Precision Cooling
For *Business-Critical Continuity™*

Liebert® Challenger™ 3000

Space-Saving Precision Cooling

EMERSON
Network Power

Precision Cooling Performance And Energy Efficiency In A Compact Cabinet

From data centers to telecommunications facilities to critical laboratories, this proven precision cooling system is designed to meet the demands of a wide range of applications — now with enhanced energy saving capabilities.

The Liebert Challenger™ 3000 Precision Cooling System Provides:

- Complete control of temperature, humidity and air filtration.
- An extremely compact footprint, ideal for facilities where space is at a premium.
- All front access for critical components, so the unit may be corner-installed or installed flush against other equipment.
- Advanced Liebert iCOM electronic controls for greater system efficiency.
- Choice of energy efficient compressors on self-contained systems.
- R407-C refrigerant, in compliance with government standards.

Key Benefits:

Flexibility

- iCOM controls provide precise control, improve user interface, and enhance energy efficiency.
- Front-only component access allows Challenger 3000 to be installed in a corner or flush against other equipment, for greater flexibility in placement.
- Optional digital scroll compressor varies capacity to match room cooling requirements.
- Air cooled, water cooled, glycol cooled, GLYCOOL™ and chilled water configurations available.
- Self-contained systems (compressor located in unit) or split systems (compressor located in separate condensing unit).
- Upflow and Downflow models.

Higher Availability

- Features reliable refrigeration components, such as digital scroll or scroll compressor, A-Frame Evaporator coil.
- Factory pre-piped, wired, and tested in a rugged, easy-access tubular-steel frame.

Lowest Total Cost of Ownership

- Requires only 7.5 square feet of space, reducing the floorspace needs over other cooling solutions.
- Digital scroll or scroll compressor provide high energy efficiency operation.
- Fast response iCOM controls minimize short cycling and other wasteful operating patterns.

Ideal Applications

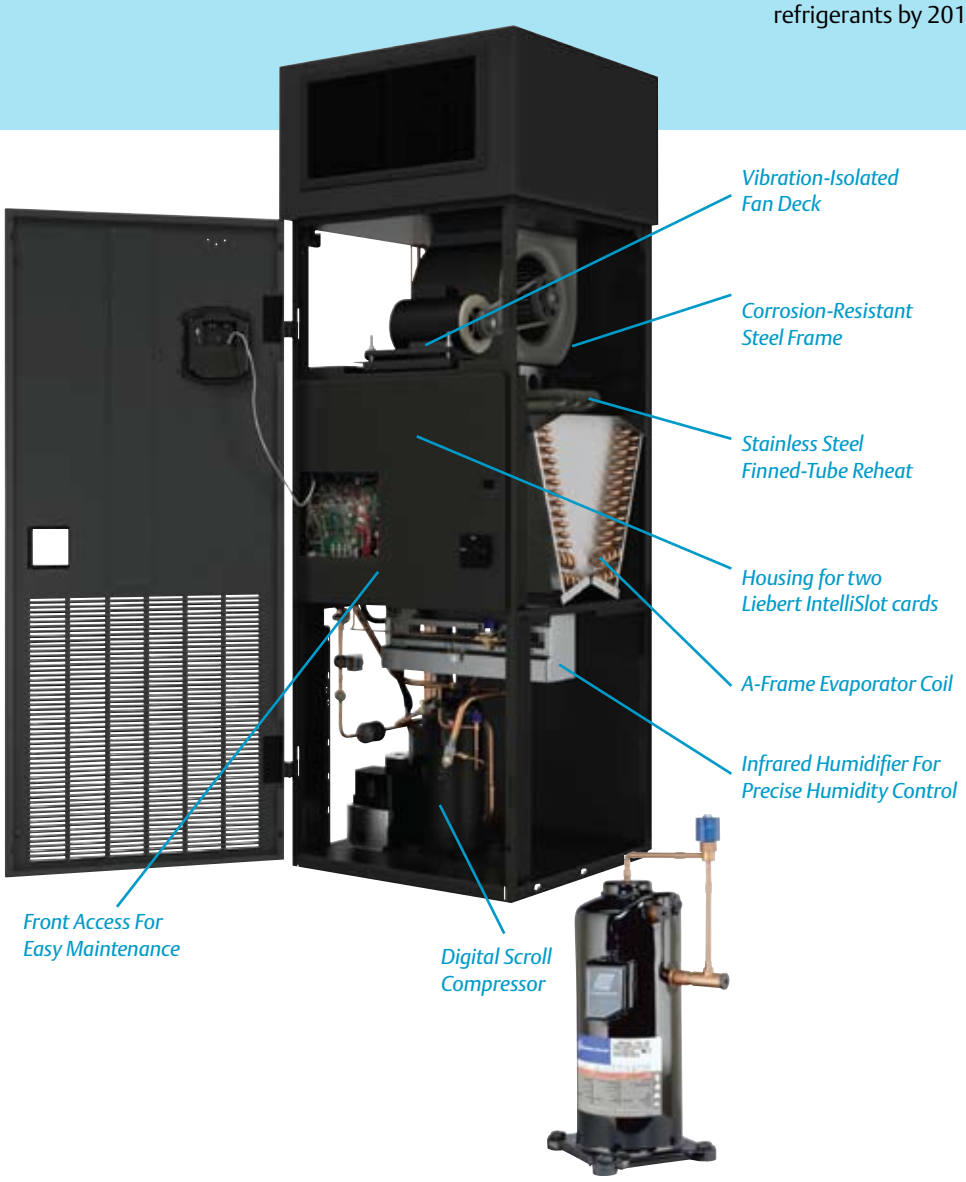
- Laboratories and medical imaging suites
- Telecommunications switching offices
- Industrial process control
- Data centers

