PENTAIR

FLUIDPRO SERIES
MEMBRANE AIR DRYERS

engineeredfiltration.pentair.com

AIR DRYER TECHNOLOGY INCREASES EQUIPMENT RELIABILITY

Pentair FluidPro Air Dryer Technology makes it easier and less expensive to provide pneumatic equipment and instrumentation with clean, dry compressed air. Building on this success, Pentair has developed a line of membrane air dryers with purge ports for more control and flexibility.

This reliable drying technology helps ensure no condensation, oxidation and microbiological growth occur in your compressed air equipment. Reliable and predictable performance of pneumatic equipment and instrumentation helps save money by reducing component failures, warranty costs and improving equipment performance and operator satisfaction.

COMPRESSED AIR DRYER COMPARISON

	FluidPro Membrane Dryer	Refrigeration Dryer	Desiccant Dryer
Variable dew point suppression	✓	✗	✗
Compact size	✓	✗	✗
Silent operation	✓	✗	✗
Low maintenance	✓	✗	✗
No moving parts	✓	✗	✗
Generates no liquid drain, water is removed as a vapor	✓	✗	✓
No desiccant of refrigerant needed	✓	✗	✗
No power source needed	✓	✗	✗
Passively dehumidifies compressed air for reliable, continuous operation	✓	✗	✗
Level of dryness for condensate prevention	Optimal	Depends on temperature	May result in excessive drying

COMPACT AND LIGHTWEIGHT

Pentair FluidPro Membrane Air Dryers easily integrate into existing compressed air systems and are virtually invisible to your process. FluidPro is cost effective and simple to operate.

EASY TO INSTALL

FluidPro Membrane Air Dryers are designed with ease-of installation and operation in mind. Simply connect the inlet and outlet. No adjustments. No valves. No drain. No electrical connections.

SIMPLE MEMBRANE PROTECTION ENSURES OPTIMAL LIFE AND PERFORMANCE

FluidPro will perform reliably with appropriate pre-filtration. We recommend ISO 8573-1 Class inlet air quality, to prevent particulates, oil aerosols, and liquid water from entering into the module. A regular change-out of the coalescing filter element is all that's required to ensure years of continuous operation.

ADVANTAGES

- Compact and lightweight
- Easy to install
- Reliable and consistent performance
- Low purge air consumption
- 24/7 attendance free operation
- Fast response time
- Quiet operation
- Non-oxygen-depleting

IDEAL FOR PLANT, COMMERCIAL OR LAB APPLICATIONS

The Pentair FluidPro Membrane Air Dryers are suitable for a wide variety of industrial plant applications as well as for commercial and laboratory applications. Models are available in a variety of flow rates from 50 standard liters per minute (slpm) (1.75 scfm) going up to 9600 slpm (340 scfm). Multiple units can also be connected in parallel to achieve higher flow rates. For most dew point ratings, flow rates and operating pressures there is a FluidPro Membrane Air Dryer that is ideal for your application.

ADJUSTABLE FOR ANY DEW POINT REQUIREMENT

The required outlet dew points of the FluidPro Membrane Air Dryer can be set for any desired operating conditions.

