

# Hybrid Sample Gas Cooler

Patent #: US 11,067,483

Perma Pure's Hybrid Sample Gas Cooler combines the superior performance of Nafion™ polymer drying technology with the functionality of a traditional thermoelectric cooler. Powered by compressed air, this non-electric cooler achieves dew points lower than 0°C helping to prevent problems associated with condensation. The patented mechanical design is ideal for locations with limited or no access to power and is suitable for use in C1D2 hazardous area locations.\*



**Operates with greater efficiency than comparable non-electric coolers\*\***

**Non-electric mechanical design:**

- Reduces the costs associated with electrical installation and permits\*\*\*
- Simplifies maintenance
- Increases reliability resulting in decreased downtime

**Achieves dew points lower than 0°C**

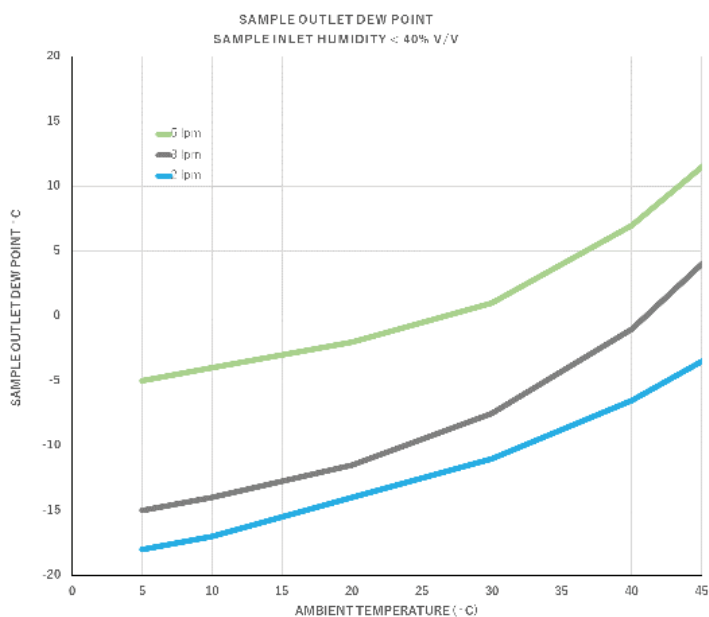
- Reduces the risk of damage to the analyzer
- Helps increase analytical accuracy

## Specifications:

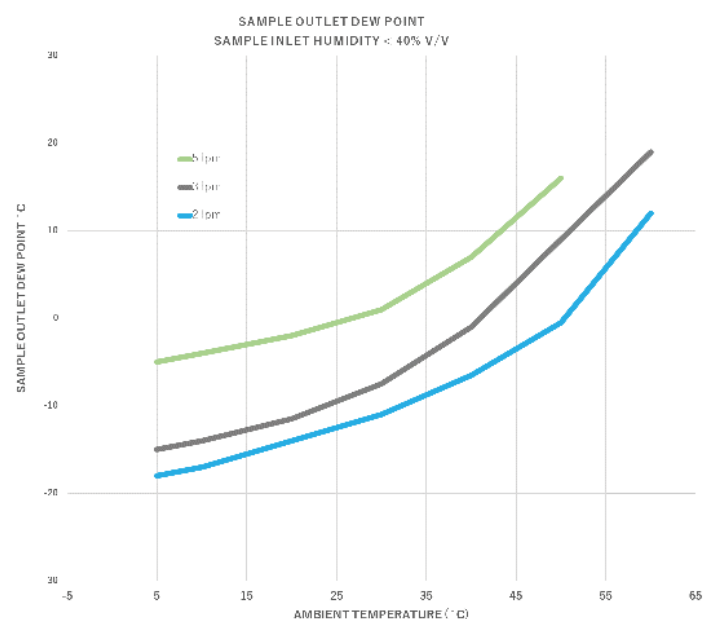
Utility Requirement	
Instrument Air	3.5 SCFM (100 SLPM) @ 4 Bar (60 PSIG)
Drain/Exhaust Requirement	.25SCFM/7SLPM air with entrained sample condensate
Environmental	
Operational Temperature Range	4 - 55 °C
Sample Gas	
Max Pressure	2 Bar (30PSI)
Max Humidity	75°C Dew Point
Maximum Inlet Water Concentration	40%
Max Flow	3.5 LPM @ 50°C   5 LPM @ 20°C
Maximum Inlet Temperature	138°C (280°F)

# Performance Charts

## Typical Operating Environment:



## Full Operating Environment:



## Other Features:

- Perma Pure™ PD Sample Dryer effectively removes water in the vapor phase with no further loss of analytes, increasing analytical accuracy\*\*\*\*
- High ambient temperature operating range 4° - 55°C (39° - 131°F)
- Chemically resistant wetted parts
- Includes coalescing filter to remove particulates and acid mists
- Can be mounted outside, freeing up space in over-crowded analyzer sheds\*\*\*\*\*

\* Complies with ISO 80079-36 Group II, Zone T3/T4 for use in CID2 hazardous locations

\*\* Compared to a vortex cooler removing 40% water by volume at sample flow rate between 3 and 4 LPM

\*\*\* Grounding Lug is necessary for installation

\*\*\*\* There may be some initial loss of water-soluble analytes through the coalescing filter

\*\*\*\*\* Ambient temperature must be above 4°C (39°F)