Improved control and communications – Liebert ICOM controls provide easy to use system monitoring, and enhance system efficiency when used in teamwork and unit-to-unit modes. Two Liebert IntelliSlot card housings are also included to allow centralized monitoring.

Higher energy efficiency – A high efficiency Digital Scroll Compressor is available on self-contained systems.

Complies with new Government Regulations – R-407C refrigerant is now standard in the Liebert Challenger 3000 cooling system, in compliance with the Montreal Protocol and EPA Clean Air Act requiring cooling equipment manufacturers to switch to environmentally-friendly refrigerants by 2010.

NRTL-C Certified Standard 60Hz products are NRTL-C listed/certified. NRTL-C meets both U.S. and Canadian government safety standards, providing fast, hassle-free inspection and building code approval.



Liebert Commitment To Quality

The Liebert Challenger 3000, like all Liebert products available in the marketplace, is the result of exhaustive testing. Our state-of-the-art testing laboratory is the most complete in the industry. Products are tested under both indoor and strenuous outdoor conditions to insure year round reliability. All electronic components are subjected to rigorous life cycle testing far in excess of normal operating stresses. In short, you can be sure that a Liebert product not only will help you solve your unique environmental control problems...it will help you solve them right.

Liebert iCOM® Control : Optimized System Performance

Liebert ICOM

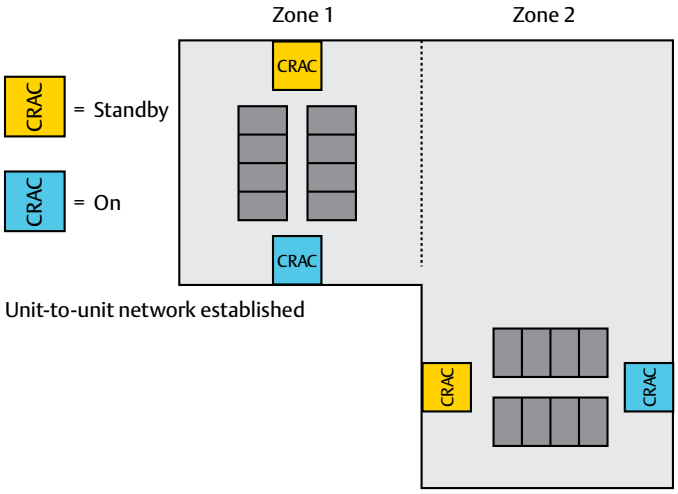
The Liebert iCOM control system featured on Liebert Precision Cooling products brings high-level supervision to multiple units, allowing up to 32 cooling units to work together as a single system to optimize room performance. Liebert iCOM controls offer a variety of advantages, including increased system energy efficiency, availability and flexibility.

Control:

- **Controls cooling and humidity** to optimize environment – provides dew point control for cooling efficiency.
- **Manages data center "zones"** to optimize cooling – establish zones for non-homogeneous heat loads, contained areas, and localized high density areas.
- **Ensures continuous operation with auto-changeover to standby unit in case of primary unit shutdown** – no additional equipment is required for lead/lag units.

