

CO₂ a Strategic Decision for Your Business

CO₂ is the natural and long-term solution to F-Gas restrictions. Its adoption has increased by +222% compared with alternatives such as A2L (+66.7%), confirming the retail sector's focus on efficiency, sustainability and reliability. However...

...regardless of the equipment selected, all CO₂ solutions, when operating under high ambient temperatures:

- experience a reduction in performance and efficiency.
- generate peaks in power consumption and lower the COP.
- produce more flash gas (destabilising the system).
- create greater compression effort.



Solution?

To address these critical issues, **at Tewis we have optimised the thermodynamics of CO₂**, developing a highly simplified system capable of delivering energy savings of up to 35% compared with other solutions available on the market: **ECO2SMART**.

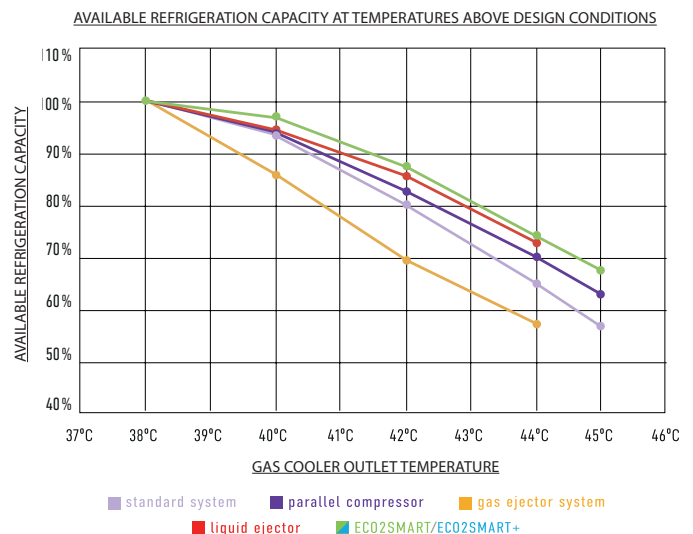
This is not just a marginal improvement.

- **Significantly increases rack efficiency from 10°C onwards**, applying the increase in evaporation temperature across all ambient conditions (other systems only operate from 25°C onwards).
- **Reduces flash gas generation through an Intelligent Mechanical Subcooling system** integrated into the rack, using standard components.
- **Optimises suction pressure and the efficiency of the additional compressors according to the gas cooler outlet temperature**, improving operating pressure and overall system performance.
- **Achieves all of this with lower mechanical stress and reduced energy consumption for both the compressors and the system as a whole.**



ECO2SMART
EXCLUSIVE HIGH EFFICIENCY CO₂ SYSTEM by TEWIS

ECO2SMART+
low superheat



The Tewis ECO2 system loses significantly less capacity than any other solution available on the market

Operational Simplicity: The perfect balance between high efficiency and investment.

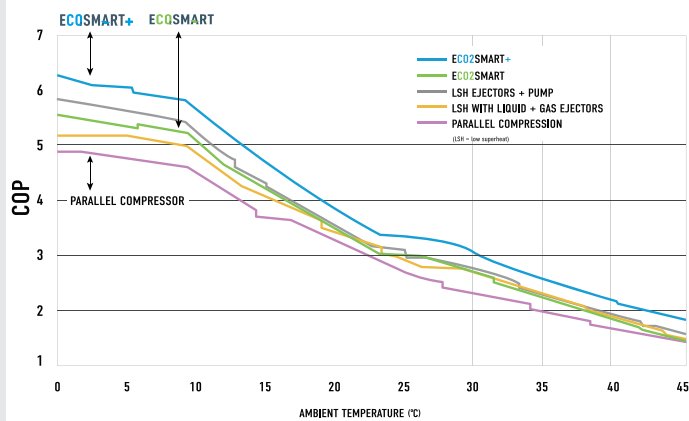
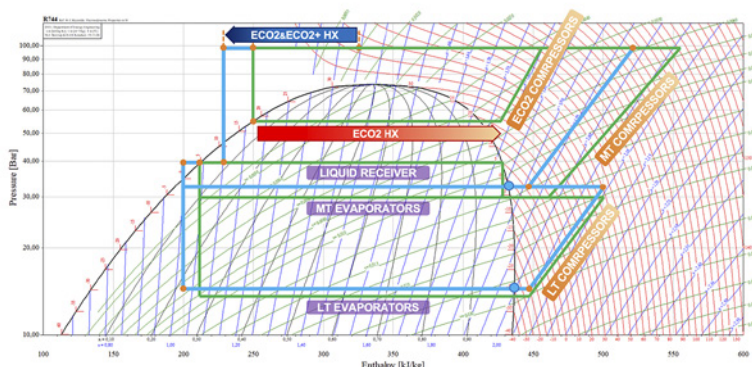
- ✓ ECO2 uses CO₂ exclusively.
- ✓ NO adiabatic systems required = lower footprint, lower operating costs.
- ✓ NO additional components required to guarantee performance.
- ✓ NO highly specialised service expertise required.



