

Modular Filters

MD4™ Series, Manual & Automatic and Float Drains

Flow to 205 scfm, Port Sizes 3/8, 1/2 & 3/4



Thank You! You have just purchased a premium-quality ROSS® Air Preparation product. With care in its installation and maintenance, you can expect it to have a long and economical service life. Before you go any further, please take a few minutes to look over this information, then save it for future reference and for the useful service information it contains.

OPERATION

For Manual Drain models: Periodically drain to discharge accumulated liquids by turning Drain Knob clockwise.

For Automatic Drain models: Flexible tubing (3/16" ID) may be installed on the Drain Stem to remove discharges. Turn Drain Knob counter-clockwise until it stops, push up to expose the Drain Clip. Remove Drain Clip and Drain Knob, and push tubing onto Drain Stem. The drain may be adjusted to compensate for differing operating conditions by adjusting the Drain Knob. For low flow or low pressure drop, turn the Drain Knob until the drain just closes. For high flows or high pressure drop, turn the Drain Knob clockwise if reduced drain action is required. Turning the Drain Knob clockwise to the stop puts the drain in a manual shutoff position. Turning the Drain Knob counter-clockwise will manually drain the filter.

Float Drain models: Filter may be drained manually by turning Drain Knob (#14) clockwise until bowl drains. Return to full counter-clockwise position for automatic drain operation.

Replace Plastic Bowls with Metal if any signs of crazing or cracking is observed.

Replace Element when dirty. If pressure differential reaches 8 psid, element MUST be replaced.



INSTALLATION

Please read and make sure you understand all installation instructions before proceeding with the installation.

If you have any questions about installation or servicing your product, please contact ROSS or your authorized ROSS distributor, see contact information listed at the back of this document, or visit www.rosscontrols.com to find your distributor.

STANDARD SPECIFICATIONS

Construction: Sight-Feed.

Ambient/Media Temperature:

Polycarbonate bowl: 40° to 125°F (4° to 52°C).

Metal bowl: 40° to 175°F (4° to 80°C).

Fluid Media: Compressed air.

Inlet Pressure: Polycarbonate bowl: 150 psig (10 bar).

Metal bowl: 200 psig (14 bar).

Oil Adjustment: External; tamper resistant.

Body: Zinc.

Bowl: Polycarbonate with steel shatterguard, aluminum bowl with clear nylon sight glass, or extended aluminum bowl with two clear nylon sight glass.

Bowl Ring: Nylon.

Sight-Feed Dome: Nylon. **Seals:** Nitrile.

IMPORTANT NOTE: Please read carefully and thoroughly all the **CAUTIONS** and **WARNINGS** on page 2.

SERVICE FOR MANUAL & AUTOMATIC DRAIN MODELS

1. Depressurize and lockout air pressure.
2. Upstream pipes must be free of excessive dirt and liquids.
3. Install the Filter as near as possible to the device it is to serve.
4. Install the Filter so that air flows in direction of arrow on cap.
5. The Filter must be installed vertically with drain mechanism at the bottom.
6. Filters should be installed upstream of any Regulators or Lubricators in the airline.
7. If installing using modular clamp connections R-A118-105 or R-A118-105M, torque screws 30-40 in-lbs.

