The New Cool

Copeland™ CO_2 scroll refrigeration units:
Revolutionizing the way commercial refrigeration is done.

EMERSON

Getting Nervous?

New regulations and stricter requirements challenge the refrigeration industry.

These are challenging times for planners and operators of refrigeration systems in the food retail sector. Systems should not only convince customers through costs, efficiency, safety, and reliability. The F-Gas phase down puts the search for an environmentally friendly refrigerant in the spotlight.

In addition, small- and medium-sized supermarkets in particular pose a number of specific challenges to system design, for example constricted space conditions in many inner-city locations as well as legal requirements regarding noise emissions.

Stay Cool and Relax.

With the new Copeland™ CO_2 scroll refrigeration units for small- and medium-sized supermarkets!

The new Copeland CO_2 scroll refrigeration units combine an innovative CO_2 scroll technology with a smart control concept revolutionizing the world of commercial refrigeration. The technology not only relies on CO_2 as a natural refrigerant, but combines reduced system complexity with high flexibility, low total cost of ownership, and high efficiency in all climates. Its physical footprint and noise emissions are low, making it particularly suitable for small- and medium-sized supermarkets, discounters, and convenience stores.

Here are some facts about our new range of units that will illustrate how The New Cool will make your life easier:

- Innovative scroll technology and control intelligence for reliable operation in all climates
- High level of efficiency reduces energy costs
- Modularity concept allows for high flexibility and customer-specific solutions
- Lowest sound levels and variable gas cooler position for maximum flexibility in building integration
- Lightweight and compact design for usage in urban areas
- Plug & Play solution with preconfigured components

Can a New Cooling Technology Give You Goosebumps?

The new Copeland™ CO_2 transcritical scroll technology is a real game-changer!

In the center of the new refrigeration units stands an entirely new type of transcritical CO_2 compressor equipped with innovative dynamic vapor injection (DVI) technology. DVI allows for flash gas to be directly injected into the compressor resulting in efficient and smooth operation, independent from outside temperatures. This avoids shutdown during summertime.

A smart control concept manages all system components enabling efficient and reliable operation while constantly keeping a high level of food quality.

The application of tandem compressors and active oil management further supports long-term reliability and food preservation.

Low total cost of ownership
Copeland CO_2 scroll technology is good news for those who value maximum efficiency, reliability, and low cost of ownership.

One solution, all climate conditions
The CO_2 scroll refrigeration units are designed for efficient and continuous operation even in the warmest climates and guarantee uninterrupted operation until a 44°C ambient temperature.

Less is more!
Our new technology's simplicity affects the entire life cycle of a refrigeration system: it's easy to plan, easy to install, and easy to run!

Tailored for inner-city stores
The range of refrigeration units is designed for the needs of small- and medium-sized supermarkets, convenience stores, and grocery shops.

CO_2 Scroll Refrigeration Unit

Perfect adjustment of Emerson's Copeland components

COPELAND™

Think Big. And Small. And Everything In-Between.

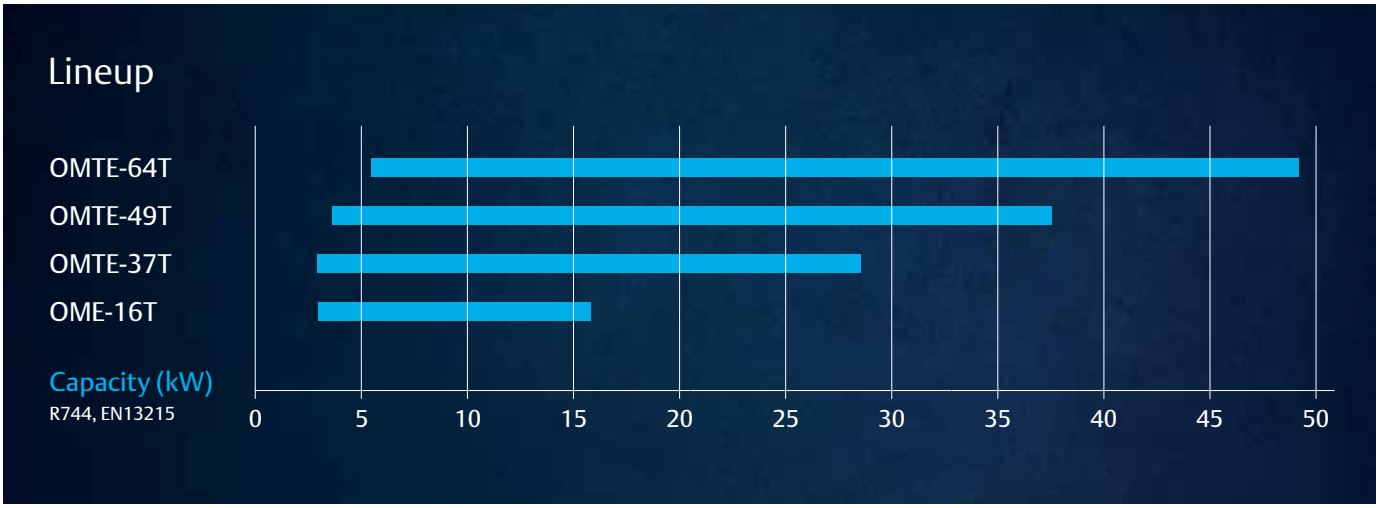
A wide capacity lineup ensures the perfect refrigeration unit for every application.

