



Role of Filter Drier in an air-conditioning or refrigeration system

Filter Drier in an air conditioning system has two roles. The first and primary role is to absorb water. Presence of water creates acids which corrode, cause freeze ups and clog thermal expansion valves. This impacts the effectiveness of an air-conditioning or refrigeration system. The second role is to provide filtration to remove contaminants.

The water absorption is done by the desiccant. There are several types that are used. Often they are a blend of molecular sieve and activated alumina. A molecular sieve removes the maximum amount of water because of the strong bond between the molecular sieve and the water. Activated alumina absorbs water but less than the molecular sieve. Activated alumina is generally more effective at removing acids versus molecular sieve.

Filtration is achieved using a mesh screen fiberglass pads and bonded desiccant cores. The screen is usually a woven wire mesh that catches particles that are larger than the holes in the screen. Until the screen has captured enough particles to provide a layer across the entire surface, particles that are smaller than the holes will pass through the screen. Fiberglass pads capture some of the contaminants as they travel through it. Over time, with deposition of particles on fiberglass pads the filtration becomes finer. The bonded core drier picks up particles and contaminants.

Combination of Liquid Line Drier and Suction Line drier provides good solution for system cleanup. The two driers will remove the water, sludge, acids, and solid contaminants generated by system failure. By installing both, the expansion device and compressor are protected from contamination.

Common Types of Liquid Line Filter Driers

There are two types of filter driers commonly used in the market today. In the first kind, molded core is used which we call solid core filter driers. In the second kind, beads of molecular sieve desiccant are held in place by wire mesh screens and two fiberglass pads which are compressed by spring. We call this the beaded filter drier. The wire mesh and fiberglass pads provide the filtration.

The beaded filter drier has following additional qualities over other cores

- 1) It protects the synthetic POE oil from contaminants. POE oils absorb 20 times more moisture than ordinary mineral oils.
- 2) The beads provide a greater surface area for moisture removal.
- 3) Over time as contaminants deposit on wire mesh and fiberglass pads the filtration becomes finer.

Solid core blended desiccant filter driers offer the following qualities

- 1) Cores are blend of molecular sieve, activated alumina, charcoal etc. The blend is often more effective at removing acids and some other impurities.

Heat Pump (Biflow, Reversible) Liquid Line Filter Driers

These filters driers allow reversal of refrigerant flow and are commonly used with heat pumps. They are often referred to as Heat Pump Driers. They consist of two filters ensconced in one steel shell. The two uni-directional filters are installed side-by-side in opposite directions, corresponding to the directions of the flow for the high pressure and the low pressure refrigerant. A pair of check valves are provided for each unit, one at the outlet and one at its inlet. Flow will proceed only through the low pressure filter when in the heating mode and only through the high pressure filter when in the cooling mode.

Suction Line Filter Driers

Manufacturers recommend using Suction Line filters on the suction line and Liquid Line filters on the liquid line. Suction Line filter Driers are often used for Burnout Clean Up. They have large outside diameter shell which results in lower pressure drop and larger core to provide more filtration area. They usually have two openings for access valves to measure the pressure drop.

Venti offers both kinds of filter driers for the Liquid line and Suction Line (see inside)



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PROFESSIONAL GRADE

LIQUID LINE FILTER DRIER



PROFESSIONAL GRADE

SUCTIN LINE FILTER DRIER



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WHY VENTI FILTER DRIERS?



Venti offers filter driers of both kinds (Beaded and Solid Core) that meet or exceed the selection criterion. Additionally, they are listed by UL (Underwriters Laboratories). The features of Venti beaded filter driers are as follows:

- 1) Venti Liquid Line Beaded Filter Driers have 100% Molecular Sieve design that filters the contaminants by more effective use of desiccant for water removal. Ideally suited for the systems that use synthetic POE oil.
- 2) Venti Solid Core and Heat Pump Filter Driers have 80% Molecular Sieve and 20% Alumina design that removes high levels of moisture and acid.
- 3) 20 microns filtration
- 4) Desiccant that removes high levels of moisture and acid
- 5) Corrosion resistant powder coat finish that is resistant to 500 hours of salt spray test.
- 6) Maximum Working Pressure – 680 psig
- 7) High Quality Solid Copper Connections
- 8) Work with variety of refrigerants - R12, R134a, R22, R404, R407, R410a, R500, R505, R507
- 9) All our filter driers undergo 100% testing and inspection before shipment.



ITEM	AVAILABLE SIZE											
	3 cu in		5 cu in		8 cu in		16 cu in		30 cu in			
1/4"												
3/8"												
1/2"												
5/8"												
3/4"												
7/8"												
1 1/8"												

Other sizes available as special order



Liquid Line Molecular Core



Heat Pump or Reversible



Liquid Line Solid Core



Suction Line

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