



Cert. No. LRQ 0963008

ISO 9001

spirax/sarco

IC3A, IC3D, IC4A and IC4D

Spirax-Monnier

International Ultraclean Compressed Air Filters

TI-P501-01
 CH Issue 5


Description

The Spirax-Monnier International Ultraclean high efficiency oil removing filters have been designed to provide high quality compressed air (free from liquid and solid contaminants) for pneumatic systems.

For use in 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, breathing air, etc.

Principal features:

- Internal and external high quality black epoxy finish.
- Efficiencies to BS 3928, BS 4400 and D.O.P. test better than 99.999%.
- Oil carryover at 21°C less than 0.01 mg/m³.
- 100% water removal in liquid or aerosol form at line temperature.
- Polycarbonate bowl to BS 6005.

Available types:

IC3A With pilot operated automatic drain.

IC3D With semi-automatic dump valve for quick action manual override.

IC4A With pilot operated automatic drain and a unique colour change indicator fitted to show the condition of the element.
- white or red.

IC4D With semi-automatic dump valve for quick action manual override. This filter is supplied complete with a unique colour change indicator fitted to show the condition of the element.
- white or red.

Optional extras

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

- Type 21 mounting bracket.
- Discharge tube adaptor - IC3A and IC4A only.
- Metal bowl with or without sight level.
- Easy fit bowl guard.

Sizes and pipe connections

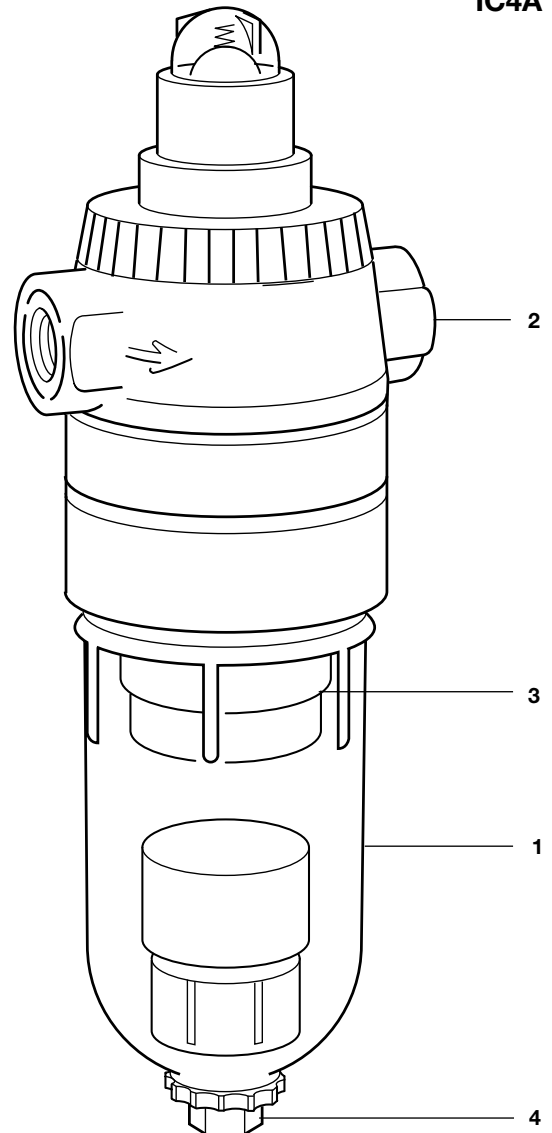
½" screwed BSP (BS 21-Rp) supplied with ¼" and ⅜" BSP reducing bushes (1 x pair per size).

Operating limits

Maximum working pressure	Polycarbonate bowl	10 bar g
	Metal bowl	17 bar g
Maximum working temperature	Polycarbonate bowl	50°C
	Metal bowl	80°C

Materials

No.	Part	Material
1	Bowl	Polycarbonate or aluminium (epoxy coated)
2	Head	Zinc alloy - epoxy coated
3	Element	Borosilicate microfibre housed in stainless steel cage
4	Auto-drain	Plastic

IC4A


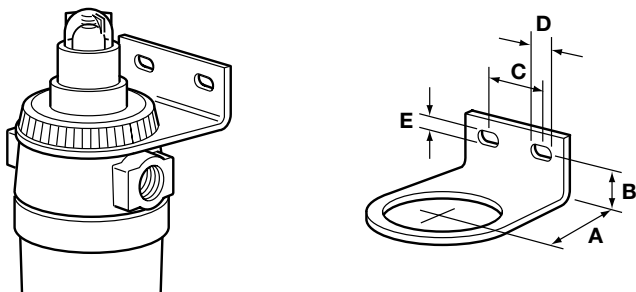
Optional extras

Type 21 mounting bracket

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

Dimensions (approximate) in mm

A	B	C	D	E
44	19	32	12	6



Discharge tube adaptor IC3A and IC4A only

An adaptor can be supplied for the auto-drain on the IC3A and IC4A models, to accept 8 mm O/D copper or plastic tube.

