EH HEATED
DESICCANT AIR DRYER

EH150 –EH8000

Compression Technologies and Services
Davidson, NC 28036

Date: 15-Mar-2016
Cancels: All Previous

ENERGY MANAGEMENT SYSTEM (EMS)

The normal cycle, or Fixed Cycle, of a EH external heater desiccant dryer is 8 hours with each desiccant chamber in service for 4 hours followed by a 4 hour regeneration cycle. The dryer will be sized to deliver a -40° C/F PDP for the entire 8 hours. The dryer will be sized based upon an inlet flow at a maximum temperature and minimum pressure. If inlet flow is less, inlet temperature is less or inlet pressure is higher than the dryer's design point, the moisture loading to the dryer is less than the capacity of the dryer.

If the dryer will be operated at less than 100% duty at any time, then the Energy Management System (EMS) is recommended to reduce operating cost.

The Energy Management System uses a precision dew point sensor to measure the outlet pressure dew point of the dryer and adjust the operation of the dryer to produce a constant outlet dew point.

Prior to the start of each regeneration cycle, the EMS system will determine the dew point by measuring the pressure dew point of the outlet air. When the sampled outlet dew point registers below the customer set point, the dryer will continue its normal regeneration process through tower re-pressurization. Once the tower is re-pressurized, both towers will be at line pressure but air will only flow through the tower indicated by the status panel. Tower switch over sequence is delayed until the dew point elevates above the EMS set point, at which point tower switch over will occur.

In addition to monitoring the outlet pressure dew point of the drying tower, the EMS feature monitors the temperature of the purge exhaust air on the regenerating tower. After tower switch over, and at the beginning of tower regeneration, the purge exhaust temperature will be relatively low. The purge exhaust temperature will increase as desiccant regeneration progresses. As nearly all of the previously adsorbed moisture is driven off the desiccant, the exhaust temperature will begin to rise. The timing for the temperature change will vary depending on moisture loading on the towers. When the purge exhaust temperature reaches 195°F, which indicates that the desiccant heating is complete, the controller will remove power to the heater. Once the heater is turned off, the tower cool down process begins. This provides added energy savings during periods of partial load.

Features of the Energy Management System:

- Eliminates waste of compressed air
- A precision ceramic sensor measures outlet dew point.
- Field adjustable set points of the desired dew point and high humidity alarm.
- RS-232C Computer Interface installed.
- Dryer operation for fixed cycle / EMS mode selected via controller. Dryer can be operated in fixed cycle while dew point transmitter is serviced.
- High Humidity Alarm
- NEMA 4 Enclosure