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Compressed Air Treatment Products

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ProAir

HIGH EFFICIENCY FILTERS
FABRICATED HOUSING

(N.B. FLOW REVERSED IN GRADE XR).

NOT ON XR AND XCS MODEL

INSTALLATION OPERATION & MAINTENANCE INSTRUCTIONS

Grades
XF,XO,XA,XCS,XR

Models
424F-16527F

Size
NW40-NW300
FLANGED PIPE CONNECTIONS

FILTERS FOR COMPRESSED AIR & GASES

INTRODUCTION

Proair 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 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 almosphere.

ProAir 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 meen the housing is zero Pressure (depressurized). Never remove the indicator or guage and/or the filter housing without depressurizing the filter housing and adjacent piping. Faillure to heed this warning may result in serious personal harm and/or damage to the filterhousing or Indicator and guage.

INSTALLATION

Immediately upon receipt of your **ProAir** filter, carefully inspect it for any damage that may have occured 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-wide 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 refigerated 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.

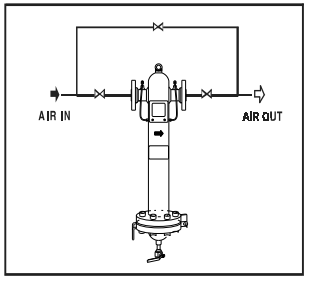
Allow enough clearance under the filter for dismantling and element replacement. In general, clearance equal to our time, the overall length of the filter is adequate. Inlet and outlet air connections are marked on all models. Do not reverse connections, since the filter is not designed for reverse flow.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

When the filter is installed in an existing piping sytem, 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 stresses on the filter connections.

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



3 Valve 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.

Installation Manual

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 _____

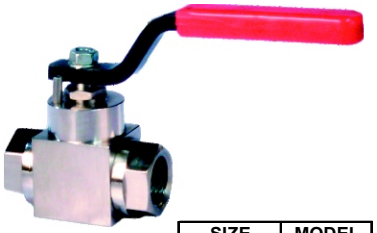
Estimated Date of Element Change _____

ACCESSORIES

AUTOMATIC DRAIN EXTERNAL

MODEL : AD-E

MANUAL DRAIN



SIZE	MODEL
6mm (G1/4)	D2
10mm (G3/8)	D3
15mm (G1/2)	D4
20mm (G3/4)	D6
25mm (G1)	D8

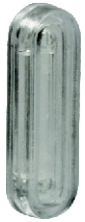
ELECTRONIC DRAIN VALVE

SIZE	MODEL
6mm (G1/4)	EDV-02
10mm (G3/8)	EDV-03
15mm (G1/2)	EDV-04

Diff. Pressure Gauge

MODEL : DPG

Sight Glass Indicator Kit



MODEL : SFLB-09A

Installation Manual

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

XO Filters

The XO filter is designed on the interception principle to remove particies 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 20^0 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 intalled 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.

TECHNICAL SPECIFICATIONS

Maximum Working Pressure

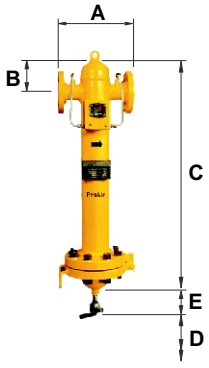
16Kg/Cm² (232 psig) — XF, XO, XA,

20Kg/Cm² (290 psig) — XR, XCS

Maximum Working Temperature

65°C / 5°C — XF, XO, XA, XR

30°C / 1.5°C — XCS



FILTER TYPE	PIPE SIZE in mm	DIMENSIONS (mm) A	B	C	D	E	WEIGHT (Kgs)
# 0424F	DN40	304	115	624	335	215	30
# 0699F	DN50	304	120	934	335	500	37
# 1314F	DN80	390	175	1025	335	500	46
# 2119F	DN100	450	200	1140	335	500	95
# 2755F	DN100	500	230	1220	335	480	135
# 4132F	DN150	580	273	1294	335	480	177
# 6886F	DN200	750	361	1519	335	450	290
# 11018F	DN250	840	410	1684	335	400	515
# 16527F	DN300	1030	485	1777	335	375	685

INSTALLATION

1. If the filter is to be fitted into new pipework, the pipework should be purged to remove any loose debris from the line prior to installation of the filter. If the filter is to be fitted into an existing line. It should be noted that the pipe work downstream of the filter will be contaminated and it should be purged or renewed.