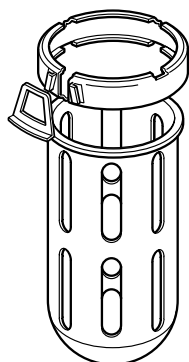


Metal bowl with sight level



Bowl guard

In the interest of safety Spirax Sarco recommend that a bowl guard should be fitted to polycarbonate bowls - see the 'Warning' under 'Safety information, installation and maintenance'.

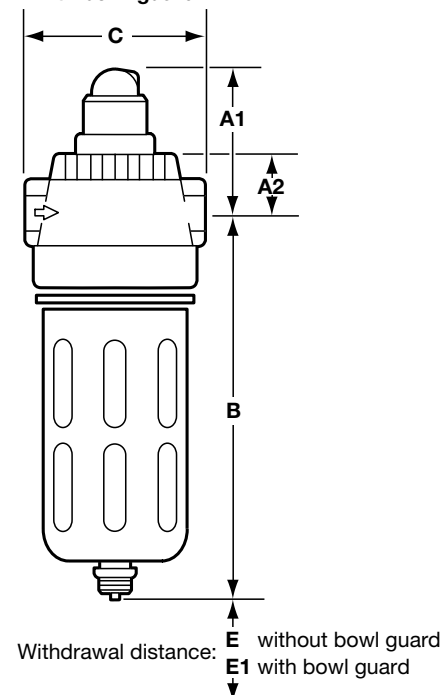


Dimensions/weights (approximate) in mm and kg

Polycarbonate bowl (without reducing bushes fitted)

Unit	A1	A2	B	C	E	E1	Weight
IC3A	-	25	211	76	39	82	0.90
IC3D	-	25	218	76	39	79	0.88
IC4A	60	-	211	76	39	82	0.97
IC4D	60	-	218	76	39	79	0.95

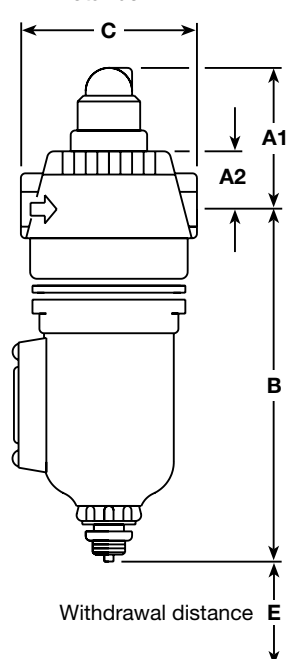
Polycarbonate bowl with bowl guard



Metal bowl (without reducing bushes fitted)

