

Precision Cooling  
For Business-Critical Continuity

## *Mini-Mate2™ 1 To 8 Tons*

*Overhead Precision Cooling And Humidity Control*



 **Liebert**

  
**EMERSON**  
Network Power

## The Solution For Your Cooling Needs May Be Right Above You

When the need calls for precision cooling and humidity control, but your floor space says otherwise, the Liebert Mini-Mate2™ can provide the overhead answer. This flexible, space-saving system is the ideal solution for small areas where space is at a premium:

- Network Closets
- VoIP
- IDF
- Telecommunications Equipment
- Data Processing
- Control Rooms
- Desktop Publishing
- Network Facilities
- Laboratories
- Other Critical Electronic Systems

*The components in units are located for easy service (1 ton self-contained unit shown)*



### Liebert Mini-Mate2 Offers:

#### Reliability:

**High Sensible Cooling Capacity.** Unlike “comfort” air conditioners, Liebert systems are designed for the cooling requirements of electronic equipment – 80% of the capacity dedicated to the removal of dry “sensible” heat, and 20% for the control of humidity.

**Reliable.** Based on a field-proven system, the Liebert Mini-Mate2 is manufactured with rugged, efficient components. To ensure 365 days x 24 hours operation at your site, each system is factory tested.

**Warranty Protection.** In addition to the standard one-year warranty, your Liebert Representative can offer extended warranties on the unit, compressor, parts and labor.

**Preventive Maintenance Programs.** Liebert factory-certified personnel provide regular inspections and service to extend the life of the system.

**Liebert Spare Parts.** Highest-quality parts, designed for your system, are easily available through your Liebert service representative.

#### Flexibility:

**Uses Zero Floor Space.** The evaporator and indoor condensing units are mounted above the dropped ceiling, requiring minimal site disturbance.

**Simple Control.** Split systems require simple thermostat-type wiring to controls and condensing units.

**Designed For Easy Component Access.** Most units can be serviced from the front.

**Option Kits.** Single-point power kits, sweat adapters, condensate pumps, duct adapters and other options are ordered as kits, ensuring availability of required parts and complete compatibility with your system.

**Agency Listed.** Standard 60Hz units are NRTL-C listed/certified to meet U.S. and Canadian safety standards, and MEA listed for New York City applications. These agency listings ensure fast, hassle-free inspection and building code approvals.

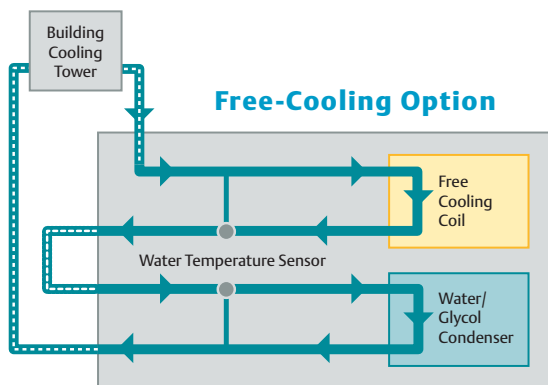


## Liebert Monitoring Solutions: When You Need To Know

### Low Total Cost Of Ownership:

**High-Efficiency Compressor.** The rotary or scroll compressor is both energy-efficient and rugged, to ensure continuous operation.

**Free-Cooling Option.** A second cooling coil allows the system to take advantage of colder outdoor temperatures and bypass compressor operation.



### Mini-Mate2

When water temperature goes below 45°F, cooling switches over to Free-Cooling operation. A separate chilled water source can also be used with Air-Cooled system. Note: Special cupro-nickel free-cooling coil must be specified when applied to open cooling tower.

You will find a full-range of monitoring and control systems, communications modules designed to interface Liebert equipment with a variety of building management systems, plus stand-alone monitoring, control and leak detection devices.

### Local And Remote Monitoring Panels

These units provide basic monitoring and control for single unit or small groups of equipment either at the equipment location or to a remote site.

*Products include:*

- Liebert Universal Monitor
- Liebert Autochangeover Controllers
- Liebert Remote Contact Monitor Panel

### Leak Detection

Liebert Liqui-tect® leak detection systems alert facility personnel to the presence of leaking fluids before serious damage results. They provide quick sensing and accurate reporting of leaks below the floor, above the ceiling or at the perimeter of a room.

*Products include:*

- Liebert Liqui-tect Panel Two Channel Direct Read Leak Detection
- Liebert Zone Leak Detection Kits
- Liebert Point Leak Detection Sensor

### Fundamental Monitoring

Liebert OpenComms Nform™ is a centralized monitoring and communications software package that combines full-scale monitoring with cost-effective deployment through the use of the existing network infrastructure.

*Products include:*

- Liebert OpenComms Nform Software
- Liebert OpenComms NIC

### Advanced Monitoring

Liebert SiteScan® Web offers comprehensive, centralized monitoring, control, data analysis and reporting for a full-range of computer support systems. It provides web-based site monitoring, alarm management and trending/analysis for critical sites.

*Products include:*

- Liebert SiteScan Web Software
- Liebert SiteScan Web Router Gateway



For Further Information,  
Please refer to [www.liebert.com](http://www.liebert.com)

### Third Party Monitoring System Connectivity

The use of open protocols allows you to interface Liebert units and monitoring systems with other types and brands of control equipment including BMS, NMS, SCADA and fire alarm systems.

*Protocols supported:*

- Modbus
- BACnet
- SNMP
- 485

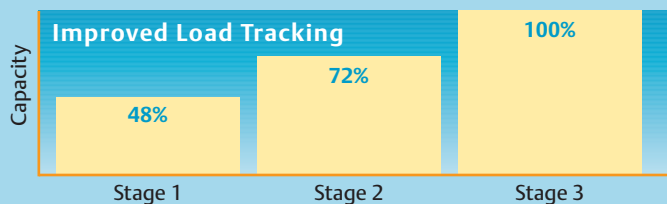
## The Right Size To Fit Your Space And Application

With more than 10,000 possible configurations, there is a Mini-Mate2 system available to fit the needs of many room cooling or spot cooling requirements.

### Mini-Mate2™ Product Features Include:

- Available in 1, 1.5, 2, 3, 5 & 8 ton capacities (3-stage cooling on 8-ton)
- Self-contained or split systems allow for fitting systems with a variety of architectures
- Reliable refrigeration components featuring rotary or scroll compressors with copper tube aluminum fin coils provide high-efficiency
- Units are fully charged with refrigerant and come standard with quick-connect fittings to reduce installation time.
- Available in air-cooled, water-cooled, glycol-cooled or chilled-water configurations
- Easy-to-use menu-driven microprocessor control
- Optional room sensors available
- Hot gas bypass for low load applications

### 3-Stage Cooling (8 ton system only)



A unique compressor staging system utilizes independent 3-ton and 5-ton circuits to provide better control of room conditions. The unit microprocessor continuously monitors recent cooling operation, and selects the most economical cooling stage to satisfy demand.

