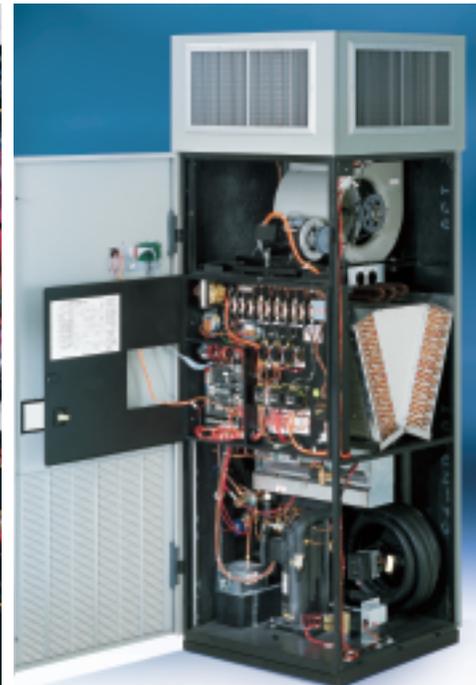


Precision Cooling
For Business-Critical Continuity

Liebert Challenger™
Unmatched Environmental Control To Match Many Applications



When It Comes To Precision Air Conditioning, Liebert Doesn't Accept "Almost"

Sensitive computer-based electronics are no longer restricted to computer room "glass house" environments. Today's computers manage complex telecommunications networks, optimize industrial systems, process sophisticated medical and laboratory information, and control LANs and WANs.

Although sensitive equipment can leave the computer room, it can't leave the environmental protection behind. Electronics are susceptible to heat, humidity, and airborne dust and contaminants. These systems require precision air conditioning to prevent downtime due to:

- **Equipment shutdown or mechanical failure.**
- **Temperature fluctuations**— can cause equipment to exhibit random errors and premature mechanical failure.
- **Low humidity**— static discharge can alter data and may destroy electronic components.
- **High humidity**— can accelerate the deterioration of magnetic media, cause paper to swell and jam in printers, and leads to deterioration from condensation.

The choice is simple: provide precision air conditioning or risk significant levels of downtime.

But configuration of air conditioning is not so simple.



The Complete Solution

“I need a cooling source I can control that is totally independent of the building HVAC system.”

The Liebert Challenger is a self-contained system. The status and control panel is on the front, and all control functions are menu-driven. You have complete control of your environment at all times.

“My equipment will be running continuously, so the air conditioner needs to be energy efficient.”

Designed to run 24 hours a day, 365 days a year. The inherently efficient scroll compressor has an EER of 11.3. Liebert Microprocessor-based controls intelligently determine operational requirements and minimize wasteful operating patterns such as short cycling. Optional GLYCOOL free-cooling system permits compressorless operation in cold climates.

“That room is jammed to the rafters; I need a cooling system that takes very little space.”

Footprint is a mere 7.3 square feet, with front access to all interior components for maintenance and service. There's no need to keep the back or sides clear, so the Liebert Challenger can fit into a corner or squeeze between existing installed equipment.

“I want everything in one cabinet from one supplier.”

Liebert Challenger includes all environmental functions—cooling, reheat, dehumidification, humidification, and filtration—and an intelligent control system to make sure every function works in harmony with the other. Installation is fast, and maintenance is easy. All systems are factory tested.

“There are a dozen sites here, all unique. I want to simplify my selection process without compromising my site needs.”

Liebert Challenger is the most versatile system available. It can be placed inside the room, or remotely. Conditioned air can move up into ducts or down into a raised floor plenum. Self-contained or split systems. Air, water, glycol, GLYCOOL, and chilled water configurations.

Regardless Of The Application, Liebert Challenger Will Meet Your Critical Requirements.

Years of experience in the design and manufacture of precision environmental control systems and staying abreast of new technological developments and requirements has helped us produce the Liebert Challenger. We know that all critical electronic systems demand a high quality environment...but we also know that not all applications are created equal. That's why Liebert Challenger is configurable to meet the needs of a wide variety of site requirements.



