



RTM-15000

The **Aircel RTM Series (2,500 - 30,000 scfm)** utilizes high efficiency compressors with defined loading and unloading capacities and a thermal mass medium for energy storage. The refrigeration system cools the thermal mass medium to a predetermined lower temperature. Once that temperature is reached, the system goes into standby mode until the temperature rises to another predetermined set point. Only then does the system come out of standby mode and once again cools the thermal mass medium. No energy is wasted when demand on the dryer is low. The RTM dryers are ideally suited when large air volumes need to be dried to a reliable and constant dew point.

All Aircel dryers are designed to give our customers the best value available in the industry – reliable performance meeting industry standards while consuming the lowest amount of energy possible. An Aircel high-capacity air dryer will always pay for itself by reducing air distribution system costs, lengthening tool life, reducing maintenance downtime and system damage.

## RTM Series Features

- Condenser automatic water regulating valve (water-cooled units).
- Inlet temperature indicator.
- Outlet temperature indicator.
- Refrigeration discharge pressure gauge.
- Refrigeration suction pressure gauge.
- Compressor sequencer (units with multiple compressors).
- Compressor ON/light indicator.
- Air inlet pressure gauge.
- Air inlet temperature gauge.
- NEMA 4 electrical.
- Zero-purge drain system.
- Pump pressure gauge.
- Thermal storage temperature gauge.
- Phase protection module (Rotary screw compressors).
- Pump failure indicator.
- No flow indicator.
- Compressor starter with overload protection.
- Pump starter with overload protections.

## RTM Options

- Duplex pumps.
- Multiplex compressor.
- Air-cooled condenser.
- Remote condenser.
- Three-valve by-pass.
- Mounted pre- and afterfilter.
- Digital dew point monitor.
- NEMA 4X, 7, 9.

## RTM SERIES How it Works

- 1 Hot saturated air from the aftercooler enters the air/air heat exchanger, where the air is pre-cooled by the cold dry air leaving the heat exchanger.
- 2 The pre-cooled air then enters the air/glycol heat exchanger, where it is cooled to its final dew point by chilled water/glycol, flowing in the counter-current through the shell.
- 3 The chilled air passes through the moisture separator, which has a high efficiency of separation at varying flow rates. Condensate is removed from the system without any loss of air via a zero purge drain valve.
- 4 Finally the cold, dry air is reheated in the air/air heat exchanger by the incoming hot air for maximum volumetric efficiency before exiting the dryer. The water/glycol is chilled by a cycling refrigeration system, and continuously pumped through the shell side of the air/glycol heat exchanger. The glycol flow rate remains constant, regardless of compressed air load. The refrigeration compressor unloads, and/or cycles OFF, when a pre-set water/glycol temperature is reached, thus minimizing electrical power consumption.

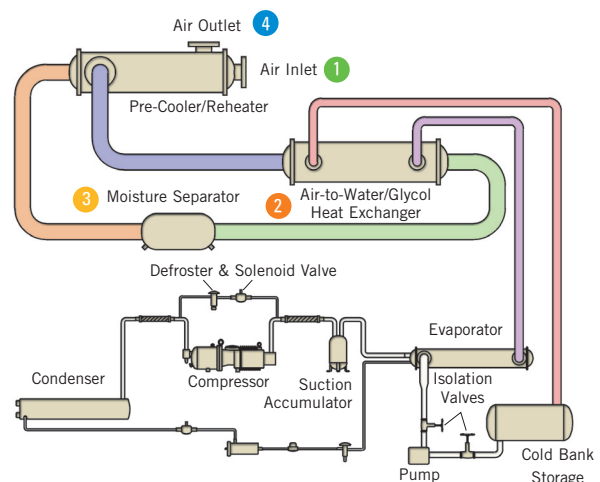


Diagram is shown using tube and shell heat exchangers.