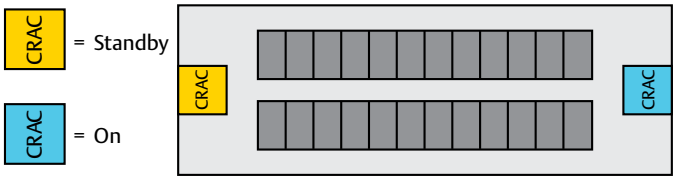
VIEW NETWORK		◂ SYSTEM ▸	
UNIT 01	UNIT ON	UNIT 09	STANDBY
UNIT 02	ALARM OFF	UNIT 10	STANDBY
UNIT 03	REMOTE OFF	UNIT 11	STANDBY
UNIT 04	LOCAL OFF	UNIT 12	WARNING ON
UNIT 05	UNIT ON	UNIT 13	STANDBY
UNIT 06	MONITORING OFF	UNIT 14	STANDBY
UNIT 07	UNIT ON	UNIT 15	STANDBY
UNIT 08	UNIT ON	UNIT 16	STANDBY

Zone Configuration



Unit-to-unit network established

Teamwork Configuration

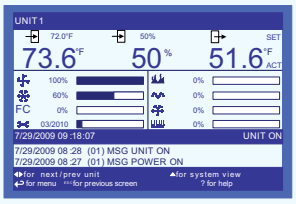


Unit-to-unit network established

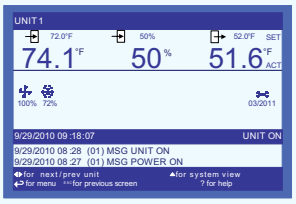
The Optional **Wall Mounted Large Graphic Display** provides centralized monitoring and control of connected Liebert Challenger 3000 units.

The optional **Large Graphic Display** features a 320 x 240 dot matrix screen that shows up to 16 menu icons at a time, as well as descriptive text. This display can be used to control a single cooling unit or any cooling unit on a network.

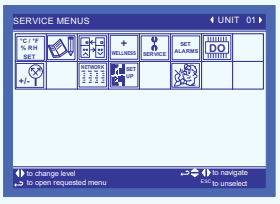
The standard **Small Graphic Display** offers a 128 x 64 dot matrix screen that simultaneously shows two menu icons, along with descriptive text. This display controls only the unit to which it is directly connected.



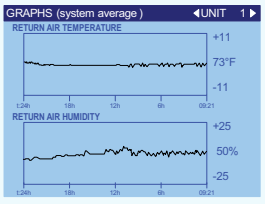
Graphical view of home screen provides at-a-glance status of the cooling system.



Simple view of home screen offers an alternate status view.



Service menus offer a logical guided experience for maintenance personnel.



System average graphs show the return air temperature and humidity over selected periods of time.

Monitoring:

- **Displays detailed, real-time information** to keep you informed of unit performance – includes current cooling and humidification status, setpoints, current and recent alarms, and component health.
- **On-unit or central screens** available with the level of support required for the protected space.
- **Compatible with centralized monitoring and control platforms** – Liebert IntelliSlot Web or 485 cards enable monitoring through Liebert SiteScan Web, Building Management System, SNMP or HTTP.

Predictive Wellness/Maintenance:

- Enhances reliability with predictive analysis of components and performance – advance notice allows proactive management of system maintenance.
- Event logs store the last 400 messages to enrich unit history and enhance support.

Service and Spare Parts History:

- On-board service history allows prompt access to records for service personnel.
- On-board spare parts list provides convenient identification of the appropriate unit spare parts and part numbers for faster service and support.

Scroll Compressor Technology: Higher Efficiency and Reliable Operation

Reliable Compressor Technology

The scroll compressor design provides high efficiency, low sound levels and excellent durability. The Liebert Challenger 3000 precision cooling system is available with either:

- A standard fixed-capacity scroll compressor
- A Digital Scroll compressor with energy saving, variable capacity operation (available on self-contained units only)

The Standard Scroll Compressor: Rugged, Quiet, Efficient

- The standard scroll compressor is available on both split system and self-contained designs. It offers efficient, reliable performance with a robust design that contains few moving parts. Quiet operation is accomplished through a continual, smooth compression process. Discharge gas and vibration are kept at a low level. It operates at 11.3 EER, among the highest ratings in the industry.

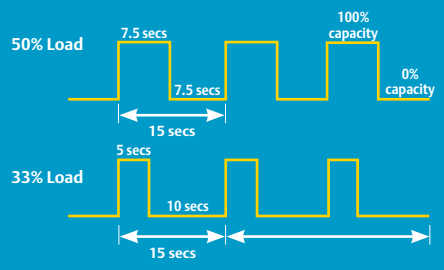
The Digital Scroll Compressor: The Choice For Performance And Reliability

The exclusive digital scroll compressor option is available on self-contained Liebert Challenger 3000 models. It includes all of the quality features of the standard scroll compressor while utilizing the latest control technology to deliver precise operation and significantly higher energy efficiency. Digital Scroll technology provides infinitely variable capacity modulation that enables the output to precisely match the cooling demands of the room. This approach is as much as 30 percent more efficient than traditional hot-gas bypass when the system needs to operate at a reduced capacity.