2. Each filter is supplied complete with filter element/s and drain mechanisms both automatic and/or manual ready to be fitted directly into the compressed air line. A differential pressure monitoring kit is supplied on request.

3. Connection to the air line is made by in-line flanged connections. The proposed location should be made ready and suitable lifting equipment made available to manipulate the filters into position. Gaskets and bolts for the connecting flanges are not provided.

4. A metallic label is fitted to the filter housing giving details of the maximum working pressure and temperature, replacement filter element code numbers etc. The direction of flow through the housing is shown by an arrow painted on the metallic label and the filter housing must be fitted so that this points in the direction of flow of air.

5. The filters must be mounted vertically as shown in the illustration with space allowed below for bowl and elements removal. Fit filter as close to point as use of the air as possible

6. If the adjoining pipework is heavily contaminated during installation, blow down (or pig) before fitting filters. Failure to do so will mean contamination dislodged during start up will be carried into the filter causing premature high pressure drop to result.

7. Where two or more filters are mounted in series they can be bolted together directly without the use of spacers.

AUTODRAIN

1. Fit barrel nipple (7) to bottom of housing
2. Fit manual drain valve (8)
3. Fit second nipple (7)
4. Fit autodrain / Electronic Drain Valve (12) and set manual drain valve in open position. The use of P.T.F.E. sealing tape is recommended in all connections.

Installation Manual

SERVICE :

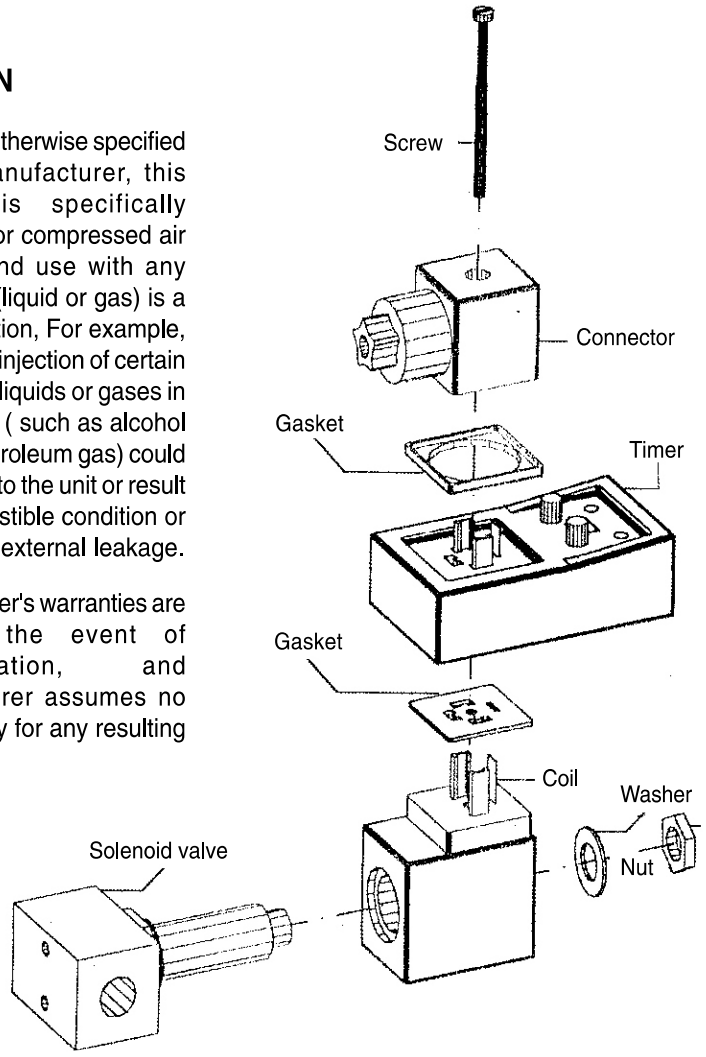
The **ProAir** Electronic Drain Valve drains liquid through a 3mm diameter port cleaning may be required under conditions of gross particulate contamination.

