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spirax sarco

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CH Issue 5

Self-relieving / Non-relieving

International Symbol

MR1, MRN1, MR2 and MR3 Spirax-Monnier Miniature Compressed Air Regulators

Description

The MR range of Spirax-Monnier miniature compressed air regulators provide accurate pressure control for general purpose pneumatic systems where space is restricted and flowrates are low.

Principal features:

- Good flow characteristics.
- Good regulation characteristics.
- Fast response.
- Dead tight shut-off on no-flow.
- For bracket or panel mounting.
- Black epoxy finish for improved protection.

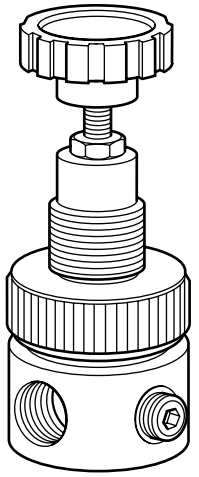
Available types:

MR1	Self-relieving
MRN1	Non-relieving
MR2	Self-relieving
MR3	Self-relieving, tamper-proof compressed air regulator preset at 2 bar which increases operators safety when used with a blow gun. **Note:** The MR3 is available at any set or unset pressure between 0.1 and 6.8 bar.

Optional extras

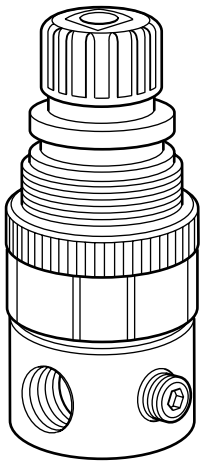
For further technical information regarding the following options see page 2:

- Type 8 mounting bracket (MR2) and aluminium mounting ring.
- Type 4 mounting bracket (MR1 and MRN1 only).
- Pressure gauges.



MR1 and **MRN1**

MR3



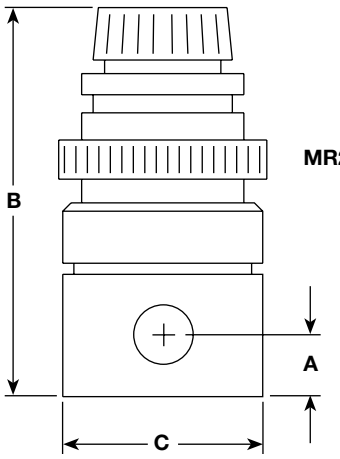
MR2

Sizes and pipe connections

¼" screwed BSP (BS 21-Rp)

Dimensions / weights (approximate) in mm and kg

Type	A	B	C	Weight
MR1	11	89	36	0.095
MRN1	11	89	36	0.095
MR2	11	70	36	0.085
MR3	11	50	36	0.100



MR2 shown

Spring range (operating pressure range)

All regulators can be adjusted to zero pressure, or above the figures shown. The operating range is marked on the unit.

MR1, MRN1 and MR2	**Standard spring**	0.7 - 9.0 bar g
	Optional spring	0.2 - 2.0 bar g
		0.3 - 4.0 bar g
MR3	**Standard spring**	0.6 - 6.8 bar g
	Optional spring	0.1 - 1.7 bar g
		0.2 - 3.4 bar g

Note: The MR and MRN range of miniature compressed air regulators will be supplied with the standard spring unless an alternative option has been specified when placing an order.

Operating limits

Maximum primary pressure	21 bar g
Maximum working temperature	70°C

Materials

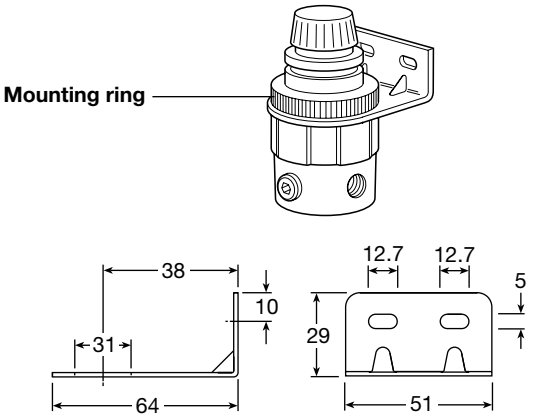
Part		Material
Body	MR1, MRN1 and MR3	Aluminium
	MR2	Aluminium and polycarbonate
Valve		Nitrile

Local regulations may restrict the use of this product to below the conditions quoted.
In the interests of development and improvement of the product, we reserve the right to change the specification without notice.

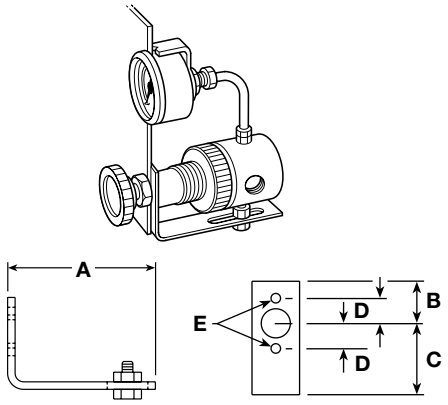
Optional extras

Type 8 mounting bracket and mounting ring (MR2 only)
For panel mounting: An aluminium mounting ring is to be specified.
For bracket mounting: A Type 8 mounting bracket and aluminium mounting ring is to be specified.

