# ThermaPhase

## Oil/Water Separator

# Sizing ThermaPhase Units

To size a ThermaPhase unit, you must know the volume of air being compressed, the relative humidity of the air and the inlet temperature. Table 1 is a chart showing the SCF/M of compressed air required to produce one gallon per hour of condensate at various inlet temperatures and relative humidities.

| | |
|---|---|
| **Step 1** | Locate on Table 1 the SCF/M of air factor using the inlet temperature and relative humidity of the application. |
| **Step 2** | Divide the SCF/M of air required by the application of the SCF/M of air factor obtained from Table 1. This number is the gallons of condensate per hour required to be processed by the ThermaPhase. |
| **Step 3** | Pick a ThermaPhase unit with capacity to handle the condensate from Table 2. |

**Example**

**500 SCF/M • Air Temp - 70ºF • Relative Humidity -70%**

| | |
|---|---|
| **Step 1** | Referring to Table 1 for an air temperature of 70ºF and a relative humidity of 70%, we find an air factor of 174.3 |
| **Step 2** | Dividing our compressor capacity of 500 SCF/M by the air factor:<br><br>500SCF/M / 174.3 SCF/M/Gal/Hr = 2.87 Gal/Hr. |
| **Step 3** | Referring to Table 2, we find it takes a ThemaPhase TP-12 to handle this application. |

## TABLE 1

### SCF/M Air Per Gallon of Water Per Hour

| Relative Humidity | 40°F | 50°F | 60°F | 70°F | 80°F | 90°F | 100°F |
|---|---|---|---|---|---|---|---|
| 40% | 923.5 | 628.9 | 436.5 | 307.3 | 219.1 | 158.1 | 115.5 |
| 50% | 737.3 | 502.8 | 348.9 | 245.1 | 174.6 | 125.9 | 91.8 |
| 60% | 613.5 | 418.8 | 290.0 | 203.8 | 145.0 | 104.4 | 76.0 |
| 70% | 525.4 | 358.1 | 248.2 | 174.3 | 123.8 | 89.1 | 64.7 |
| 80% | 459.4 | 313.3 | 216.6 | 152.1 | 108.0 | 77.5 | 56.2 |
| 90% | 408.1 | 278.1 | 192.2 | 134.8 | 90.8 | 68.6 | 49.6 |
| 100% | 367.1 | 250.0 | 172.7 | 121.0 | 85.8 | 61.4 | 44.4 |

SCF/M of air required to produce one gallon of water per hour assuming 95% water removed.

## TABLE 2

### Evaporation Rate - Gallons per Hour

| UNIT | GALS. / HOUR |
|---|---|
| TP - 6 | 1.9 |
| TP - 12 | 4.1 |
| TP - 18 | 6.2 |
| TP - 24 | 8.3 |
| TP - 36 | 12.5 |
| TP - 54 | 18.8 |
| TP - 72 | 25.1 |