Typical outlet dew points

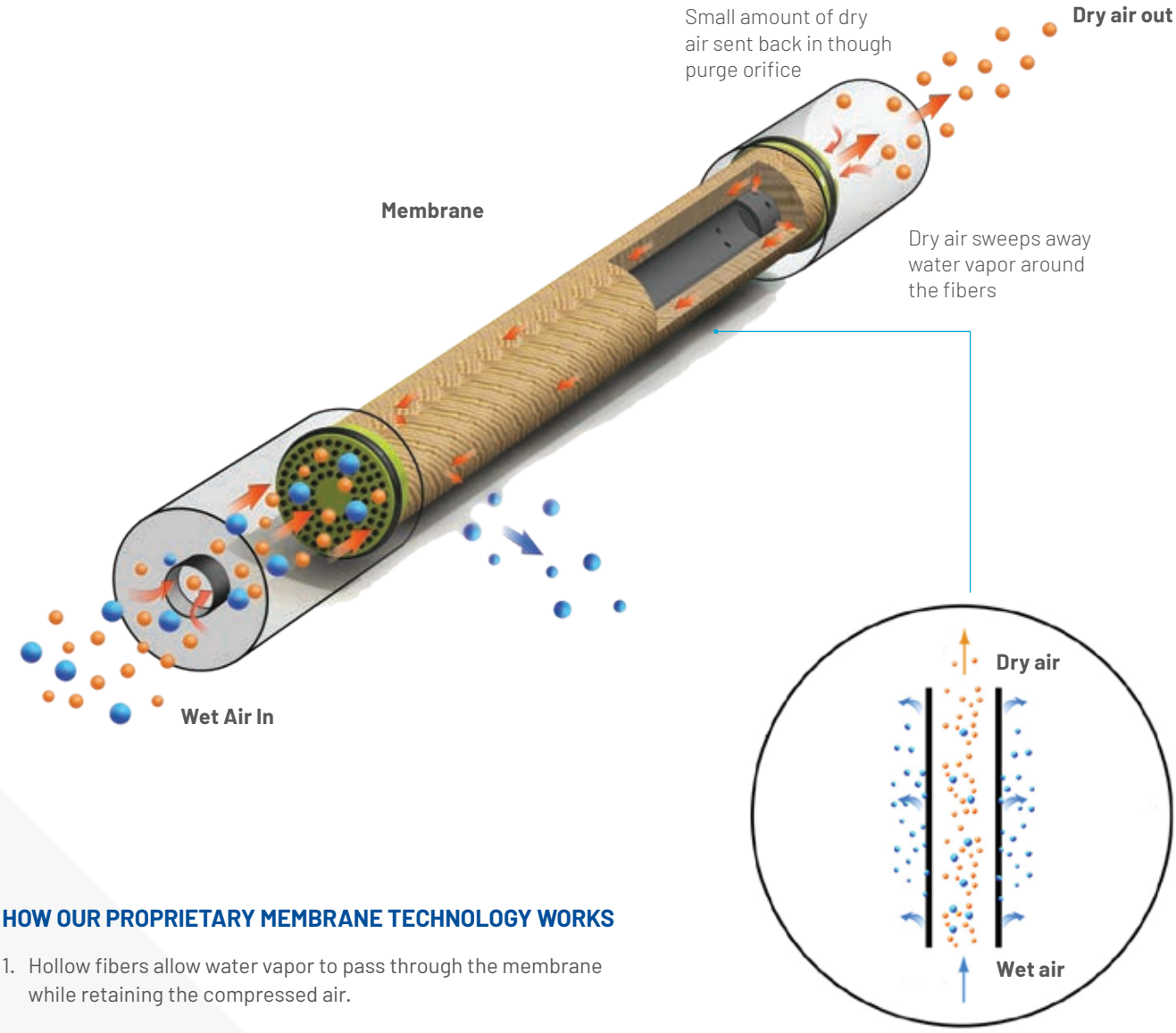
- 37 °F to 43 °F (+3 °C to 6 °C): achieved by refrigerated air dryers. This dew point is specified in most industrial applications. Also referred to as non- condensing conditions.
- -4 °F (-20 °C): often used in medical and process plant applications.
- -40 °F / -40 °C and lower: specified for high quality instrument air.

GENERAL SPECIFICATIONS FLUIDPRO MEMBRANE AIR DRYERS

Component	Material/ Value
Air dryer mounting orientation standard module	Any
Maximum operating temperature	60 °C [140 °F] for Standard FluidPro and FluidPro Purge Port sizes 1500-3000 80 °C [176 °F] for FluidPro with Purge Port sizes 300-800
Maximum operating pressure	12.5 barg [180 psig]
Typical pressure drop	0.2 to 0.5 bar [3 to 7 psi]
Inlet air quality required	ISO 8573-1 Class 1 for oil and particles or 0.01 PPM maximum oil carryover and minimum efficiency of 99.97% of particles 0.3 micron in size (hepa)

PATENTED FLUIDPRO MEMBRANE

Pentair's FluidPro Membrane Air Dryers use a patented, structurally packed arrangement of the hollow fibers. Fibers repeatedly placed and wound around a center core create an optimized, compact design that allows for efficient use of air flow and the available contact area to maximize drying performance and reduce the required footprint.