Replacement kits often exceed the cost of a new unit. It is therefore recommended that the entire assembly be replaced rather than repaired.

CAUTION

Except as otherwise specified by the manufacturer, this product is specifically designed for compressed air service, and use with any other fluid (liquid or gas) is a misapplication, For example, use with or injection of certain hazardous liquids or gases in the system (such as alcohol or liquid petroleum gas) could be harmful to the unit or result in a combustible condition or hazardous external leakage.

Manufacturer's warranties are void in the event of misapplication, and manufacturer assumes no responibility for any resulting loss.



INSTALLATION INSTRUCTIONS

ProAir Electronic Drain Valve

The **ProAir** Electronic Drain Valve is designed to automatically discharge accumulated condensate and other liquids from receivers, dryers, separators, filters and other collection areas in a compressed air system.

INSTALLATION

Connect the drain port of filter to the inlet connection at the EDV-02. Connect the drain line to the outlet connection at the EDV-02. Run drain line to a suitable drain. If flexible tubing is used, fasten drain line to prevent it from whipping when the EDV-02 drain discharges.

Make sure that the EDV-02 is installed horizontally.

Connect the power cord to the standard plug. Disassemble the standard plug and connect the conductors with the connectors on the plug-in. The electronics are suitable for 24 - 240 V 50 Hz., AC. Before turning on the power supply, ensure that the correct voltage is used, as mentioned on coil. After connecting the power supply. right side LED will burn. Pressurize the system to the operating pressure max. 16 Kg/Cm^{2}g (230 psig).

Set timer for selected operating cycle (0.5-45 minutes interval knob). With the “on-time knob” select the blow-off time of the valve (0.5-10 seconds). Timer is properly set when at the end of the open period the air is dry. If air vents more than a few seconds, set timer for a longer cycle or shorten the “on-time”. If liqiuid is still discharging when the valves closes, set timer for shorter cycle or increase the “on-time” period. Proper adjustment of valve timer will result in best performance whilst minimizing airlosses.

NOTE :

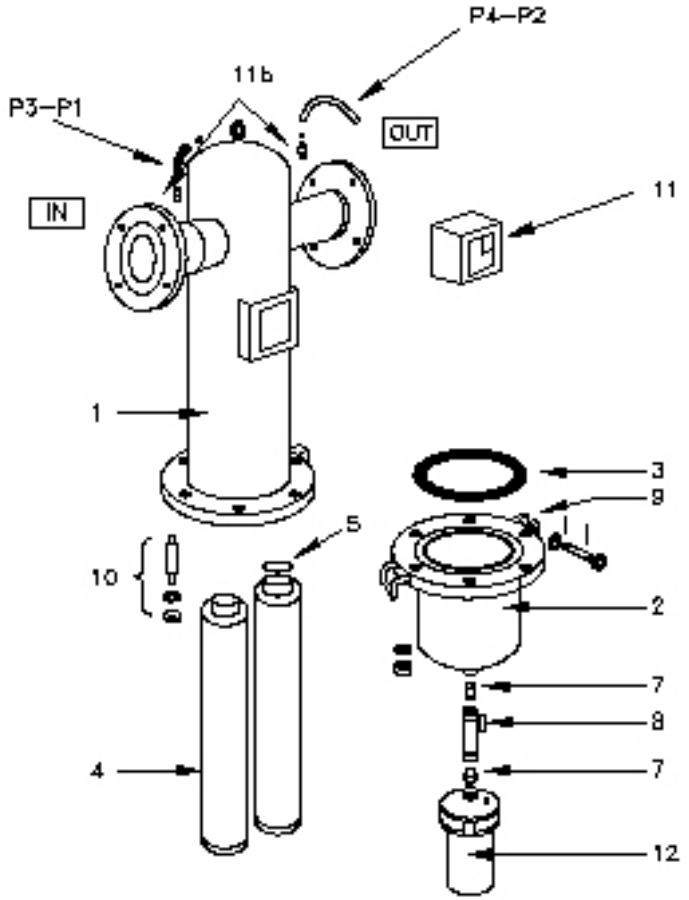
Control frequently if the EDV-02 is properly adjusted. The Left side dial controls the interval time, the right side dial controls valve open period. Two LED indicate power applied and solenoid energised.