The new range comprises four medium temperature refrigeration units from 15 to 50 kW cooling capacity for applications up to 44°C ambient. This large cooling capacity range meets the requirements of a wide variety of shop architectures and their corresponding refrigeration needs. Thanks to the extended cooling capacity the entire cooling demand of a shop can be supplied with a limited number of units in a de-centralized architecture. The new units feature Dynamic Vapor Injection (DVI) and are equipped with supreme control intelligence. This way, CO_2 is becoming a safe and reliable as well as economic and easy-to-manage refrigerant throughout all climate zones. The innovative control concept includes unique features like envelope control and fault detection as well as diagnostics granting reliable operation and reducing risk of food spoilage. Plus, high standstill pressures, wide modulation range, and envelope management prevent the system from shutting down.

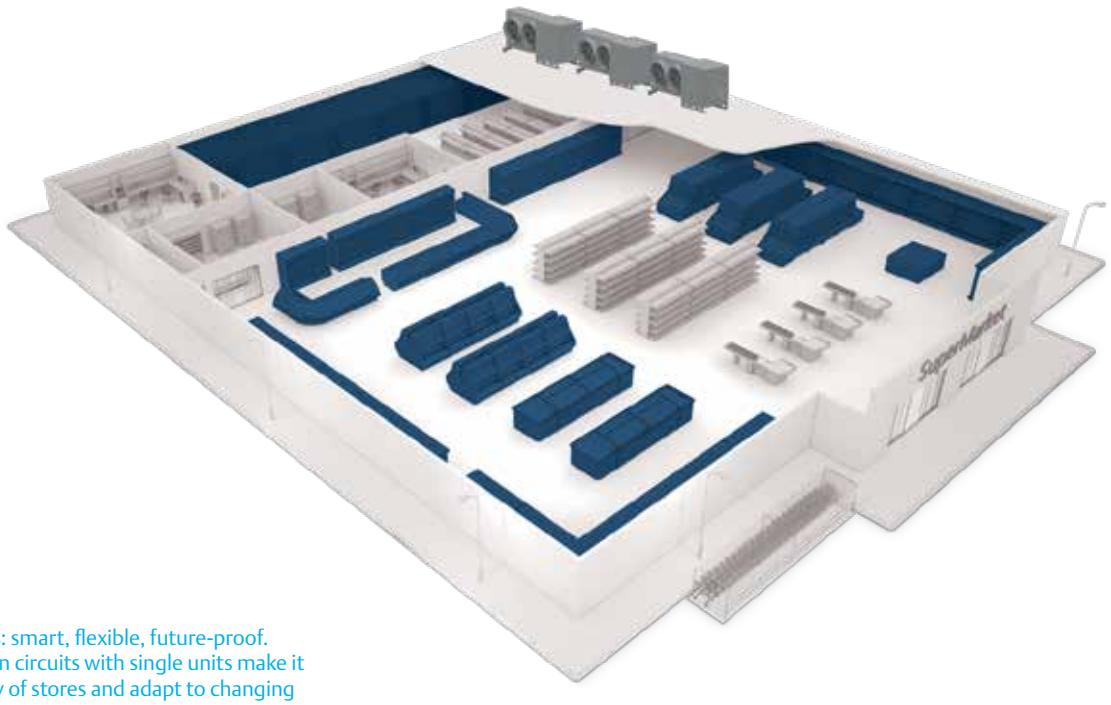
Technical Overview*

Model	Cooling @ 90 Hz [kW]	Compressors Quantity	Fans Quantity	Receiver capacity [l]	Suction Line Diameter [inch]	Liquid Line Diameter [inch]	Width / Depth / Height [mm]	Net Weight [kg]	Power Supply	Nominal Current [A]	Sound @ 10m [dB]
OME-16T-TFD	15.3	1	1	20	5/8	1/2	1,820/840/1,382	430	400 V 3 Ph (50 Hz)	23	40–43
OMTE-37T-TFD	27.9	2	2	20	3/4	5/8	3,130/840/1,382	450	400 V 3 Ph (50 Hz)	41	42–44
OMTE-49T-TFD	36.9	2	2	40	7/8	3/4	3,530/840/1,410	490	400 V 33 Ph (50 Hz)	55	42–44
OMTE-64T-TFD	49.1	2	2	40	7/8	3/4	3,500/840/1,770	530	400 V 33 Ph (50 Hz)	73	45–47

*Condition: Te = -10 °C, Gas Cooler Outlet = 35 °C
Preliminary data



Emerson's broad portfolio of Copeland™ CO_2 scroll refrigeration units creates perfect starting conditions for a de-centralized refrigeration architecture. This smart alternative to large centralized systems splits the refrigeration capacity into several separate refrigeration circuits. This allows for evaporating temperatures to be perfectly adjusted per circuit, raising the overall efficiency. In addition, the smaller system size reduces the leakage rate and makes the installation easier and safer than large systems.