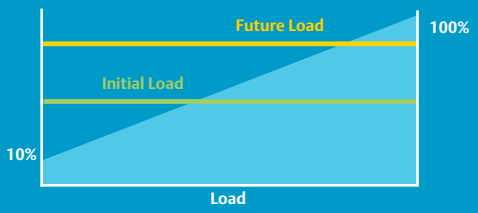
Benefits include:

- Greater energy savings—variable capacity system allows maximum load tracking for higher efficiency.
- Improved reliability—by reducing compressor cycling and component wear.
- Improved performance—the compressor can easily adapt to changing load conditions, providing precise temperature control.

Digital Scroll Capacity Control Diagram



Digital Scroll Capacity adapts as load changes



Liebert Condensers And Drycoolers

All Components From One Manufacturer

Emerson Network Power is the only manufacturer in the computer support industry that builds its own condensers and drycoolers. Liebert condensers and drycoolers feature aluminum cabinets and copper-tube, aluminum-fin coils, and are built to precisely match the heat rejection requirements of the Liebert Challenger 3000.

Wide range of heat rejection solutions—vertical or horizontal airflows, indoor or outdoor models, freestanding or ducted configurations.

Standard units—Sized for maximum outdoor ambient temperatures of 85 °F (29.4°C) to 105°F (40.6°C).

Liebert VFD Control Condenser—Features a variable frequency drive (VFD) and an inverter duty fan motor with ceramic bearings. The VFD control uses pressure transducers to modulate the condenser fan motor speed to hold condensing temperatures constant. This system allows for operation at ambient temperatures as low as -20°F (-28.9°C).

Fan Speed Control Condenser—A fan-speed control varies the variable speed fan motor based on compressor head pressure to maintain constant condensing temperatures. This system allows for operation at ambient temperatures as low as -20°F (-28.9°C).

Lee-Temp Condenser—The Lee-Temp winter control system's heated receivers permit startup and positive head pressure control at ambient temperatures as low as -30°F (-34.4°C).

Drycoolers, Pumps, Tanks and Controls—Complete heat rejection solutions for glycol-cooled and GLYCOOL units consist of drycoolers, glycol pumps, expansion tanks and integral or separate pump electrical control boxes.

Quiet-Line™ Condenser/Drycooler—Operate with the lowest noise level of any heat rejection available, offering levels of less than 57 dBA.

Indoor Piggyback Condenser/Drycooler—Indoor condensers/drycoolers designed to provide heat rejection by ducting air from outside the building, such as high-rise buildings.

High Ambient Condensers—Utilize increased coil surfaces for operation in outdoor climates up to 120 °F (48.9 °C).

Prop Fan Condensing Units for Air Cooled split systems — operate with quiet, high efficiency scroll compressor. The units run efficiently even at partial load conditions. Fully wired, piped and tested. Outdoor mounting. Allows operation down to ambient temperatures as low as -30°F (-34.4°C).

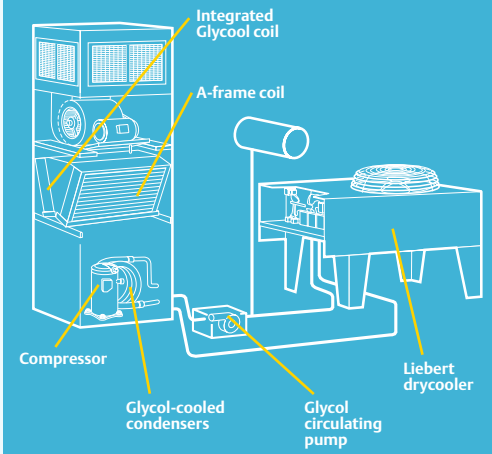
Centrifugal Fan Condensing Units for Air Cooled split systems —operate with quiet, high efficiency scroll compressor. The units run efficiently even at partial load conditions. Fully wired, piped and tested. Indoor mounting.

Water/Glycol Condensing Units for Water/Glycol Cooled split systems— operate with quiet, high efficiency scroll compressor. The units run efficiently even at partial load conditions. Fully wired, piped and tested. Indoor mounting.