From ECO2SMART to ECO2SMART+

With **ECO2SMART** we optimise the behaviour of CO₂ at high ambient temperatures. With **ECO2SMART+** we maximise its efficiency by improving evaporation, operating with 0K superheat (Zero SH System) in both MT and LT. To achieve this:

- 1] We apply additional subcooling before the high-pressure (HP) valve.
- 2] We minimise the flash gas generated in the receiver.
- 3] We increase the evaporation temperature.
- 4] We reduce the compression ratio of the medium-temperature (MT) compressors.
- 5] We reduce compressor energy consumption.
- 6] We reduce mechanical stress.
- 7] Superheat (SH) is controlled for both medium- and low-temperature compressors (MT/LT).



ECO2SMART+

the Best COP on the Market

ECO2SMART+, with **0K superheat**, enables operation in both MT and LT applications, **increasing evaporation temperatures up to -3°C**.

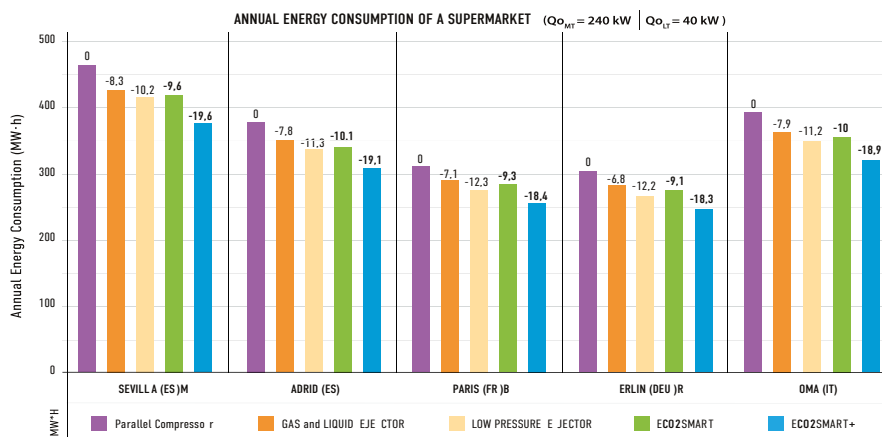
This delivers **additional energy savings and system optimisation of 2–3% for every degree increase, achieving the highest COP on the market (+15% compared with parallel compression and +30% compared with standard systems).**

ECO2SMART+ more Benefits for Your Business

According to an independent study*, ECO2SMART+ **is the leading 0K superheat technology currently available**, outperforming ejector-based systems in annual performance across all climate conditions, particularly in Southern Europe.

%Annual ECO2+ Savings

- ✓ **35% vs. standard CO₂ systems**
- ✓ **22% vs. parallel compression**
- ✓ **13% vs. other advanced 0K superheat systems**



Independent study data obtained from the analysis of five system configurations applied to a typical supermarket (240 kW MT / 40 kW LT) across 282 European locations under real climate conditions. ACCESS THE STUDY (QR).

