

## Spirax Monnier IP International Compressed Air Filter/Regulator

### To adjust

Lift adjustment knob (1) to unlock. Turn adjustment knob clockwise to increase secondary pressure, or anticlockwise to decrease. Push down to re-lock. It is recommended that adjustments are made under flow conditions - there may be slight increase in set pressure when flow stops.

### How does it work

Contaminated compressed air (5) is directed into the inside of the bowl (14) by the shrouded whirl disc (7). This centrifugal separation allows most of the liquids and solids to pass down into the sump (15) away from any turbulence. The air is then filtered by the nylon mesh element (6) before passing upwards through the main valve (2) of the regulator and then to the outlet (9). Ensure that the bowl is regularly drained by either the dump drain valve (8) (IPD), the manual drain (12) (IP2 metal bowl) or the auto drain (13) (IP2A). With the adjustment knob (1) rotated fully anticlockwise the valve return spring (16) will keep the main valve (2) shut. Clockwise rotation of the adjustment knob will compress the main pressure control spring (3), deflect the diaphragm (4) downwards opening the main valve (2). As air flows to the downstream (9) side of the regulator, the secondary pressure increases. The secondary pressure is sensed by the aspirator (10) and transmitted to 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 accurately maintain the set secondary pressure. On self relieving models any appreciable rise in secondary pressure from its set value will cause the diaphragm (and the push rod 11) to lift. This will allow the air to escape through the centre of the push rod to atmosphere. When excess pressure has been vented the orifice in the push rod will reseal on the main valve.

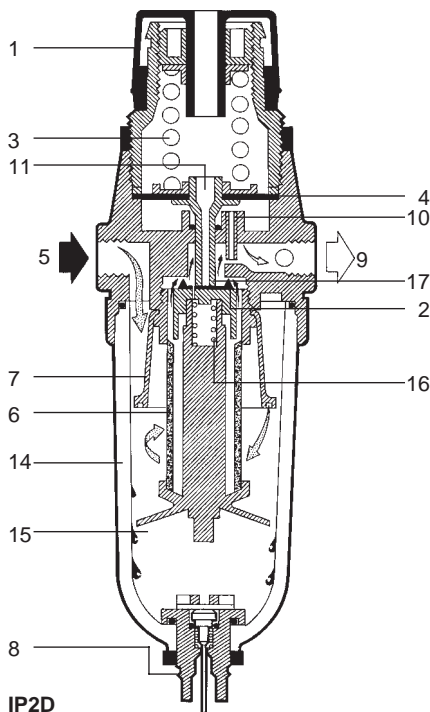
**Auto-Drain** The Spirax-Monnier internal auto-drain is a pilot operated unit. As the water level in the bowl rises, the float (13) lifts, allowing line pressure to act on a piston, which opens the main discharge valve. As the liquid level falls, the float closes and line pressure shuts the main valve.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

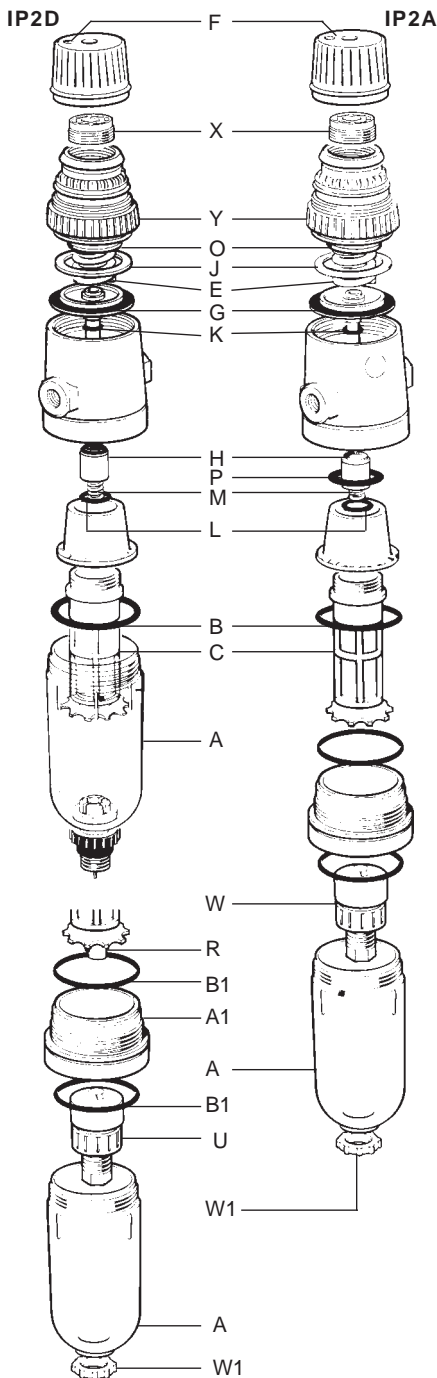
**Dump Valve** This is a spring loaded valve which will allow the Filter/Regulator to automatically

