



DHT-20 & DHT-100

### DHT Series Features

- Maximum inlet temperature of 205°F.
- Maximum inlet pressure of 200 psig.
- Outlet pressure dew point range of 40-50°F.
- No air-cooled aftercooler required for compressor.
- Environmentally Friendly R-134a Refrigerant.
- Space-saving compact design.
- Fully automatic operation.
- Power on-light.
- On/Off switch.
- Power Cord.

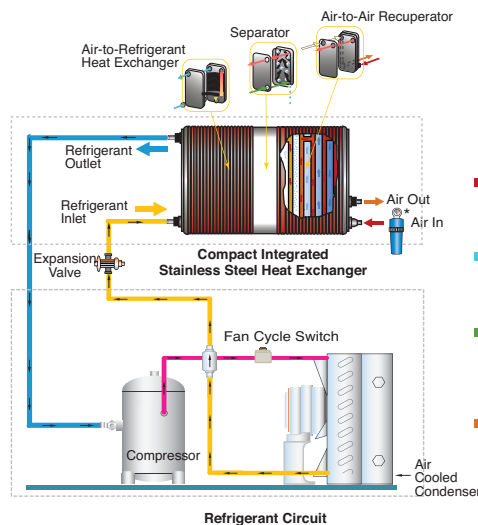
### DHT Series Benefits

- Environmentally friendly R-134a refrigerant.
- Advanced scroll technology.
- Highly efficient moisture separation.
- Timer drains standard.
- NEMA 1 standard.
- Precise dew point at any load.
- Reduced power and energy consumption.
- Copper brazed stainless steel multi-plate or aluminum block heat exchangers.

The **Aircel DHT Series (20 - 125 scfm)** high inlet temperature refrigerated air dryers are designed for air-cooled reciprocating type air compressors, this compressed air dryer combines an oversized refrigerated circuit, high-efficiency heat exchangers and separator into a single compact unit, with single point air in/out, drain and electrical connections.

These dryers can accept compressed air up to 205°F and provide clean dry air at the outlet. Our high inlet temperature refrigerated dryers have been designed specifically for use with smaller reciprocating air compressors that typically do not incorporate an aftercooler.

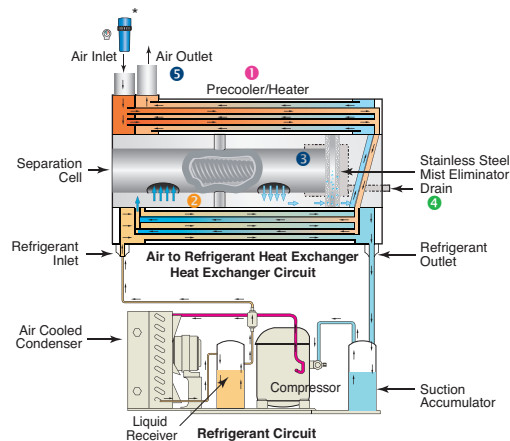
### DHT SERIES How it Works



#### DHT-20

- Low Pressure Refrigerant
- High Pressure Refrigerant
- Refrigerant In
- ➔ Warm gas enters the RECUPERATION SECTION and exchanges heat with the cooler leaving gas.
- ➔ The gas then proceeds to the DRYER SECTION and is cooled using refrigeration to a designed dew point.
- ➔ The gas then proceeds through a specially designed MOISTURE SEPARATOR SECTION, where condensate drops out into the bottom of the separator.
- ➔ The gas then proceeds back through the RECUPERATOR SECTION where it is heated up by the incoming warm gas.

\* Recommended prefilter.



#### DHT-40 +

- 1 Hot compressed air, up to 205°F, enters the precooler/reheater section and exchanges heat with the cooler air leaving the heat exchanger to recuperate its energy.
- 2 The precooled air is then cooled down to its final dew point by the patented design of the evaporator and its high efficiency, multi-stage separator.
- 3 The built-in stainless steel mist eliminator and a quiet zone prevent re-entrainment of collected condensation (DHT-40 and up).
- 4 Liquid water condensate is collected and drained at the lowest and coolest point within the drying circuit.
- 5 The cold compressed air is reheated in the final stage of the heat exchanger as it flows countercurrent to the incoming hot compressed air.

\* Recommended prefilter.