HOW OUR PROPRIETARY MEMBRANE TECHNOLOGY WORKS

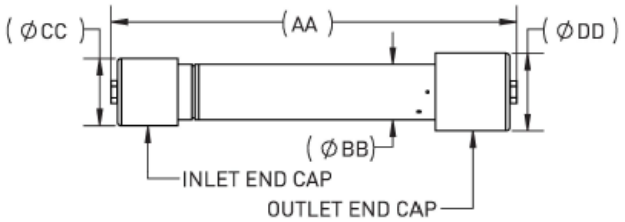
1. Hollow fibers allow water vapor to pass through the membrane while retaining the compressed air.
2. As the humid compressed air flows down the bore of the fiber, water vapor diffuses through the walls of the fibers.
3. At the unit's outlet, a small volume of the dry compressed air is expanded and released into the space surrounding the outside of the fibers.
4. This dry air sweeps the moisture away from the outside of the fibers and exhausts to the atmosphere as a humid air stream
5. As a result, the membrane rapidly and continuously provides dry compressed air.

PRODUCT OVERVIEW

FluidPro Standard Membrane Air Dryer	FluidPro Purge Port Membrane Air Dryer	Port Membrane Air Dryer – Module Only	Hover Membrane Air Dryer
			

FLUIDPRO STANDARD MEMBRANE AIR DRYER

This easy-to-install Standard Purge Membrane Air Dryer has twelve different module variations. It offers volume flows ranging from 50 to 3000 standard liters per minute. Installation is a breeze - just "plug and play" with no need for adjustments. Stylish and durable, it features a high-quality Aluminum shell and a classic blue and black color scheme. Rely on the ease and convenience of this hassle-free membrane air dryer.



FLUIDPRO STANDARD MEMBRANE AIR DRYER DIMENSIONS AND MATERIALS OF CONSTRUCTION, MM (IN)

Air Dryer	AA	BB	CC	DD	Inlet/Outlet Ports (BSPT/NPT)*	Air Dryer Shell Material	Air Dryer Endcap Material
FluidPro 50	243 [9.6]	43 [1.7]	58 [2.3]	58 [2.3]	1/4	Aluminum	Nylon
FluidPro 100	344 [13.6]	43 [1.7]	58 [2.3]	58 [2.3]	1/4	Aluminum	Nylon
FluidPro 150	446 [17.6]	43 [1.7]	58 [2.3]	58 [2.3]	1/4	Aluminum	Nylon
FluidPro 200	522 [20.6]	43 [1.7]	58 [2.3]	58 [2.3]	1/4	Aluminum	Nylon
FluidPro 300	333 [13.1]	61 [2.4]	81 [3.2]	81 [3.2]	1/2	Aluminum	Nylon
FluidPro 400	396 [15.6]	61 [2.4]	81 [3.2]	81 [3.2]	1/2	Aluminum	Nylon
FluidPro 600	485 [19.1]	61 [2.4]	81 [3.2]	81 [3.2]	1/2	Aluminum	Nylon
FluidPro 800	612 [24.1]	61 [2.4]	81 [3.2]	81 [3.2]	1/2	Aluminum	Nylon
FluidPro 1050	431 [17.0]	89 [3.5]	109 [4.3]	109 [4.3]	1/2	Aluminum	Nylon
FluidPro 1500	572 [22.5]	89 [3.5]	109 [4.3]	124 [4.9]	1/2	Aluminum	Nylon
FluidPro 2050	649 [25.5]	89 [3.5]	109 [4.3]	124 [4.9]	1/2	Aluminum	Nylon
FluidPro 3000	629 [24.8]	114 [4.5]	132 [5.2]	150 [5.9]	1	Aluminum	Aluminum