Dimensions (approximate) in millimetres



Type 4 mounting bracket (MR1 only)
An angle bracket in zinc plated mild steel to enable the regulator to be mounted behind the panel. The regulator is attached to the bracket by a screwed nipple.



Dimensions (approximate) in mm

A	B	C	D	EØ
69	15.9	27	9.5	4BA (3.6 mm)

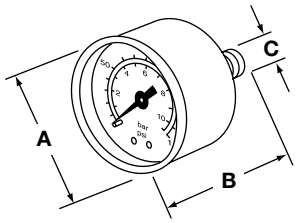
Pressure gauges
Available in two sizes, with 4 pressure ranges. The face is marked in both bar and psi. The 40 mm gauge will be supplied unless the 50 mm is specified on the order.

Pressure ranges	0 to 2 bar	0 to 30 psi
	0 to 7 bar	0 to 100 psi
	0 to 11 bar	0 to 160 psi
	0 to 21 bar	0 to 300 psi (50 mm size only)

Dimensions (approximate) in mm

Size	A	B	C
40 mm	40	47	R⅛"

Size	A	B	C
50 mm	49	45	R⅛"

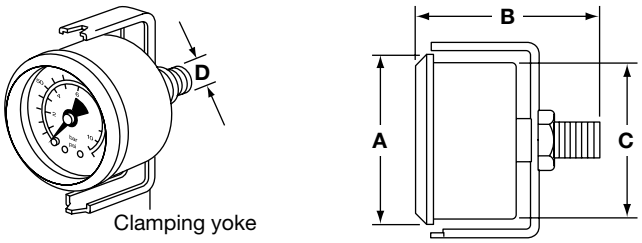


Pressure gauges for panel mounting
With chromium plated bezel available in two ranges, the face being marked in bar and psi as follows:-

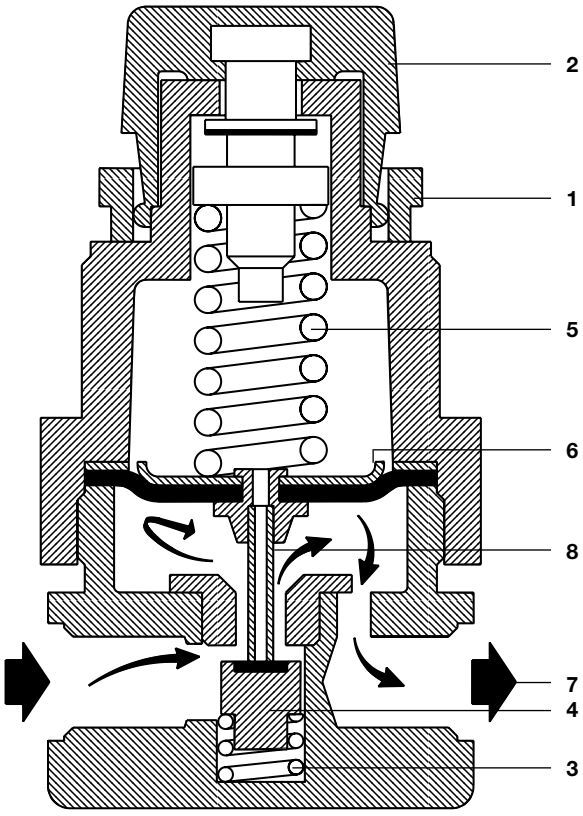
Pressure ranges	0 to 2 bar	0 to 30 psi
	0 to 7 bar	0 to 100 psi