Medical and Laboratory Applications Need:

- Large Load Variations
- High Air Filtration Requirements
- Minimal Floorspace

Labs and Medical suites such as MRI and CATscan sites need to handle cooling loads precisely and quietly. The Liebert Challenger offers such precision features as "Intelligent", microprocessor based control systems, SCR controlled reheats for infinite levels of response, an A-Frame coil that reduces air turbulence and a quiet, dependable scroll compressor. All in a compact package that fits easily into any setting.



Network Closet And Telecom Applications Need:

- Unattended Sites
- Minimal Floorspace
- Continuous Operation

In Telecommunications sites, space is at a premium. And you need a system dependable to operate year round in unattended sites. The Liebert Challenger features a reliable scroll compressor, remote communications capability, and a microprocessor that controls the system without supervision. And it provides all this protection while consuming only 7.3 square feet.



Industrial Process Automation Applications Need:

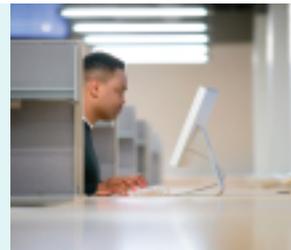
- Potentially Corrosive Environments
- High Static Pressure Air Discharge Requirements
- High Air Filtration Requirements



On the factory floor, you need a cooling system that's dependable and tough. Tough enough to withstand the corrosive environments, and tough enough to supply continuous air flow in ducted applications. The Liebert Challenger answers all this with a MIG welded steelframe surrounded by insulated heavy gauge steel panels.

Computer Room Applications Need:

- 24 Hour Per Day/365 Days Per Year Operation
- Underfloor Air Discharge
- High Sensible Heat Ratio
- 1800-3000 C.F.M. Air Discharge
- High Energy Efficiency Requirements



On a square foot basis, computer rooms generate up to five times the heat of normal office space. And they require higher than normal air handling requirements to reduce hot spots. The Liebert Challenger is designed to handle this load efficiently with a high sensible heat ratio and an air delivery system capable of 1800-3000 C.F.M. Because most computer rooms use a raised floor for air circulation and cable management, the Liebert Challenger can be specified with underfloor air discharge. This reduces the turbulence created by competing warm and cold air streams.

More Benefits And Higher Quality... Trademarks Of A Liebert System

Front Access For Easy Maintenance

All interior components are front accessible to simplify maintenance and reduce the floorspace that must be kept open.

Stable and Quiet

A MIG welded steel frame provides a solid platform for the internal components. Units incorporate a vibration-isolated fan deck which reduces noise and vibration transmission to any connected ductwork. The heavy gauge panels/heavy duty gaskets option provides upgraded protection, popular in industrial and/or high static applications.

Corrosion Resistant

The frame and exterior panels are **powder coated** and baked, a solvent-free process that is not only environmentally safe, but produces an attractive, durable finish.

Precise Humidity Control

The **Infrared Humidifier** has been a feature on Liebert environmental control systems for over 25 years. Its rapid response and cleanliness has made it an industry standard in applications that demand precise, particle-free humidity control.

An **Autoflush System** reduces the buildup of mineral solids and reduces maintenance time. If your application calls for a **Steam-Generating Humidifier**, Liebert can respond. The disposable canister makes maintenance quick and easy.

High Performance Cooling and Heating Components

An **A-Frame Evaporator Coil** exposes more coil surface to the air that passes through it. This not only provides a more rapid and precise response to changing room conditions, but it reduces the horsepower requirements of the fan motor, saving energy.

The **304/304 Stainless Steel**, Finned Tube Reheat, like the evaporator coil, is designed to maximize surface area. This allows lower sheath temperatures, reducing the likelihood of ionization that could trip fire detection equipment, and more precisely controlling room temperature during dehumidification. The reheat coils are constructed of stainless steel for corrosion resistance and long life.

An optional **SCR-Controlled Reheat** is available that provides infinite response levels to changing room temperatures.

Year-Round Dependability And Energy Efficiency

A rugged and quiet **Scroll Compressor** is at the heart of the refrigeration system. It operates at one of the highest EER's in the industry, 11.3.

- Air cooled systems with outdoor condenser can operate between -30° and +120°F (-34° and 49°C).
- Water and glycol cooled systems feature a coaxial condenser and regulating valves that can be adjusted to meet the capabilities of the site.

