

Design smarter.
Build better. Perform longer.



Everything CO₂ Solutions. Products. Expertise.

Enhance your projects with long-term reliability and energy-efficient performance, backed by one of the industry's most complete CO₂ portfolios and decades of application expertise. Our solutions are developed to support every stage of your project, helping you design, install, and maintain CO₂ systems proven to operate reliably and durably across applications, system sizes, and climates.



Design it. Build it. Trust it.

A well-engineered CO₂ system is a future-ready and energy-efficient choice for applications with high cooling demands. Whether you are taking your first steps with CO₂ or optimizing an existing installation, Danfoss supports you every step of the way.

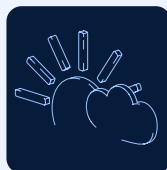
From cascade configurations to large transcritical systems, we deliver industrial-grade components designed specifically for CO₂ applications. This includes our newest and largest scalable ejector, engineered to boost system efficiency, reduce energy consumption, and lower operating costs from day one.

CO₂ is the refrigerant of tomorrow

CO₂ is being used worldwide to provide a sustainable and cost-effective refrigerant solution – one that is compliant with the increased environmental requirements of today – and tomorrow. CO₂ is a natural, sustainable refrigerant suitable for food retail stores of all sizes, and in all climates.



CO₂ provides the lowest cost of ownership for end-users because of its high volumetric efficiency, low power consumption, and refrigerant charge reduction.



Transcritical systems provide an efficient, simple, and cost-effective solution in all climates.

Superior thermodynamic properties

High volumetric cooling capacity

- Small volume – high capacity
- Up to 5 times greater than R404A
- Possible to use smaller pipes and compressors

High Pressure refrigerant

- +30°C - 71 bar
- Very low pipe pressure drop effect

High density gas

- Increases heat exchanger efficiency
- Greater capacities with smaller surfaces



Forward

CO₂ Refrigeration Solutions

Naturally

Complete portfolio for large CO₂ transcritical systems

Use the parts designed for the job. Danfoss' built-for-purpose, built-for-industry, transcritical CO₂ solutions ensure your operation is future-proof. The larger components help bring unmatched efficiency and simplicity to large systems. Creating a new industrial standard for transcritical CO₂ systems.



Large Ejector Solution

Largest scalable available ejector on the market. For increased efficiency. Integrates check valve and filter.

[Read more →](#)



ICMTS 50/80 motor-operated valve

Ensures precise regulation of transcritical gas or subcritical liquid at partial load conditions.

[Read more →](#)



SVA-140B

FIA 140B strainer

SVL 65 bar Flexline™ valve

For favorable flow conditions in the medium and high-pressure part of CO₂ transcritical systems.

[Read more \(SVL-140B Flexline™\) →](#)

[Read more \(SVL 65 Flexline™\) →](#)



ICF Flexline™ valve station

Substitutes a string of valves with just one valve station.

[Read more →](#)



EKE 400 electronic valve control

Control industrial refrigeration evaporators. Multiple defrost functions and direct communication to System Manager or PLC.

[Read more →](#)



BOCK Semi-hermetic CO₂ compressors

Broad operating limits and wide frequency range. Optimized efficiency for the highest EER/COP values.

[Read more →](#)



AKS 4100 liquid level sensor

EKE 3470P pump and level controller

Measures and controls liquid level and pump control in a horizontal or vertical vessel recirculatory refrigeration system.

[Read more →](#)

Fig. 1

Principle drawing of prime CO₂ transcritical pump circulation system

Focus on a single rack with transcritical rack control, LT and MT liquid separators, cold room control, oil rectification, oil accumulation and distribution, hot gas defrost, and system coordination.

