Today's computing technologies compound conventional cooling problems. Blade servers, communications switches and other electronics are being packed into tighter and tighter spaces. Computing capacity that once filled an entire room is now contained in a single rack — creating extreme power and heat densities.

To solve heat density problems, the growing trend among today's IT professionals is an integrated precision cooling solution — one that solves both room-level and rack-level cooling challenges.

Precision Cooling Advantages

Question	Resolution
Provides Protection Under All Conditions	Yes, computers have changed — but the threats to their operation are as real as ever. An air conditioning system that maintains the temperature and humidity at the proper levels in your critical facility is an absolute necessity for the viability of your business.
Keep Moisture And Air Cleanliness Right Where They Need To Be	Ordinary building air conditioning and heating systems are designed to keep people comfortable. Computers and other sensitive electronics require a system that provides humidity control to meet equipment specifications — and air filtration designed to keep airborne particles from causing problems
Designed to Meet The Cooling Needs Of Any Critical Space	A mission-critical cooling system can be engineered to match just about any type or size of facility. There are downflow systems for raised floor facilities and upflow units where the floors are not raised. Supplemental systems can be used where equipment is tightly packed in racks. Compact models are ideal for small or remote facilities.
Engineered To Get The Most From Every Energy Dollar	Energy efficiency is no longer just an option for users of air conditioning. Today's systems offer a choice of compressor types, microprocessor controls and other optional features designed to reduce power consumption and maximize energy savings.
Designed To Operate Year-Round	Because most critical computing and communications facilities function on a 24 x 7 basis — so must the environmental equipment that is protecting it. Mission-critical cooling is designed to run around-the-clock, no matter what the outside weather conditions

Why Liebert Precision Cooling?

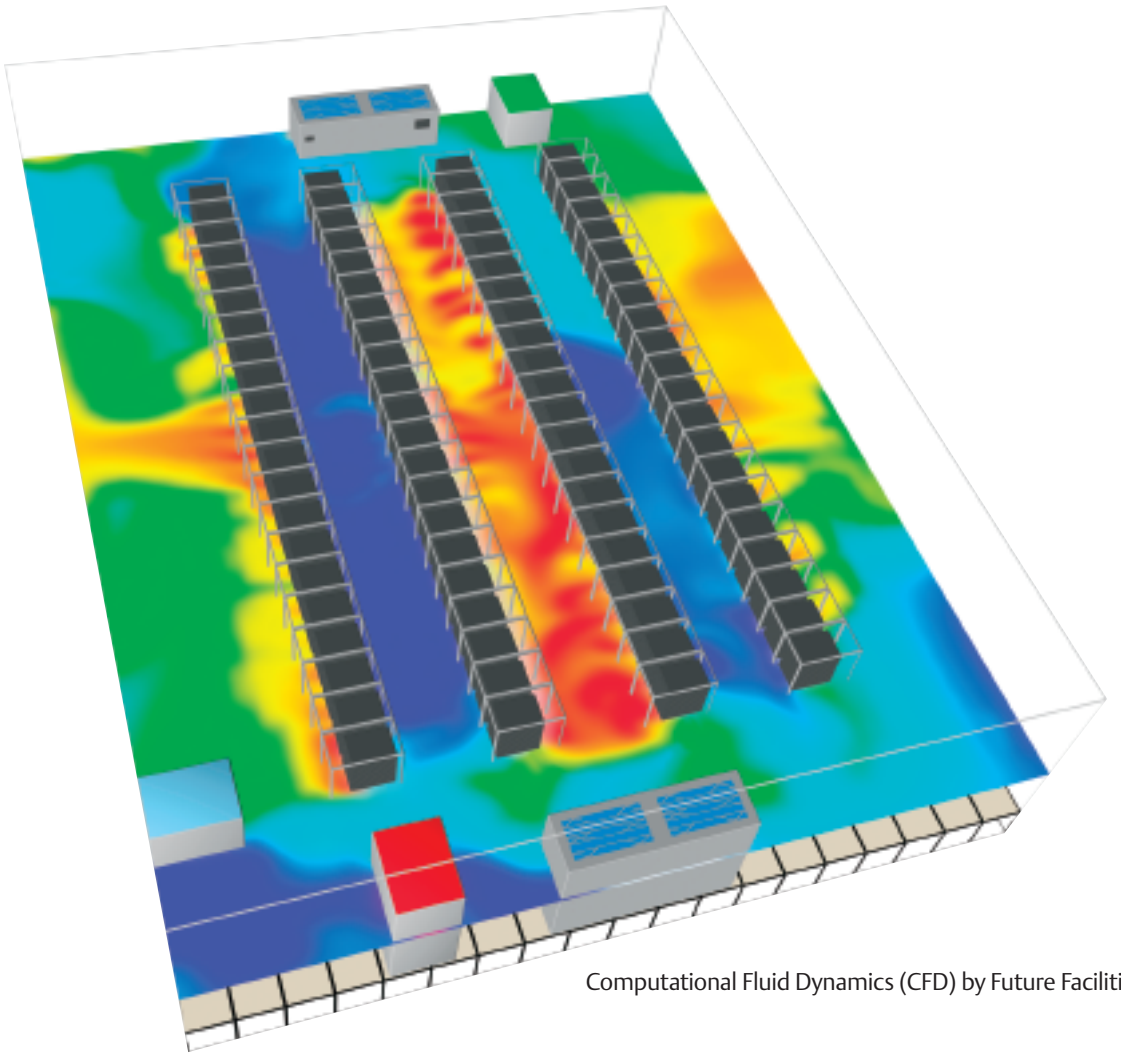
From the first precision-cooling system in 1965, to the first enclosed protection system in 1994, to the first high-density cooling system in 2002, Liebert has been the global leader in the world of business-critical systems.