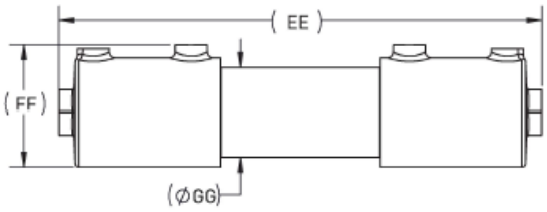
*All port dimensions given in inches: all ports must be same thread type on single module.

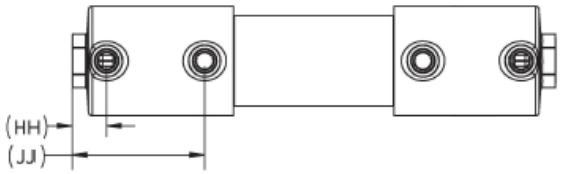
PENTAIR FLUIDPRO PURGE PORT MEMBRANE AIR DRYER

The FluidPro Membrane Air Dryer is the perfect solution for those seeking to optimize performance and efficiency. Its purge ports allow users to toggle purge air on or off, and change purge flow rates to reduce waste while using a purge gas other than what is being dehydrated. This feature makes the dryer ideal for cycling applications, as it offers consistent performance. With the FluidPro Membrane Air Dryer, you'll be able to achieve optimal performance with minimal waste.

ADDITIONAL BENEFITS OF PURGE PORT MEMBRANE AIR DRYER

- Increased membrane durability due to minimizing effect of compressor cycling
- Option to add remote or manual flow rate controls to optimize air usage
- Ability to collect air if hazardous or precious gas
- Use different purge gas
- Add muffler to prevent contamination





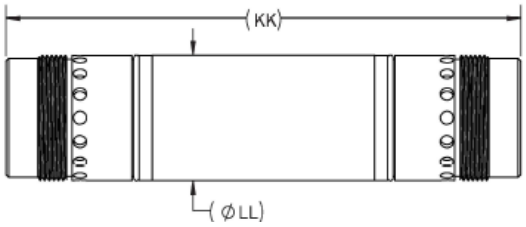
FLUIDPRO WITH PURGE PORT
DIMENSIONS AND MATERIALS OF CONSTRUCTION, MM (IN)

Air Dryer	EE	FF	GG	HH	JJ	Radial Ports (BSPP/BSPT/ NPT)*	Axial Ports (BSPP/BSPT/ NPT)*	Air Dryer Shell Material	Air Dryer End Cap Material
FluidPro 300	325 [12.8]	82 [3.2]	60 [2.4]	23 [0.9]	89 [3.5]	1/4	1/2	CPVC	ABS
FluidPro 400	389 [15.3]	82 [3.2]	60 [2.4]	23 [0.9]	89 [3.5]	1/4	1/2	CPVC	ABS
FluidPro 600	478 [18.8]	82 [3.2]	60 [2.4]	23 [0.9]	89 [3.5]	1/4	1/2	CPVC	ABS
FluidPro 800	605 [23.8]	82 [3.2]	60 [2.4]	23 [0.9]	89 [3.5]	1/4	1/2	CPVC	ABS
FluidPro 1500									
FluidPro 2050	Module dimensions, port sizes, port thread types, and materials of construction are same as Standard FluidPro Air Dryer								
FluidPro 3000									

*All port dimensions given in inches: all ports must be same thread type on single module.

THREADED MEMBRANE AIR DRYER – MODULE ONLY

The FluidPro Membrane Air Dryer Module Only is the perfect way to integrate our hollow fiber bundles into your own custom housing design. You will be able to use your customer-specific gas flow and purge control, making it easier than ever to get the most out of your Purge Port Dryer. With two different designs to choose from - standard end to end gas flow and T-style (Top in - Top out) - you can be sure that you'll find the perfect fit for your needs. Make the most of your custom housing design.