### Microprocessor Control Features:

- User-friendly wall-mount display
- Provides precise control of all unit functions
- Temperature Control
- Humidity Control
- Alarm Indication
- Programming
- Auto Restart

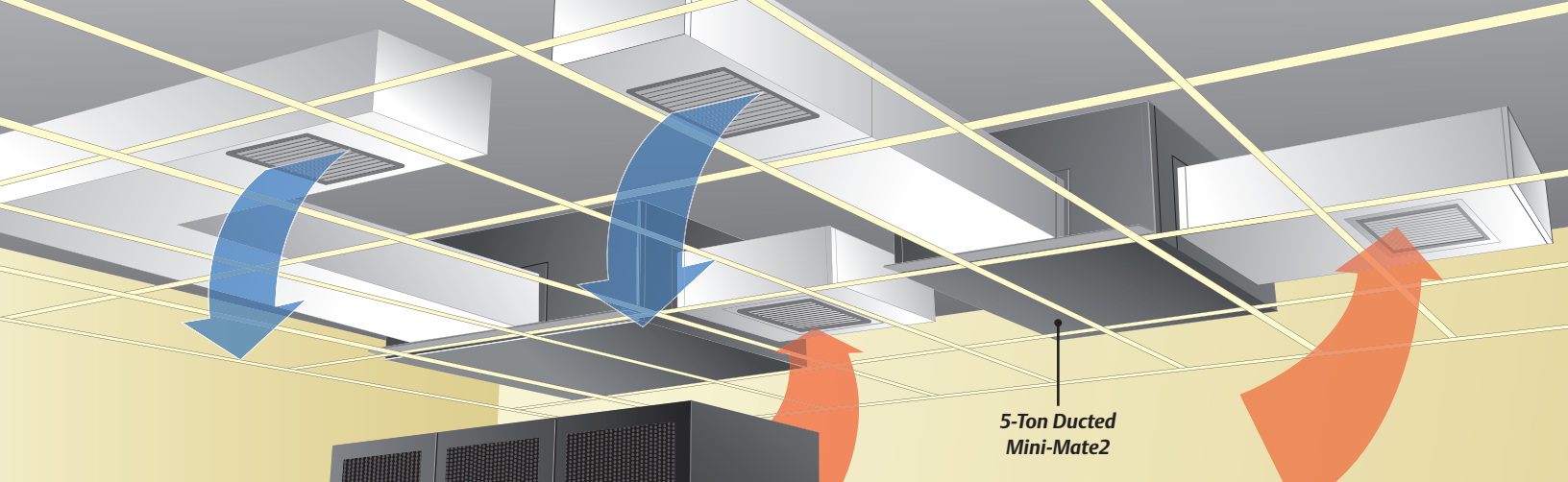


### A Variety Of Options Help You Meet Numerous Applications:

- Grille (1-1.5 tons) or Plenum (2-3 tons) that fits 2'x4' ceiling grid for direct supply & return air distribution
- Fan speed and/or blower options to handle supply air ductwork with higher external static pressures
- Filter box or duct kits to connect to ducted sites
- Hot water reheat to utilize building hot water for energy savings
- Stainless steel electric reheat and/or canister humidifier for humidity control
- High-pressure chilled water systems
- Single-point power connection kit to facilitate close coupled evaporator & condensing unit wiring
- Multiple air-cooled heat rejection solutions: indoor ducted, outdoor, Quiet-Line, high ambient
- 2-way or 3-way water regulating valves rated for standard or high-pressure applications
- Unit disconnect, smoke sensor, and/or high-temp sensor options
- Site monitoring and communication devices to meet monitoring needs
- R407C refrigerant

### 1-1.5 Ton with grille



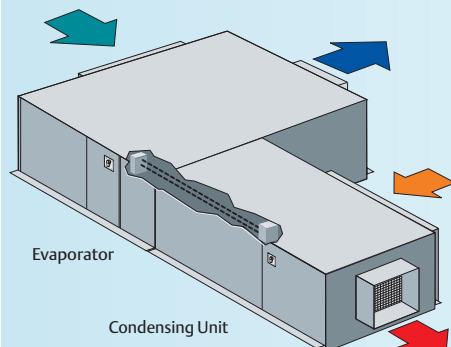


## Product Option Availability

|  |   | Capacity (Tons) |     |   |   |   |   |
|--|---|-----------------|-----|---|---|---|---|
|  |   | 1               | 1.5 | 2 | 3 | 5 | 8 |
| System Types                           | Chilled Water (rated @ 300 psi static pressure)                         |                 | •   |   | • | • |   |
|  | Chilled Water (rated @ 400 psi static pressure)                         |                 |     |   |   | • | • |
|  | Self-Contained Air-Cooled   | •               | •   |   |   |   |   |
|  | Self-Contained Water/Glycol-Cooled                                      | •               | •   |   |   |   |   |
|  | Split System Air-Cooled w/Centrifugal Indoor Condensing Unit            |                 |     | • | • | • | • |
|  | Split System Air-Cooled w/Outdoor High Ambient Prop Fan Condensing Unit |                 |     | • | • | • |   |
|  | Split System Air-Cooled w/Outdoor Prop Fan Condensing Unit              | •               | •   | • | • | • | • |
|  | Split System Air-Cooled w/Outdoor Quiet-Line Prop Fan Condensing Unit   |                 |     | • | • | • |   |
| Factory Installed Options <sup>1</sup> | Split System Water/Glycol-Cooled (2- or 3-way Valve, 150 or 350 psi)    | •               | •   | • | • | • | • |
|  | 50 & 60 Hz voltages   | •               | •   | • | • | • | • |
|  | Canister Humidifier   | •               | •   | • | • | • | • |
|  | Chilled Water w/High Close-Off Pressure Valve                           |                 |     |   | • | • | • |
|  | Direct-Drive Motor/Two-Speed  | •               | •   | • | • |   |   |
|  | Filter Clog Alarm   | •               | •   | • | • | • | • |
|  | High Temp Sensor (Firestat)   | •               | •   | • | • | • | • |
|  | Free-Cooling Coil (Cu or CuNi Versions)                                 | •               | •   | • | • | • | • |
|  | Hot Gas Reheat (self-contained systems only)                            | •               | •   |   |   |   |   |
|  | Hot Water Reheat  | •               | •   |   |   |   |   |
|  | Internal Disconnect Switch  | •               | •   | • | • | • | • |
|  | SCR Reheat  | •               | •   | • | • | • | • |
|  | Smoke Sensor  | •               | •   | • | • | • | • |
|  | Stainless Steel Electric Reheat   | •               | •   | • | • | • | • |
|  | R407C   | •               | •   | • | • | • | • |
|  | High External Static Option   |                 |     | • | • | • | • |
| Ship Loose Accessories <sup>1</sup>    | 15' or 30' Refrigerant Line Sets (R22 only)                             | •               | •   | • | • |   |   |
|  | Condensate Pump Kit   | •               | •   | • | • | • | • |
|  | Duct Kit  | •               | •   | • | • | • | • |
|  | Filter Box  | •               | •   | • | • | • | • |
|  | Remote Sensors  | •               | •   | • | • | • | • |
|  | Single Point Power Kit  | •               | •   | • | • | • | • |
| Monitoring <sup>2</sup>                | Supply & Return Grille/Plenum   | •               | •   | • | • |   |   |
|  | AC4 Autochangeover Controller   | •               | •   | • | • | • | • |
|  | Liqui-tect 410 Point Detection Leak Detection Sensor                    | •               | •   | • | • | • | • |
|  | LT460-K Zone Leak Detection Kits  | •               | •   | • | • | • | • |
|  | NIC-ENCL OPENCOMMS Network Interface Card                               | •               | •   | • | • | • | • |
|  | ENV-DO-ENCL OPENCOMMS Discrete Output Card                              | •               | •   | • | • | • | • |
|  | RAC2-8 Remote Autochangeover Controller                                 | •               | •   | • | • | • | • |
|  | RCM4 Four-Point Dry Contact Monitor                                     | •               | •   | • | • | • | • |
|  | RCM8CE Eight-Point Remote Dry Contact Monitor                           | •               | •   | • | • | • | • |
|  | RCM8DO Eight-Point Remote Dry Contact Monitor w/N.O. relays             | •               | •   | • | • | • | • |
|  | Site Scan Monitoring  | •               | •   | • | • | • | • |

### Single-Point Power Kit

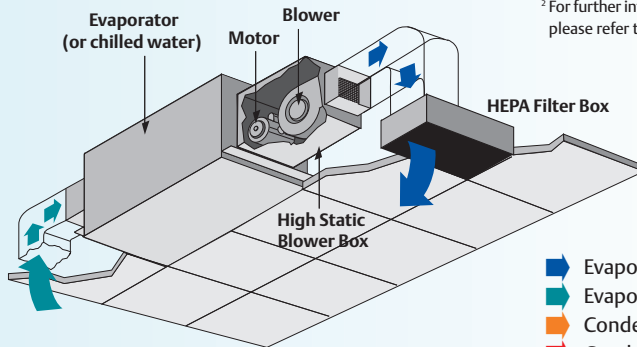
8-ton Configuration Shown



Field installed single-point power kit simplifies connection and installation.