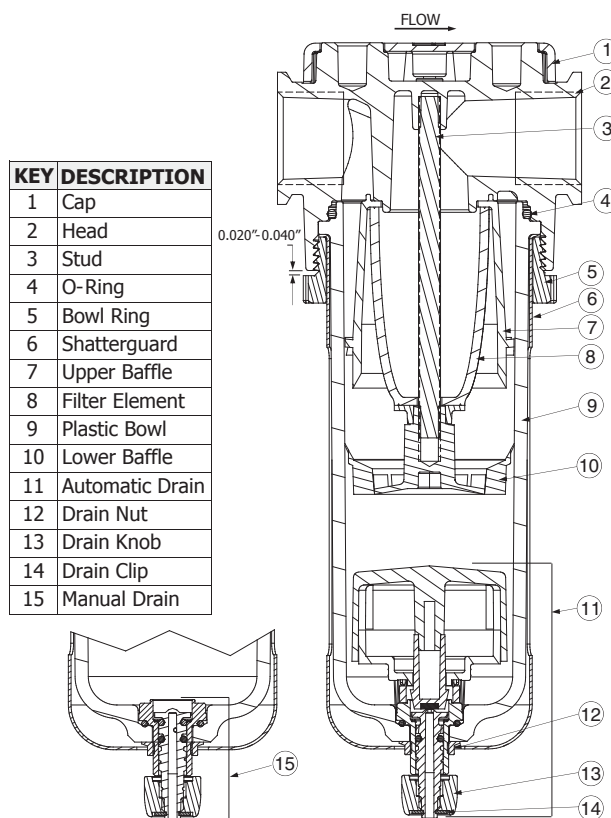
SERVICE

If you need to service your product, turn off any electrical power to the system, shut off the air supply, exhaust the air in the system, and lock-out all power sources before beginning any disassembly operation.

TO CLEAN OR REPAIR:

Depressurize and lockout air pressure. Remove Bowl Ring and Bowl Assembly by turning counter-clockwise. Remove Bottom Cap by turning counter-clockwise. The Coalescent Element can now be removed. Do NOT clean elements, they must be replaced. To service Automatic Drain, turn Drain Knob counter-clockwise until it stops. Then push Drain Knob up to expose Drain Clip. Remove Drain Clip and pull off Drain Knob. Remove Drain Nut by turning counter-clockwise. The Automatic Drain can now be removed from Bowl and disassembled. The Automatic Drain and Bowl can now be cleaned. When re-assembling, be sure all O-rings are correctly located. Lubricate O-rings with Lithium grease. Torque Bottom Cap maximum 5 in-lbs. Torque Drain Nut 5-15 in-lbs. Torque Bowl Ring 30-50 in-lbs. When Bowl Ring is fully in place, there should be a gap between the Bowl Ring and Head of 0.020"-0.040".

If the Coalescent Filter cannot be repaired by cleaning with soap and water, the parts should be replaced.



REPLACEMENT PARTS

Bowl Assembly	Drain Type	Part Number
Plastic Bowl Assembly	Automatic	R-AFD115-109
Plastic Bowl Assembly	Manual	R-AF115-109
Metal Bowl Assembly	Automatic	R-ABFD115-100
Metal Bowl Assembly	Manual	R-ABF115-100

Filter Element	Material	Part Number
Element Kit - 0.5-µm	Polyethylene	R-A115-106PE5
Element Kit - 0.5-µm	Bronze	R-A115-106E5
Element Kit - 20-µm	Bronze	R-A115-106E4
Element Kit - 40-µm	Polyethylene	R-A115-106PE3

Description	Part Number
Automatic Drain Kit	R-D380
Manual Drain Kit	R-A802-32

SERVICE FOR FLOAT DRAIN MODELS

1. Depressurize and lockout air pressure.
2. Upstream pipes must be free of excessive dirt and liquids.
3. Install the Filter as near as possible to the device it is to serve.
4. Install the Filter so that air flows in direction of arrow on cap.
5. The Filter must be installed vertically with drain mechanism at the bottom.
6. Filters should be installed upstream of any Regulators or Lubricators in the airline.
7. If installing using modular clamp connections R-A118-105 or R-A118-105M, torque screws 30-40 in-lbs.

SERVICE

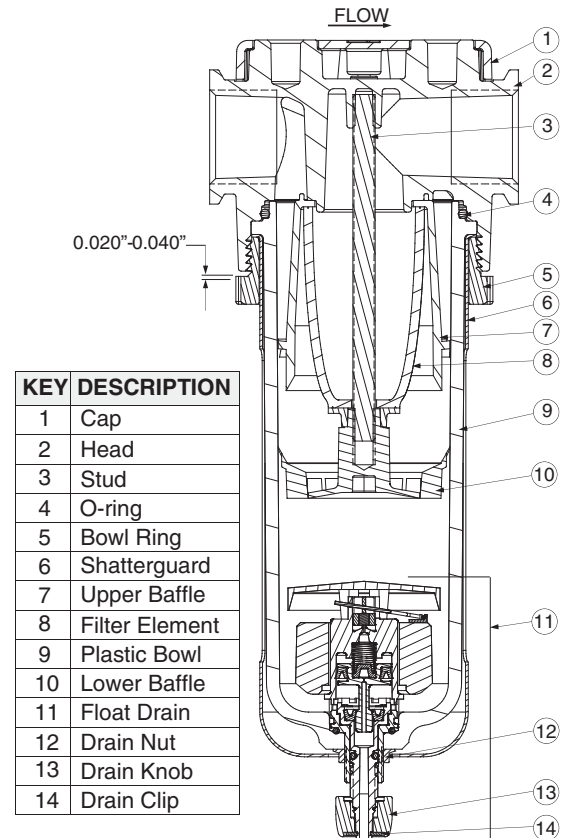
If you need to service your product, turn off any electrical power to the system, shut off the air supply, exhaust the air in the system, and lock-out all power sources before beginning any disassembly operation.

