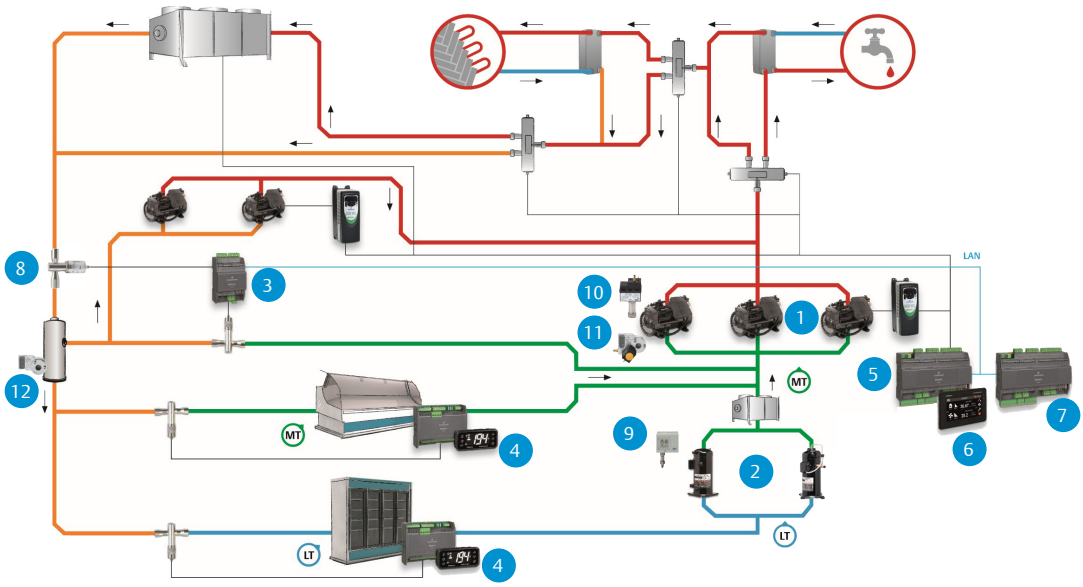
# Efficient Retail Applications With Emerson's $CO_2$ Solutions




1. Copeland Stream $CO_2$
2. Copeland Scroll $CO_2$
3. Electronic Expansion Valve Driver
4. Cabinet Controller
5. Compressor Rack Controller
6. Touch Screen Display
7. Expansion Module
8. Electrical Control Valve
9. Adjustable Pressure Switch
10. Fixed Pressue Switch
11. Oil Level Management
12. Liquid Level Management

LT Low Temperature

MT Medium Temperature

*Transcritical booster solution with dual heat recovery, gas cooler bypass & parallel compression and de-superheater*

Increasing environmental concerns about the potential direct emissions from HFC-based refrigeration systems into the atmosphere have led to the revival of the refrigerant R744 in parts of the European refrigeration market. Regionally, this trend is reinforced by legislation and taxation schemes that favor the usage of R744.

## Offering Complete Solutions For $CO_2$ Booster And Cascade Systems

In comparison with HFC refrigerants, the specific properties of R744, such as high operating pressures, require changes in the design of the refrigeration system.

Emerson delivers comprehensive solutions for numerous refrigeration applications. Also for environmentally friendly $CO_2$ refrigeration applications, Emerson offers a unique advantage to customers with a complete $CO_2$ solution consisting of compressors with piston and scroll technologies, on-board compressor electronics, digital capacity modulation, flow controls and electronic controllers. It ensures high operational performance, safety and increased system uptime of $CO_2$ booster and hybrid systems.

EMERSON™

## Scroll And Semi-Hermetic Reciprocating Piston Compressor Technology For $CO_2$

The ZO range of Copeland Scroll™ compressors for subcritical applications and the semi-hermetic Copeland™ Stream compressors for subcritical and transcritical $CO_2$ applications have been developed specifically to leverage the characteristics of R744 refrigeration systems. Stream $CO_2$ compressors with high design pressures of 90/135 bar are dedicated to medium and low temperature $CO_2$ applications. ZO Scroll compressors with compactness and weight advantages are ideally suited for subcritical applications with $CO_2$ booster and hybrid systems. ZO Digital Scroll with digital capacity modulation provides a perfect match between capacity and load.

Adding $CO_2$ electronic controllers from Dixell, a business of Emerson and world leader in electronic regulation and control, completes the high value and efficient $CO_2$ refrigeration system and guarantees an optimized compressor and cabinet management. The iProRACK programmable controller in combination with the XEV20D manages the compressor pack and control the systems operating point to the optimum efficiency level by managing the gas cooler pressure. iProRACK controller manages low and medium temperature levels of $CO_2$ cascade systems. XM600 series controllers are available for the display case control by complete management of pulse or stepper electronic expansion valve.

*$CO_2$ compressor for transcritical & subcritical applications*

*Scroll compressor for subcritical applications*

*XM600 controller for display cases with EEV management*

*iProRACK for compressor rack control*

*XEV20D for flash gas valve and back pressure valve management*

## Efficient System Management With High-Class Controls And Electronics

Emerson offers a wide range of valves and controls required for gas cooler, receiver and evaporator control in subcritical and transcritical applications. The product offering includes EX series high linear electrical flow control valves designed for a maximum operating pressure of 60 bar for subcritical applications and CV series valves designed for a maximum operating pressure of 120 bar for transcritical applications. The OM5 high pressure compressor oil regulator reduces the complexity of oil management system design.

*Electronic OilLevel Management System OM5*

*High Pressure Flow Control Valves Series CV*

*Electronic Oil Level Monitoring System - OW5*

## Benefits Of Emerson $CO_2$ Solution:

- Complete solution for $CO_2$ booster and cascade systems with compressors, flow controls and electronic controllers
- Consistently high design pressures across compressors and controls to ensure high operational safety and increased system uptime
- Stream $CO_2$ is equipped with modular CoreSense™ Technology that offers advanced compressor protection, diagnostics, communication and power consumption monitoring
- Advanced system insights from CoreSense technology communicating through Emerson control and monitoring devices: validating system performance, minimizing maintenance costs and extending system lifetime
- Emerson controllers manage the refrigeration systems, operating point to the optimum efficiency level
- Easy to install and adjust controllers and evaporator side controllers

## For more details, see climate.emerson.com/en-gb

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