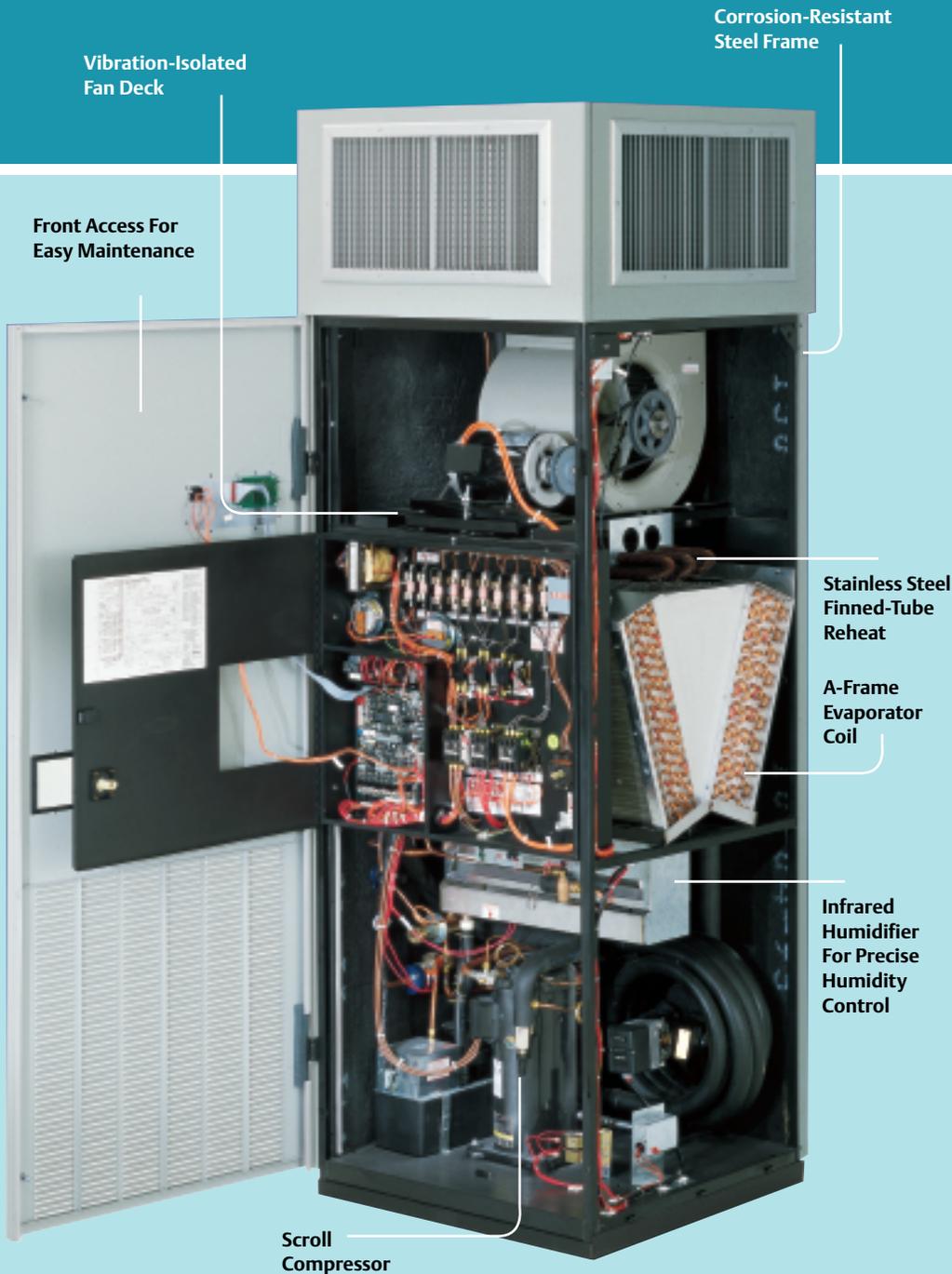
All Components From One Manufacturer

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

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.



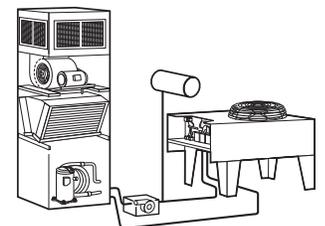


For Ultimate Energy Efficiency: GLYCOOL™

The GLYCOOL system is a patented Liebert process that allows colder outdoor temperatures to reduce or eliminate compressor operation. This not only reduces operating costs, it increases reliability.

