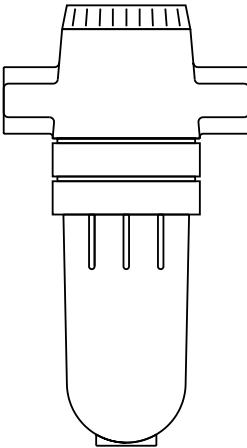


**IX1 Spirax-Monnier
International Compressed Air Filter
Installation and Maintenance Instructions**



- 1. Safety information*
- 2. General product information*
- 3. Installation and commissioning*
- 4. Operation*
- 5. Spare parts and maintenance*



1. Safety information

Safe operation of these products can only be guaranteed if they are properly installed, commissioned, used and maintained by qualified personnel (see Section 1.11 on this document) in compliance with the operating instructions. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

1.1 Intended use

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended use/application. The products comply with the requirements of the European Pressure Equipment Directive 97/23/EC and fall within the category 'SEP'. It should be noted that products within this category are required by the Directive not to carry the CE mark.

- i) The products have been specifically designed for use on compressed air, which is in Group 2 of the above mentioned Pressure Equipment Directive. The products' use on other fluids may be possible but, if this is contemplated, Spirax Sarco should be contacted to confirm the suitability of the product for the application being considered.
- ii) Check material suitability, pressure and temperature and their maximum and minimum values. If the maximum operating limits of the product are lower than those of the system in which it is being fitted, or if malfunction of the product could result in a dangerous overpressure or overtemperature occurrence, ensure a safety device is included in the system to prevent such over-limit situations.
- iii) Determine the correct installation situation and direction of fluid flow.
- iv) Spirax Sarco products are not intended to withstand external stresses that may be induced by any system to which they are fitted. It is the responsibility of the installer to consider these stresses and take adequate precautions to minimise them.
- v) Remove protection covers from all connections before installation.

1.2 Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

1.3 Lighting

Ensure adequate lighting, particularly where detailed or intricate work is required.

1.4 Hazardous liquids or gases in the pipeline

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider: flammable materials, substances hazardous to health, extremes of temperature.

1.5 Hazardous environment around the product

Consider: explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

1.6 The system

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk?

Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

1.7 Pressure systems

Ensure that any pressure is isolated and safely vented to atmospheric pressure. Consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.8 Temperature

Allow time for temperature to normalise after isolation to avoid danger of burns.

1.9 Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

1.10 Protective clothing

Consider whether you and/or others in the vicinity require any protective clothing to protect against the hazards of, for example, chemicals, high/low temperature, radiation, noise, falling objects, and dangers to eyes and face.

1.11 Permits to work

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Maintenance Instructions.

Where a formal 'permit to work' system is in force it must be complied with. Where there is no such system, it is recommended that a responsible person should know what work is going on and, where necessary, arrange to have an assistant whose primary responsibility is safety.

Post 'warning notices' if necessary.

1.12 Handling

Manual handling of large and/or heavy products may present a risk of injury. Lifting, pushing, pulling, carrying or supporting a load by bodily force can cause injury particularly to the back. You are advised to assess the risks taking into account the task, the individual, the load and the working environment and use the appropriate handling method depending on the circumstances of the work being done.

1.13 Residual hazards

In normal use the external surface of the product may be very hot. If used at the maximum permitted operating conditions the surface temperature of some products may reach temperatures of 90°C (194°F).

Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to 'Maintenance instructions').

1.14 Freezing

Provision must be made to protect products which are not self-draining against frost damage in environments where they may be exposed to temperatures below freezing point.

1.15 Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken.

1.16 Returning products

Customers and stockists are reminded that under EC Health, Safety and Environment Law, when returning products to Spirax Sarco they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

— 2. General product information —

2.1 General description

The Spirax-Monnier IX1 international compressed air filter contains an activated carbon filter for the removal of hydrocarbon vapour and odour often found in compressed air.

The element of the IX1 filter consists of a tapered cylindrical housing containing activated carbon granules. They are retained by upper and lower filter pads made of borosilicate. As the compressed air flows through the granules, hydrocarbon vapours and odours are absorbed. The filter pads ensure that there is no risk of carbon particles being released into the air stream.

The element also contains capsules that release a dye in the presence of liquid oil. This change will show as a blue stain on the lower filter pad. At this stage the IX1 filter element must be replaced (see Section 5. Spare parts and maintenance).