### High Static Pressure Option

2-3 Ton Shown



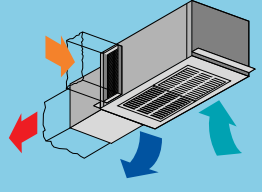
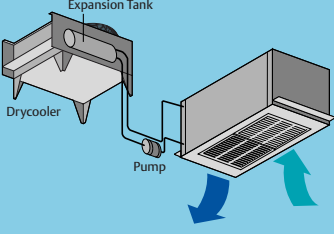
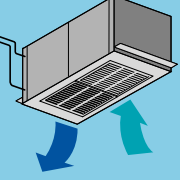
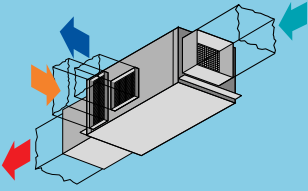
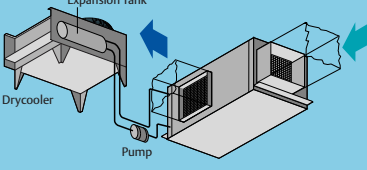
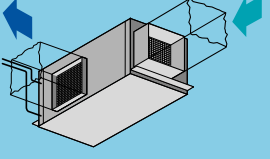
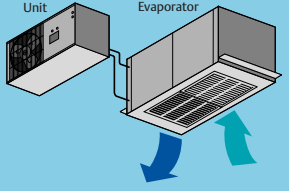
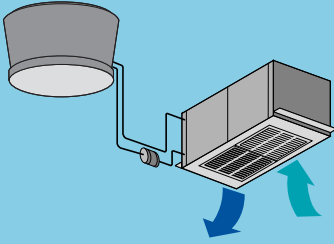
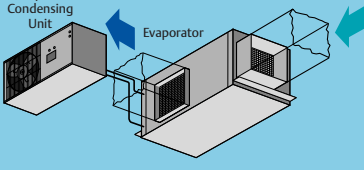
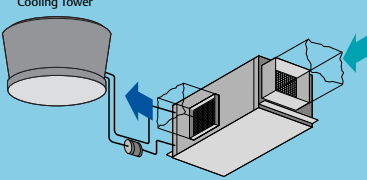
<sup>1</sup> Some option/accessory combinations are not available.

<sup>2</sup> For further information, please refer to [www.liebert.com](http://www.liebert.com)

- ➡ Evaporator Supply
- ➡ Evaporator Return
- ➡ Condenser Return
- ➡ Condenser Supply



# 1 And 1-1/2 Ton Systems

| Air-Cooled   | Water/Glycol   | Chilled-Water   |
|--|--|---|
|  <p>Self-Contained Air-Cooled with Grille</p>   |  <p>Self-Contained Glycol System with Grille</p>   |  <p>Chilled-Water with Grille</p>  |
|  <p>Self-Contained Air-Cooled Ducted<br/>Optional Filter Box, Duct Connection Available</p> |  <p>Self-Contained Glycol System Ducted<br/>Optional Filter Box, Duct Connection Available</p> |  <p>Chilled-Water Ducted<br/>Optional Filter Box, Duct Connection Available</p>                                |
|  <p>Split System with Grille</p>  |  <p>Self-Contained Water-Cooled with Grille</p>  |   |
|  <p>Split System Ducted<br/>Optional Filter Box, Duct Connection Available</p>              |  <p>Self-Contained Water-Cooled Ducted<br/>Optional Filter Box, Duct Connection Available</p>  | <ul style="list-style-type: none"> <li>Blue arrow: Evaporator Supply</li> <li>Teal arrow: Evaporator Return</li> <li>Orange arrow: Condenser Return</li> <li>Red arrow: Condenser Supply</li> </ul> |