FLUIDPRO WITH PURGE PORT MODULE ONLY AIR DRYER DIMENSIONS AND MATERIALS OF CONSTRUCTION, MM (IN)

Air Dryer	KK	LL	Tread Connection Type	Shell Material
FluidPro 300	248 [9.8]	60 [2.4]	2" -11 ½ NPSM	CPVC
FluidPro 400	311 [12.3]	60 [2.4]	2" -11 ½ NPSM	CPVC
FluidPro 600	400 [15.8]	60 [2.4]	2" -11 ½ NPSM	CPVC
FluidPro 800	527 [20.8]	60 [2.4]	2" -11 ½ NPSM	CPVC

GENERAL PERFORMANCE DATA

INLET CONDITIONS: **@ 7 BARG (100 PSIG) 35 °C (95 °F) TO:**

Outlet Pressure Dew Point		15 °C [59 °F]	3 °C [37 °F]	-20 °C [-4 °F]	-40 °C [-40 °F]
% Purge		10%	14%	21%	29%
% Water Removal		69.70%	86.53%	98.20%	99.77%
Air Dryer	**Purge Air slpm (scfm)**	**Inlet Air Flow slpm (scfm)**	**Inlet Air Flow slpm (scfm)**	**Inlet Air Flow slpm (scfm)**	**Inlet Air Flow slpm (scfm)**
FluidPro 50	5 [0.2]	50 [1.8]	36 [1.3]	24 [0.8]	17 [0.6]
FluidPro 100	10 [0.4]	100 [3.5]	71 [2.5]	47 [1.7]	34 [1.2]
FluidPro 150	16 [0.6]	150 [5.3]	107 [3.8]	71 [2.5]	51 [1.8]
FluidPro 200	19 [0.7]	200 [7.1]	142 [5.0]	95 [3.4]	69[2.4]
FluidPro 300*	29 [1.0]	300 [10.6]	213 [7.5]	142 [5.0]	103 [3.6]
FluidPro 400*	38 [1.3]	400 [14.1]	284 [10.0]	189 [6.7]	137 [4.8]
FluidPro 600*	57 [2.0]	600 [21.2]	427 [15.1]	284 [10.0]	206 [7.3]
FluidPro 800*	76 [2.7]	800 [28.3]	569 [20.1]	379 [13.4]	274[9.7]
FluidPro 1050	103 [3.6]	1050 [37.1]	747 [26.4]	497 [17.6]	360 [12.7]
FluidPro 1500*	150 [5.3]	1500 [53.0]	1120 [39.6]	730 [25.8]	518 [18.3]
FluidPro 2050*	208 [7.3]	2050 [72.4]	1530 [54.0]	980 [34.6]	710 [25.1]
FluidPro 3000*	300 [10.6]	3000 [106.0]	2135 [75.4]	1425 [50.3]	1025 [36.2]

* Also available in purge port configurations where purge flow orifice is not included.

CORRECTION FACTORS FOR ALTERNATE PRESSURES

Performance Correction Factors for Alternate Pressures									
For maximum flow rate, multiply flow rate shown in above table by the correction factor corresponding to the working pressure									
Operating Pressure barg (psig)	4 [58]	5 [73]	6 [87]	7 [100]	8 [116]	9 [131]	10 [145]	11 [160]	12 [174]
Correction Factor	0.4	0.6	0.8	1.0	1.2	1.5	1.7	1.9	2.2
Equation for determining inlet flow at designated pressure: Inlet flow@ 7 barg (101.5 psig.) x correction factor at different operating pressure = Inlet flow at different operating pressure									

*Performance correction factors for alternate pressures are available upon request. We can help! For alternate operating conditions, please see your Pentair associate for detailed performance information.