Principal features:

- Element life exceeds 59 000 m³ at 21°C and 7 bar g (2 million ft³ @ 70°F and 100 psi g).
- Blue dye indicator to warn of oil carryover.
- High quality black epoxy finish on head (internal and external).
- Complies with BS 4275 for removal of odours and vapours.
- All air passes through entire depth of activated carbon.
- Polycarbonate bowl to BS 6005.
- No service tools required.

Applications:

Breathing air supply to masks, helmets and suits, air bearings, fluidic systems, pneumatic gauging, food and pharmaceutical industry, and instrumentation products.

2.2 Sizes and pipe connections

¼", ⅜" and ½" screwed BSP (BS 21 -Rp)

2.3 Optional extras

- Bowl guard.
- Metal bowl.
- Metal bowl with sight level.
- Type 21 mounting bracket.

2.4 Operating limits

Maximum recommended air flow at 7 bar g:	¼" and ⅜"	6 dm ³ /s
	½"	12 dm ³ /s
Maximum pressure/temperature	Polycarbonate bowl	10 bar g @ 50°C (145 psi g @ 122°F)
	Metal bowl	17 bar g @ 70°C (246.5 psi g @ 158°F)

2.5 Materials

Part	Material
*Bowl	Polycarbonate or aluminium
Head	Zinc alloy - Epoxy finish
Element	Activated carbon
'O' ring	Nitrile rubber

***Note:** Polycarbonate bowls are attacked by phosphate ester fluids, solvents, paint thinners and carbon tetrachloride. 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 metal bowl or a guard should be fitted.

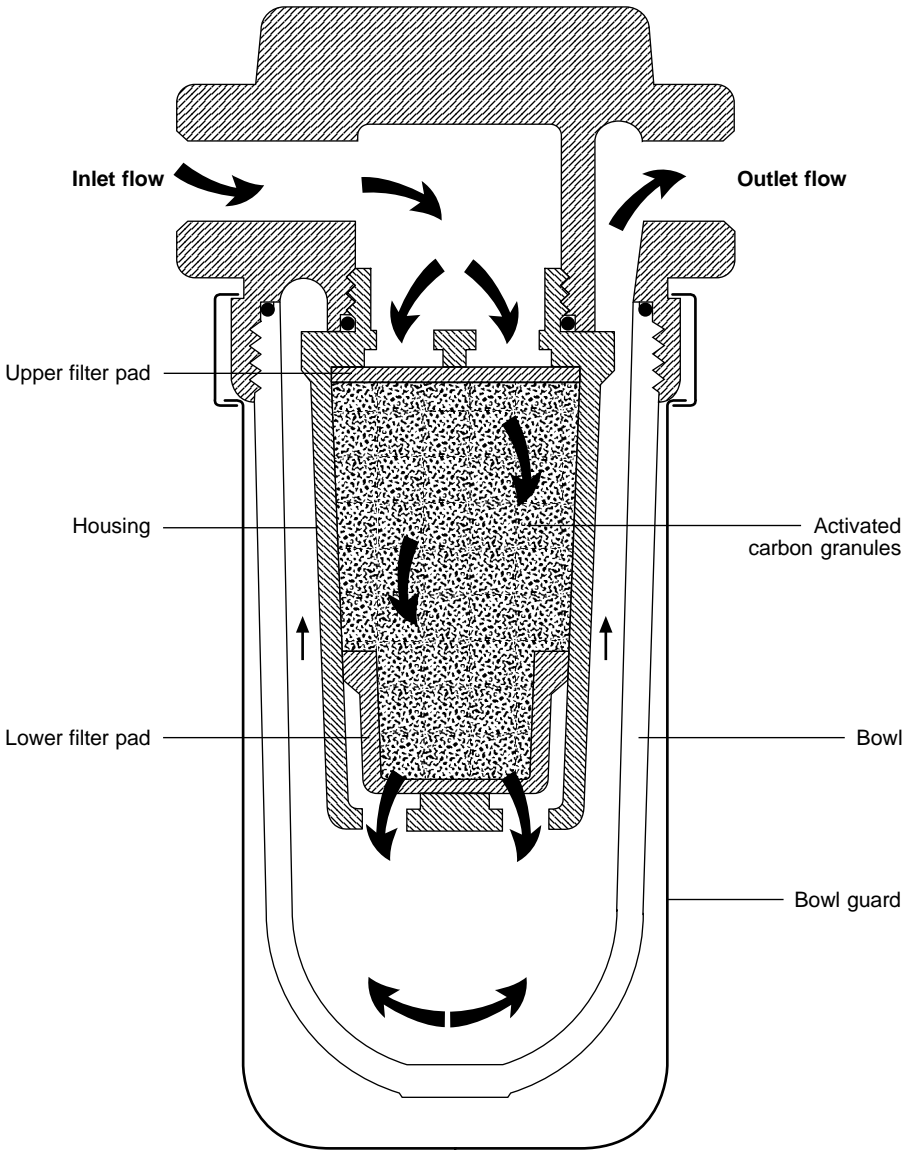


Fig. 1 How the IX1 works

— 3. Installation and commissioning —

Note: Before actioning any installation observe the 'Safety information' in Section 1.