# DHT SERIES TECHNICAL SPECIFICATIONS



## DHT Model Comparison

| Model   | Capacity <sup>1</sup><br>(scfm) | Connection<br>(inches FPT) | HP  | RLA* | MCA* | Voltage<br>(Standard) | Dimensions (inches) |    |    | Pressure<br>max.<br>(psig) | Weight<br>(lbs) |
|---------|---------------------------------|----------------------------|-----|------|------|-----------------------|---------------------|----|----|----------------------------|-----------------|
|         |                                 |                            |     |      |      |                       | H                   | W  | D  |                            |                 |
| DHT-20  | 20                              | 1/2                        | 1/3 | 7.2  | 9.9  | 115-1-60              | 15                  | 16 | 16 | 200                        | 95              |
| DHT-40  | 40                              | 1                          | 1/2 | 10.2 | 13.6 | 115-1-60              | 22                  | 24 | 18 | 200                        | 125             |
| DHT-50  | 50                              | 1                          | 1/2 | 10.2 | 13.6 | 115-1-60              | 22                  | 24 | 18 | 200                        | 140             |
| DHT-75  | 75                              | 1                          | 3/4 | 13.3 | 18.3 | 115-1-60              | 22                  | 24 | 18 | 200                        | 240             |
| DHT-100 | 100                             | 1-1/2                      | 3/4 | 13.3 | 18.3 | 115-1-60              | 30                  | 36 | 25 | 200                        | 330             |
| DHT-125 | 125                             | 1-1/2                      | 1   | 10.9 | 14.8 | 208/230-1-60          | 30                  | 36 | 25 | 200                        | 360             |

<sup>1</sup> Capacity rated @175 psig, 180°F inlet, 100°F ambient, and a PDP of 50°F.

\*Rated Load Amps (RLA) and Minimum Circuit Amps (MCA).

Maximum ambient temp: 35°F - 120°F Maximum inlet temp: 205°F / Air pressure range: 30-200 psig

Due to a continuous program of product improvement, specification and dimensions are subject to change without notice.

## DHT Series Capacity Correction Factors

### To Size the Dryer Capacity for Actual Conditions

$$\text{Adjusted Capacity} = \text{scfm} \times C1 \times C2 \times C3 \times C4$$

To calculate the capacity of a given dryer based on non-standard operating conditions, multiply the standard capacity by the appropriate correction factor(s).

**EXAMPLE:** Dryer Model: DHT-100  
Standard Capacity: 100 scfm  
Actual Operating Conditions: 95°F ambient temperature: C1 = 1.03  
150°F inlet temperature: C2 = 1.06  
160 psig system pressure: C3 = 0.96  
50°F required dew point: C4 = 1.0  
Adjusted Capacity = 100 scfm x 1.03 x 1.06 x 0.96 x 1.0 = **104.8 scfm**

### To Select the Dryer Model for Actual Conditions

$$\text{Adjusted Capacity} = \text{scfm} / C1 / C2 / C3 / C4$$

To choose a dryer based on a given flow at non-standard operating conditions, divide the given flow by the appropriate correction factor(s).

**EXAMPLE:** Given Flow: 80 scfm  
Actual Operating Conditions: 75°F ambient temperature: C1 = 1.1  
150°F inlet temperature: C2 = 1.06  
200 psig system pressure: C3 = 1.12  
Required dew point : 50°F pdp: C4 = 1.0  
Adjusted Capacity = 80 scfm / 1.1 / 1.06 / 1.12 / 1.0 = **61.3 scfm**  
Selected Dryer Model: **DHT-75**

The Compressed Air and Gas Institute (CAGI) has developed standards to protect users of compressed air & gas equipment. The published standard capacities are based on 175 psig inlet pressure and 180°F inlet temperature. When these conditions vary, a given DHT dryer will be able to purify either more or less compressed air than its standard capacity. There are two ways in which this information can be used. The first

is to start with a specific DHT dryer size and recalculate its capacity based on the known operating conditions using the correction factors given below. The second is to select the proper DHT dryer size based on applying the correction factors to the flow rate for a given set of operating conditions. Examples based on applying the correction factors are shown below.

### Capacity correction factors for differing ambient air temperature (C1)

| Ambient Temperature (°F) | 75  | 85   | 95   | 100 | 105  | 115  | 120  |
|--------------------------|-----|------|------|-----|------|------|------|
| Correction Factor        | 1.1 | 1.07 | 1.03 | 1   | 0.96 | 0.82 | 0.55 |

### Capacity correction factors for differing inlet air temperature (C2)

| Inlet Temperature (°F) | 90  | 100  | 150  | 180 | 200  | 205  |
|------------------------|-----|------|------|-----|------|------|
| Correction Factor      | 1.3 | 1.27 | 1.06 | 1   | 0.98 | 0.90 |

### Capacity correction factors for differing system air pressure (C3)

| System Pressure (psig) | 30  | 45  | 60  | 75   | 90  | 100  | 115  | 130 | 145  | 160  | 175 | 190 | 200  |
|------------------------|-----|-----|-----|------|-----|------|------|-----|------|------|-----|-----|------|
| Correction Factor      | 0.3 | 0.5 | 0.7 | 0.75 | 0.8 | 0.83 | 0.86 | 0.9 | 0.93 | 0.96 | 1   | 1.1 | 1.12 |

### Capacity correction factors for differing pressure dew point requirements (C4)

| Dew Point (°F)    | 38   | 41   | 45  | 50 | 55  | 60   |
|-------------------|------|------|-----|----|-----|------|
| Correction Factor | 0.65 | 0.73 | 0.8 | 1  | 1.1 | 1.22 |