ENGINEERING
TOMORROW

Danfoss

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TECHI INSIDER

Introduction

Danfoss Tech Insider keeps you well informed on the latest news and updates in Danfoss Cooling and Sensing Solutions. The content is intended to give a quick overview of core technical news and updates in our product portfolio, including links to relevant documentation and more information. Danfoss Tech Insider is sent out on a monthly basis to ensure you are always up to date with the latest innovations and changes made to Danfoss products and solutions.
We hope you will enjoy reading Danfoss Tech Insider!

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Exchange of Fusible Plug on Optyma Condensing Units

Packaged condensing units in the Danfoss Optyma™ Series will no longer be manufactured with a fusible plug installed in the liquid receiver. Instead, a blind adapter plug will be mounted on liquid receivers.

Fusible Plug (1/4 in. NPT)

Blind Adapter Plug (3/8 in. NPT)

Affected Products

Danfoss decided to stop mounting fusible plug insides all packaged condensing units, providing flexibility to the installer to take appropriate safety provisions with the

- Optyma Slim Pack (W05, W09),
- Optyma Plus New Generation (P00, P02), and
- Optyma Plus INVERTER (P01).

Technical features

- The fusible plug was used in condensing units for damage limitation in the event of external fire, according EN 378-2:2016 article 6.2.2.3, to release the refrigerant when there is excessive heat from an external fire, not from the refrigerant.
- Fusible plugs are not intended to be used as primary protection against excessive pressure per EN 378-2:2016: article 6.2.6.2, as it reacts to temperature, not pressure.
- The installer shall regard damage limitation requirements as appropriate for the pressure rise in case of external fire. This may include measures as listed in EN378-2 below. Other alternatives reaching the same level of safety may be applied.

Measures	Additional information
Apply suitable pressure relief devices	Calculation according to EN 13136
Place the refrigerating systems in a separate refrigeration machinery room which complies with EN378-3	According to EN 378-3
Allow the migration of the refrigerant into other parts of the refrigeration system	Worst case condition shall be considered

- To allow the installer to apply a pressure relief device, we have provided a provision on the top of the liquid receiver which is fitted with an adapter port with a 3/8 in. NPT connection (picture below).
- No pressure relief device is factory-assembled on condensing units. Fitting a pressure relief device is the responsibility of the installer.
- Based on relevant directives and the Machinery Directive, damage limitation requirements against external fire lies with the installer of the complete refrigeration system. The installer has the responsibility to subject the refrigeration system assembly to a global conformity assessment procedure as per PED before putting it into operation/service. Hence, the installer needs to take care of the safety of the system according to applicable general and local regulations.

Feel free contacting Danfoss Technical Services or your sales representative to discuss possible ways of protection your equipment in the case of external fire.

Protection of condensing unit against excessive pressure except in the event of external fire

Optyma™ Plus and Optyma™ Plus INVERTER (P00, P01, P02) have two protections for pressure management:

1. Factory-fitted pressure transducers with controllers enables the system to cut off at excessive pressure.
2. HP/LP cartridge pressure switches, which are independent of the controller, enables the system to cut off at excessive pressure in case the controller/transducers fails to function.

Optyma™ Slim Pack models (W05, W09), KP17WB (pressure switch) have a single failsafe: an approved pressure cut-out device in the event of excessive pressure in the system, with redundant mechanical function via double bellows.
Refer to the instruction manuals of the respective product lines to find the factory settings of pressure limiting devices.

Cross reference and affected products

Existing Spare part details				New Spare part details			
Receiver Volume (Ltrs)	Spare part code	Spare part description	Fusible Plug - Spare part	Receiver Volume (Ltrs)	Spare part code	Spare part description	Adapter Plug - Spare part
1.3	118U3474	Liquid receiver 1.3L	Code number: 118U5170 Size: 1/4" NPT Description: Spare part, Fusible plug 1/4" NPT	1.3	118U4020	Spare part, receiver 1.3L, 1/4x3/8	Code number: 118U4037 Size: 3/8" NPT Description: Spare part, Adapter plug 3/8" NPT
3.4	118U3475	Liquid receiver 3.4L		3.4	118U4012	Spare part, receiver 3.4L, 1/2x1/2	
					118U4013	Spare part, receiver 1.3L, 1/2	
6.2	118U3476	Liquid receiver 6.2L		6.2	118U4014	Spare part, receiver 6.2L, 1/2x3/8	
					118U4015	Spare part, receiver 6.2L, 5/8x5/8	
					118U4016	Spare part, receiver 6.2L, 5/8x1/2	
10	118U3926	Liquid receiver 10L		10	118U4017	Spare part, receiver 10L, 5/8x1/2	

CoolConfig tool for EKE 400 now available

CoolConfig – a dedicated software tool for easy and fast configuration of multiple EKE 400 controllers. The new CoolConfig tool is a software tool that can be downloaded, free of charge from danfoss.com.