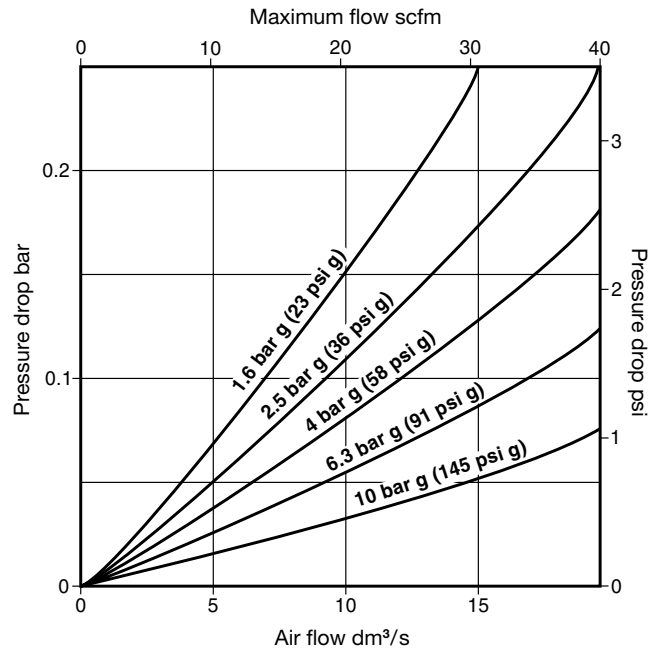
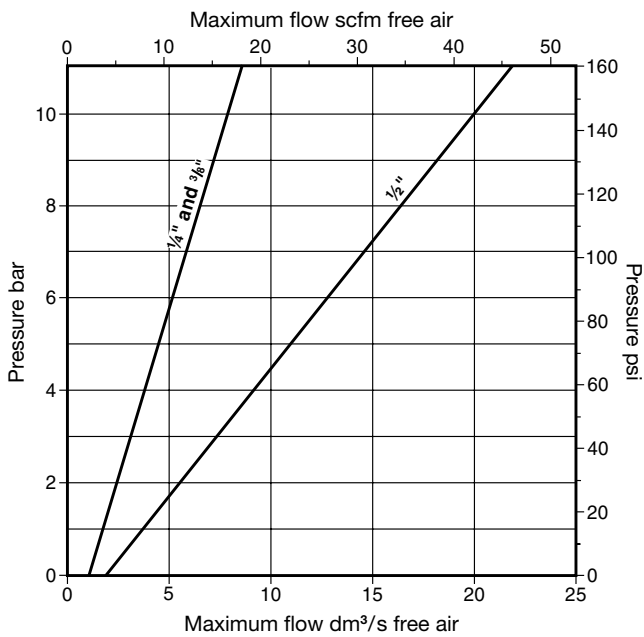
Unit	A1	A2	B	C	E	E1	Weight
IC3A	-	25	205	76	39	-	0.95
IC3D	-	25	212	76	39	-	0.93
IC4A	60	-	205	76	39	-	1.02
IC4D	60	-	212	76	39	-	1.00