How it works:

When outdoor temperatures are above room temperature, the GLYCOOL Liebert Challenger functions as a normally-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. During outdoor temperatures below 45°F (7.2°C), the circulating glycol can provide the same cooling capacity as the mechanical refrigeration system.



Liebert Commitment to Quality

All Liebert products available in the marketplace are the results 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.

Communicating With Your Precision Environmental System

Whether you use its local or remote monitoring and control capabilities, the Liebert Challenger is designed to provide the widest range of monitoring options.

Local Monitoring And Control

Aside from streamlining your operation for peak performance, microprocessor-based controls help the Liebert Challenger achieve precise temperature and humidity for your sensitive electronics. Two levels of Liebert microprocessor control systems are available, providing precise control and monitoring of the critical space. The Liebert Advanced Microprocessor is standard, while the Liebert Advanced Microprocessor with Graphics is optional. These controls provide unit control, monitoring, diagnostics, alarms and event logging.



In the alarm mode, the control panel can display any of up to 21 alarms.



The standard operations screen shows temperature and humidity in large, easy-to-read type.

Liebert Advanced Microprocessor Control

This control system automatically selects the most precise and efficient action based on the environmental trends of your site. The Liebert Advanced Microprocessor Control uses an LCD display and a five-key pad to program setpoints and alarms. The menu-driven system monitors a wealth of data — digital and analog — to keep you constantly informed of system operation. Features include:

- Backlit display panel that shows room conditions and operational status in normal mode.
- Event logging that shows alarm history and run time log.
- Choice of four custom alarms with inputs allowing external 20mA analog signals for water and similar external alarms.
- Proportional control system.
- Programmable temperature and humidity setpoints and alarm conditions.
- Auto restart.
- Local alarm.
- Compatibility with Liebert remote monitoring and control devices.

Liebert Advanced Microprocessor Control With Graphics

The Liebert Advanced Microprocessor Control with Graphics offers the same features and control schemes as the Advanced system. However, this model adds a 240x128 pixel backlit dot matrix display that provides data at-a-glance screens for quick review. Additional features include expanded alarm capabilities and in-depth system operating information. The system offers graphic representations of:

- Temperature, humidity and analog inputs.
- Component operating status by hour.
- System operating status.

Liebert Remote Monitoring Solutions: When You Need To Know

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.

	IT Manager	Network	Data Center	Facility	Enterprise
Single Phase Uninterruptible Power System	Liebert MultiLink Liebert OpenComms Nform		Liebert OpenComms Nform		
Three Phase Uninterruptible Power System			Liebert OpenComms Nform Liebert SiteScan Web		
Power Management	Liebert OpenComms Nform				
Environmental Control			Liebert SiteScan Web		

Enterprise Monitoring Systems

Liebert SiteScan Web is a comprehensive critical systems monitoring solution dedicated to ensuring reliability through graphics, event management and data extrapolation. The standard Web interface allows users easy access from "anywhere" at "anytime."

- Single and multi-site applications.
- Event management and unit control.
- Trend and historical data captures and reporting.
- Full ASHRAE BACnet compatibility.
- Java based.
- Windows 2000 and XP compatible.

Liebert SiteLink

- Connectivity to building management systems using Modbus and BACnet.

Liebert Site I/O

- Integrates sensors and contacts.

Liebert Site TPI-E

- Integrates non-Liebert equipment.

Network Monitoring Systems

The Liebert OpenComms™ family of products leverages one-to-one unit connections and your existing network for a comprehensive monitoring solution for distributed equipment.

Liebert OpenComms Nform

- Centralized monitoring of all Liebert SNMP enabled devices.
- Event and alarm management.
- Adaptable and configurable graphical user interface.
- Integration of third-party SNMP enabled devices through custom Liebert services.
- Windows NT, 2000 and XP compatible.

Liebert OpenComms NIC

- Monitoring option available for Liebert precision air conditioning units.
- Web interface for viewing and control.
- Modbus interface for building management systems.
- Liebert SNMP interface for network management systems.

