



Shah Pneumatics

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ProAir is a trademark of Shah Pneumatics.

Compressed Air Treatment Products

ProAir

High Efficiency High Pressure filter housings

INSTALLATION OPERATION & MAINTENANCE INSTRUCTIONS



Grades
XF,XO,XA,XC,
XCS,XR

Models
HP-50 SERIES
HP-350 SERIES

Sizes
6 mm - 50 mm
(G1/4) - (G2)

Filters for Compressed Air & Gases

INTRODUCTION

Airmatic filters, when used in accordance with these instructions, are designed to remove oil, oil mist, liquid water and dirt from compressed air. Consult the factory for suitability of these filters for any other compressed gas or gas mixture.

The use of replacement parts or elements other than those specified in the replacement parts list provided in this manual may cause failure of the filter. Therefore, **Shah Pneumatics** bears no responsibility for the consequences of the use of equipment in which non-approved parts are used. Carefully follow the instructions given in this manual for filter installation and element replacement.

SAFETY

Compressed air can be dangerous. Safety precautions must be observed in the use of compressed air and compressed air equipment. Before changing the element or doing any work on this equipment be sure the internal pressure has been completely vented to the atmosphere.

Airmatic filters are designed and built with safety as a prime consideration. Each **ProAir** filter is tested prior to shipment from the factory.

Do not use the filter at pressures or temperatures which exceed the maximum pressure and temperature shown on the filter label.

WARNING

A zero differential pressure does not mean the housing is under zero Pressure (depressurized). Never remove the indicator or guage and/or the filter housing without depressurizing the filter housing and adjacent piping. Failure to heed this warning may result in serious personal harm and/or damage to the filter housing or Indicator and guage.

INSTALLATION

Immediately upon receipt of your **ProAir** filter, carefully inspect it for any damage that may have occurred during shipping. If there is any sign of damage to any of the components do not install the filter. Contact the factory or your supplier for action to be taken.

Piping

ProAir filter must be selected on the basis of compressed air flow rate (scfm, m³/h) and pressure, not on the basis of pipe size. If new pipework is installed, pipe size must also be selected on the basis of air flow rate and pressure, and not the size of the filter connections, if your filter is installed in existing piping, a threaded reducer may be needed to match the piping to the filter connections.

Be sure all piping is supported.

Connections and fittings must be rated for the maximum operating pressure given on the filter nameplate and must be in accordance with industry codes.

Location in System

Maximum operating temperature of the **ProAir** Filter is 65° C.

However, since filter performance is improved at lower operating temperatures, it is recommended that filtration temperature does not exceed 50° C.

Install your filter downstream of an aftercooler or at any other location in the system where the compressed air temperature does not exceed 65° C. If a refrigerated air dryer is installed in the air system, locate the filter downstream of the dryer. The dryer will remove a considerable quantity of dirt and condensed liquids, reducing the contaminant load on the filter and increasing the element life.

Allow enough clearance under the filter for dismantling and element replacement. In general, clearance equal to 1 times the overall length of the filter is adequate. Inlet and outlet air connections are marked on all models. Do not reverse connections, since the filter is not designed for reverse flow. Element failure will occur if the filter connections are reversed.

When the filter is installed in an existing piping system, locate the filter as near as possible to the point of use. Oil and dirt that have accumulated at the use point will be removed more quickly with the filter at this location.

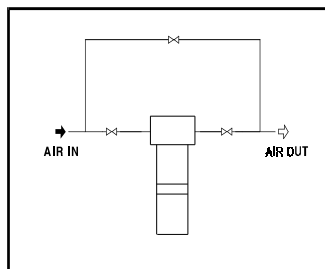
Filter Bypass

A 3-valve bypass around the filter is recommended so that elements can be changed without shutting down the branch line or the complete air system. A typical bypass arrangement is shown in the schematics below. Do not allow the piping to place any stress on the filter connections.