ORDER INFORMATION FOR AVAILABLE CONFIGURATIONS

Air Dryer	Base Part Number	Standard FluidPro Thread Connector Types			Purge Port Thread Connector Types					Estimated Shipping Weight per Air Dryer	
		BSPT	NPT	Module Only No Endcaps	BSPT	NPT	BSPP	Module Only T-Style No Endcaps	Module Only No Endcaps	(lb)	(kg)
FluidPro 50	555726-88	X	X							1.1	0.5
FluidPro 100	555727-88	X	X							1.5	0.7
FluidPro 150	555728-88	X	X							1.8	0.8
FluidPro 200	555729-88	X	X							2.1	0.9
FluidPro 300	555730-88	X	X		X	X	X	X	X	2.4	1.1
FluidPro 400	555731-88	X	X		X	X	X	X	X	2.7	1.2
FluidPro 600	555732-88	X	X		X	X	X	X	X	3.2	1.5
FluidPro 800	555733-88	X	X		X	X	X	X	X	3.8	1.7
FluidPro 1050	555734-88	X	X							4.4	2
FluidPro 1500	555735-88	X	X		X	X				11.4	5.2
FluidPro 2050	555736-88	X	X		X	X				12.1	5.5
FluidPro 3000	555737-88	X	X	X	X	X				17.1	7.8

Part number configurations [add onto base part number]		-N	-MOP	-P	-N-P	-G-P	-MO-T	-MO-P

PENTAIR FLUIDPRO HOVER MEMBRANE AIR DRYER

Install the Pentair Hover Membrane Air Dryer in high flow compressed air lines to help prevent moisture - with small footprint, no electricity, desiccants or refrigerants.

FLUIDPRO HOVER, WHAT'S IN A NAME?

A breakthrough concept in innovation, the Hover High Flow Dryer is unlike a typical membrane air dryer. It is designed to support inlet air flows as high as 9.6 m^3/min (340 cfm) in a package that is less than 50 cm (20 inches) long. Unlike fixed dew point drying solutions, which can cause excessive or inadequate drying, the Hover High Flow Dryer is designed to hover just under the dew point. This dew point suppression results from the removal of water vapor from the incoming air steam. The module delivers a moisture level that is too low for water condensation to occur - in a compact and low maintenance inline solution.

NON-CONDENSING CONDITIONS

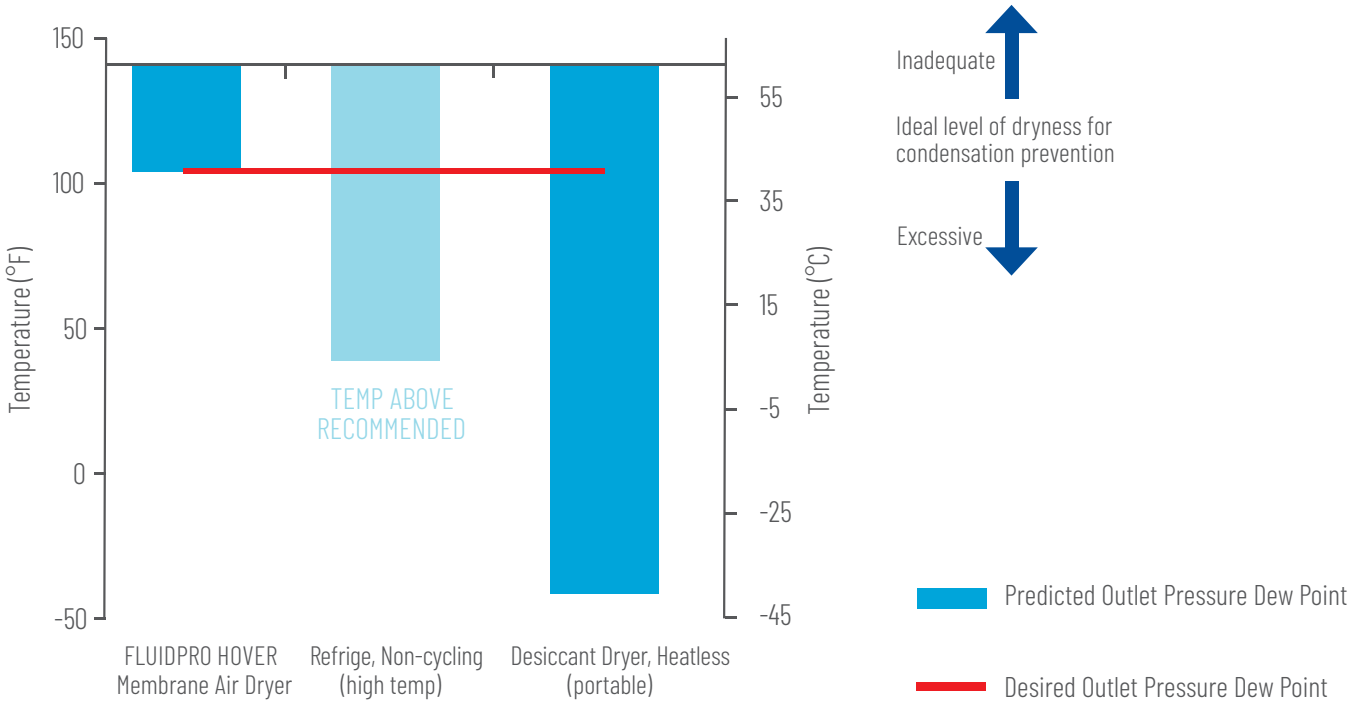
Air containing half of the potential amount water it can hold at a given temperature and air pressure is said to have 50% relative humidity. A 50% relative humidity level is well below the saturation point, significantly reducing the likelihood of moisture condensation. This relative humidity is achieved by reducing the pressure dew point by about 20° C [36°F].