Stand-Alone Monitoring And Leak Detection Solutions

Autonomous Liebert microprocessor controlled modules are available to provide supervision, control and remote notification of Liebert equipment. These stand-alone devices include:

Contact Closure Alarm Panels

- Continuously monitor critical support equipment and instantly notify on alarm condition.

Liebert Control Panels

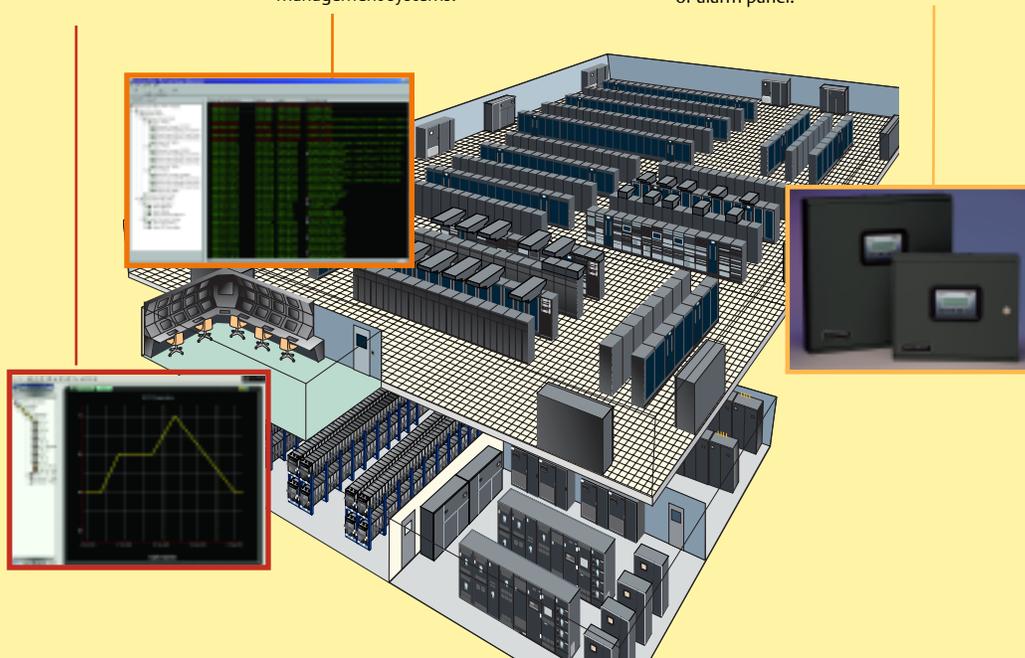
- Sequence the operation of multiple environmental units.

Liebert Leak Detection Modules

- Provide quick detection and location of hazardous fluid leaks.

Discrete Output Interface Card

- Straightforward way to tie environmental units to a building management system or alarm panel.



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

The Liebert Challenger 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.

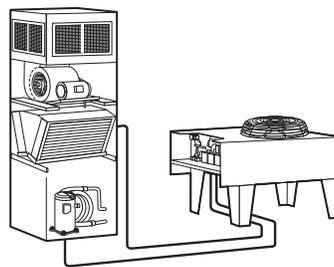
- Air Cooled models require field connection to a remote condenser.
- Water Cooled models require field connection to a remote water source.
- Glycol Cooled/GLYCOOL models require field connection to a remote drycooler and circulating pump.
- All Chilled Water systems are self-contained.

Split systems split the refrigeration components between the room unit and a condensing unit.

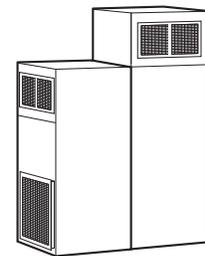
This locates the compressor and condenser at a remote location, and reduces noise levels within the room unit.

- 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.

