Design smarter.
Build better. Perform longer.

Everything CO_2
Solutions. Products. Expertise.

Enhance your projects with long-term reliability and energy-efficient performance, backed by one of the industry's most complete CO_2 portfolios and decades of application expertise. Our solutions are developed to support every stage of your project, helping you design, install, and maintain CO_2 systems proven to operate reliably and durably across applications, system sizes, and climates.

Design it. Build it. Trust it.

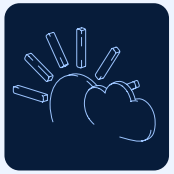
A well-engineered CO_2 system is a future-ready and energy-efficient choice for applications with high cooling demands. Whether you are taking your first steps with CO_2 or optimizing an existing installation, Danfoss supports you every step of the way.

From cascade configurations to large transcritical systems, we deliver industrial-grade components designed specifically for CO_2 applications. This includes our newest and largest scalable ejector, engineered to boost system efficiency, reduce energy consumption, and lower operating costs from day one.

CO_2 is the refrigerant of tomorrow

CO_2 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. CO_2 is a natural, sustainable refrigerant suitable for food retail stores of all sizes, and in all climates.

CO_2 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

- +30oC - 71 bar
- Very low pipe pressure drop effect

High density gas

- Increases heat exchanger efficiency
- Greater capacities with smaller surfaces

C 2

Forward

CO_2 Refrigeration Solutions

Naturally

Complete portfolio for large CO_2 transcritical systems

Use the parts designed for the job. Danfoss' built-for-purpose, built-for-industry, transcritical CO_2 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 CO_2 systems.

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

Read more →

SVA-140B
FIA 140B strainer
SVL 65 bar Flexline™ valve
For favorable flow conditions in the medium and high-pressure part of CO_2 transcritical systems.

Read more (SVL-140B Flexline™) →

Read more (SVL 65 Flexline™) →

BOCK Semi-hermetic CO_2 compressors
Broad operating limits and wide frequency range. Optimized efficiency for the highest EER/COP values.

Read more →

ICMTS 50/80 motor-operated valve
Ensures precise regulation of transcritical gas or subcritical liquid at partial load conditions.

Read more →

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 →

AKS 4100 liquid level sensor
EKE 3470P pump and level controller
Measures and controls liquid level and pump control in a horizonal or vertical vessel recirculatory refrigeration system.

Read more →

Fig. 1

Principle drawing of prime CO_2 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.