NOT TOO MUCH, JUST RIGHT

While many compressed air drying methods achieve ultra-low dew points as low as -40°C [-40°F], attaining this level of dryness may add unnecessary expense if it is not required. The Hover High Flow Dryer is a high-capacity compressed air dryer that is designed to maintain a relative humidity at or below 50% reducing the risk of condensation - without the condensate disposal costs, installation constraints, and electric power expenses required by other drying methods.

CONDENSATION PREVENTION

At inlet pressure dew point of 60 °C (140 °F), 9 bar (131 psig)



Compressed Air Drying Technology

VIRTUALLY UNLIMITED INSTALLATION OPTIONS

INLINE DEHYDRATION FOR CONSTRAINED SPACES, MOBILE APPLICATIONS, AND UPGRADES

Single module design provides manufacturing simplicity and in-line moisture removal - just mount it, connect the ports to the appropriate air streams, and the unit provides dry, compressed air.

Units can be mounted in any orientation or plumbed together with multiple modules for even greater dew point suppression in stationary or skidded installations. Units can be mounted to the same manifold or installed in series for even dryer air.

NOT PRE-WIRED? HARD TO ACCESS? NO PROBLEM.

For remote, hard-to-reach areas or portable skids, the Hover High Flow Dryer is an easy upgrade. Unlike desiccant or refrigerated compressed air dryers which require electricity, the Hover High Flow Dryer can be installed inline in a section of piping to dehydrate the air without a power source, making this solution especially suitable to upgrade outdoor and remote piping applications that are not pre-wired.

PURGE CONTROL PORT FOR MAXIMUM CONTROL

For maximum control and maximum flexibility, the purge control port feature enables customers to turn purge air on and off or even change purge flow rates. This helps to enable purge waste minimization. It can also allow the utilization of a purge gas other than the gas that is being dehydrated. The ability to control the purge may also help to reduce purge usage in cycling application.