TO CLEAN OR REPAIR:

Depressurize and lockout air pressure. Remove Bowl Ring and Bowl Assembly by turning counter-clockwise. Remove Lower Baffle by turning counter-clockwise. The Filter Element can now be removed. Do NOT clean elements, they must be replaced. Sintered Bronze elements may be cleaned by soaking several hours in soap and water, then blowing them out in reverse direction to normal flow with compressed air.

To service Float Drain, turn Drain Knob counter-clockwise until it stops, then push Drain Knob up to expose Drain Clip. Remove Drain Clip and pull off Drain Knob. Remove Drain Nut by turning counter-clockwise. The Float Drain can now be removed from Bowl and disassembled. The Float Drain and Bowl can now be cleaned. When re-assembling, be sure all O-rings are correctly located. Lubricate O-rings with Lithium grease. Torque Lower Baffle maximum 5 in-lbs. Torque Drain Nut 5-15 in-lbs. Torque Bowl Ring 30-50 in-lbs. When Bowl Ring is fully in place, there should be a gap between the Bowl Ring and Head of 0.020"-0.040".

If the Filter cannot be repaired by cleaning with soap and water, the parts should be replaced.



REPLACEMENT PARTS

Bowl Assembly	Drain Type	Part Number	Filter Element	Material	Part Number	Description	Part Number
Plastic Bowl Assembly	Float	R-AF5A115-109	Element Kit - 0.5-µm	Polyethylene	R-A115-106PE5	Float Drain Kit	R-A802-42
Metal Bowl Assembly	Float	R-ABF5A115-100	Element Kit - 0.5-µm	Bronze	R-A115-016E5		
			Element Kit - 20-µm	Bronze	R-A115-106E4		
			Element Kit - 40-µm	Polyethylene	R-A115-106PE3		

LUBRICANTS, POLYCARBONATE BOWL CAUTIONS



COMPATIBLE LUBRICANTS

Although air line lubrication is not required for most ROSS valves, other mechanisms in the system may need such lubrication. When a lubricator is used, it should be supplied only with oils which are compatible with the materials used in the valves for seals and poppets. Generally speaking, these are petroleum base oils with oxidation inhibitors, and aniline point between 180°F (82°C) and 220°F (104°C) and an ISO 32, or lighter, viscosity. Oils with phosphate type additives, such as zinc dithiophosphate, must be avoided because they can harm polyurethane valve components. The best oils to use in pneumatic systems are those specifically compounded for air line lubricator service.

CAUTIONS ON THE USE OF POLYCARBONATE BOWLS

Use Only with Compressed Air. Filters and lubricators with polycarbonate bowls are specifically designed for compressed air service, and their use with any other fluid (liquid or gas) is a misapplication. The use with or injection of certain hazardous fluids in the system (e.g., alcohol or liquefied petroleum gas) could be harmful to the polycarbonate bowl or result in a combustible condition or hazardous leakage. Before using with a fluid other than air, or for nonindustrial applications, or for life support systems, consult ROSS.

Use Metal Bowl Guard When Supplied. A metal bowl guard is supplied with all but the smallest bowls, and must always be used to minimize danger from fragmentation in the event of failure of a polycarbonate bowl.

Avoid Harmful Substances. Some compressor oils, chemical cleaners, solvents, paints, and fumes will attack polycarbonate bowls and can cause bowl failure. Do not use with or near these materials. When a bowl becomes dirty, replace the bowl or wipe it with a clean dry cloth. Immediately replace any polycarbonate bowl which is crazed, cracked, or deteriorated.