# Specifications

## 1 And 1-1/2 Ton Systems

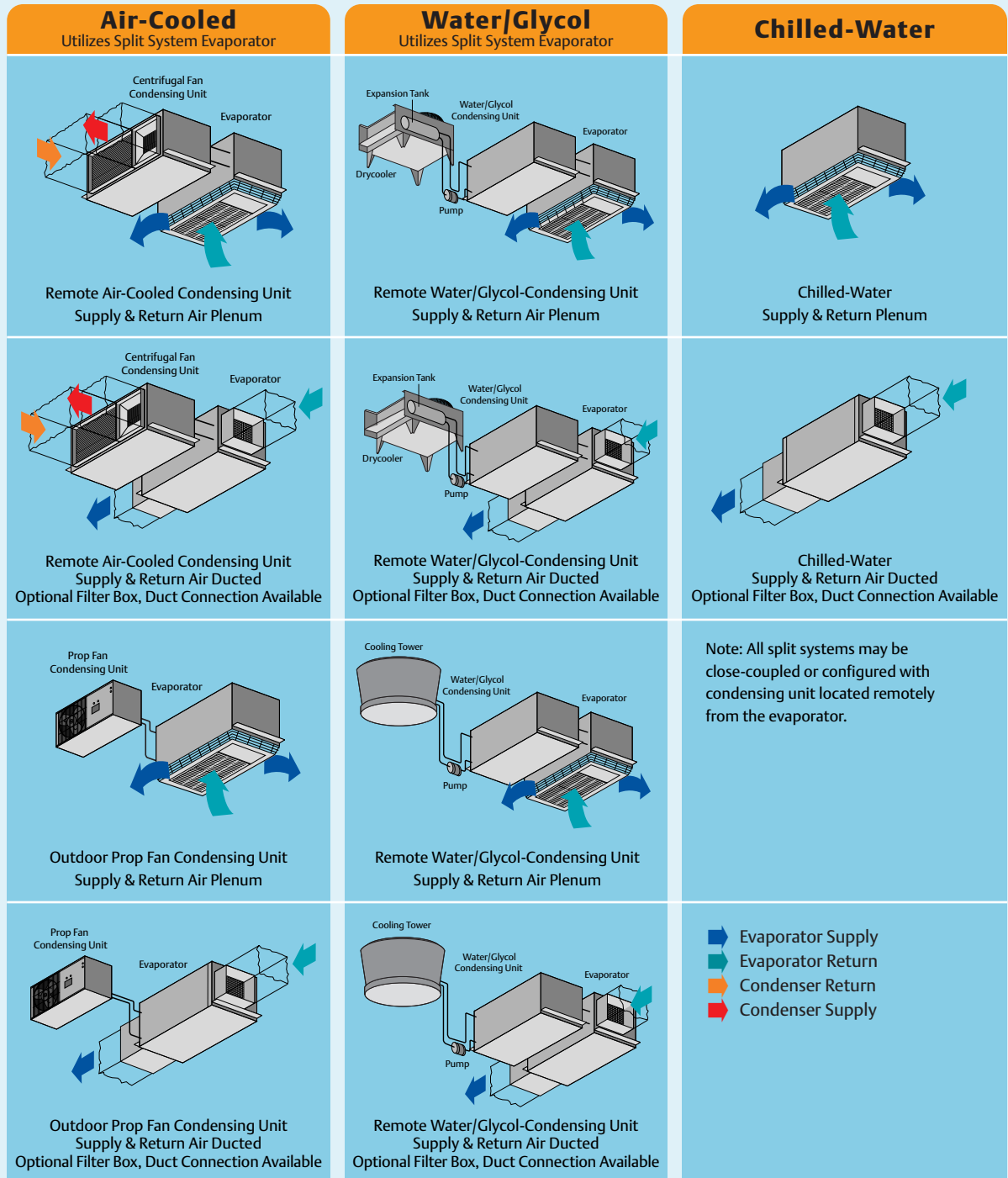
| Evaporator<br>Condensing Unit              |          | 60 HZ  |                               |  |                             | 50 HZ  |                               |  |                             |
|--|----------|--|-------------------------------|--|-----------------------------|--|-------------------------------|--|-----------------------------|
|  |          | AIR COOLED SYSTEM                            |                               |  |                             |  |                               |  |                             |
|  |          | with Outdoor Condensing Unit<br>Split System |                               | with Centrifugal Condensing Unit<br>Self-Contained |                             | with Outdoor Condensing Unit<br>Split System |                               | with Centrifugal Condensing Unit<br>Self-Contained |                             |
|  |          | 1 Ton<br>MMD12E<br>PFH014A                   | 1.5 Tons<br>MMD18E<br>PFH020A | 1 Ton<br>MMD12A<br>MM2CF                           | 1.5 Tons<br>MMD18A<br>MM2CF | 1 Ton<br>MMD11E<br>PFH013A                   | 1.5 Tons<br>MMD17E<br>PFH019A | 1 Ton<br>MMD11A<br>MM2CF                           | 1.5 Tons<br>MMD17A<br>MM2CF |
| Net Capacity Data* BTUH (kW) Low Fan Speed |          |  |                               |  |                             |  |                               |  |                             |
| 80 F (27.7) DB                             | Total    | 14,100 (4.1)                                 | 19,800 (5.8)                  | 13,300 (3.9)                                       | 19,300 (5.7)                | 14,400 (4.2)                                 | 21,200 (4.2)                  | 13,400 (3.9)                                       | 20,800 (6.1)                |
| 50% RH                                     | Sensible | 11,600 (3.4)                                 | 15,500 (4.5)                  | 11,300 (3.3)                                       | 15,300 (4.5)                | 11,700 (3.4)                                 | 16,000 (4.7)                  | 11,300 (3.3)                                       | 15,900 (4.7)                |
| 75 F (23.9 C) DB                           | Total    | 13,000 (3.8)                                 | 18,400 (5.4)                  | 12,300 (3.6)                                       | 18,000 (5.3)                | 13,300 (3.9)                                 | 19,800 (5.8)                  | 12,400 (3.6)                                       | 19,500 (5.7)                |
| 50% RH                                     | Sensible | 11,200 (3.3)                                 | 15,000 (4.4)                  | 10,900 (3.2)                                       | 14,900 (4.4)                | 11,300 (3.3)                                 | 15,600 (4.6)                  | 10,900 (3.2)                                       | 15,500 (4.5)                |
| 72 F (22.2 C) DB                           | Total    | 12,400 (3.6)                                 | 17,700 (5.2)                  | 11,800 (3.5)                                       | 17,300 (5.1)                | 12,700 (3.7)                                 | 19,000 (5.6)                  | 11,900 (3.5)                                       | 18,700 (5.5)                |
| 50% RH                                     | Sensible | 10,900 (3.2)                                 | 14,800 (4.3)                  | 10,600 (3.1)                                       | 14,600 (4.3)                | 11,000 (3.2)                                 | 15,300 (4.5)                  | 10,700 (3.1)                                       | 15,200 (4.5)                |
| Net Capacity Data* BTUH (kW) Low Fan Speed |          |  |                               |  |                             |  |                               |  |                             |
| 80 F (26.7) DB                             | Total    | 15,000 (4.4)                                 | 22,000 (5.7)                  | 13,300 (3.9)                                       | 18,800 (5.5)                | 14,300 (4.2)                                 | 20,600 (6.0)                  | 13,400 (3.9)                                       | 20,300 (5.9)                |
| 50% RH                                     | Sensible | 10,500 (3.1)                                 | 13,800 (4.0)                  | 10,200 (3.0)                                       | 13,700 (4.0)                | 10,600 (3.1)                                 | 14,400 (4.2)                  | 10,200 (3.0)                                       | 14,200 (4.2)                |
| 75 F (23.9 C) DB                           | Total    | 12,900 (3.8)                                 | 18,000 (5.3)                  | 12,300 (3.6)                                       | 17,700 (5.2)                | 13,200 (3.9)                                 | 19,200 (5.6)                  | 12,400 (3.6)                                       | 18,900 (5.5)                |
| 50% RH                                     | Sensible | 10,100 (3.0)                                 | 13,500 (4.0)                  | 9,900 (2.9)  | 13,400 (3.9)                | 10,200 (3.0)                                 | 14,000 (4.1)                  | 9,900 (2.9)  | 13,900 (4.1)                |
| 72 F (22.2) DB                             | Total    | 12,300 (3.6)                                 | 17,200 (5.0)                  | 11,800 (3.5)                                       | 16,900 (5.0)                | 12,600 (3.7)                                 | 18,400 (5.4)                  | 11,900 (3.5)                                       | 18,200 (5.3)                |
| 50% RH                                     | Sensible | 9,900 (2.9)                                  | 13,300 (3.9)                  | 9,700 (2.8)  | 13,100 (3.8)                | 10,000 (2.9)                                 | 13,800 (4.0)                  | 9,700 (2.8)  | 14,200 (4.2)                |

