



# Perma Pure FC-Series Humidifiers

- Compact and robust
- Long lifetime
- Can be used in water-to-gas or gas-to-gas configuration
- Low pressure drop
- Suitable for use with H<sub>2</sub>

## PR 202



Compact humidifier for portable systems up to 500W. Weighs less than 100 grams. Gas flows to 16 alpm\*.

## FC 125



Built using low-cost molded parts. The FC125-Series humidifiers are an ideal choice for systems up to 1kW. Gas flows to 80 alpm (gas/gas) and 200 alpm (water/gas).

## FC 200



Ideal for systems up to 3kW, the FC200-Series is rugged, compact humidifier for mobile and stationary applications alike. Gas flows to 225 alpm (gas/gas) and 650 alpm (water/gas).

## FC 300



Our standard humidifier for gas-to-gas humidification in 5kW systems, the FC300-Series is available in ABS or PPO (Noryl) for high pressure applications. Gas flows to 700 alpm (gas/gas) and 2,000 alpm (water/gas).

## FC 400



Available in both ABS and PPO, the FC400-Series is designed to provide ideal humidification for 7-12kW systems. The high pressure model is now being evaluated for use in passenger cars. Gas flows to 1,000 alpm (gas/gas) and 7,000 alpm (water/gas).

## FC 600



The FC600-Series is suitable for gas-to-gas humidification for systems up to 50kW. When operated water-to-gas, this humidifier is a great choice to replace a bubbler in large test stands (80-100 kW). Gas flows to 1,000 alpm (gas/gas) and 7,000 alpm (water/gas).

## FC 800



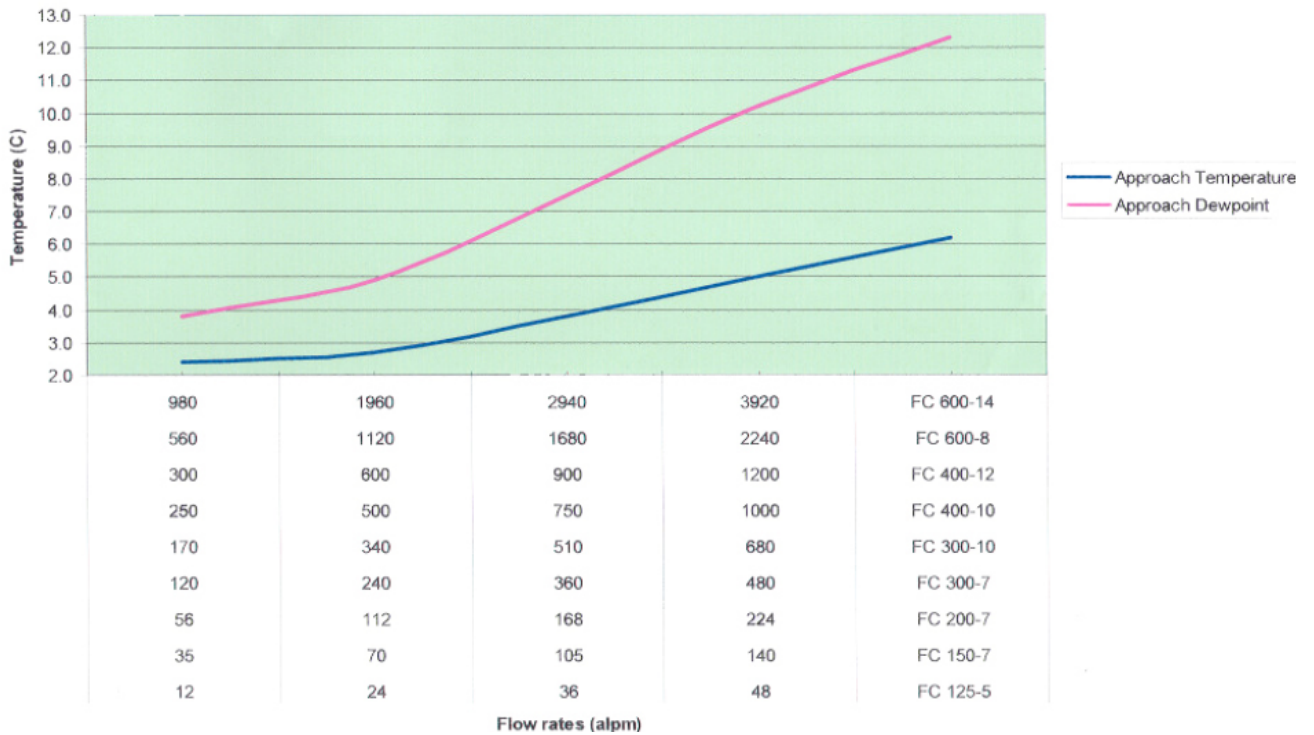
Our largest production humidifier, the FC800-Series is suitable for use in systems up to 100kW. This model is an excellent choice for city buses, SUVs and light trucks. Gas flows to 5,500 alpm (gas/gas) and 10,000 alpm (water/gas).

\* alpm = actual liters per minute. Flow in slpm divided by pressure in bar absolute = alpm.

## Water-to-GAS Performance



## GAS-to-GAS Performance



Units are expressed as flow rate of air (alpm) in relation to approach dew point temperature. Approach temperature is defined as difference between wet gas entering humidifier and humidified stream outlet. For example, for FC125-240-10MP at 25 lpm, wet gas enters humidifier at 70°C at Approached Temperature of 4° humidified stream outlet would be 66°C.

**Approach dew point = dp1 – dp2**      **Where: (1) = Cathode exhaust in**  
**Approach Temp = T1 – T2**                      **(2) = Humidified gas out**

Example: 70°C cathode exhaust  
 Approach dew point = 4°C  
 Approach Temp = 2.5°C

Humidifier outlet  
 66°C dew point  
 67.5°C Temperature / 93% RH