

spirax sarco

MPC2

TI-P054-04
CH Issue 2

Spirax-Monnier High Efficiency Compressed Air Filter/Regulator

- Compact miniature high efficiency oil removing filter/regulator (self-relieving)
- Efficiency - Exceeding 99.99% against BS 3928, BS 4400 and D.O.P. tests
- Oil carryover at 21°C - less than 0.01 mg/m³
- 100% water removal at line temperature
- Polycarbonate bowl to BS 6005
- Metal bowl / tamper proof cap options available
- Easy fit bowl guard
- Polycarbonate bowl with or without manual drain

Description

The Spirax-Monnier MPC2 (self-relieving) high efficiency oil removing filter/regulator provides very high quality compressed air, with accurate pressure control, for pneumatic actuators and general purpose systems.

Options

The following options are available at no extra cost and need to be specified when placing an order:

- Alternative spring range
- Bowl without drain

Sizes and pipe connections

¼" Screwed BSP (BS 21-Rp, ISO 7)

Optional extras (See TI-P054-05, which includes spares):

- Tamper proof cap
- Locking seal
- Mounting bracket and ring
- Pressure gauge
- Metal bowl
- Metal bowl guard

Operating limits

Maximum temperature	50°C
Maximum pressure	10 bar g
Maximum flowrate	see performance chart on TI-P054-05

Operating pressure ranges:

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

0.2 - 2.0 bar g	0.3 - 4.0 bar g	0.7 - 9.0 bar g
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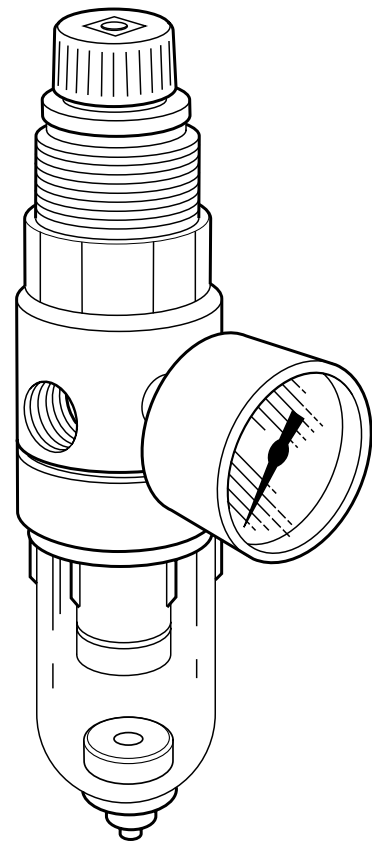
Materials

Part	Material
Body	Aluminium (Epoxy finish)
Plastic bowl	Polycarbonate
Bonnet assembly	Polycarbonate
Filter element	Microfibre / stainless steel
Valve	Nitrile

How to order

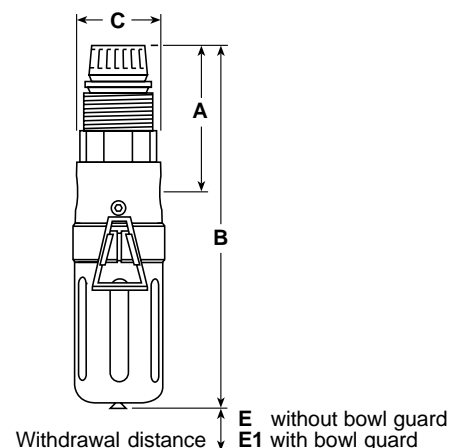
State quantity, size and type. Unless otherwise stated, the filter/regulator will be supplied with the 0.7 - 9.0 bar g control spring.

Example: 1 off Spirax-Monnier ¼" MPC2 high efficiency compressed air filter/regulator having a 0.3 - 4.0 bar g control spring.



Dimensions / weight (approximate) in mm and kg

Size	A	B	C	E	E1	Weight
¼"	65	155	41	25	45	0.2



What is the MPC2 used for?

The MPC2 is used to provide very high quality compressed air. There are an ever increasing number of applications where compressed air of a particularly high quality is required. Typical examples include air bearings on machine tools, air gauging equipment, instrument air supplies, fluidic systems, breathing air, pneumatic positioners, etc.

How efficient is the MPC2?

Spirax-Monnier coalescing filters when tested to BS 3928 or the D.O.P. test, are more than 99.999% efficient.

In the sodium flame test (BS 3928) the element is challenged by a cloud of salt particles of mass mean diameter of 0.6 micron. In the American D.O.P. test, a cloud of droplets of mass mean diameter 0.3 micron is used.

How does the MPC2 work?

These units filter out solid contaminants and remove oil and water liquids and aerosols, by coalescing.

Contaminated air flows to the inside of the filter cartridge. The cartridge contains a labyrinth of micro fibres which will trap solid particles down to sub micron size. Fine liquid mist and aerosols on their journey through the depth of the element, will strike one or other of the fibres and will be retained on them by inter-molecular forces.

As the droplets migrate through the element due to the air flow, they will join (coalesce) with others, growing in size. A specially designed porous plastic sock forms the outer layer of the filter cartridge. This encourages further coalescing, so that the droplet mass is sufficient to allow it to gravitate to the sump of the filter from which they can be drained manually. The porous plastic sock also reduces the possibility of re-entrainment.

With the adjustment knob (1) rotated fully anticlockwise, the valve return spring (13) will keep the main valve (8) shut. Clockwise rotation of the adjustment knob will compress the main control spring (11), deflect the diaphragm assembly downwards (10), opening the main valve (8). As air flows to the downstream (9) side of the filter/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 secondary pressure will cause the main valve to open sufficiently to meet the air flow requirements and maintain the set secondary pressure.

Any appreciable rise in the secondary pressure will cause the diaphragm and the push rod (12) to lift. This will allow air to escape through the centre of the push rod to atmosphere. When excess pressure has vented, the orifice in the push rod will reseal on the main valve.

Ensure that the bowl is regularly drained by means of the quick action drain valve (16).

Safety information

Polycarbonate bowls are attacked by phosphate ester fluids, solvents, paint thinners and carbon tetrachloride. These and similar substances should never be allowed to come into contact with the bowl. Certain compressor lubricating oils also contain additives harmful to polycarbonate and, where there is any doubt we recommend, in the interests of safety, that a bowl guard should be fitted.

Installation

The MPC2 can be fitted in horizontal pipework, with the bowl vertically downwards, as close as possible to the equipment it is serving. Connect the unit so that the air flow is in the direction shown by the arrow on the body. A pressure gauge fitted to the 1/8" port is recommended (to show the secondary controlled pressure). If unused, the port should be blanked off with the plug provided.

Points to note:

1. Coalescing filters should be installed as close as possible to the equipment they are protecting.
2. Do not exceed the maximum flowrate (for any given pressure) as shown on the graph (see TI-P054-05) or there is every chance that some of the coalesced liquids will be re-entrained and carried on downstream.
3. Do not overload the filter cartridge or there will be a reduction in its efficiency and/or life. On heavily contaminated systems, it is advisable to fit a conventional pneumatic filter (International or Miniature) immediately in front of the coalescing filter for maximum efficiency and life.
4. The polycarbonate bowl maybe replaced by a metal bowl if specified.

How to adjust the MPC2:

If a locking seal (17) is fitted, remove it to readjust the pressure as required. Lift the locking ring (2). Turn the adjustment knob (1) clockwise to increase the pressure. Depress the locking ring to lock.

Note: A metal tamper proof cap may be fitted over the adjustment housing.

It is recommended that all adjustments are made under flow conditions.

There will be a slight increase in set pressure when flow stops.

