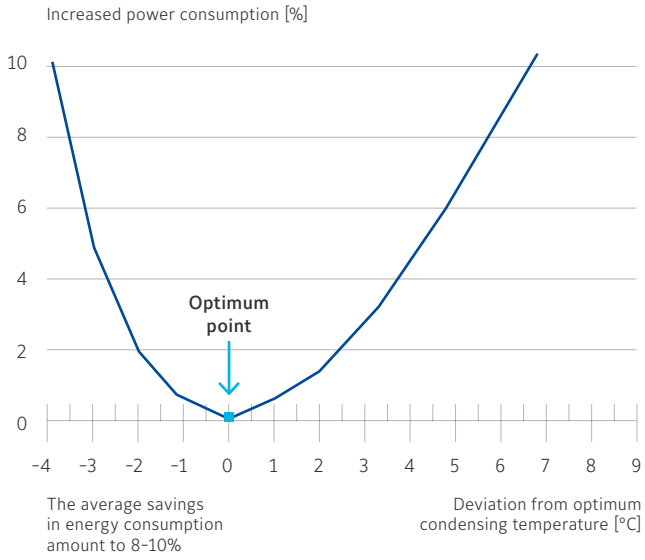
Sabroe CP Optimiser

Automatic device for balancing R717 condensing pressure against compressor efficiency

Many refrigeration systems that use R717 (ammonia) as refrigerant and feature an evaporative condenser are operated using a fixed set point to maintain a constant condensing pressure. This is rarely ideal, as the energy consumption of the compressors typically increases by 3 percent for every degree Celsius the condensing pressure rises. Shaft power consumption is directly influenced by condensing pressure. This impacts overall operating costs and plant efficiency.

Reducing condensing pressure improves compressor efficiency, but doing so also requires energy. Maximum overall efficiency stems from the best possible balance between compressor energy consumption and the energy required to reduce condensing pressure. The figure below indicates the sum total displacement of the energy consumption, if the condensing pressure deviates from optimum.

The CP Optimiser automatically calculates this energy balance, taking into account changing loads and conditions. This paves the way to considerable savings on energy bills, which means the CP Optimiser normally pays for itself within a matter of months.



Features	Benefits
Automatic operation based on inputs from just two sensors – temperature and humidity	Substantial reduction in compressor energy consumption, resulting in lower operating costs
Output signal can be connected directly to PLCs and frequency converters	Easy to integrate with modern monitoring and control systems to ensure maximum efficiency
No time-consuming programming or complicated technical setup required	Easy to commission and operate, and helps eliminate human error
No manual intervention or special operator skills required	Virtually no maintenance, calibration or attention necessary after commissioning
No special requirements for integration into new or existing R717-based refrigeration setups	Straightforward, inexpensive way to boost operating efficiency and reduce running costs

Where it's used

The CP Optimiser is highly recommended for inclusion in all new installations.

Installing the CP Optimiser in existing installations provides immediate savings on electricity costs.

The CP Optimiser works with the following equipment:

- Evaporative condensers
- Air-cooled condensers
- Dry cooler
- Open cooling towers

Technical data	
Supply voltage:	24-volt DC
Inputs:	Temperature 4–20 mA/0–50°C
Relative humidity:	4–20 mA/0–100% RH
Outputs:	Set point signals configurable to 4–20 mA or 0–10 volt DC
Dimensions (H x W x D):	115 x 90 x 55 mm
Enclosure:	IP54
Cable connections:	4 x PG7

Mounting

The CP Optimiser unit is a small box of electronics that is easy to mount in virtually any convenient location, either indoors or outdoors.

The unit only requires a 24-volt DC power supply and data from appropriate sensors for measuring temperature and relative humidity.

Integrating the CP Optimiser

Temperature and relative humidity sensors are not included with the Sabroe CP Optimiser, but are available as optional equipment. Controller (PLC) not included.

All information is subject to change without notice.

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