CoolConfig is a configuration tool that enables you to generate the settings for the EKE 400 evaporator controller offline. You can configure at your local office or home before job site commissioning - and hand over the file to the commissioning team/engineer at the appropriate time for the installation of one (or multiple) EKE 400 controllers.

Some of the main features included in CoolConfig are:

- Easy pick and choose valve selection via application drawings.
- Settings generated on PC with CoolConfig, can be uploaded to multiple EKE 400. (e.g. a setting files for -10 ˚C room, -20˚C room and -30 ˚C room).
- Settings file can easily be copied to multiple EKE 400 units during commissioning in the field.
- Once a project with multiple EKE 400 controllers has been finalized, all settings from running controllers can be downloaded to a PC as part of project documentation.
- When CoolConfig is connected to an EKE 400, it will automatically check if a newer EKE 400 software version exists.
- CoolConfig supports a firmware update on EKE 400 if needed. Observe: Firmware updates shall never be done remotely, as EKE 400 will restart during firmware update!
- CoolConfig will be checked every time it is in use and connected to the Internet and will prompt you to update to the latest version of CoolConfig.
-

Download Coolconfig here now.

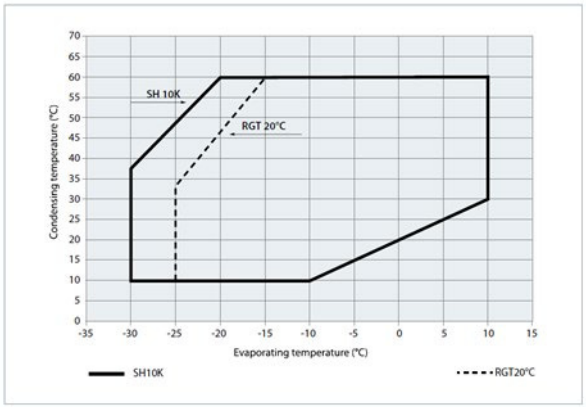
MTZ / NTZ Compressors Qualified with R454C One-Cylinder Models

MTZ and NTZ models (see models below) are now approved for use with refrigerant R454C, which can replace R404A and R507 in their applications (please refer to the operating map below).
Refrigerant R454C is classified in Refrigerant Group 1. For R454C, the stated GWP is below 150 limits. The refrigerant is also classified as A2L with low flammability properties. Please refer to European regulations and directives about the safe use of A2L refrigerants (EN378, EN60335). Outside of Europe, refer to local regulations.

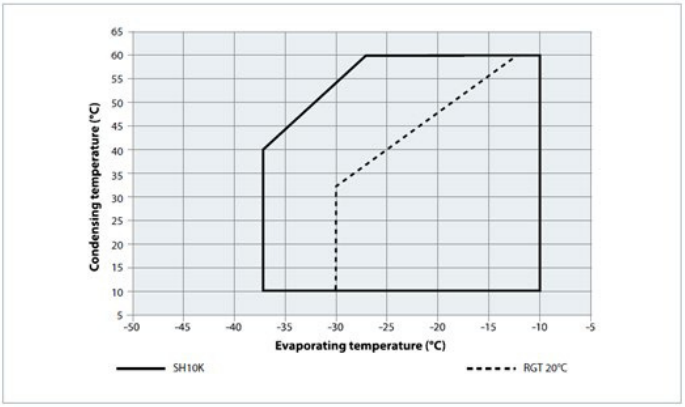
Affected compressors:
MTZ18, MTZ22, MTZ28, MTZ32, MTZ36, MTZ40, NTZ048, NTZ068 with voltage code 4 and 5 (when released).
All compressor models listed above, starting from serial number LD1008416617, are qualified with R454C.

Operating Map

MTZ—R454C



NTZ—R454C



Nominal performance data R454C

R454C	Refrigeration											
Compressor model	50 Hz, EN12900 ratings To = -10°C, Tc = 45°C, SC = 0K, SH = 10K 50 Hz				50 Hz, ARI ratings To = -6.7°C, Tc = 48.9°C, SC = 0K, SH = 11.1K				60 Hz, ARI ratings To = -6.7°C, Tc = 48.9°C, SC = 0K, SH = 11.1K			
	Cooling capacity W	Power input kW	Current input A	C.O.P. W/W	Cooling capacity W	Power input kW	Current input A	E.E.R. Btu.h/W	Cooling capacity W	Power input kW	Current input A	E.E.R. Btu.h/W
MTZ018-4	1569	0.87	2.28	1.8	1734	0.96	2.36	6.19	2110	1.16	2.24	6.22
MTZ022-4	2108	1.16	2.39	1.82	2309	1.28	2.53	6.16	2909	1.64	2.64	6.06
MTZ028-4	2768	1.49	3.75	1.85	3646	1.84	3.61	6.77	3992	2.09	3.81	6.52
MTZ032-4	3317	1.67	3.37	1.99	3021	1.63	3.93	6.32	4763	2.29	3.61	7.11
MTZ036-4	3722	1.97	4.43	1.89	4132	2.17	4.69	6.49	5325	2.73	4.63	6.64
MTZ040-4	4479	2.33	5.3	1.92	4918	2.59	5.64	6.49	6072	3.1	5.41	6.67