drain when the pressure in the bowl drops below 0.06 bar (i.e. when air to the plant is shut off). The units can also be drained manually by pushing the protruding valve stem sideways or upwards.

### Warning

Polycarbonate bowls and sight levels on metal bowls can be 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 bowl guard be fitted.





## Spare parts

### AVAILABLE SPARE

Pressure Control Spring Set	
State pressure range	E,F,O
Valve and Diaphragm Assembly	G,H,J,K,L,M
Bowl Assembly inc. appropriate drain	A,B
State polycarbonate, or metal (with or without sight level)	
Element Set (packet of 3 of each)	B,C,(P)*
Auto Drain	W,W1

\*Only used on IP1/D/A

### How to order

Example:- 1 — Pressure Control Spring Set (0.5 — 10 bar) for 1/4" Spirax Monnier IP2

## To Service

### To replace Pressure Control Assembly

Shut off main air supply. Lift adjustment knob to unlock, rotate adjustment knob fully anticlockwise until stop is felt, then continue rotating until knob is free. Remove adjuster nut (X) from inside adjustment knob. Remove control spring (E) and spring plate (O). Replace new control spring (E), spring plate (O) and screw in adjuster nut (X), making sure the recess is facing upwards, until flush with regulator body. Snap on adjustment knob being careful to line up the four driving lugs on the locking ring with the corresponding slots in the adjustment knob. Change pressure indicator (F) to new range, if required.

### To Replace Valve and Diaphragm Assembly

Isolate unit from main supply rotate adjustment knob fully anticlockwise until stop is felt. Release mounting ring (Y), unscrew bonnet assembly complete from main body. Remove diaphragm assembly and replace using new 'O' rings. Diaphragm sealing ring (J) fits on the top of the diaphragm.

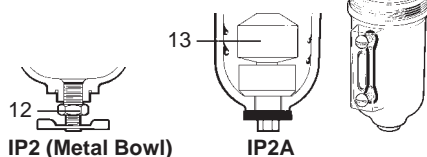
### To replace Valve and Return Spring

Shut off main air supply and vent pressure by lifting control knob and rotating anticlockwise. Remove bowl guard if fitted and unscrew bowl (A). Unscrew element (C). Valve and return spring assembly (L), (M) and (H) will now come away. Reassemble in reverse order.

### To Service Filter

Shut off main air supply and vent pressure by lifting control knob and rotating anticlockwise. Remove bowl guard if fitted and unscrew bowl (A), unscrew element (C). Wipe all parts clean using soap and water. Replace in reverse order using new filter element and 'O' rings if necessary.

### Metal Bowl with sight level



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# Spirax-Monnier Products

## General Safety, Installation and Maintenance Guidelines

### WARNING

**As with all Pressurised Systems, do NOT attempt ANY Installation or Maintenance function if there is ANY pressure in the product or connected system.**

### Spirax-Monnier

Spirax Monnier compressed air products are of well proven and simple design, with high natural levels of designed safety built in. However, used or installed incorrectly, their performance and that of the system they are protecting or controlling, may suffer. The information given indicates the product limiting conditions, maintenance and installation requirements and any specific component disposal needs.

### Product Maintenance - See Over

#### Installation and Operation

1. Filters, Filter/Regulators, Lubricators, Flow Meters, Separators and Drain Traps should be fitted in horizontal pipelines, with the bowls vertically downwards.
2. Regulators and Ball Valves can be installed in any position.
3. On Pressure Regulators and combined Filter/regulators, a Pressure Gauge can be connected to one of the  $\frac{1}{8}$ " ports. The gauge should be selected to cover the maximum pressure range of the main Control Spring. The gauge will indicate the downstream or controlled pressure.
4. Ensure that the Control Spring range for Regulators and Filter/Regulators fully meets the pressure requirements of the system.

