

AMD with Adjustable Regulator

Model AMD-74

The BERMAD Air Maintenance Device (AMD) is a pressure control unit that automatically regulates the supplied air pressure to a constant preset value. It is suited for use with dry pilot actuated Deluge systems as well as Dry Pipe and Pre-Action systems.

The AMD includes a field-adjustable pressure regulator, through which the air/nitrogen pressure supply can be reduced, a check valve to maintain system pressure in the event of pressure source failure, a filter to ensure a clean air supply, and a bypass valve for a quick initial air pressure filling of the system.

The supply system should include an air tank (provided separately).



Fig. 1

(for illustration only)

Construction Materials

Accessories: Brass

Fittings: Stainless steel

Pressure Range and Settings

- Maximum Inlet supply Pressure Air (or Nitrogen): 12 bar / 175 psi
- Field-Adjustable Outlet Pressure Range: 1.0 to 7.0 bar / 15 to 100 psi

Additional Options

- All Stainless Steel 316 (Model: AMD-75)
- Inlet and outlet Pressure Gauges (Code 6n6n)
- Pressure Switch Low, Ex.proof (Code P7)
- Pressure Transmitter, Ex.proof (Code Q)

Principal of Operation

The AMD Air Pressure Maintenance Device regulates and restricts airflow. The N.C. By-Pass Valve [1] in the AMD is opened to instantly fill the system during the initial pressurization. Once the required system pressure has been reached, the By-Pass Valve will be closed and locked with a Tamper-Proof arrangement to allow restricted airflow through the fixed orifice [4]. The Air Supply Isolating Valves [2] must be in the open position to place the AMD in the automatic operation mode.

If a small leak in the system occurs, the Pressure Regulator [3] will automatically maintain system pressure at the preset level.

The Restriction orifice in the tube fitting limits the flow of air from the Pressure Regulator into the system to a value which is significantly lower than will be exhausted by the activation of a release device.

In the event of an interrupted air supply the AMD will maintain air pressure in the system for a limited period of time by way of the check valve [5].

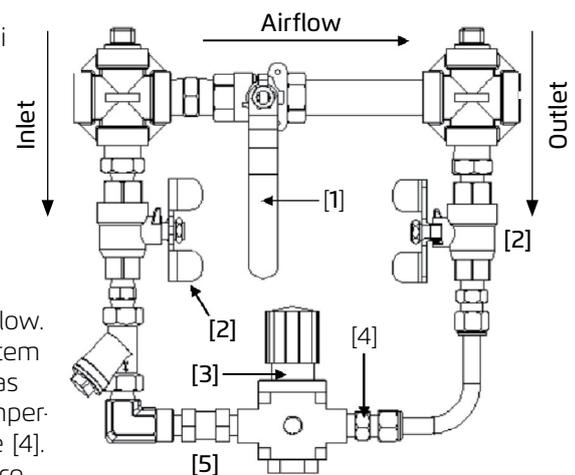


Fig. 2

Notes:

- Instrument Air supply is recommended, however suitable consideration must be given to the removal of excessive moisture from the compressed air supply.
- Before the valve is installed, flush the pipeline to remove any dirt, debris, etc. Not flushing the line may result in the system malfunctioning.

Installation

The AMD Automatic Air Maintenance Device must be installed in accordance with the following instructions:

1. The air or nitrogen supply provided to the Air Pressure Maintenance Device must be continuous, clean, dry, and oil free.
2. Unions should be installed upstream and downstream of the Air Pressure Maintenance Device to allow easy removal for servicing.
3. Connect the air supply to the inlet port of the AMD, and the outlet port to piping of no less than 1/2" (DN15). Connect the air supply to the AMD's inlet port and the outlet port to a minimum pipe size of 1/2" (DN15).
4. Provide wiring to any installed instrumentation according to the manufacturer's instructions.

Placing in Service & Resetting Procedure

The Model AMD Automatic Air Maintenance Device must be set in accordance with the following instructions:

1. Determine the pressure that meets the minimum requirements of the system to be pressurized.
2. Close the AMD By-Pass Valve, Supply Isolating Valve.
3. If the AMD requires adjustment, the Pressure Regulator adjusting screw must be turned counter-clockwise completely (the screw must be loose) to reduce the system pressure to "0".
4. Open the Air Supply Isolating Valve and the Air Tank isolating valve. Introduce air pressure to the AMD and to the air tank, the inlet pressure gauge shall indicate a high and stable pressure supply.
5. Open the By-Pass Valve slowly to pressurize the system while observing the outlet pressure gauge. Close the By-Pass Valve and Lock it with the Tamper-Proof arrangement, after the system pressure has been stabilized to the required system pressure, as determined in step 1.

Adjustment

While observing the outlet pressure gauge, adjust the outlet pressure of the pressure regulator. Slowly turn the adjusting screw clockwise to increase pressure or counter-clockwise to decrease pressure.

After the pressure regulator is set, lock the adjusting screw in that position with its fastening nut.

Any installed instrumentations shall be calibrated according to manufacturer instructions.

1. The Air System Pressure should be set at the minimum required value, in order to minimize the system response time, the recommended setting is approx. 0.4 bar / 5.5 psi above the release device trip point.
2. If the system was over-pressurized during fill and adjustment, the system pressure must be released and reduced to the desired value.
3. The AMD will then automatically maintain the preset system pressure. The Check Valve prevents bleeding down of the system pressure.

Maintenance

The following inspection procedure shall be performed in addition to any specific requirements of the NFPA 25 and also to any requirements of the authorities having jurisdiction.

The Air Pressure Maintenance Device should be checked for correct pressure regulation after installation or repair by noting the air pressure reading within the system.

If adjustment is necessary, refer to the "Adjustment" paragraph above. Any malfunction must be immediately corrected. The installing contractor or product supplier should be contacted in relation to any questions. It is recommended that the AMD be inspected, tested, and maintained by a qualified Inspection Service.

Notes:

1. Prior to any maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection systems must first be obtained from the proper authorities and all personnel who may be affected by this decision must be notified.
2. After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.
3. It is also recommended that accumulated moisture be removed from air supply moisture filtration equipment, at least quarterly. More frequent inspections may be necessary in particularly humid environments.

Inspection and Testing

The Model AMD must be inspected quarterly in accordance with the following instructions:

1. Verify that the By-Pass Valve is closed and Locked with the Tamper-Proof arrangement
2. Verify that the Air Supply Isolating Valve is Open and verify that any control valve in the air supply trim to the system being pressurized is open.
3. Verify that the system pressure is essentially the same as the previously established requirement. If adjustment is necessary refer to the 'Adjustment' paragraph above.
4. Release accumulated moisture from the air Tank by opening the drain valve slowly.

The Air Maintenance Device is now ready for service.