ORDERING INFORMATION, SPECIFICATIONS AND PERFORMANCE DATA

PART NUMBER AHD131031-P / AHD131031-P-M (FOR OPTIONAL MUFFLER)

SPECIFICATIONS

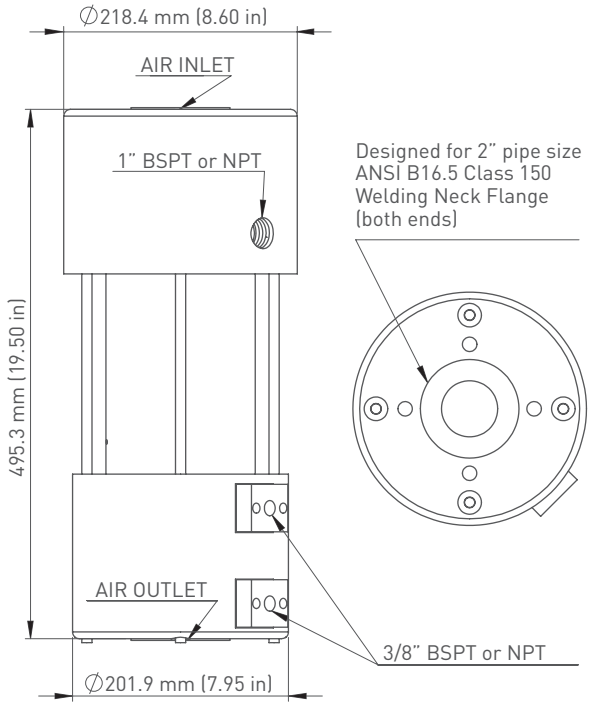
Component	Material / Value
Shell Material	Anodized 6061 Aluminum
End Cap Material	Anodized 6061 Aluminum
Fastener	316 Grade Stainless Steel
Mounting Orientation	Any
Inlet Air Temperature Range	2 - 80 °C [35 - 176 °F]
Pressure Range	Up to 12 barg [174 psig] operating pressure
Required Particulate Filtration	HEPA Grade [99.97% efficiency at 0.3 micron]
Required Oil Filtration	Maximum oil carryover 0.1 ppm

PERFORMANCE DATA

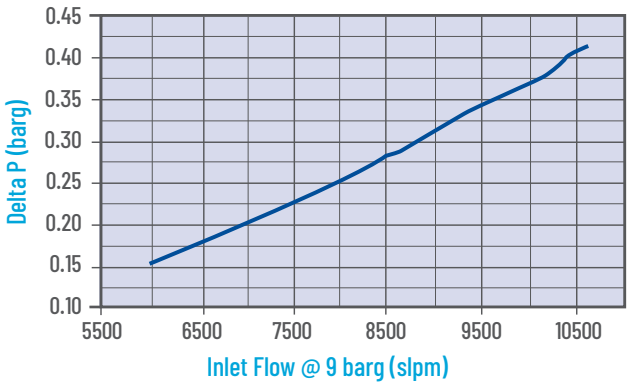
Inlet Conditions: @9 barg (131 psig)		
Inlet/ Outlet Pressure Dew Point	60°C / 40°C [140°F / 104°F]	35 °C / 5 °C [95 °F / 41 °F]
% Purge	10%	15%
% Water Removal	63.0%	84.5%
Purge Air	960 slpm [34 scfm]	750 slpm [26.5 scfm]
Inlet Air Flow	9600 slpm [340 scfm]	5000 slpm [175 scfm]

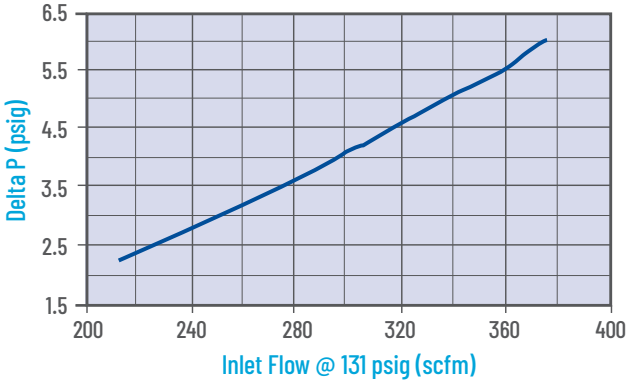
Please contact us for other dew point calculations or other performance requirements.

DIMENSIONS



TYPICAL PRESSURE DROP





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