

Low Condensing Refrigeration

What is it?

Low condensing refers to the practice of actively tracking ambient temperatures down to a minimum setpoint in order to float the head pressures in refrigeration applications. This technology helps reduce energy consumption by up to 50% in refrigeration systems and up to 30% in AC systems, resulting in long-term energy savings and operational efficiencies.

Electronic expansion valves are being used to lower head pressure in refrigeration systems and increase energy savings for customers.

The majority of refrigeration systems run with fixed head pressures, regardless of the ambient temperature. In other words, the system doesn't recognize the hottest day of the year versus the coldest day of the year, resulting in consistent energy consumption regardless of the ambient conditions.

The Emerson EXV line of valves, with their unique ceramic gate port design, are enabling existing systems to operate with floating head pressures. EXVs allow continuous fluctuations in condensing points to reduce minimum levels that are more closely aligned with ambient conditions.

Unlike the mechanical expansion valves used in fixed head pressure applications, EXVs are capable of absorbing the flash gas that is produced in low condensing applications.

As the ambient temperature rises in a floating head system, the condensing pressure will float up with it. When the ambient temperature falls, the head pressure will also track with the decrease in temperatures – and that is where energy savings can be realized.

Retrofitting an existing systems can be done in as little as 1-2 days per system. Emerson can assist with new system design with an engineering firm of your choice.



Benefits of Low Condensing

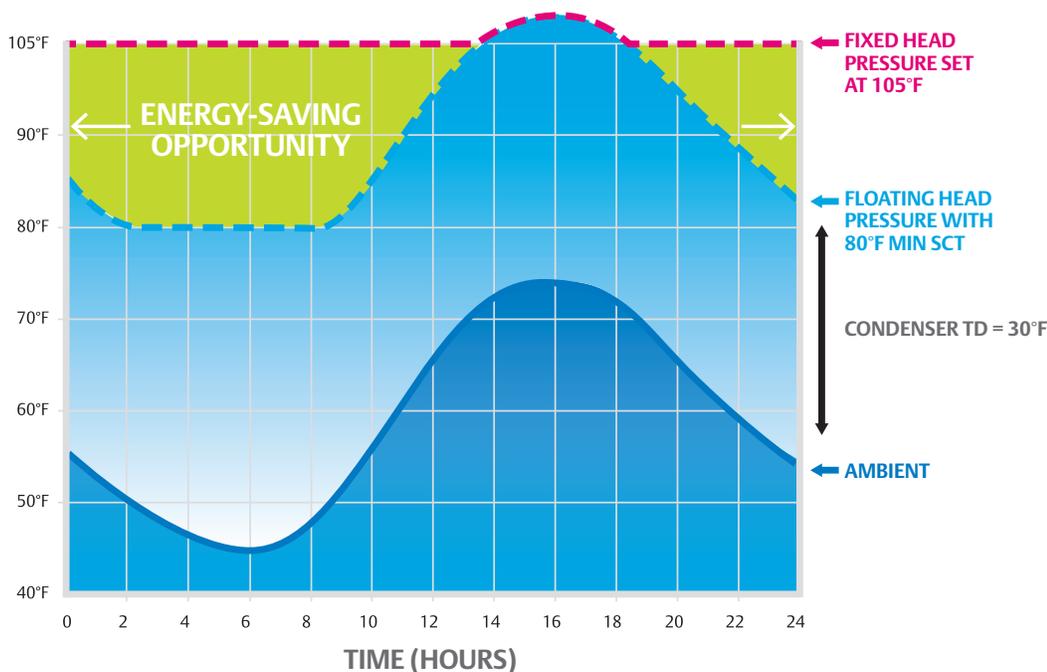
- Lower energy consumption and costs by up to 50%
- Reduced maintenance costs
- Utility incentives to upgrade system before it fails
- Increased compressor capacity at lower condensing pressures
- Improved sustainability by reducing system charge (refrigerant reduction)
- Prevents compressor failures due to flooding

Ideal Applications

- Data centers
- Large cold rooms and food storage
- Food processing
- Supermarket – Secondary fluid systems
- Air cooled chillers
- Pharmaceutical
- Hospitals and medical facilities
- And much more

Long-term Savings and Operational Reliability

Because of its ability to adapt to ambient temperatures and regulate condensing temperatures, this technology has a tremendous impact on energy savings and efficiencies.



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