For applications that cannot tolerate oil during element replacement, a second filter should be installed in the bypass.

Commissioning Procedure

After the filter has been mounted according to the above procedure, slowly open the air inlet of the filter and look for possible air leaks. If any, investigate the source, turn off air supply and correct fault.



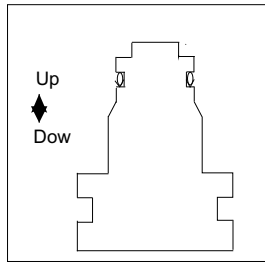
3 Valve bypass

CLEANING & FITMENT OF SEALS

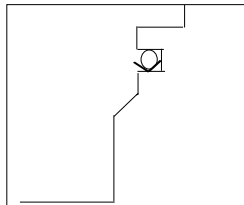
MAINTENANCE

HP-50-60 TO HP-50-2000
HP-350-067 TO HP-350-775

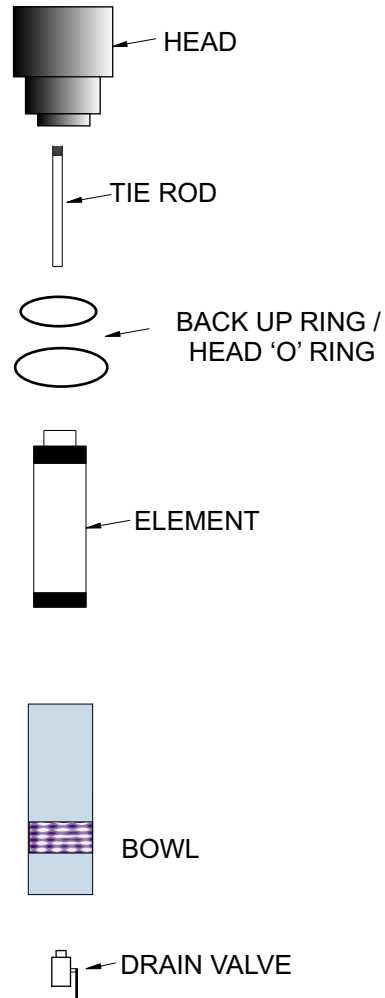
- 1) Gently press the oring/backup rings at the sides to get a grip on the seals, to Remove them



- 2) Place U type back up ring first, ensuring orientation of body (Head) as shown
Get a grip on the seals, to remove them



- 3) Please note, filter has to be preferably in HEAD DOWN & body up position , to ensure ease of assembly



FILTER ELEMENTS NECESSARY FOR SERVICING

HP-50 SERIES

FILTER TYPE	PIPE SIZE BSP	REPLACEMENT ELEMENT
		GRADE : XF/XO XA/XR/XCS
HP-50-60 (GRADE)	6 mm (G1/4)	E 0019 (GRADE) - SP
HP-50-120 (GRADE)	15 mm (G1/2)	E 0036 (GRADE) - SP
HP-50-200 (GRADE)	20 mm (G3/4)	E 0064 (GRADE) - SP
HP-50-300 (GRADE)	25 mm (G1)	E 0127 (GRADE) - SP
HP-50-600 (GRADE)	40 mm (G1.1/2)	E 307 (GRADE) - SP
HP-50-1000 (GRADE)	40 mm (G1.1/2)	E 0466 (GRADE) - SP
HP-50-1200 (GRADE)	50 mm (G2)	E 0466 (GRADE) - SP
HP-50-2000 (GRADE)	50 mm (G2)	E 0699 (GRADE) - SP

HP-350 SERIES

FILTER TYPE	PIPE SIZE BSP	REPLACEMENT ELEMENT
		GRADE : XF/XO XA/XR/XCS
HP-350-067 (GRADE)	6mm (G1/4)	E 0019 (GRADE) - SP
HP-350-150 (GRADE)	15mm (G1/2)	E 0036 (GRADE) - SP
HP-350-300 (GRADE)	20mm (G3/4)	E 0064 (GRADE) - SP
HP-350-550 (GRADE)	25mm (G1)	E 2010 (GRADE) - SP
HP-50-445 (GRADE)	25mm (G1)	E 0127 (GRADE) - SP
HP-50-775 (GRADE)	40 mm (G1.1/2)	E 0307 (GRADE) - SP