Metal bowl

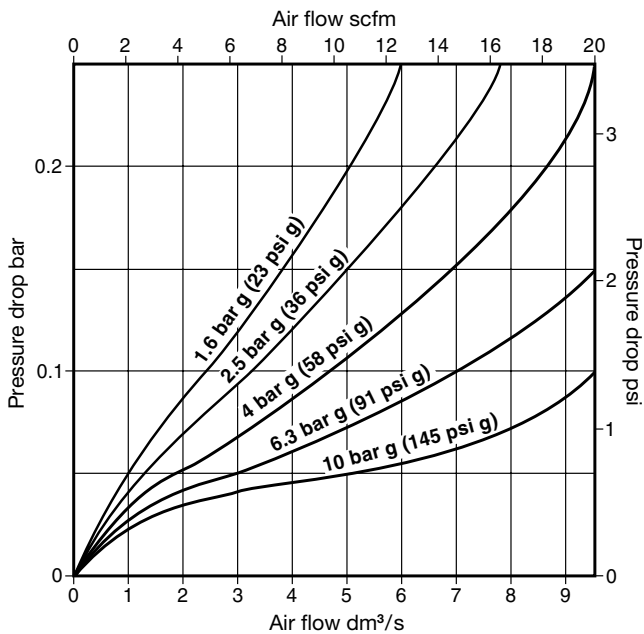


Performance

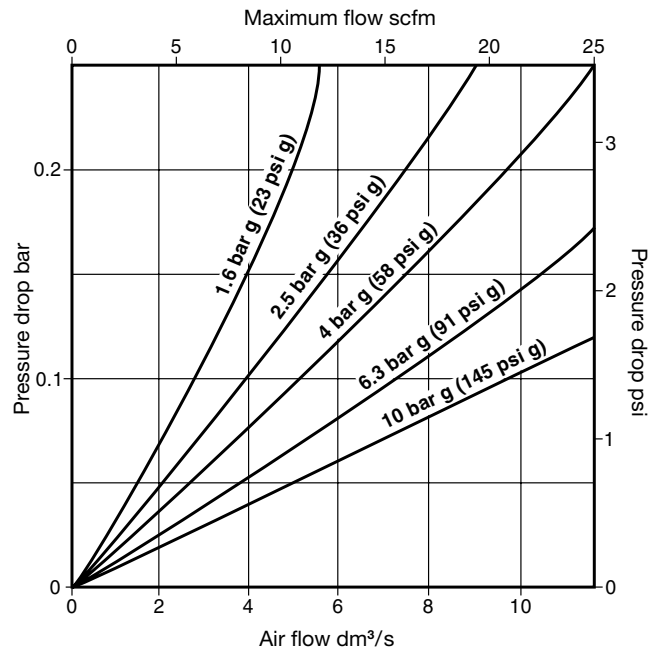
Standard 1/2" connections



With 1/4" reducing bushes fitted



With 3/8" reducing bushes fitted



How do they work

These units filter out solid contaminants and coalesce liquids and aerosols. 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 tortuous path through the depth of the element, will strike one or other of the fibres and will be retained on them by intermolecular 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 growth, so that their mass is sufficient to allow them to gravitate to the sump of the filter from which they can be drained either automatically or manually. The porous plastic sock also reduces the possibility of re-entrainment.

Auto-drain - IC3A and IC4A

The Spirax-Monnier internal auto-drain is a pilot operated unit. As the water level in the bowl rises, the float (13) lifts, allowing the line pressure to act on the piston, which opens the main discharge valve. As the liquid level falls, the float closes the pilot valve and line pressure shuts the main valve. Under zero pressure conditions, the auto-drain (8) will be in the open position, allowing any liquid to drain away.

Automatic dump valve - IC3D and IC4D

This is a spring loaded valve which will allow the filter to automatically drain when the pressure in the bowl drops below 0.06 bar. (i.e. when air to the plant is shut off).

The unit can also be drained manually by pushing the protruding valve stem sideways, or upwards.

The indicator - IC4A and IC40 only

The indicator senses the increase in pressure drop across the element. When the red section becomes visible, the element needs replacing.

The indicator does not respond to sudden surge flows although it is recommended that the initial air pressure is applied slowly. Provided they are not in excess of the filter rating, and will remain in its true position when the system pressure is vented or flow ceases.

A visual check on the indicator position allows planned maintenance to be scheduled.

How efficient are they

Spirax-Monnier coalescing filters when tested to BS 3928 or 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 0.6 micron. In the American D.O.P. test, a cloud of droplets of mass mean diameter 0.3 micron is used.

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions (IM-P501-06) supplied with the product.

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 or a bowl guard should be fitted.

Installation note:

Fit into a horizontal pipeline with the air flow in the direction of the arrow and the bowl vertically downwards, as close as possible to the equipment it is protecting.

It is advisable to fit a conventional pneumatic auto-filter, (International IF) immediately upstream of the coalescing filter to extend the life of the filter cartridge. On new installations, it is as well to blow through the pipework before fitting the filter to ensure that the initial pipescale and dirt is removed.

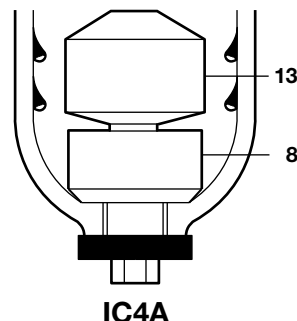
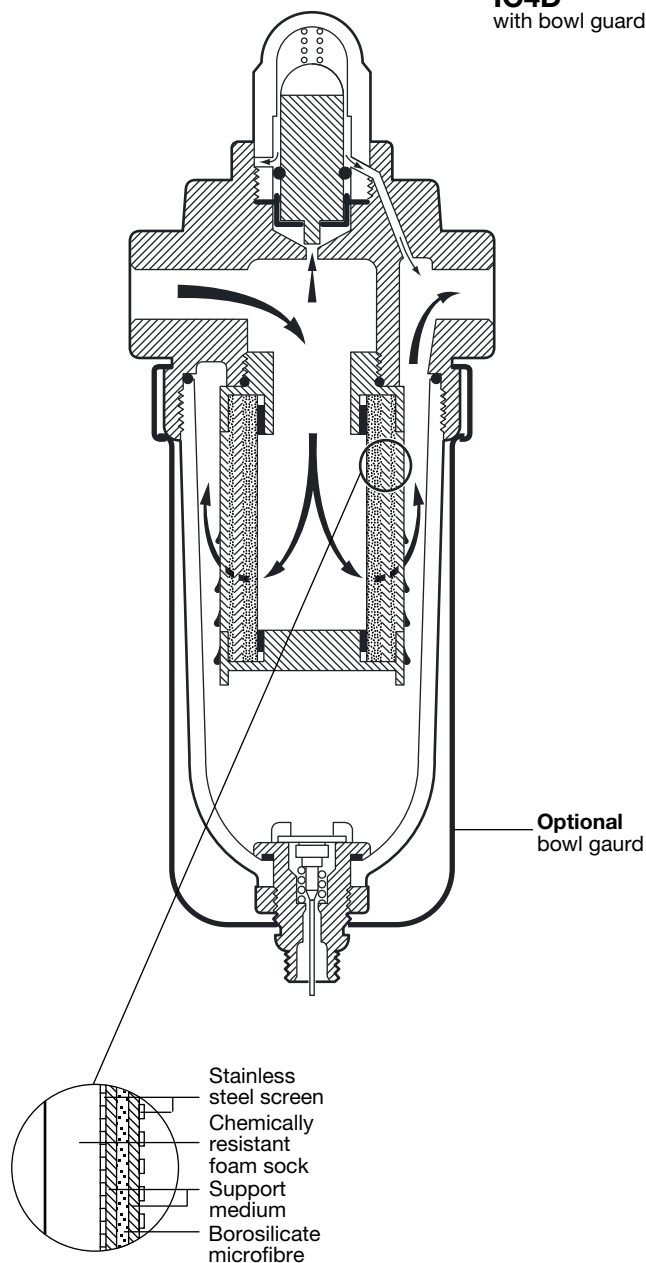
Panel mounting - The panel must not exceed 3 mm thick. The required hole is 48 mm diameter.

