

# Modular Filter-Regulator-Lubricator (FRL)



## DM-55FRL, Specifications, Operating & Maintenance Instructions

**Port size:** 1/4", or 3/8" Npt (in-flow/out-flow), **Air flow/SCFM:** 70Cfm, **Pressure Range:** 7- 125 Psi, **Max. Pressure:** 150 Psi, **Temp. Range:** 40F° –140F°, **Filtration:** 5 micron, **Bowls:** polycarbonate, **Body:** die-cast aluminum, **Regulator:** relieving type, **Filter drain:** manual, differential drain

## DM-600FRL, Specifications, Operating & Maintenance Instructions

**Port size:** 1/2" Npt (in-flow/out-flow), **Air flow/SCFM:** 140Cfm, **Pressure Range:** 7- 125 Psi, **Max. Pressure:** 150 Psi, **Temp. Range:** 40F° –140F°, **Filtration:** 5 micron, **Bowls:** polycarbonate, **Body:** die-cast aluminum, **Regulator:** relieving type, **Filter drain:** manual, differential drain

## Caution - Installation of a Modular FRL Unit

Dismantle the airline adapter (1) from the assembly. Assemble the airline adapter onto the rigid airline or to the threaded fitting (as the case maybe) using correct wrench. Reassemble the modular units just by connecting and tightening the screws. When airline or fittings are assembled to the modular unit without removing the Airline Adaptor from the assembly, ensure the following: (a) Hold the airline adapter (1) using correct size wrench and tighten the pipes or fittings at both ends. (b) Ensure that the tightening load is NOT transmitted to the FRL assembly. Otherwise the guide ribs provided in the spacer and airline adapters may be damaged.

## Regulator & Lubricator Installation

The following safety and engineering precautions must be taken:

1. Install in a clean, acid free atmosphere.
2. Before installation of the unit, check whether the unit is as per the specification, especially the port and fittings size to be used on the unit.
3. Flush the fittings and airline for dirt, dust, rust and other contamination.
4. The arrow mark on the top of the housing indicates the airflow direction. Connect the supply pressure to intake port and outflow from the outlet port. (If the unit is connected in the reverse direction the air will continuously flow through the bonnet and the setting of the pressure is not possible. ) Use liquid thread sealant for all NPT connections.
5. Set the pressure in the Regulator below the maximum specified pressure capacity. Otherwise the spring may brake.
6. Tighten the fittings, airline and nipples to the Housing ports using appropriate tools. Do not apply excess torque when tightening.
7. **Thread size:** 3/8" Npt - **Tightening torque:** 195 - 215 In/Lb; **Thread size:** 1/2" Npt - **Tightening torque:** 250 – 270 In/Lb
8. Please ensure foreign particles, Teflon tape etc., do not enter any fittings, airline or openings during assembly.

## Regulator Operating & Maintenance Instructions

- a) To set the Regulator, pull the regulating knob till the Red band (Indicator ring) is visible.
- b) To increase the pressure, turn the regulating knob in clockwise direction.
- c) To reduce the pressure, turn the regulating knob in counter clockwise direction. Always set regulator from a lower to higher pressure setting.
- d) Drain condensate water from the filter reservoir bowl everyday by pressing the drain valve button. Never let water level does not cross the **Maximum Level** mark on the bowl guard.
- e) Before dismantling the unit for maintenance, check whether there is any leaking or restricted flow, then completely exhaust the air line.
- f) Dismantle the components and clean them in kerosene and blow with compressed air to clean the filter element (19) /bowl
- g) To remove the bowl guard, lift the bowl guard upwards, pull down the locking piece, turn the bowl guard 45 °, pull bowl guard down and off.
- h) Clean the bowl only with soap water or neutral detergent. Do not use thinner, kerosene, petrol , synthetic oil, trichloroethylene or other aromatic hydrocarbons. (Polycarbonate bowl may get damaged and possibly fail if exposed to these solvents)
- i) Check for damage to the o-rings and at sealing areas in the housing etc., Replace seals if needed otherwise clean and reassemble.

## Lubricator Operating & Maintenance Instructions

**OIL FILLING:** Remove the oil filling plug assembly. Pour oil ( Recommended oil ISO VG 32 / Mobil DTE Light) into the lubricator.

**OIL FLOW ADJUSTMENT:** Turn the needle knob. To adjust the oil drops to your requirement, turn clockwise to decrease and counter-clockwise to increase the oil flow.