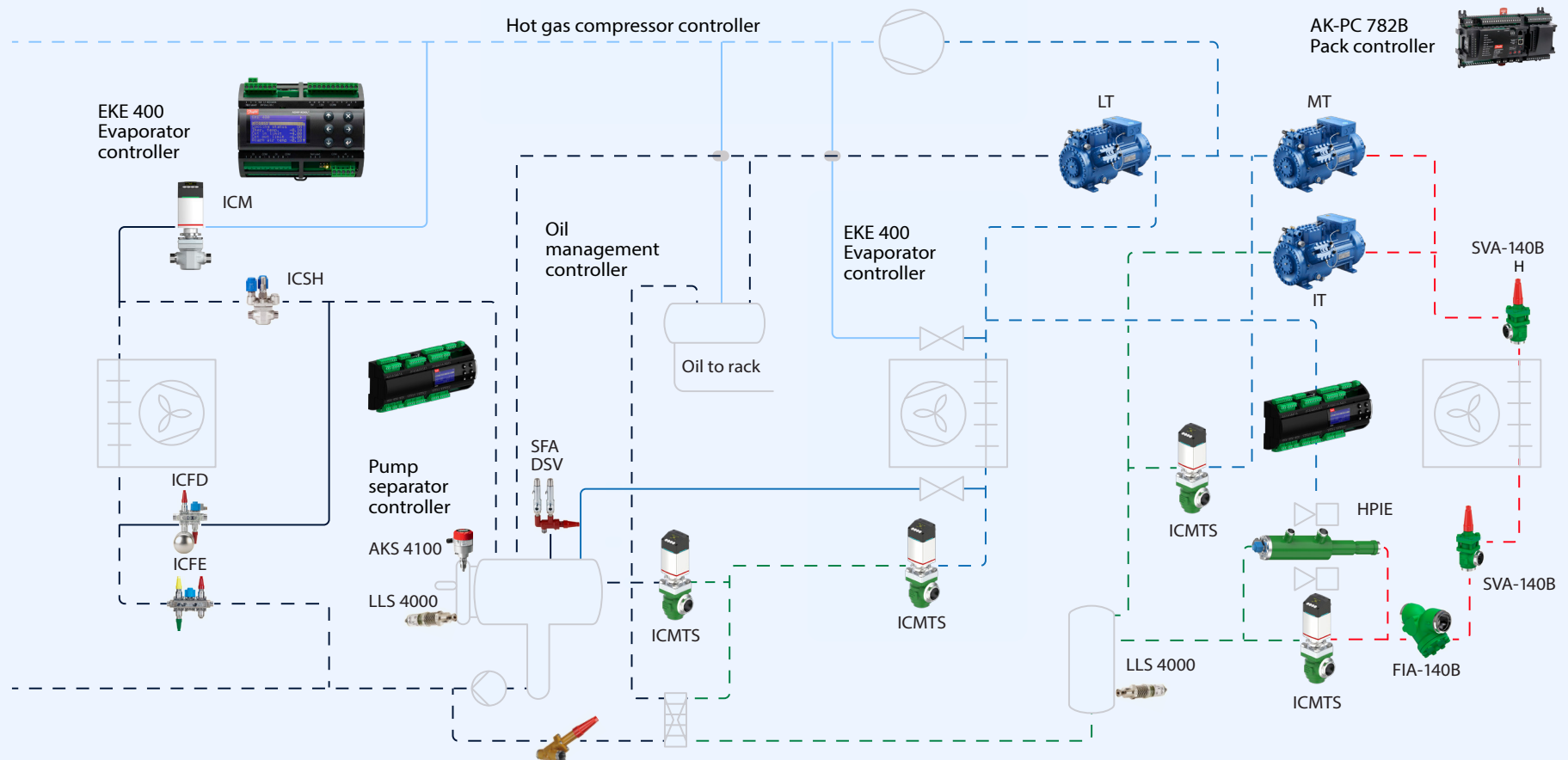
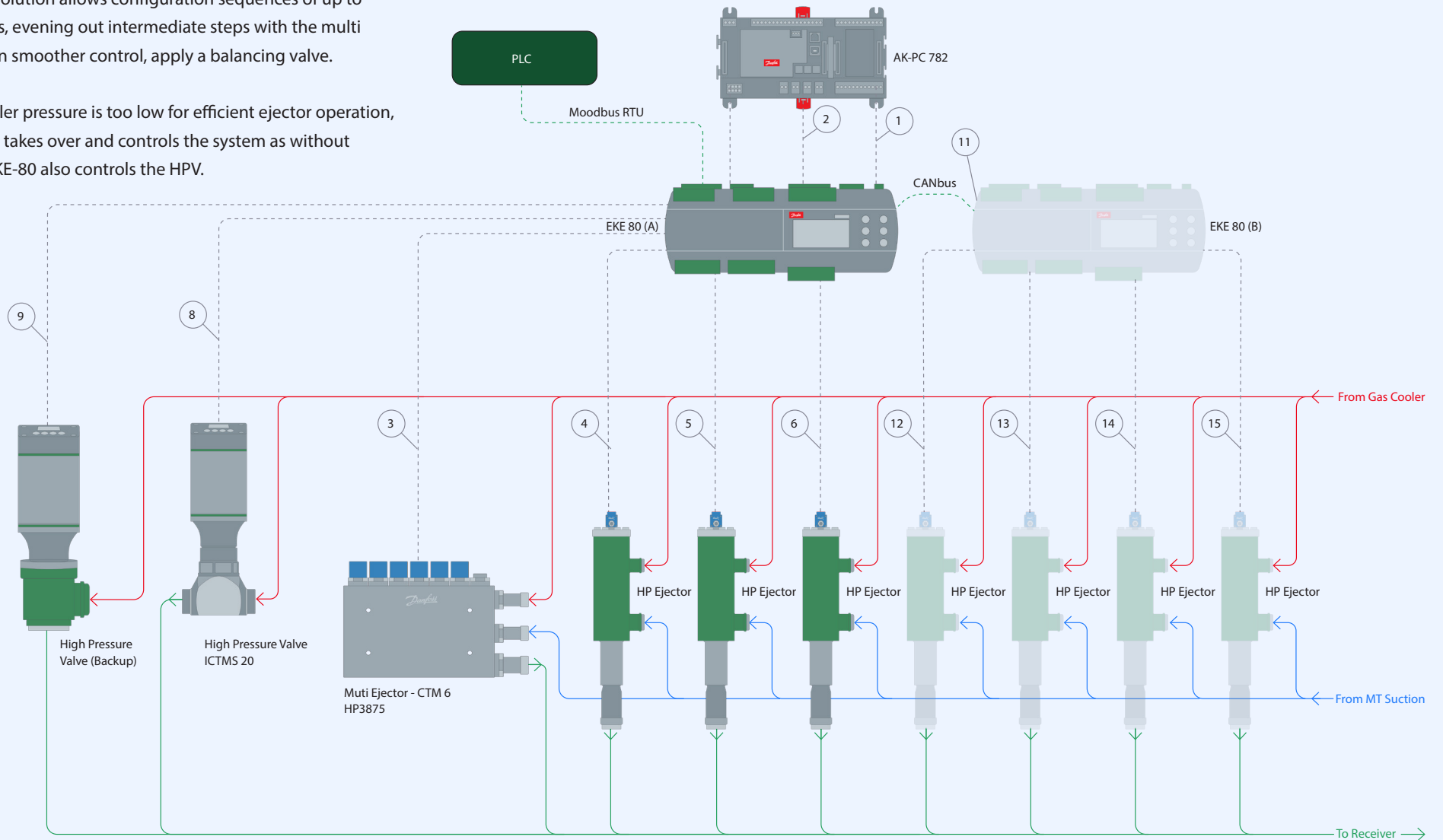