| Evaporator                                 |          | 60 HZ           |                    |                 |                    | 50 HZ           |                    |                 |                    |
|--|----------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
|  |          | WATER COOLED    |                    | GLYCOL COOLED   |                    | WATER COOLED    |                    | GLYCOL COOLED   |                    |
|  |          | Self-Contained  |                    | Self-Contained  |                    | Self-Contained  |                    | Self-Contained  |                    |
|  |          | 1 Ton<br>MMD14W | 1.5 Tons<br>MMD20W | 1 Ton<br>MMD14W | 1.5 Tons<br>MMD20W | 1 Ton<br>MMD13W | 1.5 Tons<br>MMD19W | 1 Ton<br>MMD13W | 1.5 Tons<br>MMD19W |
| Net Capacity Data* BTUH (kW) Low Fan Speed |          |                 |                    |                 |                    |                 |                    |                 |                    |
| 80F (26.7) DB                              | Total    | 15,000 (4.4)    | 22,000 (6.4)       | 13,700 (4.0)    | 19,900 (5.8)       | 15,000 (4.4)    | 23,000 (6.7)       | 13,900 (4.1)    | 21,300 (6.2)       |
| 50% RH                                     | Sensible | 12,500 (3.7)    | 16,600 (4.9)       | 12,000 (3.5)    | 15,800 (4.6)       | 12,400 (3.6)    | 15,500 (4.5)       | 12,000 (3.5)    | 16,400 (4.8)       |
| 75 F (23.9 C) DB                           | Total    | 13,900 (4.1)    | 20,500 (6.0)       | 12,800 (3.8)    | 18,600 (5.4)       | 13,900 (4.1)    | 21,300 (6.2)       | 12,900 (3.8)    | 20,000 (5.9)       |
| 50% RH                                     | Sensible | 12,000 (3.5)    | 16,100 (4.7)       | 11,600 (3.4)    | 15,400 (4.5)       | 12,000 (3.5)    | 15,100 (4.4)       | 11,600 (3.4)    | 15,900 (4.7)       |
| 72 F (22.2 C) DB                           | Total    | 13,300 (3.9)    | 19,600 (5.7)       | 12,300 (3.6)    | 17,900 (5.2)       | 13,300 (3.9)    | 20,400 (5.6)       | 12,400 (3.6)    | 19,200 (5.6)       |
| 50% RH                                     | Sensible | 11,800 (3.5)    | 15,800 (4.6)       | 11,400 (3.3)    | 15,100 (4.4)       | 11,800 (3.5)    | 14,900 (4.4)       | 11,400 (3.3)    | 15,700 (4.6)       |
| Net Capacity Data* BTUH (kW) Low Fan Speed |          |                 |                    |                 |                    |                 |                    |                 |                    |
| 80 F (26.7) DB                             | Total    | 14,600 (4.3)    | 21,100 (6.2)       | 13,400 (3.9)    | 18,900 (5.5)       | 14,500 (4.2)    | 23,900 (7.0)       | 13,500 (4.0)    | 20,700 (6.1)       |
| 50% RH                                     | Sensible | 11,000 (3.2)    | 14,800 (4.3)       | 10,500 (3.1)    | 13,900 (4.1)       | 11,000 (3.2)    | 17,300 (5.1)       | 10,600 (3.1)    | 14,600 (4.3)       |
| 75 F (23.9 C) DB                           | Total    | 13,500 (4.0)    | 19,700 (5.8)       | 12,500 (3.7)    | 17,800 (5.2)       | 13,500 (4.0)    | 22,200 (6.5)       | 12,600 (3.7)    | 19,300 (5.7)       |
| 50% RH                                     | Sensible | 10,700 (3.1)    | 14,400 (4.2)       | 10,200 (3.0)    | 13,600 (4.0)       | 10,600 (3.1)    | 16,900 (5.0)       | 10,300 (3.0)    | 14,300 (4.2)       |
| 72 F (22.2 C) DB                           | Total    | 12,900 (3.8)    | 18,900 (5.5)       | 12,000 (3.5)    | 17,100 (5.0)       | 12,900 (3.8)    | 21,200 (6.2)       | 12,100 (3.5)    | 18,600 (5.4)       |
| 50% RH                                     | Sensible | 10,400 (3.0)    | 14,200 (4.2)       | 10,000 (2.9)    | 13,400 (3.9)       | 10,400 (3.0)    | 16,500 (4.8)       | 10,100 (3.0)    | 14,000 (4.1)       |

| Evaporator                             |          | 60 HZ                                |  | 50 HZ                                |  |
|--|----------|--------------------------------------|--|--------------------------------------|--|
|  |          | CHILLED WATER                        |  |                                      |  |
|  |          | Self-Contained<br>1.5 Tons<br>MMD23C |  | Self-Contained<br>1.5 Tons<br>MMD22C |  |
|  |          |                                      |  |                                      |  |
| Capacity Data BTUH (kW) High Fan Speed |          |                                      |  |                                      |  |
| 80 F (26.7) DB                         | Total    | 21,900 (6.4)                         |  | 21,900 (6.4)                         |  |
| 50% RH                                 | Sensible | 17,300 (5.1)                         |  | 17,300 (5.1)                         |  |
| 75 F (23.9 C) DB                       | Total    | 15,500 (4.5)                         |  | 15,500 (4.5)                         |  |
| 50% RH                                 | Sensible | 14,500 (4.2)                         |  | 14,500 (4.2)                         |  |
| 72 F (22.2 C) DB                       | Total    | 13,100 (3.8)                         |  | 13,100 (3.8)                         |  |
| 50% RH                                 | Sensible | 12,800 (3.8)                         |  | 12,800 (3.8)                         |  |
| Capacity Data BTUH (kW) High Fan Speed |          |                                      |  |                                      |  |
| 80 F (26.7) DB                         | Total    | 18,400 (5.4)                         |  | 18,400 (5.4)                         |  |
| 50% RH                                 | Sensible | 14,300 (4.2)                         |  | 14,300 (4.2)                         |  |
| 75 F (23.9 C) DB                       | Total    | 13,500 (4.0)                         |  | 13,500 (4.0)                         |  |
| 50% RH                                 | Sensible | 12,200 (3.6)                         |  | 12,200 (3.6)                         |  |
| 72 F (22.2 C) DB                       | Total    | 11,300 (3.3)                         |  | 11,300 (3.3)                         |  |
| 50% RH                                 | Sensible | 11,000 (3.2)                         |  | 11,000 (3.2)                         |  |

\*The net capacity data has fan motor heat factored in for all ratings and the entering air condition of 72° F (22.2° C), 50% RH is the standard rating condition of ASHRAE 127-2001