In fact, more companies rely on Liebert for critical cooling than all other competitors combined.

Designed and built with the most rugged refrigeration components, Liebert mission-critical precision air conditioning systems have been in constant use for over 30 years — a purchase that has spanned generations of computers. Liebert Precision Cooling Products are recognized as the world's standard for reliable operation and lowest total cost of ownership.

We Surround You with Expertise

One of our most unique aspects is our network of local Liebert cooling experts, who offer Liebert cooling solutions tailored to your requirements. Our local Liebert Representatives have an average of 16 years of experience – the most in the industry. They will assess your needs, recommend appropriate solutions and provide any post-installation support. The combination of the Liebert's local expertise, Liebert Authorized Resellers and factory trained and certified local mechanical contractors, Liebert is able to provide the most comprehensive cooling solutions designed to meet your ever changing IT equipment needs. It's all part of delivering the Liebert Experience our customers have come to expect since 1965.



Computational Fluid Dynamics (CFD) by Future Facilities.

Liebert Challenger 3000 Cooling

Liebert Challenger is featured in these Scenarios:

Scenario C
3-6 Racks
Single Phase
page 12

Scenario D
7-10 Racks
Three Phase
page 14

Liebert Challenger 3000 precision air conditioning system provides complete environmental control, including precise temperature, humidity and air filtration. Designed to fit in the crowded confines of an equipment room or laboratory, it offers an extremely compact footprint for facilities where space is at a premium. All of the critical components are accessible from the front, so the unit can be installed in a corner or flush against other equipment.

Features & Benefits

Flexibility:

- Advanced microprocessor control
- Split system allows the compressor and condenser to be located remotely to reduce noise levels within room unit
- Small footprint
- Total front access for service
- Provides a complete environmental control package, including both precision air conditioning and humidity control
- Upflow and downflow models available
- Air, water, glycol and chilled water units available

Higher Availability:

- Built with Liebert quality components from the most trusted name in the industry
- Engineered for year-round operation
- SNMP communications for real-time monitoring event notification
- Reliable scroll compressor technology
- Standard hot gas bypass gives flexibility to adjust to various room loads

Lowest Total Cost Of Ownership:

- Refrigeration system utilizes Scroll compressor for maximum energy efficiency.
- Fast response microprocessor controls minimize short cycling and other wasteful operating patterns.
- Liebert precision air conditioning products are backed by the Liebert Service Partner Network (LSNP) - the largest nationwide network of service providers in our industry - for installation, start-up and preventive maintenance.

Frequently Asked Questions

Question	Resolution
Why is a Liebert Challenger 3000 precision cooling system better than ordinary building air conditioning?	The Liebert Challenger 3000 offers a much higher level of reliability compared to comfort cooling systems. It uses rugged refrigeration components that are designed to operate 24 hours a day, 365 days a year. The Liebert Challenger 3000 also provides the precise temperature and humidity control required by sensitive electronic computer equipment.
Does this type of cooling system use a lot more energy?	No. Because the Liebert Challenger has a greater sensible heat removal capability compared to a comfort cooling system of the same size, it will save money and even pay back part of your investment over the life of the system.
Does it take up a lot of room?	Designed to fit in the crowded confines of a small data center or equipment room, the Liebert Challenger 3000 offers an extremely compact footprint for facilities where space is at a premium.
Does the Liebert Challenger 3000 cost more to operate than a regular building air conditioning system?	Because of its reliability, compact size and efficient energy usage, the Liebert Challenger 3000 is actually less expensive to operate over its life cycle compared to comfort cooling equipment.

