## INSTALLATION SPECIFICATIONS

When installing BE-HP™-Series exchangers, the following rules apply:

1. All temperatures (gas inlet, exposed atmospheric conditions) must not exceed 50°C (~122°F) and not go below 0°C (~32°F)

2. Sample gas pressure not to exceed 250psig (~17 bar(g))

Ratings for BE-HP™-Series moisture exchangers (50°C / 250psig) are only applicable when using the provided ferrules and compression nuts.

## PERFORMANCE

BE-HP™-Series exchanger performance varies according to product length, flow rates and atmospheric conditions if exposed to atmosphere. Example humidification performance curves shown below:

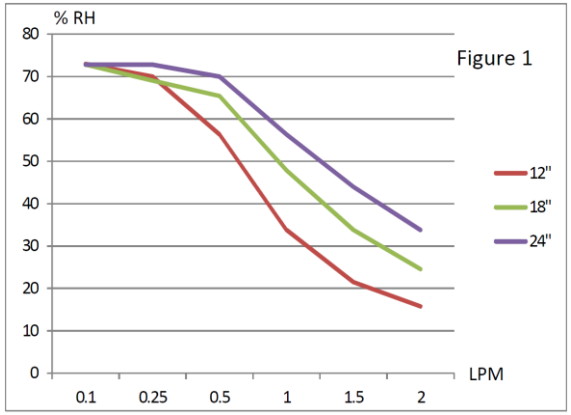


Figure 1 – Outlet Humidity vs. Flow Rate with different exchanger lengths at ambient conditions of 20°C w/ 15°C Dew Point (73%RH)

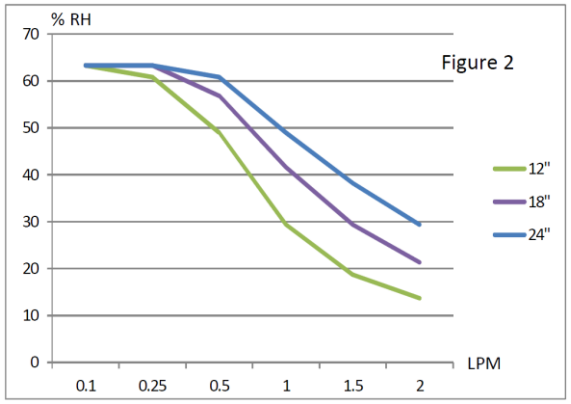


Figure 2 – Outlet Humidity vs. Flow Rate with different exchanger lengths at humid conditions of 35°C w/ 27°C Dew Point (63% RH)

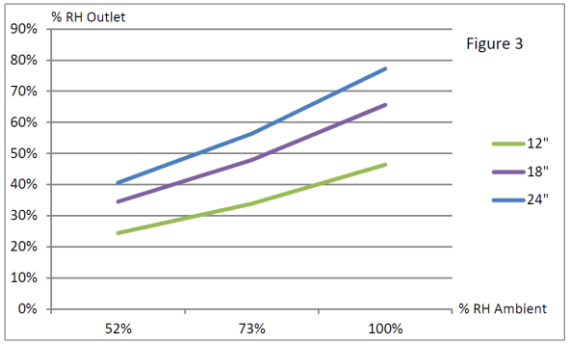


Figure 3 – Outlet Humidity vs. Ambient Humidity with different exchanger lengths at ambient conditions of 20°C, RH from 50-100%, flow rate constant at 1 LPM

Nafion™ is a registered trademark of The Chemours Company
BE-HP™ and BE™ is a trademark of Perma Pure LLC
DOC# BE-MAN-001 REV 00

# BE-HP™ –Series High Pressure Gas Moisture Exchanger

## User Manual



PERMA PURE

1001 New Hampshire Ave, Lakewood, N.J. 08701
Phone: 732-244-0010 Fax: 732-244-8140
info@permapure.com www.permapure.com

Perma Pure BE-HP™-Series products are moisture exchangers that transfers water vapor between the gas stream and the surrounding atmosphere.

- The braided exchangers consist of a single Nafion™ tube with a monofilament braiding to help protect the membrane while keeping it exposed to the atmospheric environment.
- The BE-HP™-Series exchangers are a subset of the BE™-Series exchangers that can operate at a higher pressure.

BE-HP™ Functions and Properties:

- The moisture exchangers will always try to reach equilibrium in water vapor content between the internal flowing gas stream and the surrounding environment.
- The driving force for the transfer of water through Nafion™ tubing relies solely on the partial pressure differences of water vapor on either side of the tubing.
- The effects of pressure on Nafion™ are only physical. Therefore, the BE-HP™-Series exchangers will perform comparably to the BE™-Series exchangers regardless of the pressure differential, even if it is transferring water vapor counter to the absolute pressure gradient.

## INSTALLATION INSTRUCTIONS

Tools Needed:
- 9/16” Wrench(es)

1. *Slide compression nut and acetal ferrule onto molded header.* ***MAKE SURE TO NOTE THE CORRECT ORIENTATION OF THE FERRULE AS SHOWN ON FIGURE 4.***

2. *Push molded header of exchanger with acetal ferrule and compression nut all the way into the adapter.*

3. *While holding the pushed-in molded header in place to prevent rotation, tighten compression nut to finger tight.* ***FAILURE TO HOLD MOLDED HEADER IN PLACE WHILE TIGHTENING CAN TWIST THE NAFION™ MEMBRANE AND DAMAGE THE BRAIDED EXCHANGER.***

4. *With wrench(es), tighten compression nut an additional 1-1/4 turns.*

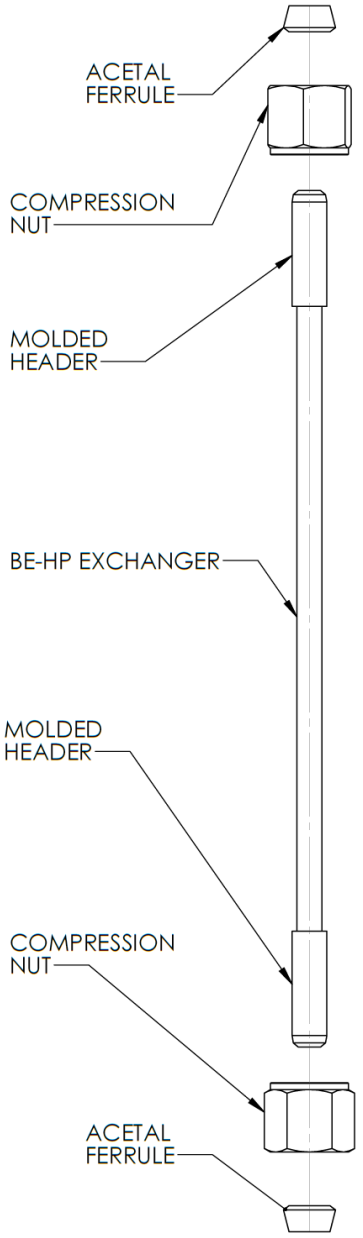


Figure 4 – BE-HP™ Assembly