LATEST DANFOSS SOLUTIONS FOR SUSTAINABLE CHILLERS

2021
Releases

Strict regulations, a competitive marketplace, and the need to optimize system costs compel you to update your chiller designs. We are expanding our ranges to enable you to optimize energy efficiency, reduce development time, obtain reliable performance and navigate refrigerant transition for multiple chiller platform types and uses.

Today, Danfoss offers the broadest portfolio of components for compressors, plate heat exchangers, microchannel exchangers, expansion valves, controllers, and a wide range of line components and sensors. And because the market is evolving quickly, we have many new solutions to help you address these changes.

Our portfolio includes solutions for A/W chillers and reversible chillers along with W/W chillers from 50kW–2500kW and from 20TR–1000TR and beyond.

ENGINEERING
TOMORROW

chillers.danfoss.com

THE DRIVERS FOR INNOVATION

SEVERAL DECARBONIZATION OBJECTIVES ARE DRIVING THE INNOVATION OF OUR PRODUCT ROADMAPS:

- Direct emissions reduction covered by the F-gas and other global regulations
- Indirect emissions reduction covered by EcoDesign that drive higher system seasonal efficiency SEER/SCOP requirements
- The electrification of heating accelerated via numerous Green Deal initiatives puts heat pumps and reversible systems to the center of the stage

THE ROAD TO LOWER GWP REFRIGERANTS

DANFOSS SOLUTIONS ARE COMPATIBLE FOR THE VARIOUS REFRIGERANT OPTIONS

DANFOSS PORTFOLIO FOR SCROLL SYSTEMS IS COMPATIBLE WIT THE MAIN FOLLOWING ALTERNATIVES TO R410A:

R454B AND R452B
- Low GWP
- Convenient and flexible solution with low system qualification costs
- Low complexity thanks to the same BOM
- R454B has an even lower GWP than other alternatives, helping to meet the reduced quota as cost and taxes increase

R32
- Low GWP
- Popular choice due to its availability, performance, and efficiency
- Compressors offer 10% additional capacity while fully meeting reversible chillers operating map requirements without injection
- Most efficient alternative but requires a complete system redesign

R1234ze
- Ultra-low GWP option, with R515B as A1 class alternative when A1 is neede This ultra low-GWP and low-density refrigerant implies a complete redesign c system and of some components to maintain high efficiency and performan and minimize pressure drop, in a compact shape.

A scroll compressor range will be released from Q1 2022

DANFOSS PORTFOLIO FOR SCREW, CENTRIFUGAL AND OIL-FREE SYSTEMS IS COMPATIBLE WITH THE MAIN FOLLOWING ALTERNATI TO R134A:

R1234ze AND R515B
- R1234ze GWP = 1, is widely available in the market and has been used in Turbocor® systems for several years. It is the least flammable of refrigeran which belong to the A2L safety classification
- R515B has an AR5 GWP of 299 and an ASHRAE A1 safety classification for no flame propagation

R513A
- HFO blend with A1 non-flammable class and is an easy replacement to R13
- It has half of the GWP level of R134a, reducing indirect CO_2 emissions

FIND MORE INFORMATION ON OUR VISION FOR SUSTAINA REFRIGERANTS AT **REFRIGERANTS.DANFOSS.COM**

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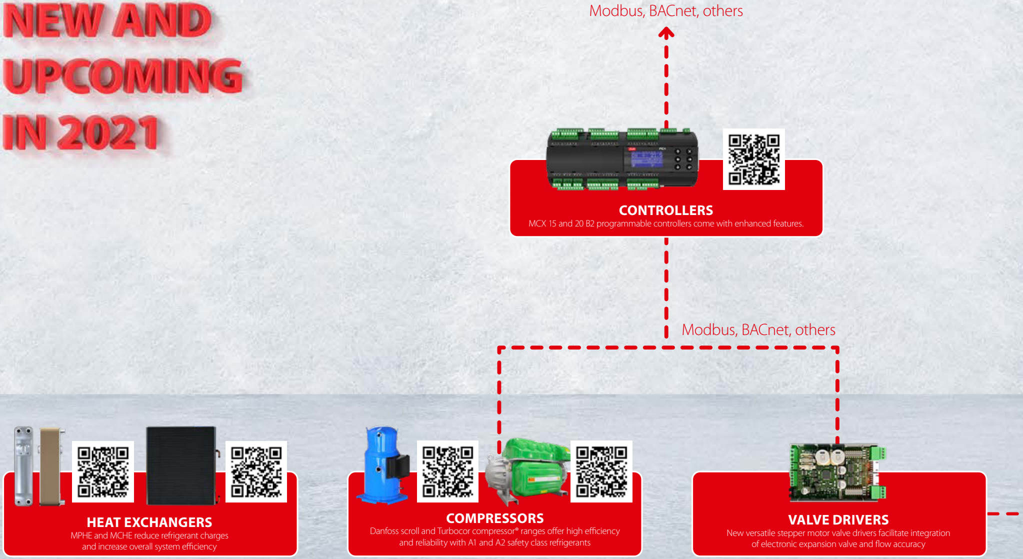
NEW AND UPCOMING IN 2021



Modbus, BACnet, others

CONTROLLERS
MCX 15 and 20 B2 programmable controllers come with enhanced features.

