

# Modular Filters

## MD3™ Series, Flow to 92 scfm, Port Sizes 1/4, 3/8 & 1/2



**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 (#14) clockwise. Return to full counter-clockwise position.

**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.

To install 3/16 I.D. flexible tubing, push Drain Knob (#14) up to expose the Drain Clip (#15). Remove the Drain Clip (#15) and Drain Knob (#14). Push tubing on Stem (#16). A tube clamp or zip tie should be used to retain tubing on drain stem. Replace Plastic Bowls with Metal if any signs of crazing or cracking are 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](http://www.rosscontrols.com) to find your distributor.*

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 Filter Cap (#1).
5. The Filter must be installed vertically with drain knob at the bottom.
6. Filter 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 Plastic Bowl Assembly (#10 Section View 2) by turning Shatterguard (#9 Section View 2) counter-clockwise, or remove Metal Bowl Assembly (#10 Section View 1) by turning counter-clockwise. Remove Bowl Baffle (#8) by turning counter-clockwise. The Filter Element (#5) 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 clean, dry compressed air.

To service Internal Float or Manual Drain: Turn Drain Knob (#14) counter-clockwise until it stops, then push Drain Knob (#14) up to expose Drain Clip (#15). Remove Drain Clip (#15) and pull off Drain Knob (#14). Remove Drain Nut (#13) by turning counter-clockwise. The Internal Float Drain can now be removed from Bowl and disassembled. The Internal Float or Manual 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 Bowl Baffle (#8) hand tight. Torque Drain Nut (#13) 5-15 in-lbs. The Shatterguard (#9 Section View 2) and Metal Bowl (#10 Section View 1) should be torqued to 75-125 in-lb., and tab must be within notch as shown in Fig 1 and 2.

### STANDARD SPECIFICATIONS

**Construction:** Sintered or fiber.

**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 - Automatic drain model:**

Polycarbonate bowl: 30 to 150 psig (2 to 10 bar).

Metal bowl: 30 to 200 psig (2 to 14 bar).

**Inlet Pressure - Manual drain model:**

Polycarbonate bowl: 0 to 150 psig (0 to 10 bar).

Metal bowl: 0 to 250 psig (0 to 17 bar).

**Filter Element:** 5-micron polyethylene, or 5-, 20-, 40-µm sintered bronze.

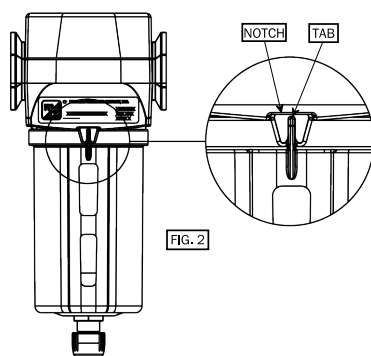
**Body:** Die-cast zinc.

**Bowl:** Polycarbonate bowl with nylon shatterguard, or aluminum bowl with clear nylon sight glass.

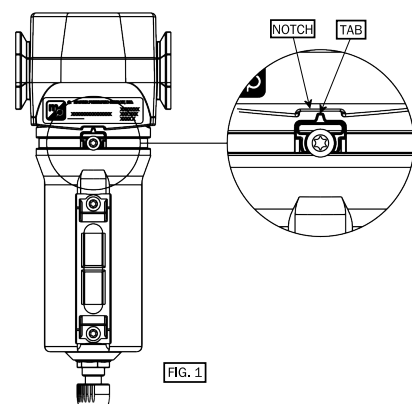
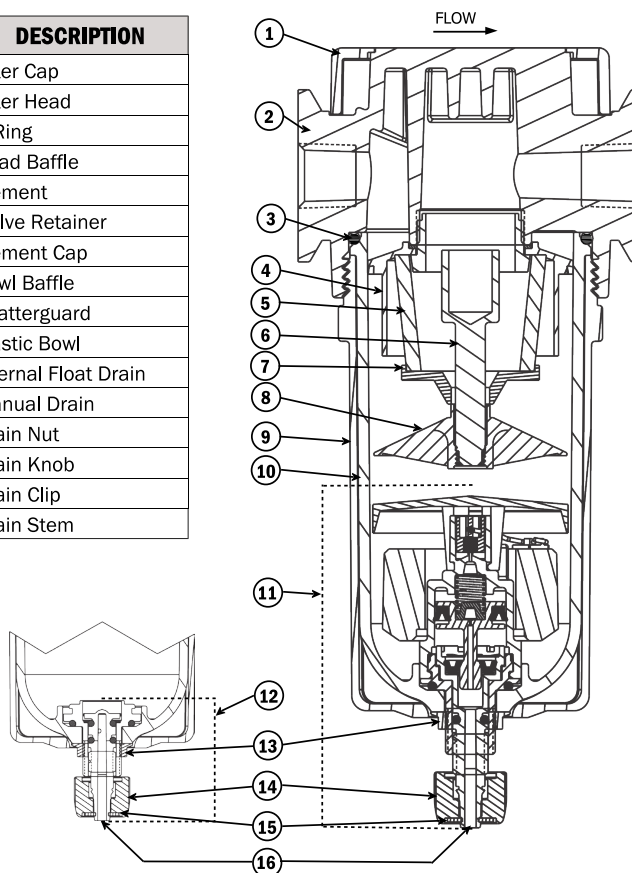
**Seals:** Nitrile

