LIEBERT® ECONOPHASE™

Pumped Refrigerant Economizer

VERTIV

The first ever pumped refrigerant economizer system for enhanced energy savings
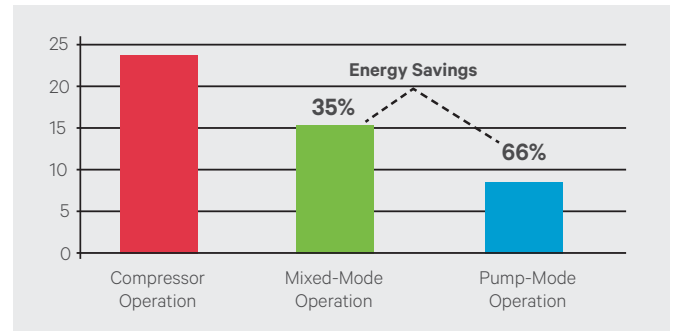
- Industry-leading efficiency
- Simplified operation
- Next generation Vertiv™ ICOM™ Control
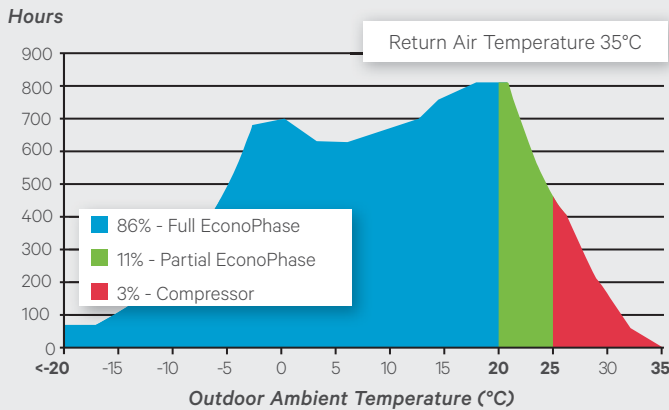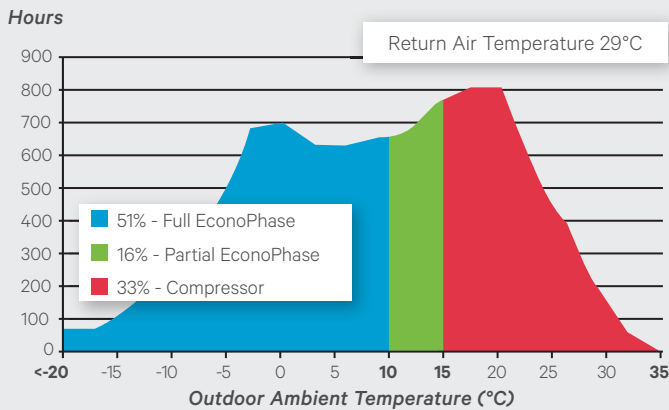
Industry-Leading Efficiency

- First ever pumped refrigerant economizer
- Refrigerant carries 2x as much heat as water and 40x as much heat as air

	AIR	WATER	PUMPED REFRIGERANT
Fluid Heat Density	18.65 kJ/m³	1,722 kJ/m³	3,466 kJ/m³
Heat Removal Coefficient of Performance (COP)	29.5 kW/kW	591 kW/kW	1,188 kW/kW
Increase in Heat Removal Efficiency compared to air	Base %	+2,000 %	+4,023 %

Gains in Freecooling with Temperature Increase

Hours

Return Air Temperature 29°C

- 51% - Full EconoPhase
- 16% - Partial EconoPhase
- 33% - Compressor

Outdoor Ambient Temperature (°C)

Hours

Return Air Temperature 35°C

- 86% - Full EconoPhase
- 11% - Partial EconoPhase
- 3% - Compressor

Outdoor Ambient Temperature (°C)

Liebert EconoPhase usage increases significantly as return air temperatures increase, providing more cost-effective cooling.

