

HIGH EFFICIENCY HOLLOW MEMBRANE FIBRES DRIERS FOR COMPRESSED AIR & TECHNICAL GAS

Advanced concept

ETHAFILTER manage with great knowledge all methods of drying to properly condition your compressed air or gas feed to the right titre of quality necessary for your application.

By introducing this innovative generation of membrane driers, **DRY^{mem}** make high tech resources now ideally accessible for small streams of compressed air or gas that need exhaustive moisture and filtration removal.

The operation and performance of **DRY^{mem}** is incredibly simple and flexible. According to your specific application, the dew point value will be optimized by **ETHAFILTER** for release to your specified duty.

The degree of drying is tuned to respond to a wide range of residual humidity values: **dew point** coverage ranges from

- **mild 0 °C (< 20 % residual relative humidity)**

down to

- **deep - 60 °C (< 1/2 ‰ residual relative humidity).**

Capacity coverage is from **50NI/=min.** up to **150 NI/min.**

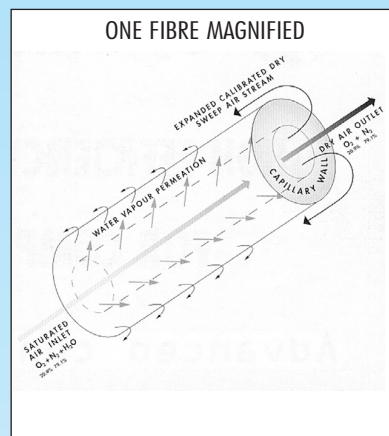


Features & Benefits

✓ EXTREMELY SIMPLE AND PURELY STATIC	ZERO MOVING PARTS
✓ COMPACT AND LIGHTWEIGHT	INTEGRATION IN SMALL CUSTOMIZED CABINET CONFIGURATIONS
✓ EASY TO INSTALL	INDIFFERENTLY HORIZONTALLY OR VERTICALLY
✓ NO ELECTRICAL WIRING AND RELATED PROTECTION	EASY IN HAZARDOUS AREA OR IN ABSCENCE OF ELECTRICITY
✓ HIGH RELIABILITY	NO WEAR
✓ SUPERIOR DEW POINT PERFORMANCE BY FACTORY TUNING	NO FREEZING
✓ LOW PRESSURE DROP	KEEPS YOUR PRESSURE STEADY
✓ LOW OPERATING COST	NO WASTE OF PURGE IS FEASIBLE THROUGH SIMPLE CONTROL
✓ AMAGNETIC CONSTITUTION	NO DISTURB IN ELECTRONIC OR MILITARY ENVIRONMENT
✓ ENVIRONMENTALLY FRIEND	NO REFRIGERANT GAS TO RECHARGE
✓ SILENT	NO OBSTACLE FOR INSTALLATION IN QUIET AMBIENT
✓ ABSOLUTELY MAINTENANCE FREE	NO DESSICANT TO DISPOSE OF

The principle

DRY^{mem} is a range of high performance driers that exploit the proven membrane gas separation technology now available for compressed air drying. The drier is simply a tube locating a bundle of hollow fiber membranes having a selective molecular porosity. Filtered wet compressed air enters the inside of the capillar tubes. The air, essentially constituted of O₂ and N₂ molecules, cannot virtually permeate as quick as the H₂O vapour does. Because of this molecular cut-off determination, the water vapour molecules will therefore diffuse at the tangent of the fiber out of the porous wall. The contact time, as a function of flow speed along the height, will refine the transfer of humidity, thus the degree of drying. The process of drying through the membrane is continuously regenerative: a small portion of dried air is returned by expansion in counterflow to the external side of the porous wall. The artifice of expansion creates a difference of partial pressures existing across the porous wall of each capillar tube, "pumping" in that manner the extraction of the humidity moving from inside higher partial pressure to outside lower partial pressure. The moisture laden sweep gas is vented to the atmosphere via a small silencer.



Applications

The infinite flexibility of the **DRY^{mem}** concept satisfies an extremely wide range of applications, for instance:

MILD DEW POINT

- ✓ AIR LOGIC DRIER FOR HIGH TECH PNEUMATIC AUTOMATION AND ROBOTICS
- ✓ SAND BLASTING UNITS FOR LABORATORIES
- ✓ VEHICLES BREAKING CIRCUITS
- ✓ DENTAL AND MEDICAL AIR
- ✓ PRESSURIZATION OF TELECOMMUNICATION DEVICES
- ✓ PACKAGING MACHINERIES
- ✓ PAINTING EQUIPMENT

+

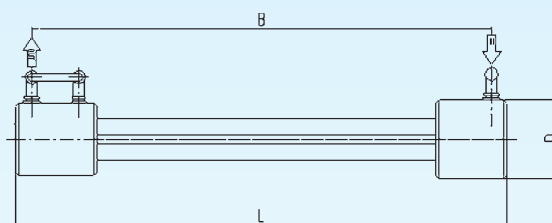
ex-proof requirements

+

process gas drying with different fluids
on both sides of the membrane

DEEP DEW POINT

- ✓ AIR FEED TO MEASURING ANALYTICAL DEVICES
- ✓ LASER TECHNOLOGY - OPTICAL INSTRUMENTATION
- ✓ MINIATURIZED OZONE GENERATORS
- ✓ PHARMACEUTICAL LABORATORIES
- ✓ PRINTING MACHINERIES
- ✓ MEDICAL IMAGER INSTRUMENTATION
- ✓ BREATHING AIR CHAINS
- ✓ POLLUTION MONITORING SYSTEMS



Typical data

MODEL	Ø	CAPACITY		DIMENSIONS		
		Nm ³ /h	NI/min.	L	B	D
DRY^{mem} 900	1/4"	6	100	570	550	65
DRY^{mem} 1300	3/8"	9	150	530	505	70

FLOW RATES REFER TO THE FOLLOWING WORKING CONDITIONS:

Dew point (@ atm.): -20°C • Operating pressure: 7 bar (g) • Inlet temperature: 25°C
 • Pressure drop: < 0,10 bar • Air prefiltration is required: in case of oil free air supply, a 5 µ solid particle is indicated, in case of lubricated air supply, a 0.01 mg/m³ high efficiency coalescer is indicated • Operating pressure: 0 ÷ 16 bar • Temperature range: +2 ÷ +60°C.

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