Installation Manual

DIFFERENTIAL PRESSURE MONITORING KIT

The differential pressure monitoring kit (II) is suitable for operating pressures up to 16 kg/cm^{2}g. It consists of an outlet pressure gauge, Differential Pressure guage, Distribution Piece and Swagelok fittings on UP (P1) and down Stream (P2) side to suit 6 mm tubings. All ports necessary for fitting are supplied.

Also on housings Differential Pressure tappings are located on the top of the inlet (P3) and outlet (P4) Nozzles. The Swagelok fittings are supplied to suit 6 mm tubing. Connect st. steel precut tubing (P3 x P1) to the monitoring kit and housing inlet side of the filter (higher pressure). Similarly Repeat for St. steel tubing (P4 x P2) to the monitoring kit and housing outlet side of the filter (low pressure).



FILTER ELEMENT REPLACEMENT INSTRUCTIONS

1. Isolate air supply and depressure filter housing.
2. Remove the nuts and bolts (10) from the body flange allowing the vessel bowl (2) to be removed. Larger housings have a hinge (9) fitted so the bowl swings to one side. Lifting equipment will be needed for large housings. Take care not to damage the automatic drain.
3. Remove the old Filter element by screwing anti-clockwise allowing the element (4) to come free. Ensure the top 'O' ring (5) does not remain inside the housing. The element is not recleanable and must be replaced with a new unit.
4. Clean the sealing chambers and the inside of the filter.
5. Fit new elements with new 'O' rings (5) supplied. Apply enough torque (7 lbs/ft.) (9.5 Nm) to firmly secure each element in place before closing the vessel.
6. Clean the inside of the vessel bowl and fit gasket (3). If the gasket is damaged fit a new one to prevent leakage.
7. Tighten all bolts evenly around the vessel ensuring a complete face to face seal is achieved.
8. Before repressuring the filter, carry out cleaning of autodrain (12) in accordance with separate instructions.

DRAIN OPERATION

Automatic drain models automatically dump the liquid collected from the bottom of the bowl.

Manual drain models should be drained daily to prevent liquid or solid contamination build-up.

A manual vent fitted at the top of the external drain. In addition to acting to depressurise the filter housing it can be used to check that the autodrain is functioning correctly. If the autodrain is faulty the vent will discharge liquids when opened.

Installation Manual

MAINTENANCE

Grades : XF - XO - XA - XR

The filter element will operate indefinitely when only removing liquids, however, pressure drop across the element will increase due to the build-up of solid contaminants being trapped. It is recommended that the element is changed before the pressure loss becomes prohibitive for the application or when the pressure drop reaches approximately 0.7 Kg/cm^2g (10 PSI).

Grade : XCS

The adsorption element has an estimated useful life of 800 hours, the pressure differential may not increase much during its useful life. The replacement of this element must be carried out regularly by planned maintenance or when, as in the case of breathing air the user detects the first sign of oil vapour and odour.

FILTER ELEMENTS NECESSARY FOR SERVICING

A) Replacement filter elements (including 'O' rings).

B) Autodrain (only to be used when existing drain is faulty).

FILTER	PIPE	REPLACEMENT ELEMENT	
TYPE	SIZE in mm	NO OF ELEMENT	GRADE XF/XO/XA/XRS/XCS
(GRADE) # 0424F	DN40	1	E 0466 (#) x 1
(GRADE) # 0699F	DN50	1	E 0699 (#) x 1
(GRADE) # 1314F	DN80	1	E 1314 (#) x 1
(GRADE) # 2119F	DN100	3	E 0699 (#) x 3
(GRADE) # 2755F	DN100	4	E 0699 (#) x 4
(GRADE) # 4132F	DN150	6	E 0699 (#) x 6
(GRADE) # 6886F	DN200	10	E 0699 (#) x 10
(GRADE) # 11018F	DN250	16	E 0699 (#) x 16
(GRADE) # 16527F	DN300	24	E 0699 (#) x 24