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 graphs or there is 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. It is advisable to fit a conventional pneumatic auto-filter (International IF2A) immediately in front of the coalescing filter for maximum efficiency and life.
4. For hydrocarbon vapour and odour removal use the Spirax-Monnier IX1 International compressed air filter - For specific product data see Technical Information sheet TI-P057-01.

IC4D

with bowl guard



How to order

Example: 1 off Spirax-Monnier ½" screwed BSP IC3A, IC3D, IC4A or IC4D International Ultraclean compressed air filter. Accessories must be specified separately.

Note: The product will be supplied with a polycarbonate bowl as standard. If a metal bowl is required (with or without sight level) it must be clearly specified on the order.

Spare parts

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

Available spares

Bowl assembly including the appropriate drain - state polycarbonate or metal (with or without sight level)	A, B
Element set 5 µm	D, C
Flow indicator assembly (IC4D and IC4A only)	E, F
Auto-drain	U, W, W1

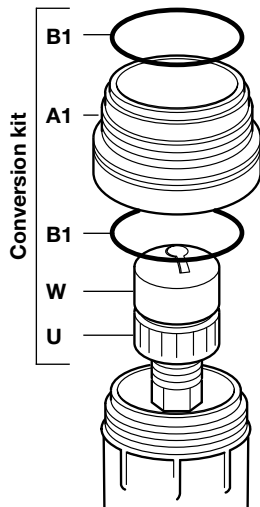
How to order spares

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

Example: 1 off Polycarbonate bowl assembly for a ¼" IC4D Spirax-Monnier international compressed air filter.

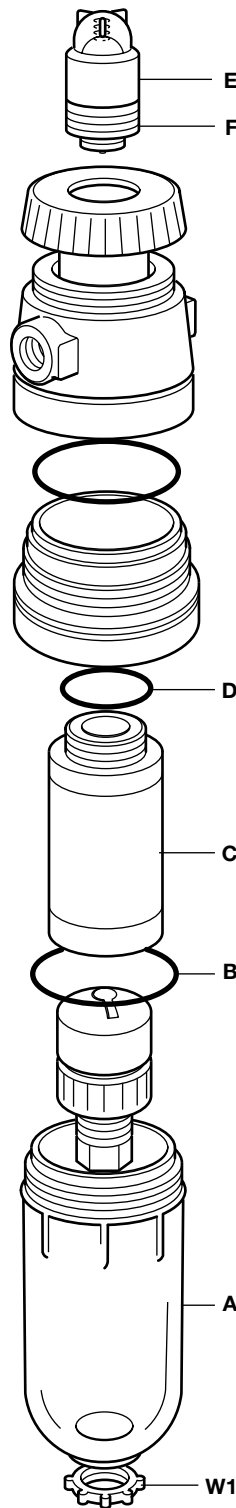
Conversion kit

To convert the ½" **IC3D** and **IC4D** to an automatic drain model, please contact Spirax Sarco.



Distance piece	A1
'O' ring seal for distance piece and bowl	B1 (2)

IC3A and IC4A



IC3D and IC4D