TECHNICAL DATA :

Maximum Operating Pressure:-

for HP-350-350 Kg/Cm2g (5075 psig)

for HP-50-50 Kg/Cm2g (725 psig)

Minimum Operating Temperature — 5 C

Maximum Operating Temperature :-

For GRADE XF,XO,XA ° — 65 C

For GRADE XCS --- 35 C

Filter Grade :

Flow based on A.N.R. Conditions at max. Pressure :-

GRADE XF - Coarse - Filter	
Particle Removal	10 Micron

GRADE XO - Pre - Filter	
Particle Removal	1.0 Micron

GRADE XA - Oil Removal Filter	
Particle Removal	0.01 Micron

GRADE XCS - Oil Vapour Adsorber	
Particle Removal	Down to 0.003 mg/m3

Operating Pressure Differential at rated flow :-

GRADE XF : 0.07 Kg/cm2 (1 psi) aprox.

GRADE XO : 0.15 Kg/cm2 (2.25 psi) aprox.

GRADE XA : 0.30 Kg/cm2 (4.5 psi) aprox.

Recommended Filter Element Change :-

Pressure Differential reaches 0.7 Kg/Cm2 (10.15 psig)

Note : Filter element change condition not applicable to grade XCS elements.

Grade XCS elements must be changed periodically to suit application but at least every 500 hrs or earlier.

Note : This element will not remove co/co2 or other toxic gases.

* Based at 20 C

* Efficiency vapour with recommended pre-filters.

SERVICE ELASTOMERS KIT

TYPE	PIPE SIZE BSP	SERVICE ELASTOMER KIT
HP-50-60 (GRADE)	G1/4	HP-50-60-SK
HP-50-120 (GRADE)	G1/2	HP-50-120-SK
HP-50-200 (GRADE)	G3/4	HP-50-200-SK
HP-50-300 (GRADE)	G1	HP-50-300-SK
HP-50-600 (GRADE)	G1.1/2	HP-50-600-SK
HP-50-1000 (GRADE)	G1.1/2	HP-50-1000-SK
HP-50-1200 (GRADE)	G2	HP-50-1200-SK
HP-50-2000 (GRADE)	G2	HP-50-2000-SK

FILTER TYPE	PIPE SIZE BSP	SERVICE ELASTOMER KIT
HP-350-67 (GRADE)	G1/4	HP-350-067-SK
HP-350-150 (GRADE)	G1/2	HP-350-150-SK
HP-350-300 (GRADE)	G3/4	HP-350-300-SK
HP-350-550 (GRADE)	G1	HP-350-550-SK
HP-350-445 (GRADE)	G1	HP-350-445-SK
HP-350-775 (GRADE)	G1.1/2	HP-350-775-SK

FILTER ELEMENT REPLACEMENT

With the filter in service, the element will gradually become saturated. This saturation in turn, causes a rising pressure drop (indicated on the Differential Pressure Gauge.)

The element must be changed when the Pop-Up indicator has turned red for 100% or when the gauge needle moves into the red area.

Failure to do so may cause element damage, or oil being forced through the element into the air line. Furthermore, the ever increasing pressure drop will cost a vast amount of energy loss.

**XF, XO, XA,
XCS, XR,
HP-50 & HP-350**

(1) ISOLATE AIR SUPPLY

(2) DEPRESSURISE FILTER HOUSING

Vent filter Internal air pressure to atmosphere.

(3) Remove filter bowl. A strap or chain wrench may be required to unscrew filter bowl from body casting.

Remove and discard saturated element.

Clean Inside of bowl. Use only soap and water.