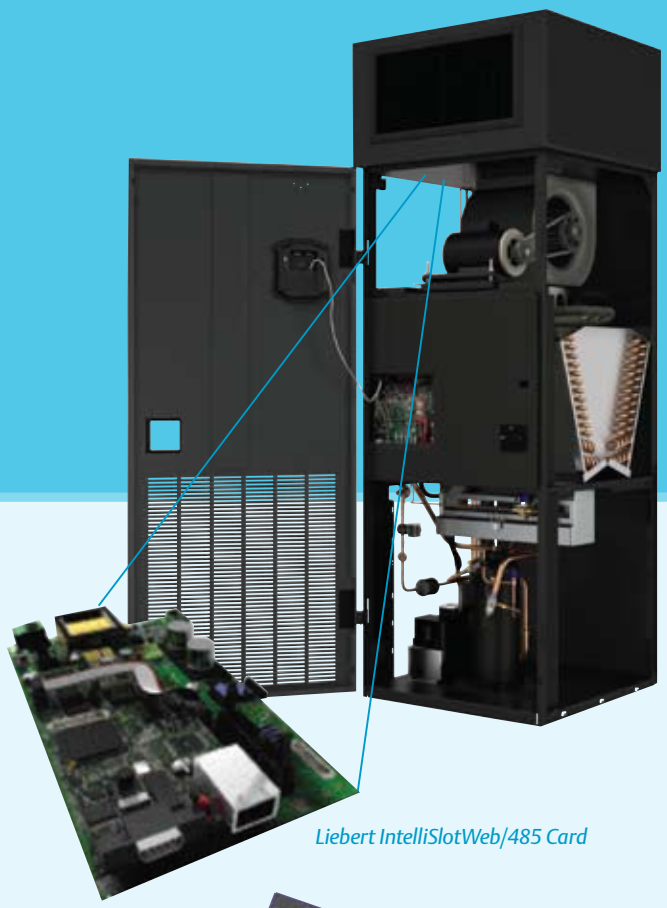
For Ultimate Energy Efficiency: GLYCOOL™

The GLYCOOL system is a patented Liebert fluid economizer that allows colder outdoor temperatures to reduce or eliminate compressor operation, without the risk of outside pollutants or contaminants. This reduces operating costs and increases reliability.

When outdoor temperatures are above room temperature, the GLYCOOL Liebert Challenger functions as a normally glycol-cooled system. But when outdoor temperatures fall below room temperatures, the glycol that circulates between the condenser and drycooler becomes cold enough to provide some or all of the room's cooling needs. The cold glycol is redirected to a supplemental cooling coil by means of a microprocessor-controlled valve, providing the same cooling capacity as the mechanical refrigeration system.



A full range of communications, monitoring and control solutions



Liebert IntelliSlotWeb/485 Card

Liebert Liqui-tect 460

Leak Detection Cable

Liebert IntelliSlot Interface Cards

The Liebert Challenger 3000 includes two IntelliSlot housings for easy plug-in of optional communication cards to enable remote monitoring and control of the unit.

- **Liebert IntelliSlot Web Card** — delivers SNMP and web-management communications capabilities for monitoring and control through your existing network with no additional software required.
- **Liebert IntelliSlot® 485 Interface Card** — allows remote monitoring and control of your Liebert equipment through Liebert SiteScan Web or your existing Building Management System.

Comprehensive alarm management includes notification plus the ability to see the information necessary to making the right decision

Liebert Nform™ Software

This cost-effective monitoring and communications software solution combines full-scale monitoring and alarm notification with cost-effective deployment through the use of the existing network infrastructure.

Liebert SiteScan® Web Software

Liebert SiteScan Web is designed for users who require extensive management of critical system equipment that may span multiple locations. Liebert SiteScan Web offers real-time monitoring and control, event management and reporting, data analysis and trending, plus building management integration.

Liebert Leak Detection Modules

Provide quick detection and location of hazardous fluid leaks.

Local and Remote Monitoring Panels

Liebert Universal Monitor

Liebert AC4™ & AC8™ Autochangeover Controllers

Liebert RCM4™ Contact Closure Alarm Panel

Liebert ENV-DO™ Environmental Discrete Output Interface Card

Liebert vNSA™ Network Switch for Liebert iCOM™ Controls

Environmental Service Solutions To Keep You Up And Running

Liebert offers more ways to handle your precision air conditioning warranty and maintenance requirements than any other source. Service and support specialists are located everywhere you need them to be.

Field service is provided by The Liebert Service Partner Network™ — a nationwide network of locally-based service partners, with factory-trained technicians that handle installation, support and maintenance of Liebert Mission-Critical Cooling products. Warranty inspection at the time of start-up by these technicians can ensure proper operation and tune the performance of the unit to the application. This can be instrumental in assuring a long unit life.

