

Perma Pure Gas Drying Solutions

Polytube Dryer (PD) Series

Application

The Polytube PD Series Gas Sample Dryers from Perma Pure offer higher capacity and are designed for larger gas flows or mobile systems. Compared to the MD Series, which is optimized for compact, stationary applications, the PD Series provides a more flexible solution for continuous monitoring and use in varying environments. These dryers are particularly well-suited for applications in air and emission monitoring, chemical analysis, and process control, where reliable and efficient moisture removal is essential. They are also designed for use in industrial plants and mobile laboratories that require high flexibility and performance.

Technology

The Polytube PD Series utilizes Polymer Membrane Technology, allowing for higher gas flow rates and greater capacity, making it ideal for larger or mobile applications. This technology ensures that only moisture is removed while the gas composition remains unchanged. In contrast to the MD Series, which uses Monotube Membrane Technology for smaller, stationary applications, the PD Series offers a more robust solution for more demanding requirements. This series is optimized for continuous operation at high gas flow rates and is particularly energy-efficient.

Functions

The Polytube PD Series dryers offer higher capacity and are optimized for continuous, mobile operation. They are particularly suitable for dynamic applications involving larger gas flows and variable conditions. These dryers are designed for easy integration into various systems and environments, making them ideal for use in industrial plants and mobile monitoring. They provide reliable performance under changing conditions and are characterized by long lifespan and low maintenance costs.



- ✓ Higher capacity for larger gas flows
- ✓ Optimized for mobile and continuous operation
- ✓ Ideal for dynamic applications with varying conditions
- ✓ Easy integration into various systems and environments
- ✓ Reliable performance under changing environmental conditions
- ✓ Long lifespan and low maintenance costs
- ✓ High energy efficiency with high capacity
- ✓ Perfect for industrial plants and mobile monitoring
- ✓ Robust membrane technology for demanding applications
- ✓ Suitable for air and emission monitoring as well as chemical analysis

Technical Data

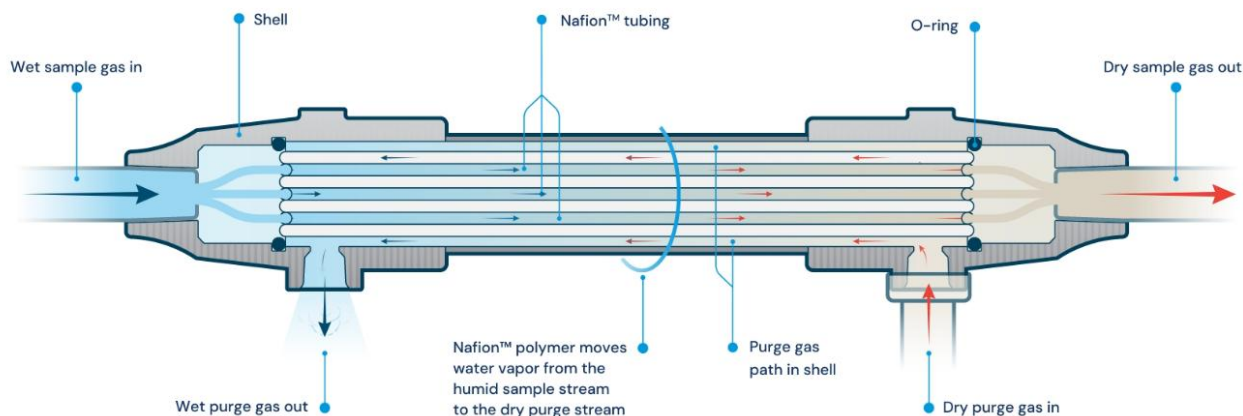
Model				
Type		PD-50T	PD-100T	PD-200T
Number of Nafion™ Tubes		50	100	100
Housing Materials				
Housing Materials Available		PP, PVDF or Stainless Steel		
Operating				
Max. Flow Rate	lpm	10	20	40
Max. Operating Temperatures	°C	PP: 80 / PVDF, Stainless Steel: 100		
Design Data				
Standard dimensions available	Inch	12 / 24 / 48 / 72	12 / 24 / 48 / 72 / 96 / 144	12 / 24 / 48 / 72 / 96 / 144 / 275 / 288
Sample Gas Port – End Fitting Material		PP, PVDF or Stainless Steel		
Sample Gas Port – End Fitting Size	Inch	1/4		
Purge Gas Port – End Fitting Material		PP, PVDF or Stainless Steel		
Purge Gas Port – End Fitting Size	Inch	1/8		
Purge Gas Recommendations				
		Purge gas must be drier than sample gas		
		Purge gas can be instrument quality air (max -40 °C dew point) or nitrogen		
		Purge gas should flow at 2 or 3 times the sample rate		

Note:

- 1 Inch = 2,54 cm

Technical Data

PD Gas Dryers - Operating Principle



PD Series Gas Sample Dryers

- The PD Series uses parallel Nafion™ membranes to efficiently remove moisture from gas samples without affecting key analytes
- Moist gas flows through the membranes, while a dry purge gas stream runs along the outside to absorb the extracted water vapor
- Water vapor moves across the membrane due to a difference in vapor pressure, ensuring continuous drying during sample flow

Functional Benefits

- Designed for higher flow applications while maintaining excellent drying efficiency
- Enables consistent gas analysis by minimizing interference from humidity
- Operates effectively without chemical reactants or moving parts, reducing maintenance needs
- The modular membrane layout allows flexible adaptation to a range of system setups

Application Areas

- Commonly used in environmental monitoring, emissions testing, and laboratory gas analysis
- Supports applications where a low dew point is essential for accurate readings
- Reduces downtime of sensitive instruments by keeping sample paths dry and stable
- Also applicable in safety, industrial hygiene, and threat detection systems requiring moisture control