Competitive Advantages

You may be asked about the advantages of the Liebert Challenger 3000 cooling system compared to building air conditioning or other types of cooling systems. Here are some important differences that make the Liebert solution the right choice for many applications:

Feature	
High Reliability Compared to Comfort Cooling Systems	Reliable refrigeration components designed to operate 24 hours a day, 365 days a year.
Easy Maintenance	Front access for easy service access to internal components.
Energy Efficient	Combined with greater sensible heat removal, the Liebert Challenger also utilizes a scroll compressor for maximum energy efficiency.
Lower Total Cost of Ownership	In addition to energy efficiency, the Liebert Challenger is designed to withstand the test of time.

Specifications

Liebert Challenger based refrigerant R-22

System Type BU= Up Flow w/o raised floor BF= Down Flow w/ raised floor	Self-Contained Air Cooled			
Indoor Unit (based on 72°F, 45% RH)	BF/BU 042A		BF/BU 067A	
Net Capacity Data - Standard Air Volume	**BTU/H**	**kW**	**BTU/H**	**kW**
Total	37,900	11.1	58,300	17.1
Sensible	37,900	11.1	58,300	17.1

Indoor Cabinet Dimensions - Both 042A & 067A

Unit Height, in (mm)	Depth, in (mm)	Length, in (mm)
76 (1930)	33.5 (826)	33.5 (826)

Indoor Unit Weight - 60 Hz Models

Model	BF042A	BF067A	BU042A	BU067A
lbs (kg)	595 (270)	640 (291)	595 (270)	640 (291)

Indoor Unit Electrical Data - 60 Hz Models

Model Type	Self Contained Air Cooled			
	3 Ton B 042A		5 Ton B 067A	
Voltage- With electric reheat &	All voltages are 3 phase			
humidifier (infrared or steam-generating)	208	480	208	480
Motor	**.75 hp (.56kW)**		**1.5 hp (1.1kW)**	
Full load amps	42.0	19.6	68.0	32.3
Wire size amps	51.8	24.2	83.6	39.7
Overload protection device	50	25	90	40

Outdoor Unit Electrical Data - Air Cooled Condensers

Model CS083	Use for both BU/BF 042 and 067 Models at 95° F				
Number of Fans	1				
Motor (V/P/H)	**Hp**	**ph**	**FLA**	**WSA**	**OPD**
Fan Speed Controller - 20°F outside design					
208 / 230 / 1 / 60	0.75	1	4.8	6.0	15.0
208 / 230 / 3 / 60	0.75	3	4.8	6.0	15.0
480 / 1 / 60	0.75	1	2.5	3.1	15.0
480 / 3 / 60	0.75	3	2.5	3.1	15.0
Lee Temp Controller/Fan Cycling - 30°F outside design					
208 / 230 / 3 / 60	0.75	3	3.5	4.4	15.0
480 / 3 / 60	0.75	1	1.7	2.1	15.0

Outdoor Unit Condenser Dimensions

Condenser Size	Cabinet (with legs) Dimensions, inches (mm)			
	Height	Width	Length	Net Weight lb (kg)
CS-083	43 1/8 (1095)	43 9/16 (1108)	51 1/2 (1908)	425 (193)

Liebert Challenger Related Products

Liebert Liqui-tect® Leak Detection Systems
Provide quick sensing, accurate reporting and precise location of leaks below the floor or above the ceiling in critical facilities, allowing you to find and correct a leak before moisture can damage computers, wiring connections or other sensitive electronics.

Liebert Universal Monitor
This all-purpose, simple to use monitoring panel features multi-sensing, remote monitoring and remote control capabilities.

Liebert Nform
A simple to use monitoring and communications software solution that combines full-scale monitoring with cost-effective deployment through the use of the existing network infrastructure.

Liebert IntelliSlot Web/485 card with adapter
Enables the Network and Building Management Systems that monitor your computing, communication and facility infrastructure to also monitor your Liebert cooling equipment through your existing network.