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended installation.

- 3.1** Adequate space should be provided around the product to allow easy access for routine servicing. See withdrawal distances below.

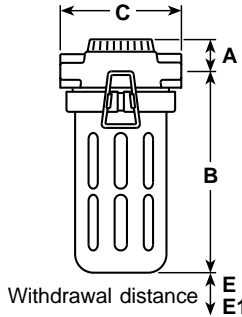


Fig. 2 IX1 dimensions

Dimensions/weights (approximate) in mm and kg

Polycarbonate bowl

Size	A	B	C	E	E1	Weight
¼", ⅜" and ½"	25	136	76	49	73	0.6

Metal bowl

Size	A	B	C	E	E1	Weight
¼", ⅜" and ½"	25	128	76	38	-	0.7

- 3.2** The IX1 should be installed in a horizontal pipeline with the bowl vertically downwards.
- 3.3** The unit should be adequately protected by a high efficiency oil removing filter such as the Spirax-Monnier IF2, IC3 or IC4 fitted in front of the IX1 to reduce the harmful effects of water carryover.
- 3.4** Install a self-venting ball valve between the oil filter and the IX1.
- 3.5** Ensure that the airflow is in the direction of the arrow cast on the body.
- 3.6** Connecting pipework should be correctly aligned and threads checked to ensure no leakage.
- 3.7** The unit can be panel mounted with a locking ring or wall mounted with a Type 21 mounting bracket (see Section 2.3 - Optional extras) which is attached to the IX1 filter by the screwed fascia cap.

Type 21 mounting bracket:

A plated mild steel bracket which is attached to the filter by the screwed fascia cap.

Dimensions (approximate) in millimetres

A	B	C	D	E
44	19	32	12	6

Panel mounting:

The panel must not exceed 3 mm thick.
The required hole is 48 mm diameter.

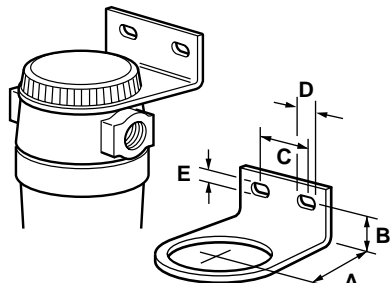


Fig. 3 Type 21 mounting bracket

4. Operation

Do not exceed the flowrates shown on the performance curves at any pressure.

Please refer to the charts in Fig. 4 below.

Reference should be made to Section 2.4 for operating temperature and pressure limits.

(Local regulations may restrict the use of this product below the conditions stated).

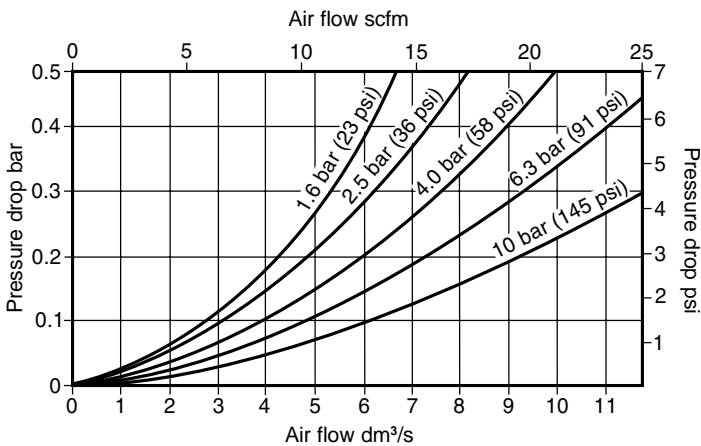
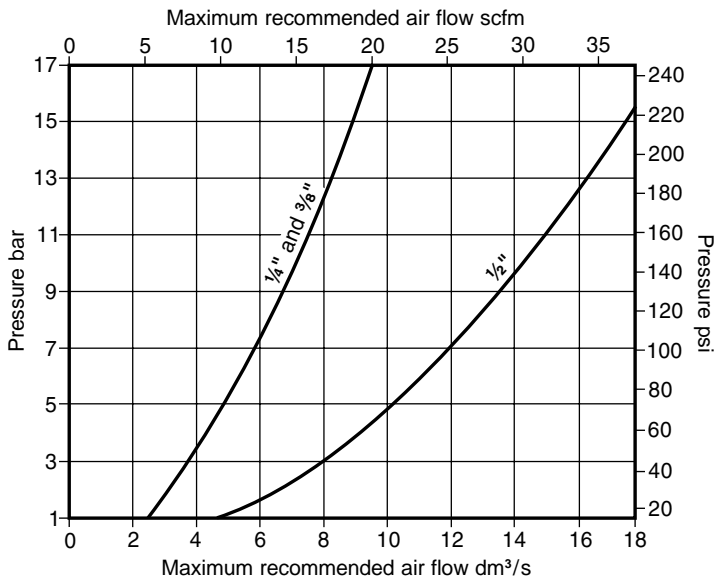