# RTM SERIES TECHNICAL SPECIFICATIONS



## RTM Model Comparison

| Model     | Capacity @ CAGI <sup>†</sup> (scfm) | Connection (inches FLG) | HP Installed (size) | KW (full load) for CAGI conditions | KW (full load) for ISO conditions | RLA <sup>†</sup> | MCA <sup>†</sup> | Voltage (Standard) | Dimensions (inches) |     |    | Pressure max. (psig) | Weight (lbs) |
|-----------|-------------------------------------|-------------------------|---------------------|------------------------------------|-----------------------------------|------------------|------------------|--------------------|---------------------|-----|----|----------------------|--------------|
|           |                                     |                         |                     |                                    |                                   |                  |                  |                    | H                   | W   | D  |                      |              |
| RTM-2500  | 2500                                | 4                       | 13                  | 9.70                               | 9.00                              | 25               | 41               | 460-3-60           | 60                  | 55  | 60 | 150                  | 2750         |
| RTM-3000  | 3000                                | 6                       | 16                  | 11.84                              | 11.00                             | 32               | 48               | 460-3-60           | 70                  | 130 | 60 | 150                  | 3200         |
| RTM-4000  | 4000                                | 6                       | 20                  | 14.90                              | 13.90                             | 42               | 62               | 460-3-60           | 70                  | 130 | 60 | 150                  | 4500         |
| RTM-5000  | 5000                                | 8                       | 26                  | 19.36                              | 19.00                             | 50               | 82               | 460-3-60           | 75                  | 130 | 72 | 150                  | 6300         |
| RTM-6000  | 6000                                | 8                       | 30                  | 22.40                              | 20.10                             | 50               | 70               | 460-3-60           | 90                  | 130 | 96 | 150                  | 7200         |
| RTM-7000  | 7000                                | 8                       | 35                  | 26.00                              | 24.20                             | 66               | 92               | 460-3-60           | 90                  | 130 | 96 | 150                  | 8600         |
| RTM-8000  | 8000                                | 10                      | 40                  | 29.84                              | 27.80                             | 70               | 98               | 460-3-60           | 90                  | 140 | 96 | 150                  | 9750         |
| RTM-10000 | 10000                               | 10                      | 50                  | 37.28                              | 34.63                             | 91               | 127              | 460-3-60           | 95                  | 160 | 96 | 150                  | 12000        |
| RTM-12000 | 12000                               | 12                      | 60                  | 44.74                              | 41.60                             | 96               | 135              | 460-3-60           | 106                 | 170 | 96 | 150                  | 13600        |
| RTM-15000 | 15000                               | 12                      | 80                  | 59.70                              | 55.50                             | 140              | 196              | 460-3-60           | 109                 | 180 | 96 | 150                  | 17000        |
| RTM-20000 | 20000                               | 14                      | 100                 | 74.60                              | 69.40                             | 182              | 254              | 460-3-60           | 120                 | 190 | 96 | 150                  | 21000        |
| RTM-25000 | 25000                               | 16                      | 125                 | 93.20                              | 96.60                             | 178              | 250              | 460-3-60           | 120                 | 210 | 96 | 150                  | 23000        |
| RTM-30000 | 30000                               | 18                      | 150                 | 111.84                             | 104.00                            | 192              | 270              | 460-3-60           | 120                 | 240 | 96 | 150                  | 26000        |

1 Capacity rated in accordance with CAGI ADF 100 @ 100 psig, 100°F inlet, 100° ambient, and a PDP of 38°F.  
<sup>†</sup> Run Load Amps (RLA); Minimum Circuit Capacity (MCC).  
 RTM Series utilizes shell and tube heat exchanger standard.  
 Due to a continuous program of product improvement, specification and dimensions are subject to change without notice.

## RTM 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: RTM-6000  
 Standard Capacity: 6000 scfm  
 Actual Operating Conditions: 90°F ambient temperature: C1 = 1.05  
 100°F inlet temperature: C2 = 1.0  
 125 psig system pressure: C3 = 1.07  
 38°F required dew point: C4 = 1.0  
 Adjusted Capacity = 6000 scfm x 1.05 x 1.0 x 1.07 x 1.0 = **6,741 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: 5000 scfm  
 Actual Operating Conditions: 80°F ambient temperature: C1 = 1.07  
 90°F inlet temperature: C2 = 1.21  
 100 psig system pressure: C3 = 1.0  
 Required dew point : 38°F pdp: C4 = 1.0  
 Adjusted Capacity = 5000 scfm / 1.07 / 1.21 / 1.0 / 1.0 = **3,861 scfm**  
 Selected Dryer Model: **RTM-4000**

The Compressed Air and Gas Institute (CAGI) has developed standards to protect users of compressed air & gas equipment. ADF100 the current standard for refrigerated compressed air dryers, specifies the dryers performance to be rated at 100°F inlet temperature, 100°F ambient temperature, and 100 psig system

pressure. To adjust the dryer capacity from these "CAGI conditions" to your specific application, please use the correction factors below for differing ambient air temperatures (C1), inlet air temperatures (C2), system pressures (C3), and varying dew point requirements (C4).

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

| Ambient Temperature (°F) | 70   | 80   | 90   | 100 | 110  | 115  | 120  |
|--------------------------|------|------|------|-----|------|------|------|
| Correction Factor        | 1.10 | 1.07 | 1.05 | 1   | 0.94 | 0.85 | 0.65 |

\*Applies to air-cooled units only

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

| Inlet Temperature (°F) | 80   | 90   | 100 | 110  | 120  | 140  |
|------------------------|------|------|-----|------|------|------|
| Correction Factor      | 1.50 | 1.21 | 1   | 0.82 | 0.72 | 0.61 |

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

| System Pressure (psig) | 50   | 75   | 100 | 125  | 150  | 175  | 200  | 225  | 250  |
|------------------------|------|------|-----|------|------|------|------|------|------|
| Correction Factor      | 0.85 | 0.95 | 1   | 1.07 | 1.13 | 1.18 | 1.20 | 1.22 | 1.24 |

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

| Dew Point (°F)    | 38 | 41   | 45   | 50   |
|-------------------|----|------|------|------|
| Correction Factor | 1  | 1.12 | 1.17 | 1.22 |