

Liebert® EconoPhase™

Pumped Refrigerant Economizer

The first ever pumped refrigerant economizer system for enhanced energy savings

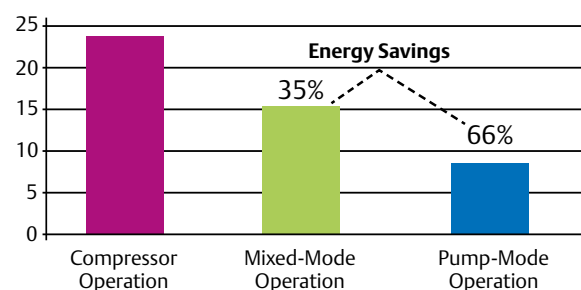
- Industry-leading efficiency
- Simplified operation
- Next generation iCOM™ Control

Industry-Leading Efficiency

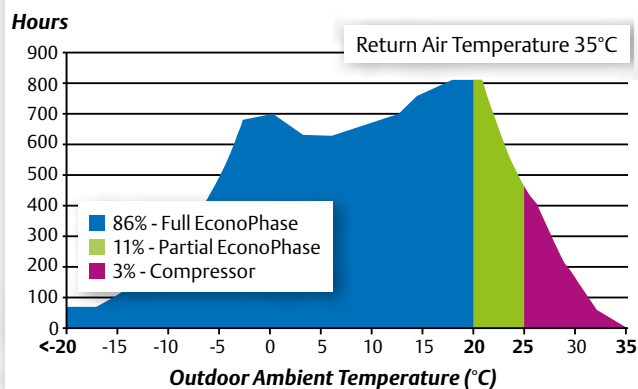
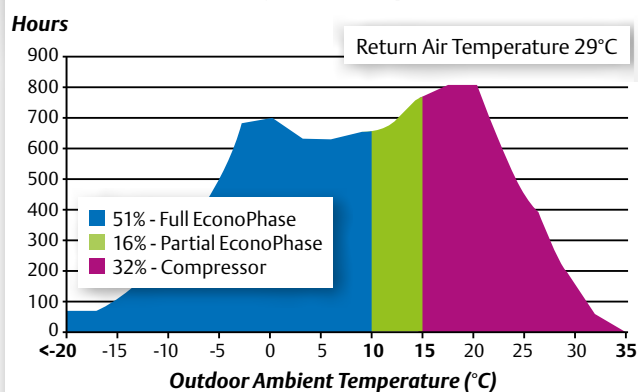
- First ever pumped refrigerant economizer
- Refrigerant carries 2x as much heat as water and 40x as much heat as air

	Air	Water	Pumped Refrigerant
Fluid Heat Density	18.65 kJ/m ³	1,722 kJ/m ³	3,466 kJ/m ³
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 %

- Freecooling is available to reduce or eliminate compressor usage



Gains in Freecooling with Temperature Increase



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

- pPUE as low as 1.05 in full EconoPhase mode



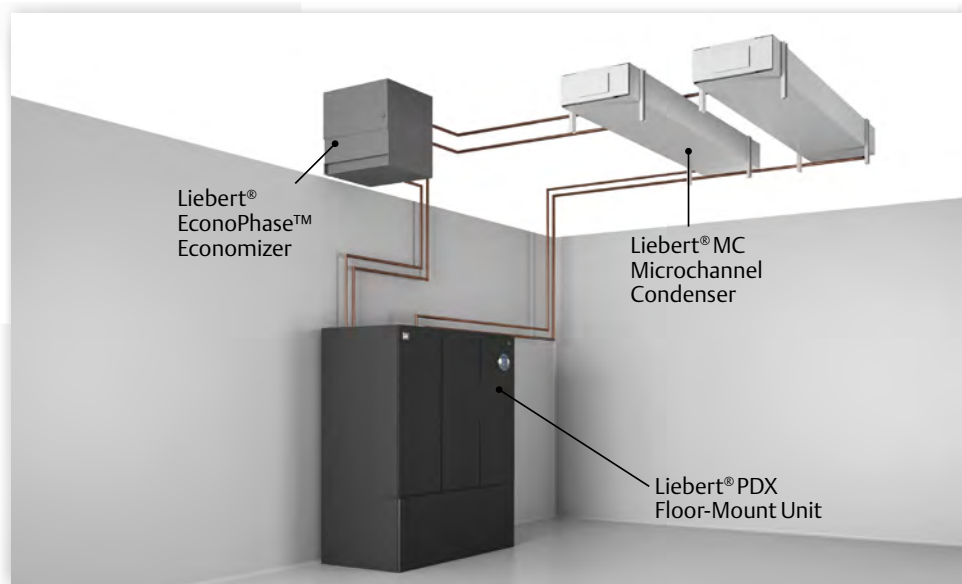
The Liebert EconoPhase automatically switches to economizer operation to **reduce or eliminate compressor run time** during periods of lower outdoor temperatures.

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Pumped Refrigerant Economizer

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.



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 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



iCOM Control

Operating Mode

Locations

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