The variety of Liebert service offerings includes warranty service, emergency service, preventive maintenance, and general repairs. We offer 24 x 7 emergency dispatch service through our Customer Response Center. This facility provides immediate access to factory trained technicians, located within your own area, who are quickly dispatched to your location when service is required. Liebert's preventive maintenance solutions provide you with a choice of coverage options — each designed to meet your specific support requirements. These offerings are ideal for those who require the peak operating efficiency, reliability and uptime that only a comprehensive maintenance program can deliver.

Liebert also offers a site management program that creates a customized service package for your operation by offering a single point of contact for all your service needs. It gives you a proactive action plan to provide operational support and guidance for your critical facility.

Extended Warranty Protection Options

Liebert continues to set the industry standard by offering maximum availability service plans when you purchase new Liebert Mission-Critical air conditioning equipment — including extended parts and labor coverage.

Our optional warranty protection programs allow you to choose the coverage that best fits your needs and include the following:

- First year warranty labor.
- First year comprehensive labor.
- Second year parts and compressor.
- Four-year compressor.
- Four-year parts and compressor.
- Four-year parts and compressor, and first year warranty labor.

Full Service And Preventive Maintenance Programs For Environmental Equipment

Service Program	Service Code	Guaranteed 4-hr Response	Emergency Service	Preventive Maintenance	Preventive Maintenance Schedules	Service Description
Preferred PMs 7X24	Y4	7 Days	Parts, Labor, & Travel	7 Days	Choose 4 or 6 Preventive	Preferred Service (6) PMs per year 7X24
	Y3	24 Hours	7 Days, 24 Hours	24 Hours	Maintenance visits per year	Preferred Service (4) PMs per year 7X24
Essential PMs 8X5	Y2	7 Days	Parts, Labor, & Travel	M thru F	Choose 4 or 6 Preventive	Essential Service (6) PMs per year 8X5
	Y1	24 Hours	7 Days, 24 Hours	8:00 am - 5:00 pm	Maintenance visits per year	Essential Service (4) PMs per year 8X5
PM Only 7X24	E8	7 Days 24 Hours	Time & Material	7 Days 24 Hours	Choose 4 or 6 Preventive Maintenance visits per year	Preventive Maintenance w. belts/filters (6) PMs per year 7X24
	E7					Preventive Maintenance w. belts/filters (4) PMs per year 7X24
	E6					Preventive Maintenance only (6) PMs per year 7X24
	E5					Preventive Maintenance only (4) PMs per year 7X24
PM Only 8X5	E4	7 Days 24 Hours	Time & Material	M thru F 8:00 am - 5:00 pm	Choose 4 or 6 Preventive Maintenance visits per year	Preventive Maintenance w. belts/filters (6) PMs per year 8X5
	E3					Preventive Maintenance w. belts/filters (4) PMs per year 8X5
	E2					Preventive Maintenance only (6) PMs per year 8X5
	E1					Preventive Maintenance only (4) PMs per year 8X5

Power Contracts	Power contracts cover Liebert UPS equipment. This service is sold separately from the above service offerings
Remote Monitoring	Remote Monitoring contracts can cover both environmental and power equipment. These services can be added to any of the above service levels.

See For Yourself How The Liebert Challenger 3000 Can Be Configured To Match Your Exact Cooling Needs

The Liebert Challenger 3000 is the most versatile environmental control system on the market. It can be configured to match the needs of a wide variety of site requirements.

Direct Expansion Or Chilled Water Models?

- Direct Expansion includes Air cooled, Water cooled, Glycol cooled, and GLYCOOL.
- Chilled Water Systems require connection to a chilled water source.

Self-Contained Or Split System?

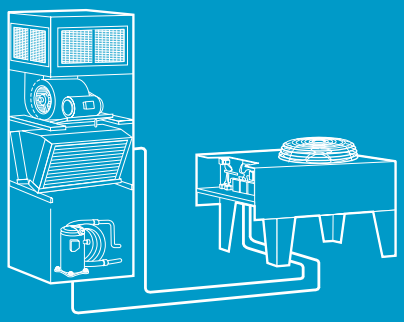
Self-Contained Systems package all refrigeration components within the cabinet to minimize installation time.

- Air Cooled models require field connection to a remote condenser.
- Water Cooled models require field connection to a remote water source.
- Glycol Cooled/GLYCOOL models require field connection to a remote drycooler and circulating pump.
- All Chilled Water systems are self-contained.

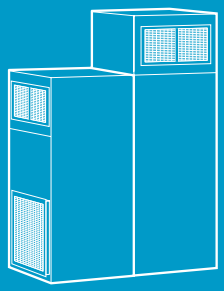
Split systems split the refrigeration components between the room unit and a condensing unit. This locates the compressor and condenser at a remote location, and reduces noise levels within the room unit.