## 2 And 3 Ton Systems





# Specifications

## 2 And 3 Ton Split Systems

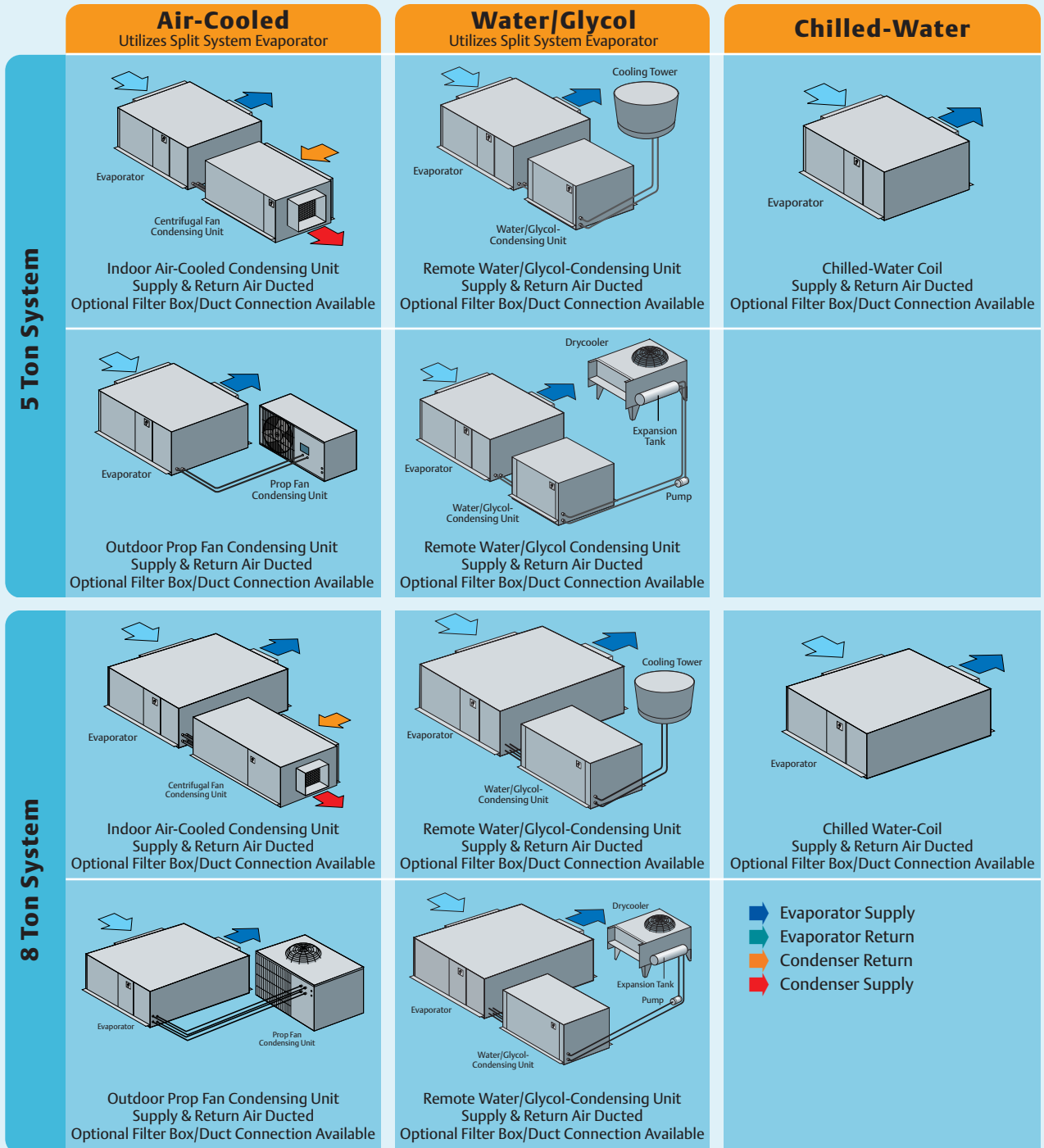
| Evaporator<br>Condensing Unit               |          | 60 HZ                        |               |                                  |               | 50 HZ                        |               |                                  |              |
|---|----------|------------------------------|---------------|----------------------------------|---------------|------------------------------|---------------|----------------------------------|--------------|
|   |          | AIR COOLED SYSTEM            |               |                                  |               |                              |               |                                  |              |
|   |          | with Outdoor Condensing Unit |               | with Centrifugal Condensing Unit |               | with Outdoor Condensing Unit |               | with Centrifugal Condensing Unit |              |
|   |          | 2 Tons                       | 3 Tons        | 2 Tons                           | 3 Tons        | 2 Tons                       | 3 Tons        | 2 Tons                           | 3 Tons       |
|   |          | MMD24E                       | MMD36E        | MMD24E                           | MMD36E        | MMD23E                       | MMD35E        | MMD23E                           | MMD35E       |
|   |          | PFH027A                      | PFH037A       | MCD24A                           | MCD36A        | PFH026A                      | PFH036A       | MCD23A                           | MCD35A       |
| Net Capacity Data* BTUH (kW) High Fan Speed |          |                              |               |                                  |               |                              |               |                                  |              |
| 80 F (26.7 C) DB                            | Total    | 25,600 (7.5)                 | 36,900 (10.8) | 24,200 (7.1)                     | 34,100 (10.0) | 23,800 (7.0)                 | 34,500 (10.1) | 22,700 (6.7)                     | 31,800 (9.3) |
| 50% RH                                      | Sensible | 20,900 (6.1)                 | 26,600 (7.8)  | 20,300 (5.9)                     | 28,300 (8.3)  | 20,200 (5.9)                 | 28,400 (8.3)  | 19,800 (5.8)                     | 27,400 (8.0) |
| 75 F (23.9 C) DB                            | Total    | 23,800 (7.0)                 | 34,200 (10.0) | 22,400 (6.6)                     | 31,700 (9.3)  | 22,100 (6.5)                 | 32,100 (9.4)  | 21,000 (6.2)                     | 29,600 (8.7) |
| 50% RH                                      | Sensible | 20,100 (5.9)                 | 25,700 (7.5)  | 19,500 (5.7)                     | 27,200 (8.0)  | 19,400 (5.7)                 | 27,400 (8.0)  | 19,000 (5.6)                     | 26,400 (7.7) |
| 72 F (22.2 C) DB                            | Total    | 22,900 (6.7)                 | 32,900 (9.6)  | 21,400 (6.3)                     | 30,400 (8.9)  | 21,200 (6.2)                 | 30,800 (9.0)  | 20,100 (5.9)                     | 28,300 (8.3) |
| 50% RH                                      | Sensible | 19,700 (5.8)                 | 25,200 (7.4)  | 19,100 (5.6)                     | 26,500 (7.8)  | 19,000 (5.6)                 | 26,700 (7.8)  | 18,500 (5.4)                     | 25,700 (7.5) |
| Net Capacity Data* BTUH (kW) High Fan Speed |          |                              |               |                                  |               |                              |               |                                  |              |
| 80 F (26.7 C) DB                            | Total    | 25,500 (7.5)                 | 36,900 (10.8) | 24,000 (7.0)                     | 33,600 (9.8)  | 23,700 (6.9)                 | 34,000 (10.0) | 22,600 (6.6)                     | 31,500 (9.2) |
| 50% RH                                      | Sensible | 19,800 (5.8)                 | 26,600 (7.8)  | 19,300 (5.7)                     | 25,300 (7.4)  | 19,100 (5.6)                 | 25,400 (7.4)  | 18,700 (5.5)                     | 24,400 (7.1) |
| 75 F (23.9 C) DB                            | Total    | 23,800 (7.0)                 | 34,200 (10.0) | 22,300 (6.5)                     | 31,300 (9.2)  | 22,000 (6.4)                 | 31,700 (9.3)  | 20,900 (6.1)                     | 29,300 (8.6) |
| 50% RH                                      | Sensible | 19,200 (5.6)                 | 25,700 (7.5)  | 18,500 (5.4)                     | 24,300 (7.1)  | 18,400 (5.4)                 | 24,600 (7.2)  | 18,000 (5.3)                     | 23,600 (6.9) |
| 72 F (22.2 C) DB                            | Total    | 22,700 (6.7)                 | 32,900 (9.6)  | 21,300 (6.2)                     | 29,900 (8.8)  | 21,100 (6.2)                 | 30,400 (8.9)  | 20,000 (5.9)                     | 28,000 (8.2) |
| 50% RH                                      | Sensible | 18,700 (5.5)                 | 25,200 (7.4)  | 18,100 (5.3)                     | 23,900 (7.0)  | 18,000 (5.3)                 | 24,100 (7.1)  | 17,500 (5.1)                     | 23,100 (6.8) |