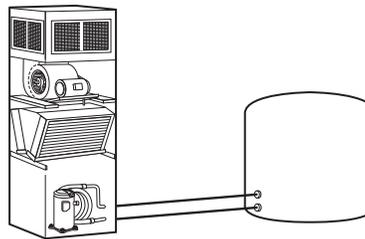
Air-Cooled Self-Contained System



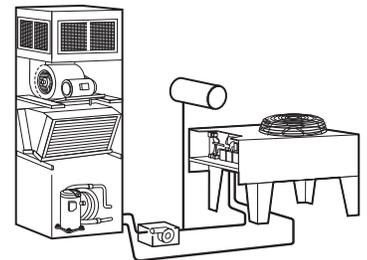
Indoor-Piggyback Centrifugal



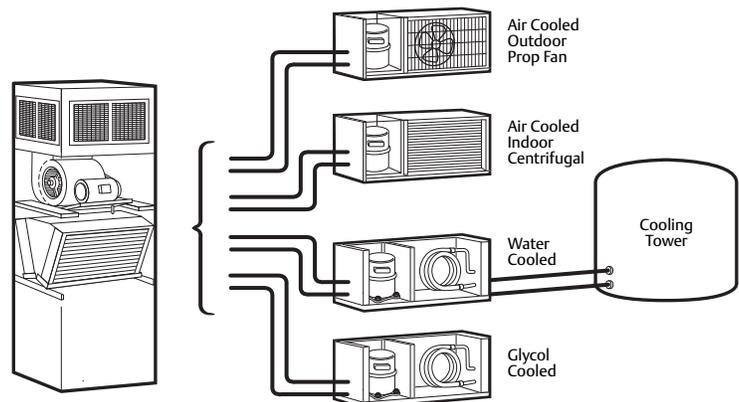
Water-Cooled Self-Contained System



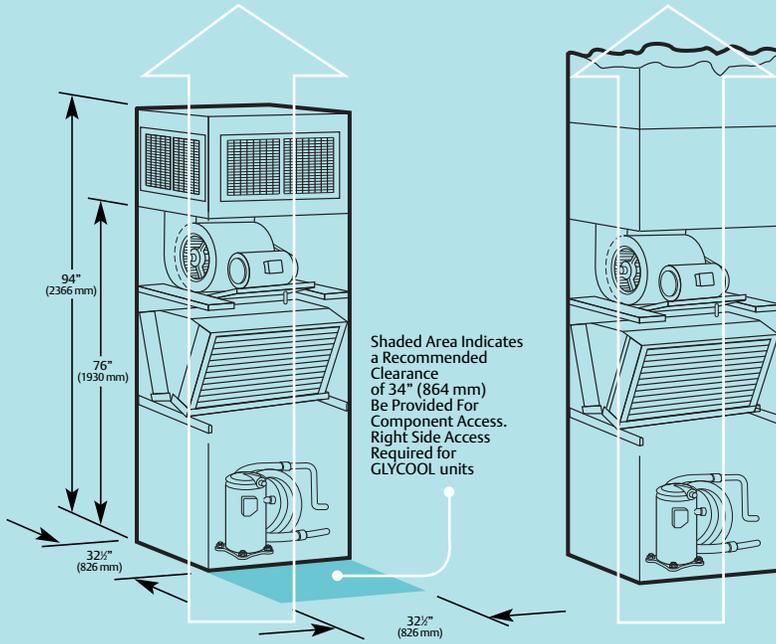
Glycol Cooled/GLYCOOL Self-Contained System