- Air, Water, and Glycol Cooled models connect to the room unit with pre-charged refrigerant line sets (up to 45 ft./14 meters), or traditional piping techniques for longer distances.

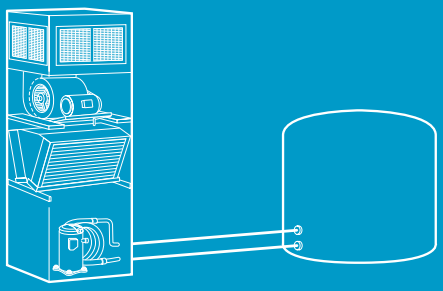
Air-Cooled Self-Contained System



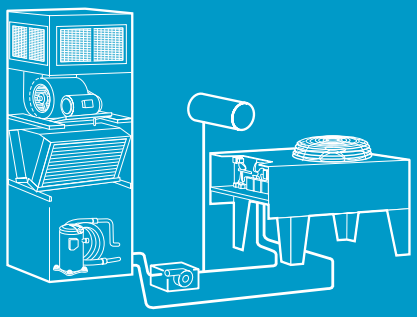
Indoor-Piggyback Centrifugal



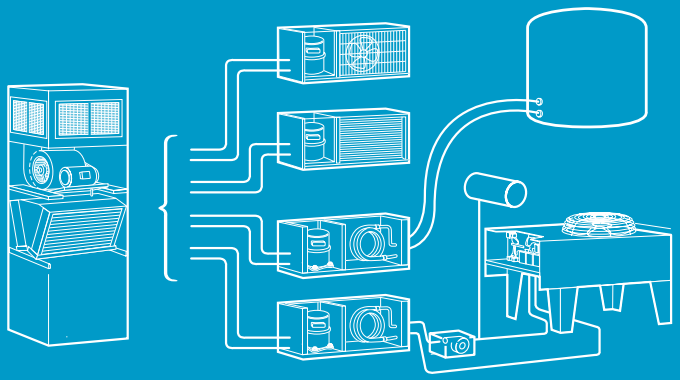
Water-Cooled Self-Contained System



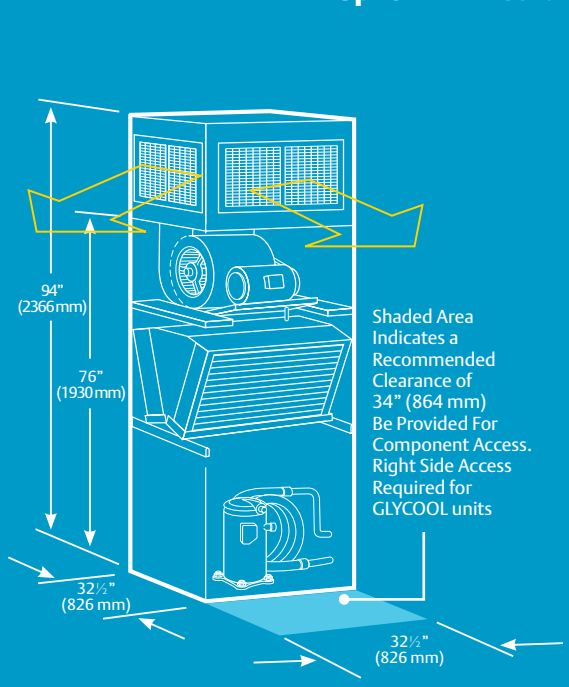
Glycol Cooled/GLYCOOL Self-Contained System



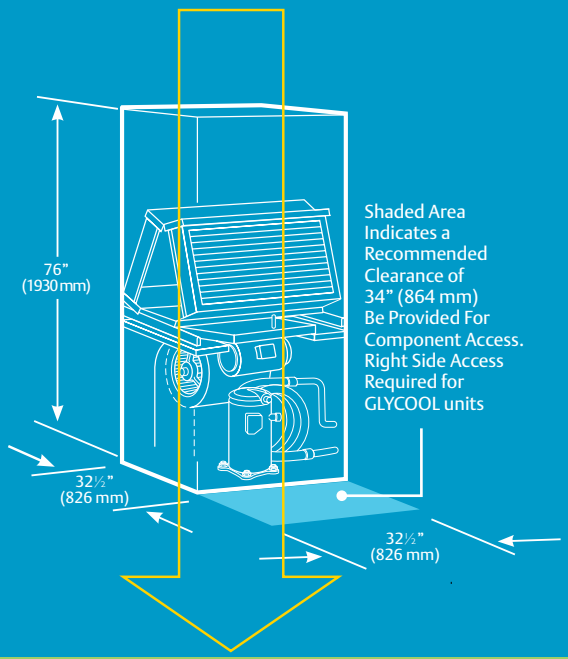
Split- System



Upflow Air Discharge



Downflow Air Discharge



Air Flow Requirements

- Upflow Air Discharge to vent directly into the conditioned space using a distrubution plenum.
- Upflow Air Discharge to be connected to distribution ductwork.
- Downflow Air Discharge to supply an underfloor distribution system.