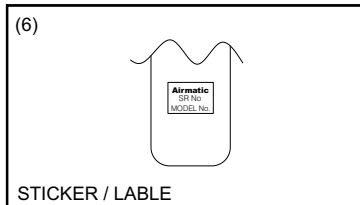
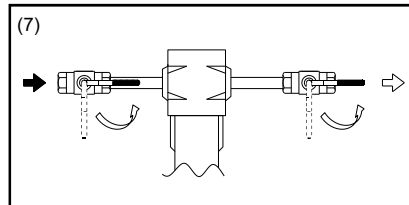
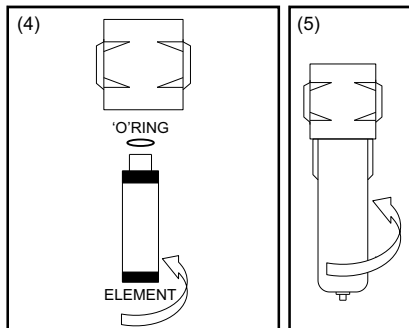
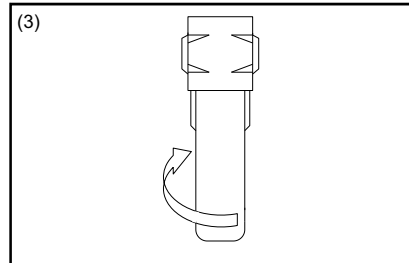
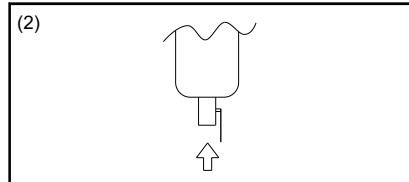
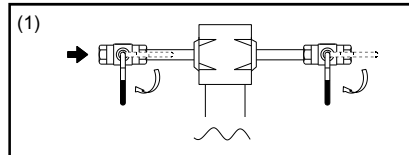
(4) Insert new element in head.

Replace body O-rings / Elastomers

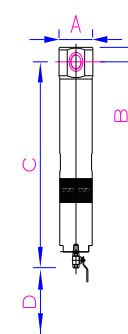
(5) Attach bowl to top body.

(6) Fix / record data of change of element.

(7) Slowly repressurize filter before startup to avoid element damage.



FILTER SELECTION & DIMENSIONS :



350 kg/Cm² FILTERS

FILTER MODEL NO.	PIPE SIZE BSP	DIMENSIONS IN MM				APPROX WEIGHT IN kgs
		A	B	C	D	
HP-350-67 #	6 mm (G1/4)	80	28	258	263	7.5
HP-350-150 #	15 mm (G1/2)	100	35.5	327	328	12.8
HP-350-300 #	20 mm (G3/4)	100	35.5	365	366	14.1
HP-350-550 #	25 mm (G1)	100	35.5	490	490	21.0
HP-350-445 #	25 mm (G1)	155	35.5	445.5	488	15.0
HP-350-775 #	40 mm (G1.1/2)	155	35.5	545.5	588	18.0

50 kg/Cm² FILTERS

FILTER MODEL NO.	PIPE SIZE BSPF	DIMENSIONS IN MM				APPROX WEIGHT IN kgs
		A	B	C	D	
HP-50-60 #	6 mm (G1/4)	80	17.2	167	165	3.8
HP-50-120 #	15 mm (G1/2)	90	29.5	238	200	8.0
HP-50-200 #	20 mm (G3/4)	90	29.5	276	240	10.0
HP-50-300 #	20/25 mm (G3/4, G1)	142	36.5	399	365	12.0
HP-50-600 #	25/40 mm (G1, G1.1-2)	142	36.5	490	465	14.0
HP-50-1000 #	40 mm (G1.1/2)	175	47	490	450	31.0
HP-50-1200 #	50 mm (G2)	175	47	490	450	31.0
HP-50-2000 #	50 mm (G2)	175	47	790	750	41.0

MAINTENANCE RECORD

Date of Purchase _____

From Name _____

Address _____

Tel. _____

Fax _____

Filter Model No. _____

Process Connection _____

Element Model No. _____

No. of Element in each Housing _____

Date of Installation _____

Location _____

Estimated Date of Element Change _____



- THIS FILTER MUST BE INSTALLED AND MAINTAINED BY A COMPETENT PERSON.