|  |          | 60 HZ            |                  |                  |                  | 50 HZ            |                  |                  |                  |
|--|----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|  |          | WATER COOLED     |                  | GLYCOL COOLED    |                  | WATER COOLED     |                  | GLYCOL COOLED    |                  |
| Evaporator<br>Condensing Unit                      |          | 2 Tons           | 3 Tons           | 2 Tons           | 3 Tons           | 2 Tons           | 3 Tons           | 2 Tons           | 3 Tons           |
|  |          | MMD24E<br>MCD26W | MMD36E<br>MCD38W | MMD24E<br>MCD26W | MMD36E<br>MCD38W | MMD23E<br>MCD25W | MMD35E<br>MCD37W | MMD23E<br>MCD25W | MMD35E<br>MCD37W |
| <b>Net Capacity Data* BTUH (kW) High Fan Speed</b> |          |                  |                  |                  |                  |                  |                  |                  |                  |
| 80 F (26.7 C) DB                                   | Total    | 26,600 (7.8)     | 38,400 (11.3)    | 23,000 (6.7)     | 35,200 (10.3)    | 24,900 (7.3)     | 35,700 (10.5)    | 21,300 (6.2)     | 32,600 (9.6)     |
| 50% RH   | Sensible | 21,300 (6.2)     | 29,900 (8.8)     | 19,900 (5.8)     | 28,700 (8.4)     | 20,600 (6.0)     | 28,900 (8.5)     | 19,300 (5.7)     | 27,700 (8.1)     |
| 75 F (23.9 C) DB                                   | Total    | 24,600 (7.2)     | 35,600 (10.4)    | 21,400 (6.3)     | 32,700 (9.6)     | 22,800 (6.7)     | 33,000 (9.7)     | 19,800 (5.8)     | 30,400 (8.9)     |
| 50% RH   | Sensible | 20,400 (6.0)     | 28,800 (8.4)     | 19,100 (5.6)     | 27,600 (8.1)     | 19,700 (5.8)     | 27,700 (8.1)     | 18,500 (5.4)     | 26,700 (7.8)     |
| 72 F (22.2 C) DB                                   | Total    | 23,400 (6.9)     | 33,900 (9.9)     | 20,500 (6.0)     | 31,300 (9.2)     | 21,800 (6.4)     | 31,500 (9.2)     | 18,700 (5.5)     | 29,100 (8.5)     |
| 50% RH   | Sensible | 19,900 (5.8)     | 28,100 (8.2)     | 18,700 (5.5)     | 27,000 (7.9)     | 19,200 (5.6)     | 27,100 (7.9)     | 18,700 (5.5)     | 26,000 (7.6)     |
| <b>Net Capacity Data* BTUH (kW) High Fan Speed</b> |          |                  |                  |                  |                  |                  |                  |                  |                  |
| 80 F (26.7 C) DB                                   | Total    | 26,200 (7.7)     | 37,400 (11.0)    | 22,700 (6.7)     | 34,200 (10.0)    | 24,500 (7.2)     | 34,600 (10.1)    | 21,100 (6.2)     | 31,800 (9.3)     |
| 50% RH   | Sensible | 20,100 (5.9)     | 26,700 (7.8)     | 18,800 (5.5)     | 25,500 (7.5)     | 19,500 (5.7)     | 25,700 (7.5)     | 18,200 (5.3)     | 24,600 (7.2)     |
| 75 F (23.9 C) DB                                   | Total    | 24,200 (7.1)     | 34,400 (10.1)    | 21,100 (6.2)     | 31,800 (9.3)     | 22,600 (6.6)     | 32,000 (9.4)     | 19,600 (5.7)     | 29,600 (8.7)     |
| 50% RH   | Sensible | 19,400 (5.7)     | 25,800 (7.6)     | 18,100 (5.3)     | 24,700 (7.2)     | 18,700 (5.5)     | 24,800 (7.3)     | 17,500 (5.1)     | 23,700 (6.9)     |
| 72 F (22.2 C) DB                                   | Total    | 23,000 (6.7)     | 32,900 (9.6)     | 20,300 (5.9)     | 30,500 (8.9)     | 21,500 (6.3)     | 30,600 (9.0)     | 18,800 (5.5)     | 28,300 (8.3)     |
| 50% RH   | Sensible | 18,900 (5.5)     | 25,200 (7.4)     | 17,700 (5.2)     | 24,100 (7.1)     | 18,200 (5.3)     | 24,200 (7.1)     | 17,000 (5.0)     | 23,200 (6.8)     |

|   |          | 60 HZ            | 50 HZ            |
|---|----------|------------------|------------------|
|   |          | CHILLED WATER    |                  |
|   |          | 3 Tons<br>MMD40C | 3 Tons<br>MMD39C |
| <b>Capacity Data BTUH (kW) High Fan Speed</b> |          |                  |                  |
| 80 F (26.7 C) DB                              | Total    | 43,100 (12.6)    | 43,100 (12.6)    |
| 50% RH  | Sensible | 32,800 (9.6)     | 32,800 (9.6)     |
| 75 F (23.9 C) DB                              | Total    | 31,000 (9.1)     | 31,000 (9.1)     |
| 50% RH  | Sensible | 27,600 (8.1)     | 27,600 (8.1)     |
| 72 F (22.2 C) DB                              | Total    | 25,800 (7.6)     | 25,800 (7.6)     |
| 50% RH  | Sensible | 24,600 (7.2)     | 24,600 (7.2)     |
| <b>Capacity Data BTUH (kW) Low Fan Speed</b>  |          |                  |                  |
| 80 F (26.7 C) DB                              | Total    | 36,400 (10.7)    | 36,400 (10.7)    |
| 50% RH  | Sensible | 27,300 (8.0)     | 27,300 (8.0)     |
| 75 F (23.9 C) DB                              | Total    | 26,000 (7.6)     | 26,000 (7.6)     |
| 50% RH  | Sensible | 22,800 (6.7)     | 22,800 (6.7)     |
| 72 F (22.2 C) DB                              | Total    | 21,600 (6.3)     | 21,600 (6.3)     |
| 50% RH  | Sensible | 20,500 (6.0)     | 20,500 (6.0)     |

\*The net capacity data has fan motor heat factored in for all ratings and the entering air condition of 72° F (22.2° C), 50% RH is the standard rating condition of ASHRAE 127-2001

## 5 And 8 Ton Systems



# Specifications

## 5 And 8 Ton Split Systems

|                               |          | 60 Hz  |   | 50 Hz  |   |   |                                   |
|-------------------------------|----------|--|---|--|---|---|-----------------------------------|
|                               |          | AIR COOLED SYSTEM  |   |  |   |   |                                   |
|                               |          | w/Outdoor Condensing Unit<br>5 Tons<br>MMD60E<br>PFH067A | w/Centrifugal Condensing Unit<br>5 Tons<br>MMD60E<br>MCD65A | w/Outdoor Condensing Unit<br>5 Tons<br>MMD59E<br>PFH066A | w/Centrifugal Condensing Unit<br>5 Tons<br>MMD59E<br>MCD64A |   |                                   |
| Evaporator<br>Condensing Unit |          |  |   |  |   |   |                                   |
| Net Capacity Data*-BTUH (kW)  |          |  |   |  |   |   |                                   |
| 80 F (26.7 C) DB              | Total    | 65,000 (19.0)  | 66,200 (19.4)   | 65,400 (19.2)  |   | 65,500 (19.2)                               |                                   |
| 50% RH                        | Sensible | 54,400 (15.9)  | 54,800 (16.1)   | 54,800 (16.1)  |   | 54,800 (16.1)                               |                                   |
| 75 F (23.9 C) DB              | Total    | 60,500 (17.7)  | 61,800 (18.1)   | 60,000 (17.6)  |   | 61,000 (17.9)                               |                                   |
| 50% RH                        | Sensible | 52,600 (15.4)  | 53,100 (15.6)   | 52,600 (15.4)  |   | 53,000 (15.5)                               |                                   |
| 72 F (22.2 C) DB              | Total    | 58,100 (17.0)  | 59,400 (17.4)   | 57,200 (16.8)  |   | 58,600 (17.2)                               |                                   |
| 50% RH                        | Sensible | 51,500 (15.1)  | 52,100 (15.3)   | 51,300 (15.0)  |   | 51,900 (15.2)                               |                                   |
|                               |          | WATER COOLED<br>5 Tons<br>MMD60E<br>MCD69W               | GLYCOL COOLED<br>5 Tons<br>MMD60E<br>MCD69W                 | CHILLED WATER<br>5 Tons<br>MMD92C                        | WATER COOLED<br>5 Tons<br>MMD59E<br>MCD68W                  | GLYCOL COOLED<br>5 Tons<br>MMD59E<br>MCD68W | CHILLED WATER<br>5 Tons<br>MMD91C |
| Evaporator<br>Condensing Unit |          |  |   |  |   |   |                                   |
| Net Capacity Data*-BTUH (kW)  |          |  |   |  |   |   |                                   |
| 80 F (26.7 C) DB              | Total    | 70,800 (20.7)  | 63,400 (18.6)   | 94,200 (27.6)  | 70,000 (20.5)   | 62,000 (18.2)                               | 94,200 (27.6)                     |
| 50% RH                        | Sensible | 56,900 (16.7)  | 54,200 (15.9)   | 69,800 (20.5)  | 56,600 (16.6)   | 53,700 (15.7)                               | 69,800 (20.5)                     |
| 75 F (23.9 C) DB              | Total    | 66,100 (19.4)  | 59,300 (17.4)   | 67,400 (19.7)  | 65,100 (19.1)   | 57,900 (17.0)                               | 67,400 (19.7)                     |
| 50% RH                        | Sensible | 55,200 (16.2)  | 52,500 (15.4)   | 58,300 (17.1)  | 54,800 (16.1)   | 51,900 (15.2)                               | 58,300 (17.1)                     |
| 72 F (22.2 C) DB              | Total    | 63,300 (18.5)  | 57,000 (16.7)   | 53,900 (15.8)  | 62,200 (18.2)   | 55,700 (16.3)                               | 53,900 (15.8)                     |
| 50% RH                        | Sensible | 54,100 (15.9)  | 51,400 (15.1)   | 50,900 (14.9)  | 53,600 (15.7)   | 50,900 (14.9)                               | 50,900 (14.9)                     |