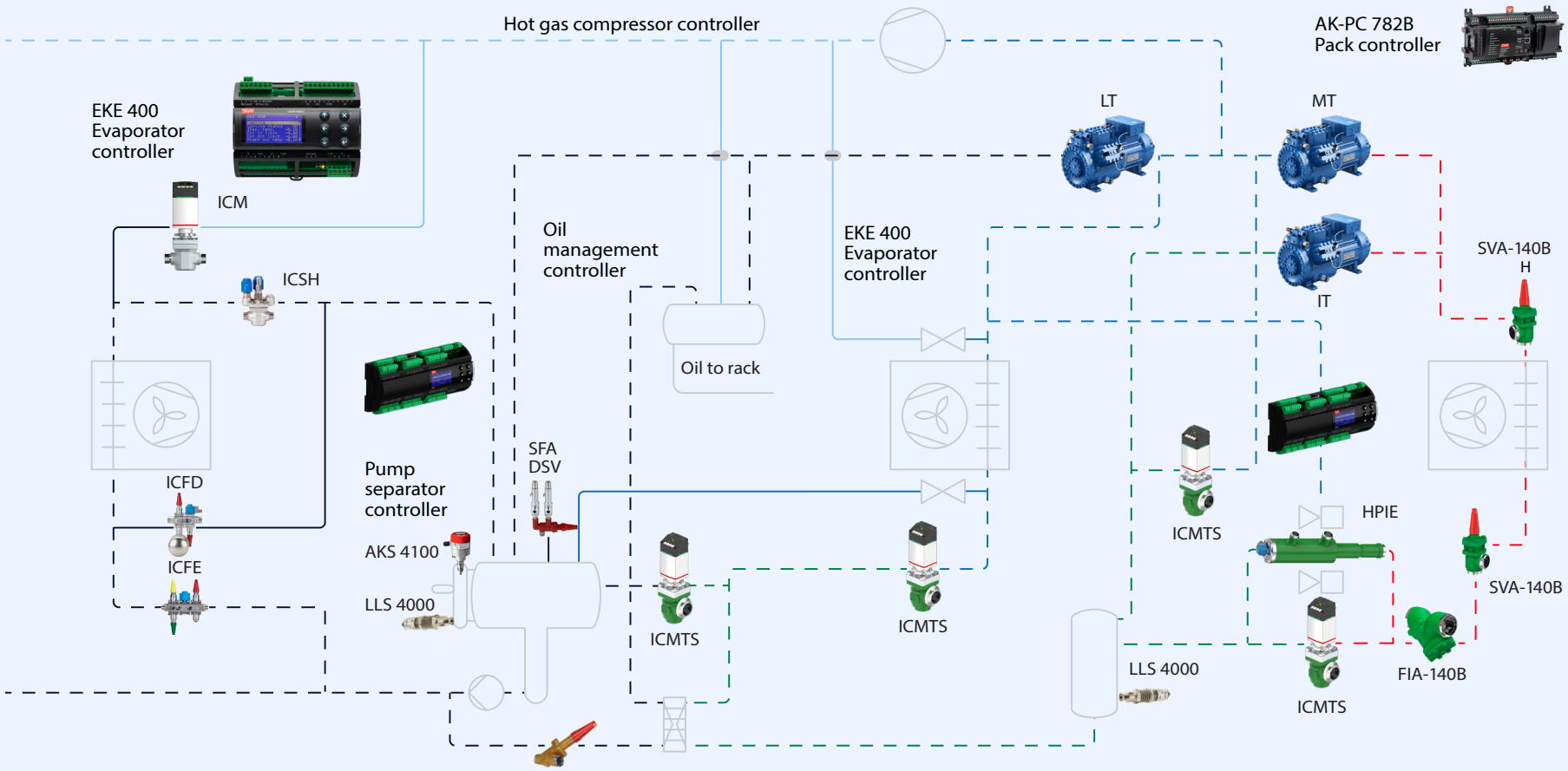
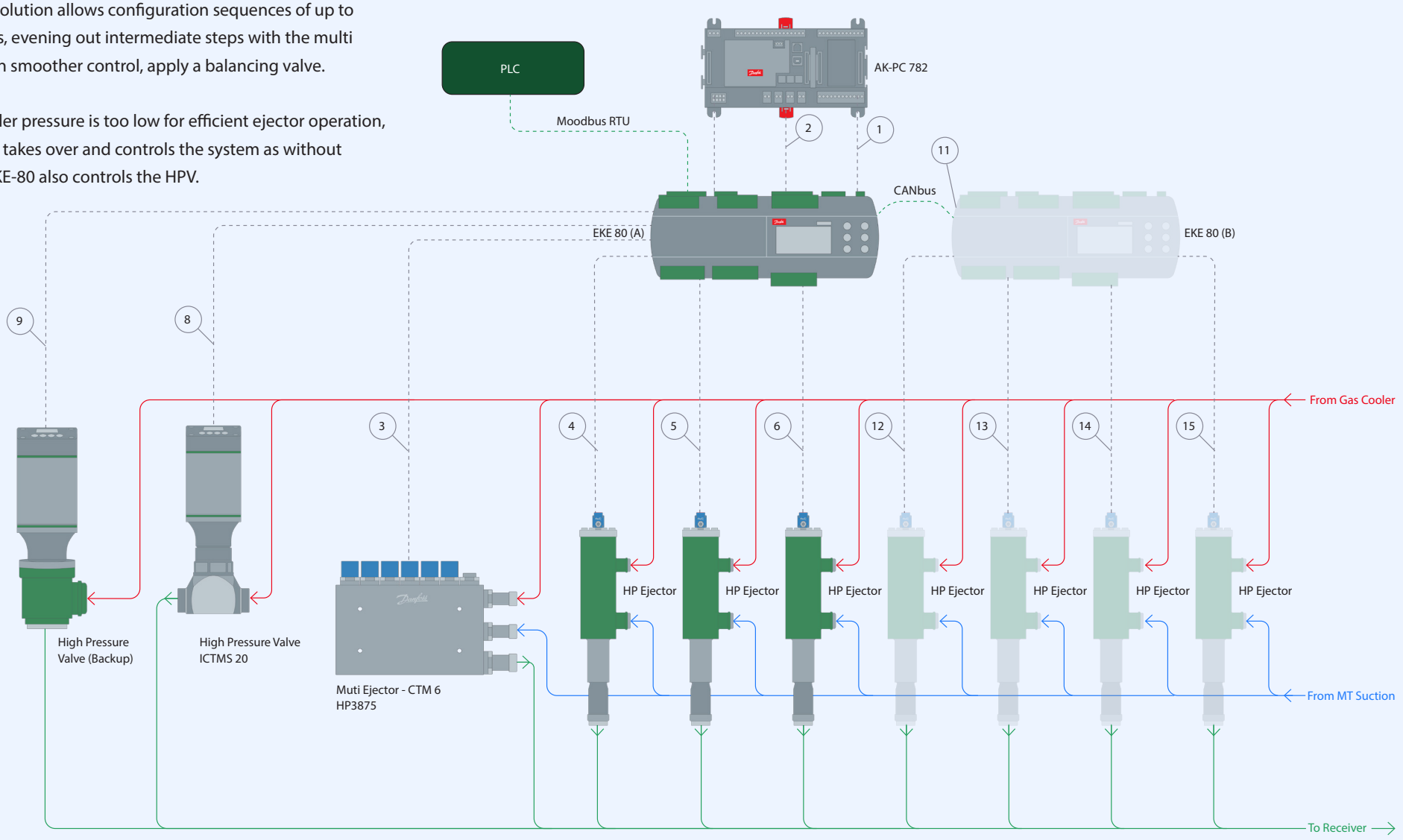


Fig. 2

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 CO_2 solutions

Build on more than 20 years of Danfoss experience in developing industrial technologies purpose-built for CO_2 refrigeration. Our broad and well-integrated product range is designed to meet the performance, reliability, and efficiency requirements of both subcritical and transcritical CO_2 systems.

Click here for complete product overview →

Explore our solutions
danfoss.com

Cool with confidence

CO_2 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, CO_2 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. CO_2 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

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