## To clean the Lubricator:

- a) Remove the bowl guard by lifting the guard upwards, then pull down the locking lug, turn the bowl guard 45 °, pull bowl guard down and off.
- b) Dismantle and clean all the components in kerosene and blow dry with compressed air. **Clean the bowl only with soapy water** or neutral detergent. (Do not use kerosene or solvents. Polycarbonate bowl may get damaged and possibly fail if exposed to solvents)
- c) Check for damage to o-rings and other parts. Replace if needed (or) clean and reassemble.
- d) For assembly of the unit:- Apply general purpose grease on the o-rings and on the surface of the housing where the o-ring enters the housing. Reassemble all the components.
- e) Assembling the bowl guard: Align the mounting lug on the bowl guard to the housing slot. Push the bowl guard into the housing and turn guard 45 ° till the locking lug enters into the housing slot and clicks shut .

## Removal and Reassembly of an individual unit from the modular line

1. Remove the Screws (3) and Brackets (2) adjacent to the unit to be removed.
2. Pullout the unit by sliding away from the line.
3. Apply general purpose grease on the surface of the o-ring and the sliding faces.
4. Reassemble the unit by sliding between the guide ribs.
5. Tighten the Brackets (2) using the Screws.

# FRL Safety Guidelines

## Assembly, Operation and Maintenance of Filter-Regulator-Lubricator's for Compressed Air Equipment



**Warning - Safety First!** Compressed air is a source of considerable energy. To prevent accidents, follow these safety instructions! Failure to do so may result in accidents, equipment malfunctioning, serious personal injury or loss of life.

### Safety Instructions

1. Do not assemble or service machinery/equipment or attempt to remove any component until all safety aspects have been considered and confirmed. Human hands or any parts of a human body should not block compressed air. Compressed air should not be allowed to impinge on any portion of the human body.
2. Assembly, handling, maintenance or repair of pneumatic systems should be performed only by trained and experienced operators after confirmation that both compressed air and electrical supply have been positively disconnected and all residual compressed air in the system has been completely exhausted to the atmosphere. Before connecting any pneumatic equipment to the compressed air supply, all mounted fittings, piping assemblies and electrical connections should be checked for security. All plastic plugs in the equipment used for protection during shipping should be removed.
3. No piping alterations, removal of fittings, repairing of equipment etc. Should be attempted with air supplies connected. Air and electrical supplies must be disconnected before beginning any adjustment, maintenance or dismantling of equipment.
4. The maximum allowable operating pressures, temperature, flows etc. must be strictly observed. Failure to do so might result in catastrophic failure of equipment, and result in serious personal injury and/ or death. Refer to individual catalogs for this information, and any other operating or application limitations.

### **Suitability of Pneumatic Equipment**

Ensuring the suitability of this FRL equipment is the responsibility of the person who designs your pneumatic system and specifications. This should be based on specifications or tests to meet your specific pneumatic requirements.

### **Air Filter and Lubricator Safety**

Standard Filters and Lubricators incorporate polycarbonate bowls and/or observation windows. Do not use filters and lubricators or components with liquids containing synthetic fluids, organic solvents, corrosive chemicals, cutting lubricants, thread sealant or similar materials. Make sure that water condensate is periodically drained when using manual drain valves on Filters. Ensure the proper function of the Lubricator. Minimum airflow rate should be ensured for effective lubrication.

### **Regulator Safety**

Safety devices shall be placed to prevent secondary (output) pressure from rising past the set pressure. This will ensure that damage to the components on the secondary side will be minimized in the event of a malfunction.

In a standard regulator, when the supply pressure is removed or disconnected, either of the following may happen:

- The residual pressure will remain on the secondary side of the regulator.
- The pressure on the secondary side of the regulator will exhaust.

The designer should add components to the pneumatic circuit to compensate for any of the above conditions. Regulator operation may be affected when used in Balanced or Secondary sealed circuits. Please consult pneumatic expert regarding these applications.

### **Warranty**

DRUM-MATES® products are warranted to be free of defects in design, material or workmanship under proper use, installation, application & maintenance in accordance with DRUM-MATES® written specifications and Safety Instructions for a period of 12 months from the date of shipment. DRUM-MATES® warrants that all the Products are suitable for their intended purposes only. DRUM-MATES® obligation under this warranty is limited to repair or replacement of the product at the discretion of DRUM-MATES® and provided such product is returned to DRUM-MATES® freight prepaid and after examination is found to be defective. In no event will DRUM-MATES® be liable for business interruptions, loss of profits, personal injury, cost of delay or for any other indirect, incidental or consequential losses, cost or damages. Standard filters Regulators, lubricators and Filter-Regulator Combination units should be used in accordance with the specifications mentioned in the installation instructions. While installing and using this equipment, follow the respective specification & instruction manual available for each product. Request assistance from a professional pneumatic engineer if in doubt. Understand that operator error can lead to damage or malfunctioning of the pneumatic equipment and can lead to serious personal injury or loss of life.

#### **Not covered under DRUM-MATES® warranty:**

- Normal wear or deterioration of components and product.
- Product(s) and FRL's not used or installed as designed or intended by operations guidelines.
- Product fitted with non-original OEM parts, or was previously repaired or serviced by an unauthorized distributor or repair facility.