

Function:

The adsorption trainer uses air saturated with water vapor as the working fluid to demonstrate gas separation by a solid adsorbent material. The flow rate is automatically controlled to a selected process pressure set point. Trainees select adsorbent type and flow rate then read and record the flows and temperatures for further analysis. The adsorbent column vessels are connected with quick connect tubing for removal to replace the adsorbent material. The adsorbent material can be regenerated using a conventional or micro-wave oven.

Description:

The gas adsorption apparatus consists of three clear polycarbonate vessels each filled with a different adsorbent material. Air is the working fluid and is supplied by a dedicated, small commercial compressor / receiver unit. Instrumentation includes: a flow indicator, upstream and downstream dew point meters, pressure indicator and flow indicating controller. A control valve is provided to provide control of the flow rate. Pressure, dew point and flow data obtained can be used to calculate compression efficiency.

Equipment Specification Highlights:

- Nominal compressor power - 1/16Hp (50W)
- Receiver volume - 2 us gallons (7 litres)
- Instrumentation & control includes:
 - Two dew point / temperature transmitters
 - One pressure transmitter
 - One flow and pressure transmitter
 - One rotameter
- Data acquisition interface to computer
- Dedicated notebook computer with HMI software (custom configuration)
- Mounted on a mobile cart
- Approximate overall dimensions are 64 x 120 x 180 cm high (25" x 48 x 72")

Utility Requirements:

- Single phase electrical power 240 VAC 50 Hz. Load approx. 1 amp.