Fig. 2

Large Ejector Solution configuration with EKE 80 controller

The Large Ejector Solution allows configuration sequences of up to 7 industrial ejectors, evening out intermediate steps with the multi ejector. For an even smoother control, apply a balancing valve.

In case the gas cooler pressure is too low for efficient ejector operation, the HPV (left valve) takes over and controls the system as without ejectors. The the EKE-80 also controls the HPV.





Discover the full portfolio of industrial CO₂ solutions

Build on more than 20 years of Danfoss experience in developing industrial technologies purpose-built for CO₂ refrigeration. Our broad and well-integrated product range is designed to meet the performance, reliability, and efficiency requirements of both subcritical and transcritical CO₂ systems.

[Click here for complete product overview →](#)



Cool with confidence

CO₂ is a natural, future-ready refrigerant that offers clear advantages over F-gases in industrial applications. With zero ozone depletion potential and a global warming potential of just 1, CO₂ enables large-scale refrigeration with a minimal environmental footprint and reliable performance in all climates.

Grow with purpose

Your choice of refrigerant and system architecture can create real value for your business. CO₂ systems support high energy efficiency and effective heat recovery, while providing a long-term, regulation-ready platform that helps your business adapt and evolve sustainably.

Get expert support at every step

Work with specialists who bring real-world experience in industrial refrigeration. From system design and integration to commissioning and ongoing service, we provide the expertise and support you need to protect your investment and move forward with confidence.

Further information available on
Danfoss' website: danfoss.com

Danfoss A/S
Nordborgvej 81
6430 Nordborg
Denmark
danfoss@danfoss.com
CVR reg. no. 20165715

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