|                               |          | 60 Hz  |   | 50 Hz  |   |   |                                   |
|-------------------------------|----------|--|---|--|---|---|-----------------------------------|
|                               |          | AIR COOLED SYSTEM  |   |  |   |   |                                   |
|                               |          | w/Outdoor Condensing Unit<br>8 Tons<br>MMD96E<br>PFH096A | w/Centrifugal Condensing Unit<br>8 Tons<br>MMD96E<br>MCD96A | w/Outdoor Condensing Unit<br>8 Tons<br>MMD95E<br>PFH095A | w/Centrifugal Condensing Unit<br>8 Tons<br>MMD95E<br>MCD95A |   |                                   |
| Evaporator<br>Condensing Unit |          |  |   |  |   |   |                                   |
| Net Capacity Data* -BTUH (kW) |          |  |   |  |   |   |                                   |
| 80 F (26.7 C) DB              | Total    | 100,200 (29.4)   | 95,900 (28.1)   | 96,700 (28.3)  |   | 93,800 (27.5)                               |                                   |
| 50% RH                        | Sensible | 80,500 (23.6)  | 79,400 (23.3)   | 79,300 (23.2)  |   | 78,300 (22.9)                               |                                   |
| 75 F (23.9 C) DB              | Total    | 93,100 (27.3)  | 89,500 (26.2)   | 90,200 (26.4)  |   | 87,400 (25.6)                               |                                   |
| 50% RH                        | Sensible | 78,600 (23.0)  | 77,000 (22.6)   | 77,400 (22.7)  |   | 76,200 (22.3)                               |                                   |
| 72 F (22.2 C) DB              | Total    | 89,200 (26.1)  | 86,800 (25.4)   | 86,200 (25.3)  |   | 83,600 (24.5)                               |                                   |
| 50% RH                        | Sensible | 77,200 (22.6)  | 76,500 (22.4)   | 75,900 (22.2)  |   | 74,900 (21.9)                               |                                   |
|                               |          | WATER COOLED<br>8 Tons<br>MMD96E<br>MCD98W               | GLYCOL COOLED<br>8 Tons<br>MMD96E<br>MCD98W                 | CHILLED WATER<br>8 Tons<br>MMD8TC                        | WATER COOLED<br>8 Tons<br>MMD95E<br>MCD97W                  | GLYCOL COOLED<br>8 Tons<br>MMD95E<br>MCD97W | CHILLED WATER<br>8 Tons<br>MMD8TC |
| Evaporator<br>Condensing Unit |          |  |   |  |   |   |                                   |
| Net Capacity Data* -BTUH (kW) |          |  |   |  |   |   |                                   |
| 80 F (26.7 C) DB              | Total    | 105,000 (30.8)   | 93,000 (27.2)   | 130,600 (38.3)   | 101,100 (29.6)  | 89,600 (26.3)                               | 130,600 (38.3)                    |
| 50% RH                        | Sensible | 83,300 (24.4)  | 77,500 (22.7)   | 98,900 (29.0)  | 81,000 (23.7)   | 76,500 (22.4)                               | 98,900 (29.0)                     |
| 75 F (23.9 C) DB              | Total    | 97,400 (28.5)  | 86,400 (25.3)   | 93,400 (27.4)  | 93,600 (27.4)   | 84,500 (24.8)                               | 93,400 (27.4)                     |
| 50% RH                        | Sensible | 81,300 (23.8)  | 75,000 (22.0)   | 82,900 (24.3)  | 78,700 (23.1)   | 75,600 (22.2)                               | 82,900 (24.3)                     |
| 72 F (22.2 C) DB              | Total    | 93,200 (27.3)  | 84,100 (24.6)   | 72,100 (21.1)  | 89,400 (26.2)   | 81,100 (23.8)                               | 72,100 (21.1)                     |
| 50% RH                        | Sensible | 79,000 (23.1)  | 75,300 (22.1)   | 70,500 (20.7)  | 77,100 (22.6)   | 73,900 (21.7)                               | 70,500 (20.7)                     |

\*The net capacity data has fan motor heat factored in for all ratings and the entering air condition of 72° F (22.2° C), 50% RH is the standard rating condition of ASHRAE 127-2001

# Ensuring The High Availability Of Mission-Critical Data And Applications.

**Emerson Network Power, the global leader in enabling business-critical continuity, ensures network resiliency and adaptability through a family of technologies — including Liebert power and cooling technologies — that protect and support business-critical systems. Liebert solutions employ an adaptive architecture that responds to changes in criticality, density and capacity. Enterprises benefit from greater IT system availability, operational flexibility, and reduced capital equipment and operating costs.**

## **Liebert Corporation**

1050 Dearborn Drive  
P.O. Box 29186  
Columbus, Ohio 43229  
800 877 9222 Phone (U.S. &  
Canada Only)  
614 888 0246 Phone (Outside U.S.)  
614 841 6022 FAX

Via Leonardo Da Vinci 8  
Zona Industriale Tognana  
35028 Piove Di Sacco (PD)  
Italy  
39 049 9719 111 Phone  
39 049 5841 257 FAX

Emerson Network Power Asia Pacific  
7/F., Dah Sing Financial Centre  
108 Gloucester Rd, Wanchai  
Hong Kong  
852 25722201 Phone  
852 28029250 FAX

## **liebert.com**

### **24 x 7 Tech Support**

800 222 5877 Phone  
614 841 6755 (outside U.S.)

While every precaution has been taken to ensure accuracy and completeness in this literature, Liebert Corporation assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

© 2006 Liebert Corporation. All rights reserved throughout the world. Specifications subject to change without notice.

All names referred to are trademarks or registered trademarks of their respective owners.

® Liebert and the Liebert logo are registered trademarks of the Liebert Corporation.

SL-10500 (R06/06) Printed in USA

## **Emerson Network Power.**

The global leader in enabling Business-Critical Continuity™.

- |                    |                                |                              |
|--------------------|--------------------------------|------------------------------|
| ■ AC Power Systems | ■ Embedded Computing           | ■ Outside Plant              |
| ■ Connectivity     | ■ Embedded Power               | ■ Power Switching & Controls |
| ■ DC Power Systems | ■ Integrated Cabinet Solutions | ■ <b>Precision Cooling</b>   |

## **EmersonNetworkPower.com**

- |                             |
|-----------------------------|
| ■ Services                  |
| ■ Site Monitoring           |
| ■ Surge & Signal Protection |