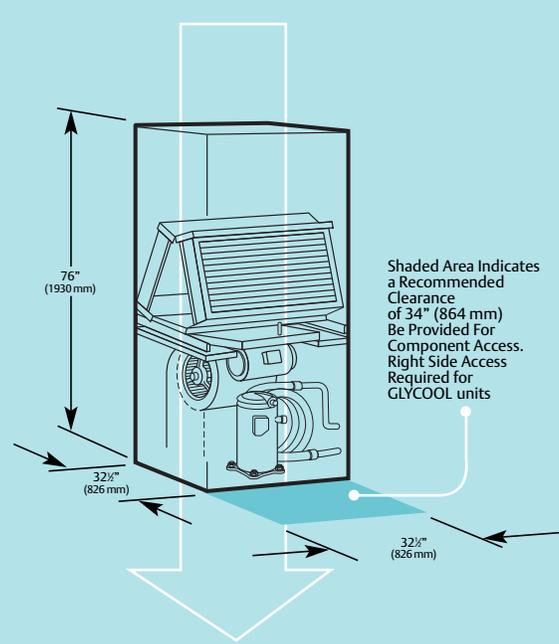
Split-System



Upflow Air Discharge



Downflow Air Discharge



Air Flow Requirements

- Upflow Air Discharge to vent directly into the conditioned space.
- 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		Split Systems Centrifugal Condensing Unit		Split Systems Prop Fan Outdoor Condensing Unit	
	3 Ton	5 Ton	3 Ton	5 Ton	3 Ton	5 Ton
Air Cooled	BF/BU042A	BF/BU067A	BF/BU036E	BF/BU060E	BF/BU036E	BF/BU060E
Total BTU/H (kW)	37,300 (10.9)	58,100 (17.0)	38,800 (11.4)	57,200 (16.8)	36,700 (10.8)	55,900 (16.4)
Sensible BTU/H (kW)	32,600 (9.6)	51,100 (15.0)	38,800 (11.4)	50,700 (14.9)	32,400 (9.5)	50,200 (14.7)
Water Cooled	BF/BU046WG	BF/BU071WG	BF/BU036E	BF/BU060E		
Total BTU/H (kW)	38,300 (11.2)	62,500 (18.3)	37,500 (11.0)	60,500 (17.7)		
Sensible BTU/H (kW)	33,100 (9.7)	53,000 (15.5)	32,700 (9.6)	52,100 (15.3)		
Glycol Cooled	BF/BU046WG	BF/BU071WG	BF/BU036E	BF/BU060E		
Total BTU/H (kW)	34,300 (10.0)	56,000 (16.4)	33,900 (9.9)	54,700 (16.0)		
Sensible BTU/H (kW)	31,400 (9.2)	50,200 (14.7)	31,200 (9.1)	49,700 (14.6)		
GLYCOOL™		BE/BK061G				
Total BTU/H (kW)		53,100 (15.6)				
Sensible BTU/H (kW)		48,300 (14.2)				
Chilled Water	BF/BU068C	BF/BU102C				
Total BTU/H (kW)	33,700 (9.9)	59,900 (17.6)				
Sensible BTU/H (kW)	32,000 (9.4)	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		Split Systems Centrifugal Condensing Unit		Split Systems Prop Fan Outdoor Condensing Unit	
	3 Ton	5 Ton	3 Ton	5 Ton	3 Ton	5 Ton
Air Cooled	BF/BU040A	BF/BU065A	BF/BU035E	BF/BU059E	BF/BU035E	BF/BU059E
Total BTU/H (kW)	37,800 (11.1)	56,000 (16.4)	35,200 (10.3)	55,700 (16.3)	35,900 (10.5)	53,900 (15.8)
Sensible BTU/H (kW)	32,500 (9.5)	48,400 (14.2)	31,400 (9.2)	48,300 (14.2)	31,700 (9.3)	47,500 (13.9)
Water Cooled	BF/BU045WG	BF/BU070WG	BF/BU035E	BF/BU059E		
Total BTU/H (kW)	39,300 (11.5)	60,700 (17.8)	37,000 (10.8)	58,700 (17.2)		
Sensible BTU/H (kW)	33,100 (9.7)	50,400 (14.8)	32,100 (9.4)	49,600 (14.5)		
Glycol Cooled	BF/BU045WG	BF/BU070WG	BF/BU035E	BF/BU059E		
Total BTU/H (kW)	34,500 (10.1)	54,100 (15.9)	32,900 (9.6)	52,800 (15.5)		
Sensible BTU/H (kW)	31,100 (9.1)	47,600 (13.9)	30,400 (8.9)	47,100 (13.8)		
GLYCOOL™		BE/BK058G				
Total BTU/H (kW)		51,300 (15.0)				
Sensible BTU/H (kW)		45,600 (13.4)				
Chilled Water	BF/BU072C	BF/BU101C				
Total BTU/H (kW)	33,700 (9.9)	57,100 (16.7)				
Sensible BTU/H (kW)	32,000 (9.4)	51,400 (15.1)				

*The net capacity data has fan motor heat factored in for all ratings and the entering air condition of 72°F (22°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.

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The global leader in enabling Business-Critical Continuity™.

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- Embedded Power
- Monitoring
- Outside Plant
- Power Switching & Controls
- Precision Cooling**
- Racks & Integrated Cabinets
- Services
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