SUBSTANCES HARMFUL TO POLYCARBONATE BOWLS

Acetaldehyde	Benzyl alcohol	Cresol	Ethylene dichloride	Milk of lime (CaOH)	Sodium sulfide
Acetic acid	Brake fluids	Cyclohexanol	Ethylene glycol	Nitric acid	Styrene
Acetone	Bromobenzene	Cyclohexanone	Formic acid	Nitrobenzene	Sulfuric acid
Acrylonitrile	Butyric acid	Cyclohexene	Freon (refrigerant & propellant)	Nitrocellulose lacquer	Sulfural chloride
Ammonia	Carbolic acid	Dimethyl formamide	Gasoline (high aromatic)	Perchloroethylene	Tetrahydronaphthalene
Ammonium fluoride	Carbon disulfide	Dioxane	Hydrazine	Phenol	Thiophene
Ammonium sulfide	Carbon tetrachloride	Ethane tetrachloride	Hydrochloric acid	Phosphorous hydroxyl chloride	Toluene
Anaerobic adhesives & sealants	Caustic potash solution	Ethyl acetate	Lacquer thinner	Phosphorous trichloride	Turpentine
Antifreeze	Caustic soda solution	Ethyl ether	Methyl alcohol	Propionic acid	Xylene
Benzene	Chlorobenzene	Ethylamine	Methylene chloride	Pyridine	
Benzoic acid	Chloroform	Ethylene chlorohydrin	Methylene salicylate	Sodium hydroxide	

TRADE NAMES OF SUBSTANCES HARMFUL TO POLYCARBONATE BOWLS

- Atlas Perma-Guard • Buna N • Cellulube #150 & #220 • Crylex #5 cement • Eastman 910 • Garlock 98403 (polyurethane) • Haskel 568-023
- Hilgard Company's hil phene • Houghton & Co. oil 1120, 1130, 1055 • Houtosafe 1000 • Kano Kroil • Keystone penetrating oil #2
- Loctite 271, 290, 601 • Loctite Teflon sealant • Marvel Mystery Oil • Minn. Rubber 366Y • National Compound N11 Nylock VC-3
- Parco 1306 Neoprene • Permaabond 910 • Petron PD287 • Prestone • Pydraul AC • Sears Regular Motor Oil • Sinclair oil "Lily White"
- Stauffer Chemical FYRQUEL 150 • Stillman SR 269-75 (polyurethane) • Stillman SR 513-70 (neoprene) • Tannergas • Telar
- Tenneco anderol 495 & 500 oils • Titon • Vibra-tite • Zerec

STANDARD WARRANTY

All products sold by ROSS CONTROLS are warranted for a one-year period [with the exception of all Filters, Regulators and Lubricators ("FRLs") which are warranted for a period of seven years] from the date of purchase to be free of defects in material and workmanship. ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty becomes void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering.

THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT IS ROSS LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF ROSS MAY EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.

ROSS CONTROLS	USA	TEL: 1-248-764-1800	www.rosscontrols.com
ROSS EUROPA GmbH	Germany	TEL: 49-6103-7597-0	www.rosseuropa.com
ROSS ASIA K.K.	Japan	TEL: 81-42-778-7251	www.rossasia.co.jp
ROSS UK Ltd.	UK	TEL: 44-1543-671495	www.rossuk.co.uk
ROSS SOUTH AMERICA Ltda.	Brazil	TEL: 55-11-4335-2200	www.rosscontrols.com.br
ROSS CONTROLS INDIA Pvt. Ltd.	India	TEL: 91-44-2624-9040	email: ross.chennai@rosscontrols.com
ROSS CONTROLS (CHINA) Ltd.	China	TEL: 86-21-6915-7961	www.rosscontrolschina.com
ROSS FRANCE S.A.S.	France	TEL: 33-1-49-45-65-65	www.rossfrance.com
ROSS CANADA (6077170 CANADA INC. AN INDEPENDENT REPRESENTATIVE)	Canada	TEL: 1-416-251-7677 (ROSS)	www.rosscanada.com