Modbus, BACnet, others

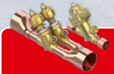
HEAT EXCHANGERS
MPHE and MCHE reduce refrigerant charges and increase overall system efficiency

COMPRESSORS
Danfoss scroll and Turbocor compressor® ranges offer high efficiency and reliability with A1 and A2 safety class refrigerants

VALVE DRIVERS
New versatile stepper motor valve drivers facilitate integration of electronic expansion valve and flow accuracy

SENSORS

DST P110 Pressure sensors for improved reliability, durability, and performance



VALVES

Danfoss extends the highly efficient range of electronic expansion valves.

OUR BROADEST PORTFOLIO EXPANDS:

SCROLL COMPRESSORS:

- DSH scrolls and VZH inverter scrolls are now multi-refrigerant ranges, compatible with R410A, R454B, or R452B
- DSF fixed-speed scrolls optimized for R32 refrigerant meets broad operating map requirements of reversible chillers without any type of injection
- Operate within the same envelope as R410A when combining Danfoss compressors with our special EXV control algorithm, ETS C expansion valves and sensors
- Equipped with Danfoss IDV for improved performance at medium- and low-pressure ratio conditions
- Broad range of manifolds to secure seasonal efficiency requirements
- Fixed-speed: 2 platforms with 6 and 5 models each from 7.5T-50TR
- Variable speed premium modulation starts at 4T up to 26TR with 8 models, the broadest range in the market

TURBOCOR® OIL-FREE COMPRESSORS

- New releases in 2020 include the TTH/TGH for higher lift applications and the VTX, available up to 450 TR
- New TTS and TGS models feature higher saturated suction temperature (SST) to enable systems operate for higher space temperatures thus lowering power, infrastructure, and operating costs
- Get consistent performance over the compressor's lifetime in a compact frame
- Broadest oil-free compressor range for low and ultra-low GWP refrigerants A1 and A2L safety classifications

HEAT EXCHANGERS

Our broad range of heat exchangers is expanding to offer high efficiency compatible with more refrigerant options.

Microplate Heat Exchangers:
- Extended range with best in class single and dual models up to 800 TR
- Range optimized for R410A, R454B, and R452B refrigerants Dedicated range optimized for R32
- Z dimple design improves heat transfer and reduces refrigerant charge

Microchannel heat exchangers:
- Optimized MCHE 725 for ultra-low GWP R1234ze refrigerant for reduced pressure drop while ensuring a high, stable system efficiency
- Customized solutions exactly fit customer needs

ELECTRONIC EXPANSION VALVES

The broad range of Electronic Expansion Valves ETS C for chillers is growing and closing the gap with the addition of larger ETS 175L and 250L models plus the ETS 500/800P manifold expansion valves.

ETS C:
Low-weight, compact, and in-line electronic expansion valve design allows extremely flexible integration into chillers.
- Fully hermetic design suited to flammable refrigerants and withstand 49 bar with R32.
- Linear closing curve simplifies control and allows the valve to open and close quickly

ETS L:
- Designed for large chillers and heat pumps using R134a and its replacements
- Withstand higher MOPD and working pressure
- Options for linear and S-curve to ensure consistent closing curve across your range and based on application requirements

ELECTRONIC CONTROLLERS

Our controller range includes main system controllers, drivers for the expansion devices, superheat controllers, and backup power modules.

MCX platforms:
- Redesigned programmable controllers enable a smart and easy integration for monitoring and management of buildings
- The new models combine best-in-class connectivity, (web) security, and performance

EKF valve drivers:
- Versatile, robust, cost-competitive stepper motor valve driver easy to configure for many applications, including superheat management, staging valves, hot gas bypass and wet injection
- EKF takes the analog signal from the master controller with no control algorithms and converts it in steps to open and close the electric expansion valve as needed
- Complements the EKE range of superheat controllers

EKE 2U power backup module:
Long-lasting and reliable backup power module for electronic stepper motor valves and solenoid shutoff valves
- Reacts quickly to prevent liquid from entering the compressor during power loss
- Fully charges within 150 seconds eliminating the need to change the battery
- Reverse polarity protection

OTHER COMPONENTS AND SYSTEM PROTECTORS

Our portfolio qualified for A1 and A2L includes:
Check valves - Ball valves - Solenoid valves - 4WV water valve - Filter dryers Pressure switches - Pressure sensors - Temperature sensors.

Plus, the **DST P110** is a smart sensor featuring improved accuracy, self-diagnostics to reduce downtime, and a fully hermetic design. It ican be edited with new Edix™ communication tool that allows you to fine-tune sensor setting, gain access to diagnostics, and download or upload data all from the palm of your hand.

Ready to learn more?

Take a deep dive into how our latest solutions work with these explainer videos:

- **Scroll Chillers**
- **Oil-free Chillers**

Explore our complete portfolio including **sensors** and other **system protectors** on the **Chillers homepage.**

Your toolbox

Coolselector®2
free cooling calculation software
Danfoss

Hexact
Heat exchanger design software
Danfoss

Ref Tools
Refrigerant slider and other support tools in one app
Danfoss

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