5. There are Maximum Operating Pressures, and Maximum Operating and Environmental Temperatures for each product. These are shown in the table below.
6. Adequate space should be provided around any product to allow easy access for routine servicing requirements.
7. Products fitted with a Bowl ( Polycarbonate or Metal ) should be adequately drained - manually or automatically - to reduce the potentially harmful effects of water carryover.
8. **WARNING** Polycarbonate Bowls and Sight Domes, and Sight Levels fitted to Metal bowls, may be attacked by Phosphate Ester based fluids, Solvents, Chemical cleaners, Carbon Tetrachloride, etc. These and other similar substances should never be allowed to come into contact with these product components. Certain compressor lubricating oils also contain additives harmful to these components. Where there is any doubt, we recommend, in the interests of safety, that Bowl Guards or Metal Bowls are fitted.
9. Local regulations may restrict the use of this product below the conditions quoted.
10. For more detailed information on any individual product, please ask for the appropriate Technical Information Sheet listed in the table.

<b>For Maximum Pressures/Temperatures see overleaf</b>
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## Conversion Kit 7

To convert a manual drain (IP2) or dump valve (IP2D) into an automatic drain model (IP2A). Conversion Kit 7 and an auto drain is required.

Distance Piece	A1
'O' ring Seal for Distance Piece and BowlB1(2)	

### How to fit conversion kit 7

1. Ensure air pressure in bowl is zero.
2. Unscrew bowl A discarding existing bowl 'O' ring.
3. Remove existing manual drain or dump valve by unscrewing retaining ring W1.
4. Clean bowl using only soap and water. Dry thoroughly.
5. If element is fitted with short spigot (R) remove spigot flush with underside of baffle.

6. Screw on distance piece A1 and 'O' ring B1.
7. Insert auto drain W making sure internal seal U is in place.
8. Tighten retaining ring W1 and position float.
9. Replace bowl using new bowl 'O' ring B1.

### 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 interest of safety that a metal bowl or bowl guard be fitted.

## MAXIMUM PRESSURES/TEMPERATURES

FILTERS	Polycarbonate Bowl		Metal Bowl		Metal Bowl with Sight level		DISPOSAL CLASS	TI
	bar	°C	bar	°C	bar	°C		
MF2	10	50	-	-	-	-	1 & 3	P050-05
IF2/D/A	10	50	17	80	17	70	1 & 2	P500-01
IC3/4/DA	10	50	17	80	17	70	1 & 2	P501-01
IXI	10	50	17	70	17	70	1 & 2	P057-01
SF3/A	-	-	17	80	17	70	1 & 3	P050-03

## REGULATORS

MR1/2/3	21 bar 70°C : CONTROL RANGES : 0.2/2. 0.3/4, 0.7/9 bar	1 & 3	P051-01
IRI	20 bar 70°C : CONTROL RANGES : 0.2/3.5, 0.5/1 bar	1 & 2	P058-01
SR2	21 bar 70°C : CONTROL RANGES : 1.3 - 17.0 bar	1 & 3	P570-01
SR3	21 bar 70°C : CONTROL RANGES : 0.2/4, 0.3/9 bar	1 & 3	P570-03

## FILTER REGULATORS

IP2/A/D	10	50	17	80	17	70	1 & 2	P510-01
	RANGES : 0.2/3.5, 0.5/10 bar							
MP2	10	50	-	-	-	-	1 & 3	P054-01
	RANGES : 0.2/2.0, 0.3/4.0, 0.7/9.0 bar							
MPC2	10	50	-	-	-	-	-	P054-04
	RANGES : 0.2/2.0, 0.3/4.0, 0.7/9.0 bar						1 & 3	

## LUBRICATORS

ML3	10	50	-	-	-	-	1 & 3	P052-07
IL1	10	50	17	80	17	70	1 & 2	P059-01
SL3	-	-	17	80	17	70	1 & 3	P052-04

## OTHER PRODUCTS

IFM2	10	50	-	-	-	-	1 & 2	P580-01
S.M.S.	-	-	17	70°C	-	-	1 & 3	P050-17
BALL	all to 15 bar & 45°C							
VALVES (all)	(see performance graph on TI for full details)						1 & 4	P560-01
DRI-LINE	-	-	16	80°C	-	-	1 & 3	P050-07

## DISPOSAL

1. Some plastic and/or rubber components
2. Main body Zinc - epoxy coated
3. Main body Aluminium - epoxy coated
4. Brass and Steel
5. Electronic Components

## Note

Customers are reminded that under UK and EC Health, Safety and Environmental 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.