Dimensions (approximate) in mm

A	B	C	D
53	56	48	R⅛



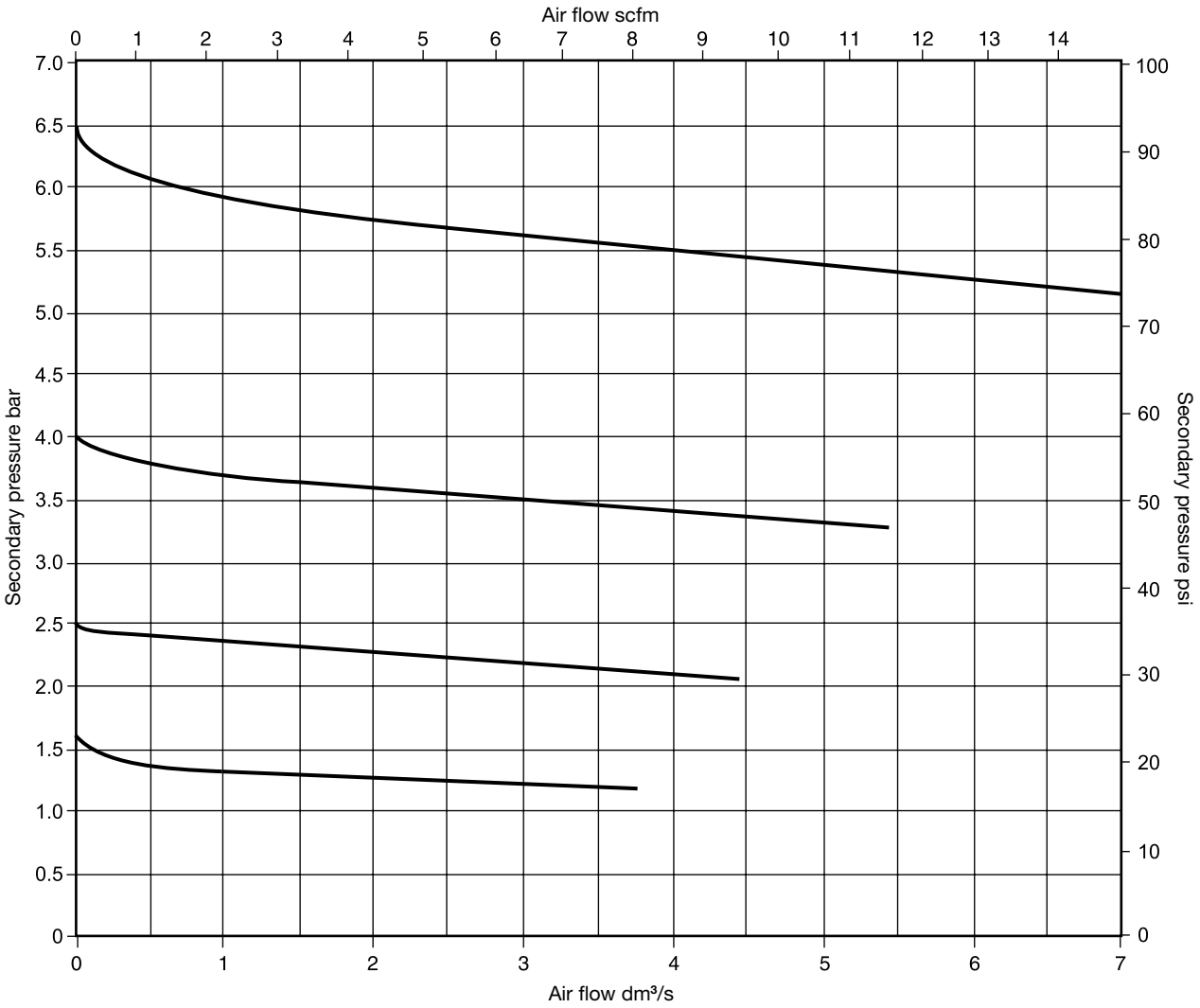
How does it work



With adjustment knob (**2**) rotated fully anticlockwise, the valve return spring (**3**) will keep the main valve (**4**) shut. Clockwise rotation of the adjustment knob will compress the main pressure control spring (**5**), deflect the diaphragm assembly (**6**) downwards, opening the main valve (**4**). As air flows to the downstream (**7**) side of the regulator, the secondary pressure increases. The secondary pressure is sensed on the underside of the diaphragm. As the controlled pressure varies, so does the force on the underside of the diaphragm. When this force (proportional to the secondary pressure) equals the compression in the main control spring, the main valve will shut. Any fall in the secondary pressure will cause the main valve to open sufficiently to meet the air flow requirements and accurately maintain the set secondary pressure.
Any appreciable rise in the secondary pressure from its set value will cause the diaphragm and the pushrod (**8**) to lift. This will allow air to escape through the centre of the pushrod to atmosphere. When excess pressure has been vented the orifice in the pushrod will reset on the main valve.

Capacities
For safety valve sizing purposes the full lift capacity for the MR1 and MR2 is 0.21 K_{VS}.

Performance (with primary pressure 10 bar)



Safety information, installation and maintenance
For full details see the Installation and Maintenance Instructions (IM-P051-06) supplied with the product.

Installation note:
The regulator should be sited as close as possible to the equipment it is serving. Connect the regulator so that air flow is in the direction shown by the arrow on the body. A **pressure gauge** (supplied as an accessory, when ordered) fitted to one of the gauge ports is recommended to show the secondary pressure. A **filter** should be installed in front of the regulator to keep dirt out.

Panel mounting the MR2
The panel must not exceed 8 mm thick. The required hole is 31 mm.

How to order
Example: 1 off Spirax-Monnier ¼" screwed BSP MR1 miniature compressed air regulator having a 0.2 to 2 bar control spring.
Note: The MR1 or MR2 regulator will be supplied with a 0.7 to 9 bar spring as standard. The MR3 will have a 0.6 to 6.8 bar spring as standard, **alternative springs must be specified.**