Fig. 4 Performance curves

— 5. Spare parts and maintenance —

5.1 Spare parts

The spare parts available are detailed below. No other parts are supplied as spares.

Available spares

Bowl assembly	Polycarbonate bowl	1, 2
	Metal bowl (with or without sight level)	1, 2
Element set		3, 4
Bowl guard assembly		5, 6, 7

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the size and type of unit.

Example:

1 - Polycarbonate bowl assembly for a Spirax-Monnier ¼" IX1 international compressed air filter.

5.2 Maintenance

To service the filter (no tools required):

- Shut off the air supply.
- Remove the bowl guard if fitted.
- Release pressure by using the pre-filter drain point or a self-venting ball valve upstream, or by venting elsewhere in the system.
- Remove the bowl and unscrew the element assembly.
- Wipe all parts clean using soap and water. Ensure soap and water do not enter the filter element and 'O' rings if necessary.
- When the filter or the bowl is removed during replacement or maintenance, apply a light coat of suitable oil or grease to the 'O' rings (2 and 4) during reassembly.
- Do not apply excessive force when refitting the element or fitting the bowl.

5.3 Warning

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 metal bowl guard is fitted.

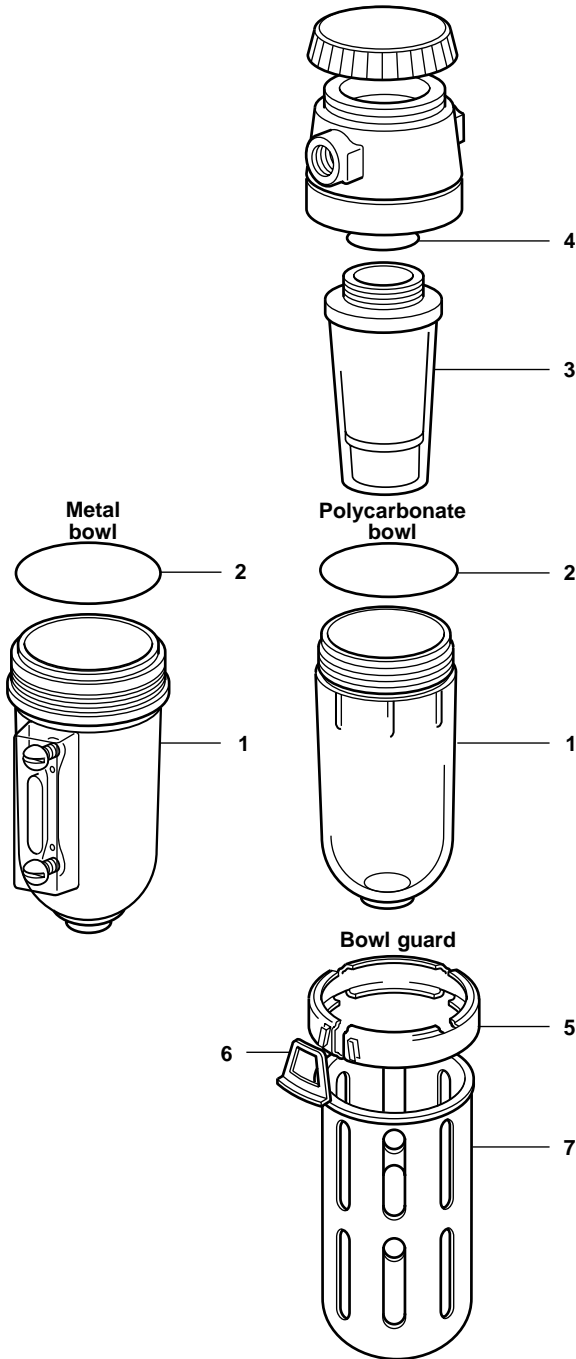


Fig. 5 IX1 spares

