16 | M5 x 16 |
| RF-92-AB/11 | 21-R-07-07/6 | M5 x 25 | M5 x 25 |
| RF-92-AB/12 | 21-R-07-07/6 | M5 x 35 | M5 x 35 |

Dimensions for manifolds
RF-92-AB



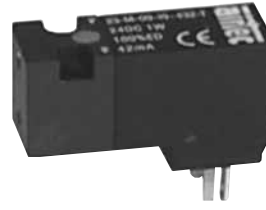
Materials: End plate Al (anodized), 1 station element PA,
Seals NBR, screws steel zinc plated

| Order number | A | B | Weight |
|--------------|--------------|--------------|-----------------------|
| RF-92-AB/02 | 65 ± 0.3 | 57 ± 0.3 | 0.230 kg (0.507 lb.) |
| RF-92-AB/03 | 85.5 ± 0.35 | 77.5 ± 0.35 | 0.270 kg (0.595 lb.) |
| RF-92-AB/04 | 106 ± 0.4 | 98 ± 0.4 | 0.310 kg (0.683 lb.) |
| RF-92-AB/05 | 126.5 ± 0.45 | 118.5 ± 0.45 | 0.350 kg (0.772 lb.) |
| RF-92-AB/06 | 147 ± 0.5 | 139 ± 0.5 | 0.390 kg (0.860 lb.) |
| RF-92-AB/07 | 167.5 ± 0.55 | 159.5 ± 0.55 | 0.430 kg (0.948 lb.) |
| RF-92-AB/08 | 188 ± 0.6 | 180 ± 0.6 | 0.470 kg (1.036 lbs.) |
| RF-92-AB/09 | 208.5 ± 0.65 | 200.5 ± 0.65 | 0.510 kg (1.124 lbs.) |
| RF-92-AB/10 | 229 ± 0.7 | 221 ± 0.7 | 0.550 kg (1.212 lbs.) |
| RF-92-AB/11 | 249.5 ± 0.75 | 241.5 ± 0.75 | 0.590 kg (1.301 lbs.) |
| RF-92-AB/12 | 270 ± 0.8 | 262 ± 0.8 | 0.630 kg (1.389 lbs.) |

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 pattern 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 | 12 V DC | 1 W | 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 | 24 V DC | 1 W | Detented | same side as HN |
| 23-M-09-19-432-R | | | opposite side as HN | |
| 23-M-09-19-452-T | 24 V DC | 3 VA | Non detented | same side as HN |
| 23-M-09-19-422-T | | | opposite side as HN | |
| 23-M-09-19-452-R | 24 V DC | 3 VA | Detented | same side as HN |
| 23-M-09-19-422-R | | | opposite side as HN | |
| 23-M-09-19-456-T | 115 V DC | 3 VA | Non detented | same side as HN |
| 23-M-09-19-426-T | | | opposite side as HN | |
| 23-M-09-19-456-R | 115 V DC | 3 VA | Detented | same side as HN |
| 23-M-09-19-426-R | | | opposite side as HN | |
| 23-M-09-19-457-T | 230 V DC | 3 VA | Non detented | same side as HN |
| 23-M-09-19-427-T | | | opposite side as HN | |
| 23-M-09-19-457-R | 230 V DC | 3 VA | 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- \varnothing : 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 DC | 230 V AC | 24 V DC | 230 V AC |

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