XO Filters

The XO filter is designed on the interception principle to remove particles down to 1 micron. The filter can be used for a wide range of applications such as removing water and condensate, dust, metal particles and pipescale. The XO filter can also be used as a prefilter to the high efficiency XA filter.

XA Filter

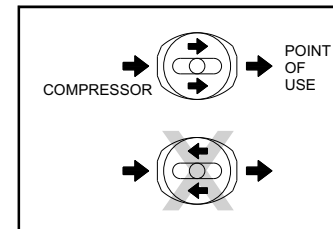
The XA filter is a high efficiency filter. This filter is a must for applications where high quality air is required with particles not greater than 0.01 micron and a remaining oil content in the air not exceeding 0.01 ppm (at 20° C). The XA filter is particularly suited to such applications as protecting instrumentation systems and gauging equipment, air bearings, advanced pneumatics and in sophisticated process and electronic plants.

XCS filters

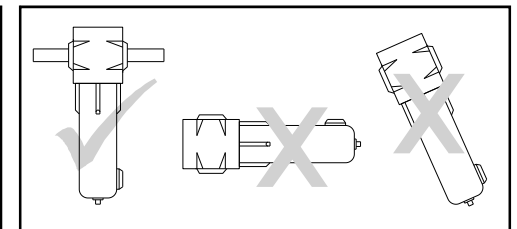
The XCS carbon filter is installed where oil vapour, smell and taste need to be removed. When installed after the XO and XA filter the XCS filter guarantees the highest quality system air required.

Consult the factory for suitability of these filters for any other compressed gas or gas mixture.

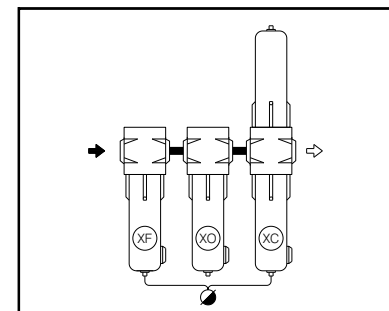
INSTALLATION



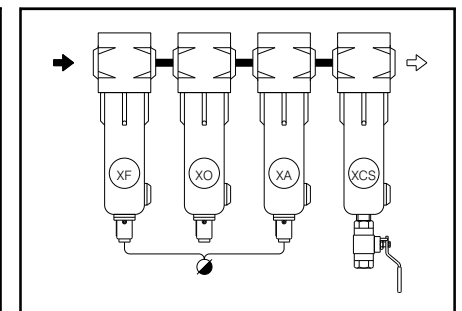
LOOK FOR ARROW / FLOW DIRECTION



INSTALL UPRIGHTLY.



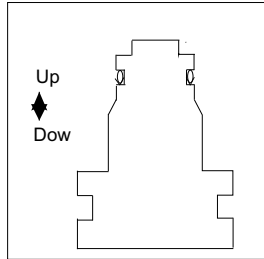
DRAIN



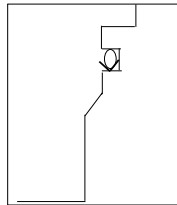
INSTALL AS PER SEQUENCE

CLEANING & FITMENT OF SEALS

- 1) Gently press the oring/backup rings at the sides to
Get a grip on the seals, to remove them



- 2) Place U type back up ring first, ensuring orientation
Of body (Head) as shown



- 3) Please note, filter has to be preferably in HEAD
DOWN & body up position , to ensure ease of
assembly