Which is best for you?

After a tour of the site or a review of the plans, your Liebert representative can recommend a configuration that will handle the load in the most efficient manner. He can also generate computerized projections of annual operating costs specific to your site so you can compare alternative configurations.

Liebert Challenger— 60 Hz Data - 72˚F DB-60˚F WB (22˚C DB-15.5˚C WB) 50% RH

Standard Air Volume *Net Capacity Data	Indoor Self-Contained Systems 3 Ton	Indoor Self-Contained Systems 5 Ton	Split Systems Centrifugal or Water/Glycol Condensing Unit 3 Ton	Split Systems Centrifugal or Water/Glycol Condensing Unit 5 Ton	Split Systems Prop Fan Outdoor Condensing Unit 3 Ton	Split Systems Prop Fan Outdoor Condensing Unit 5 Ton
Air Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU042A** 37,300 (10.9) 32,600 (9.6)	**BF/BU067A** 58,100 (17.0) 51,100 (15.0)	**BF/BU036E** 36,700 (10.8) 32,400 (9.5)	**BF/BU060E** 55,900 (16.4) 50,200 (14.7)	**BF/BU036E** 38,800 (11.4) 38,800 (11.4)	**BF/BU060E** 57,200 (16.8) 50,700 (14.9)
Water Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU046WG** 38,300 (11.2) 33,100 (9.7)	**BF/BU071WG** 62,500 (18.3) 53,000 (15.5)	**BF/BU036E** 37,500 (11.0) 32,700 (9.6)	**BF/BU060E** 60,500 (17.7) 52,100 (15.3)		
Glycol Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU046WG** 34,300 (10.0) 31,400 (9.2)	**BF/BU071WG** 56,000 (16.4) 50,200 (14.7)	**BF/BU036E** 33,900 (9.9) 31,200 (9.1)	**BF/BU060E** 54,700 (16.0) 49,700 (14.6)		
GLYCOOL™ Total BTU/H (kW) Sensible BTU/H (kW)		**BE/BK061G** 53,100 (15.6) 48,300 (14.2)				
Chilled Water Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU068C** 33,700 (9.9) 32,000 (9.4)	**BF/BU102C** 59,900 (17.6) 54,400 (15.9)				

Liebert Challenger— 50 Hz Data - 72˚F DB-60˚F WB (22˚C DB-15.5˚C WB) 50% RH

Standard Air Volume *Net Capacity Data	Indoor Self-Contained Systems 3 Ton	Indoor Self-Contained Systems 5 Ton	Split Systems Centrifugal Condensing Unit 3 Ton	Split Systems Centrifugal Condensing Unit 5 Ton	Split Systems Prop Fan Outdoor Condensing Unit 3 Ton	Split Systems Prop Fan Outdoor Condensing Unit 5 Ton
Air Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU040A** 37,800 (11.1) 32,500 (9.5)	**BF/BU065A** 56,000 (16.4) 48,400 (14.2)	**BF/BU035E** 35,900 (10.5) 31,700 (9.3)	**BF/BU059E** 53,900 (15.8) 47,500 (13.9)	**BF/BU035E** 35,200 (10.3) 31,400 (9.2)	**BF/BU059E** 55,700 (16.3) 48,300 (14.2)
Water Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU045WG** 39,300 (11.5) 33,100 (9.7)	**BF/BU070WG** 60,700 (17.8) 50,400 (14.8)	**BF/BU035E** 37,000 (10.8) 32,100 (9.4)	**BF/BU059E** 58,700 (17.2) 49,600 (14.5)		
Glycol Cooled Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU045WG** 34,500 (10.1) 31,100 (9.1)	**BF/BU070WG** 54,100 (15.9) 47,600 (13.9)	**BF/BU035E** 32,900 (9.6) 30,400 (8.9)	**BF/BU059E** 52,800 (15.5) 47,100 (13.8)		
GLYCOOL™ Total BTU/H (kW) Sensible BTU/H (kW)		**BE/BK058G** 51,300 (15.0) 45,600 (13.4)				
Chilled Water Total BTU/H (kW) Sensible BTU/H (kW)	**BF/BU072C** 33,700 (9.9) 32,000 (9.4)	**BF/BU101C** 57,100 (16.7) 51,400 (15.1)				

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

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