- Freecooling is available to reduce or eliminate compressor usage

Energy Savings

35%

66%

Compressor Operation | Mixed-Mode Operation | Pump-Mode Operation

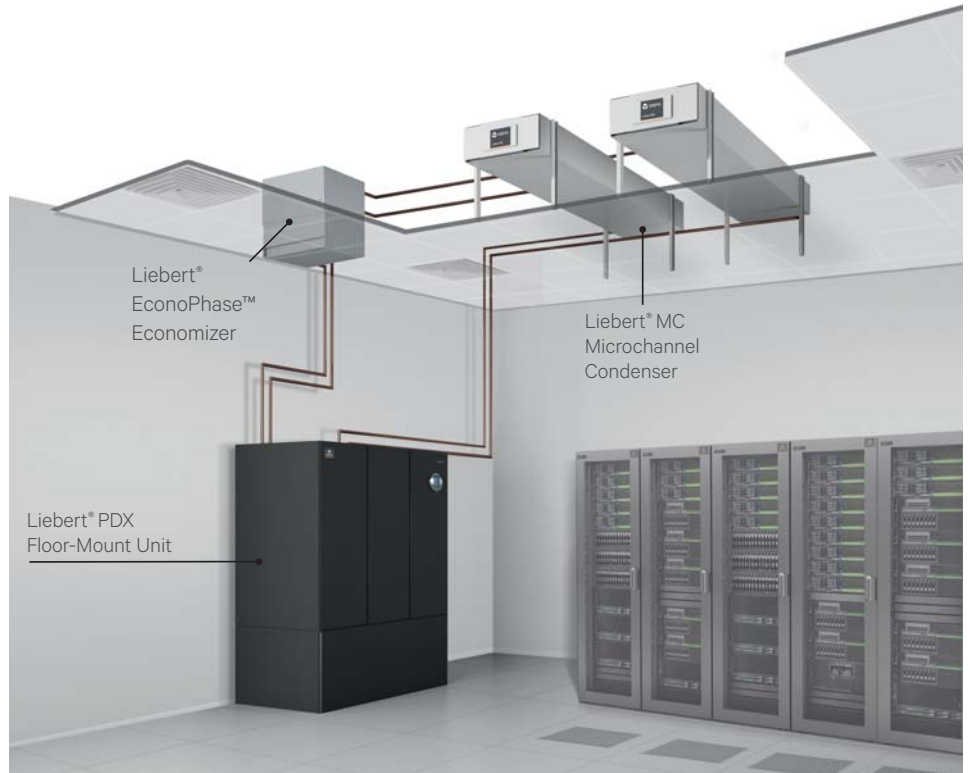- pPUE as low as 1.05 in full EconoPhase™ mode.

*The **Liebert® EconoPhase** automatically switches to economizer operation to **reduce or eliminate compressor run time** during periods of lower outdoor temperatures.*

Simplified Operation

- Functions without water
- Free from outside air contamination, no dampers nor louvers to maintain
- Instant changeover to economizer mode, even for short time periods
- Automatic failure diagnostics; pump unit serviceable without loss of cooling.

Liebert®
EconoPhase™
Economizer

Liebert® MC
Microchannel
Condenser

Liebert® PDX
Floor-Mount Unit

The Liebert® EconoPhase™ pumped refrigerant economizer is compatible with the Liebert PDX and Liebert MC to improve thermal management and control, while drastically cutting energy costs and lowering pPUE.

Next Generation Vertiv™ ICOM™ Control

- Seamless, automatic changeover between Direct Expansion (DX) and economizer mode
- Constantly monitors load, room and outdoor conditions to adjust system operation to most efficient operating mode
- Mechanical systems networked together to optimize component performance and increase system reliability
- Automatic failure diagnostics and pump unit serviceable without loss of cooling.

Room Temperature

Unit Load %

Outdoor Temperature

Operating Mode

Vertiv ICOM Control