De-centralized architectures: smart, flexible, future-proof. Several separate refrigeration circuits with single units make it easier to extend the capacity of stores and adapt to changing business circumstances.

There Are Multiple Shop Formats. But One Way to Equip Them All.

Modular design to overcome noise and space restrictions in any application.

packaged outdoor installation

split outdoor installation

Modular design for maximum installation flexibility. The compact compression compartment and variable position of the gas cooler cover the vast majority of installation situations.

Small- and medium-sized supermarkets pose special demands for refrigeration systems. Especially in inner-city locations, space is a scarce and expensive resource. Furthermore, noise emissions must be kept low to meet legal requirements in urban surroundings. As the new Copeland™ CO_2 technology has mainly been designed for these shop formats and these surroundings, Emerson has put a strong focus on easy and flexible installation during the development of the new refrigeration unit range. Therefore, the range is designed with a unique modular concept that makes it the perfect choice for urban environments as well as for refurbishments where space is limited: the units can be installed packed or split, indoor or outdoor; the gas cooler can be placed horizontally, vertically, or self-standing. This allows for maximum flexibility in building integration.

- For out-of-city use or in inner-city locations
- Indoor or outdoor deployment
- Rooftop use, even with only limited space available
- Small footprint, regardless of the scenario

split indoor/outdoor installation

packaged indoor installation

A Whisper from the Rooftop.

Silent operation for trouble-free operation in urban surroundings.

All system components are designed to reduce noise emissions and vibrations to the lowest possible levels. This includes the sound attenuation of the compressor compartment as well as the use of the latest EC fan technology and low vibration CO_2 scroll compressors. Furthermore, the system continuously adapts its capacity to the actual demand thus avoiding noisy start-stop procedures. A special night mode takes into account the reduced workload during nighttime, reducing fan and compressor capacity and thereby sound emission levels and power consumption.

Noise and vibration at the lowest levels:

- Special sound attenuation of the compressor compartment
- Latest EC fans and low vibration CO_2 scroll compressor
- Night mode function: intelligent control for lower sound during nighttime

Thinking Tomorrow Today.

Intelligent electronics for improved efficiency and reliability – making the system smart and future-ready.

The Copeland™ CO_2 scroll refrigeration units come with an intelligent control concept to manage the DVI circuit with a dedicated control algorithm enabling safe operation in all conditions, and feature envelope control and failure detection. Therefore, a large variety of sensors is continuously collecting, processing, and monitoring data: algorithms turn them into actionable information enabling remote diagnostics and predictive maintenance as well as performance analysis and comprehensive data analytics. The refrigeration unit's digital concept improves system efficiency and reliability in a quick and simple way reducing system downtime and preventing food spoilage. In addition, the units can easily be connected to a building management system (BMS), giving way to a holistic smart store management.

Moreover, the units are equipped with a unique feature to avoid increased energy consumption or system downtime due to a blocked gas cooler: the unit constantly measures the gas cooler's performance and sends an alarm if it drops, communicating the need for maintenance.

Maximum security:

- Alarm management
- Tandem compressor design (redundancy)
- Gas cooler status analysis – predictive maintenance
- Factory tested quality
- Active oil management
- Monitoring and communication capability

Peace of Mind Does Not Come by Itself. It’s Engineered.

High-quality components make a valuable and sustainable contribution to your success.

Through the exclusive use of high-quality components, the refrigeration units guarantee maximum efficiency and reliability. Their modular design concept and a wide capacity range offer high flexibility – a customized solution for every application and store format. In short: the entire system design is engineered to make commercial refrigeration easier, more sustainable, and cooler than ever before.

- Approved: EcoDesign compliant
- Flexible: modular design allows for indoor and outdoor installation
- Efficient: Copeland™ CO_2 scroll technology offers potential savings in terms of total cost of ownership
- Ideally suited: for small- and medium-sized shops
- Quiet: optimized for silent operation
- Reliable: no risk of food spoilage
- Small footprint: compact design ensuring easy and flexible installation
- Sustainable: using CO_2 as a future-proof, climate friendly refrigerant
- Trouble-free: innovative CO_2 scroll design provides the greatest operational reliability

About Emerson

Emerson (NYSE: EMR), headquartered in St. Louis, Missouri (USA), is a global technology and engineering company providing innovative solutions for customers in industrial, commercial, and residential markets. Our Emerson Automation Solutions business helps process, hybrid, and discrete manufacturers maximize production, protect personnel and the environment while optimizing their energy and operating costs. Our Emerson Commercial and Residential Solutions business helps ensure human comfort and health, protect food quality and safety, advance energy efficiency, and create sustainable infrastructure. For more information, visit **emerson.com**

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