**IMPORTANT NOTE:** Please read carefully and thoroughly all the **CAUTIONS** and **WARNINGS** on page 4.

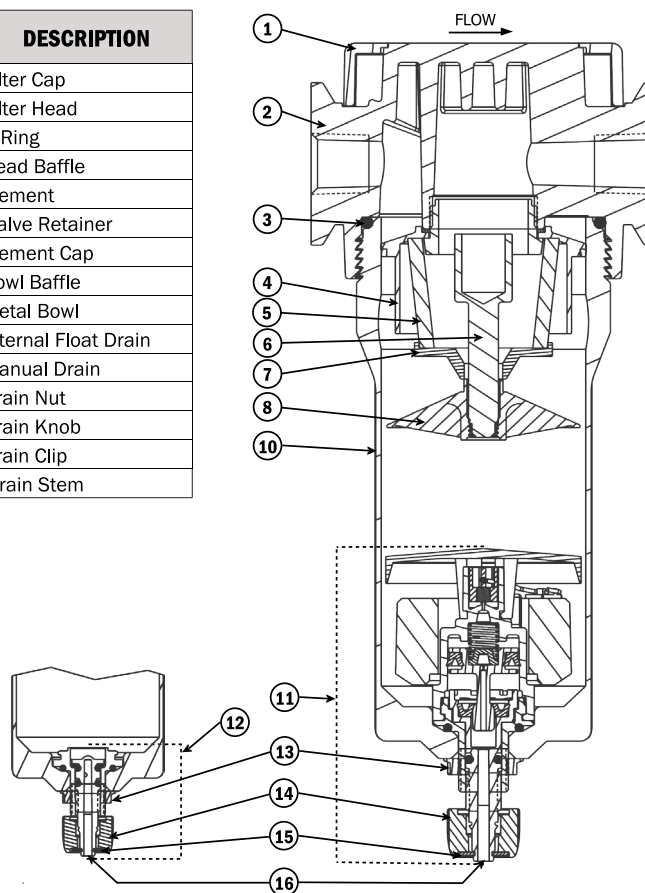
# SERVICE



KEY	DESCRIPTION
1	Filter Cap
2	Filter Head
3	O-Ring
4	Head Baffle
5	Element
6	Valve Retainer
7	Element Cap
8	Bowl Baffle
9	Shatterguard
10	Plastic Bowl
11	Internal Float Drain
12	Manual Drain
13	Drain Nut
14	Drain Knob
15	Drain Clip
16	Drain Stem



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## REPLACEMENT PARTS

Replacement Bowl with Drain Kits		
Bowl Assembly	Part Number	Contents
Plastic Bowl Manual Drain Assembly	R-AF125-02	Plastic Bowl, Shatterguard, Manual Drain, Nut, Knob, Clip & O-rings
Plastic Bowl Internal Float Drain Assembly	R-AF5A125-02	Plastic Bowl, Shatterguard, Float Drain, Nut, Knob, Clip & O-rings
Metal Bowl Manual Drain Assembly	R-ABF125-03	Metal Bowl, Manual Drain, Nut, Knob, Clip & O-rings
Metal Bowl Plastic Stem Internal Float Drain Assembly	R-ABF5A125-03	Metal bowl, Float Drain, Nut, Knob, Clip & O-rings
Metal Bowl Brass Stem Internal Float Drain Assembly	R-ABF6A125-03	Metal Bowl, Brass Stem Float Drain, Nut, Knob, Clip & O-rings
Metal Extended Bowl Manual Drain Assembly	R-ABF125-03H	Metal Bowl, Manual Drain, Nut, Knob, Clip & O-rings
Metal Ext. Bowl Plastic Stem Internal Float Drain Assembly	R-ABF5A125-03H	Metal bowl, Float Drain, Nut, Knob, Clip & O-rings
Metal Extended Bowl Brass Stem Internal Float Drain Assembly	R-ABF6A125-03H	Metal Bowl, Brass Stem Float Drain, Nut, Knob, Clip & O-rings

Drain Kits		
Drain Assembly	Part Number	Contents
Manual Drain Assembly	R-A802-32	Manual Drain, Nut, Knob, Clip & O-rings
Float Drain Assembly	R-A802-42	Float Drain, Nut, Knob, Clip & O-rings
Brass Stem Float Drain Assembly	R-A802-49	U-bolt, bracket, nut and locking washer

Filter Element Kits		
Filter Element	Part Number	Contents
0.5-µm Polyethylene	R-A60F-03PE5	Element, O-Rings
0.5-µm Sintered Bronze	R-A60F-03E5	Element, O-Rings
20-µm Sintered Bronze	R-A60F-03E4	Element, O-Rings
40-µm Sintered Bronze	R-A60F-03E3	Element, O-Rings

Mounting Brackets		
Description	Part Number	Contents
Modular Bracket and Screw for adding bracket to existing connecting clamps	R-A118-103	Bracket and Screw
Modular Connections and Bracket Kit	R-A118-105M	Modular connecting clamps, O-ring, Crews and Bracket
Bracket for 1/4" piped units	R-UMB-2	U-bolt, bracket, nut and locking washer
Bracket for 3/8" piped units	R-UMB-3	U-bolt, bracket, nut and locking washer
Bracket for 1/2" piped units	R-UMB-4	U-bolt, bracket, nut and locking washer
0.01-µm Coalescent Element Kit for Extended Metal Bowl	R-A60F-32E8	Element, O-Rings

Replacement Gauge Kit		
Description	Part Number	Contents
Differential Pressure Gauge NOTE: Cannot be added to coalescent filter ordered without gauge	R-A125-09	Gauge and Screws

# 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	Tetrahydronaphthalen
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 • Permabond 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 • Zerex

## STANDARD WARRANTY

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.

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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
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