R454C	Refrigeration							
Compressor model	50 Hz, EN12900 ratings To = -35°C, Tc = 40°C, SC = 0K, SH = 10K				60 Hz, EN12900 ratings To = -35°C, Tc = 40°C, SC = 0K, SH = 10K			
	Cooling capacity W	Power input kW	Current input A	COP W/W	Cooling capacity W	Power input kW	Current input A	COP W/W
NTZ048-4	604	0.67	1.81	0.9	680	0.83	1.71	0.82
NTZ068-4	1033	1.16	3.41	0.89	1177	1.25	3.11	0.94

Recommendations

R454C is a zeotropic refrigerant with a temperature glide of about 6K and therefore must be charged in liquid phase. Even if MTZ and NTZ compressors are loaded with 175PZ, R454C can highly dilute the oil. To prevent any lack of lubrification, a crankcase heater must be used. The heater is to protect against the off-cycle migration of refrigerant and proves effective if the oil temperature is maintained 8–10K above the saturated LP temperature of the refrigerant. Tests must be conducted to ensure that the appropriate oil temperature is maintained under all ambient conditions. A PTC crankcase heater is recommended on all stand-alone compressors and split systems. PTC crankcase heaters are self-regulating. Under extreme conditions, such as very low ambient temperatures, a belt type crankcase heater could be used in addition to the PTC heater, although this is not a preferred solution for one- and two-cylinder compressors. The belt crankcase heater must be positioned on the compressor shell as close as possible to the oil sump to ensure good heat transfer to the oil.

For details please refer to the following application guidelines

Maneurop® reciprocating compressors MT/MTZ

Maneurop® reciprocating compressors NTZ

Code numbers for ordering and technical references printed on the compressor nameplates are unchanged.

Thermostatic Expansion Valve TGE Upgrade from 46 to 49 bar

As markets move to lower GWP refrigerants, R32 is becoming a viable candidate for future use. This refrigerant operates at higher pressures than most current refrigerants, and for this reason we have upgraded the pressure rating on some of our products, including the TGE. The current **M**aximum **W**orking **P**ressure (MWP) of TGE is 46 bar and the new MWP will be upgraded to 49 bar.

The current valve can stand the new working pressure of 49 bar, therefore no changes on components are needed. No impact on fit, form or function.
The only visible change of the product will be on the label displayed on the top part, in order to inform our customers that TGE can work with MWP 49 bar.

See following images as reference:

Current label information

New label information

Implementation January 2021.

EVR v2 Flare Connections Approved for Flammable Refrigerants Types A1 and A2L

The solenoid valve EVR v2 with flare connections is now approved for A1 and A2L refrigerants in accordance with ATEX, ISO 5149, IEC 60335-2-24, IEC 60335-2-40, and UL.

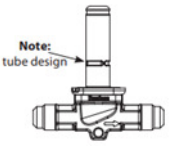
The code numbers will remain the same and is updated in Coolselector®2

Affected EVR code numbers are specified below.

EVR NC version

Type	Coil voltage	Connection size [in]	Connection size [mm]	Manual operation	K_v value [m^3/h]	Code no.
EVR 2	AC / DC	1/4	6	No	0.15	032F8056
EVR 3	AC / DC	1/4	6	No	0.26	032F8107
	AC / DC	3/8	10	No	0.26	032F8116
EVR 6	AC / DC	3/8	10	No	1.0	032L8072
	AC / DC	1/2	12	No	1.0	032L8079
EVR 10	AC / DC	1/2	12	No	2.2	032L8095
	AC / DC	5/8	16	No	2.2	032L8098
EVR 15	AC / DC	5/8	16	Yes	3.3	032L8100
	AC / DC	5/8	16	No	3.3	032L8101

EVR NO version



Type	Coil voltage	Connection size [in]	Connection size [mm]	Manual operation	K_v value [m^3/h]	Code no.
EVR 6	AC / DC	3/8	10	No	1.0	032L8085
EVR 10	AC / DC	1/2	12	No	2.2	032L8090

Discontinuation of Pressure Sensor Family Type MBS 1900, 8200 and 8250

Danfoss will terminate the manufacturing of the MBS 1900 and 82X0 product offering on December 31st, 2021.

All code numbers within the MBS 1900 and 82X0 family will be phased-out. The deadline for placing last orders (last time buy) is September 30th, 2021 with requested delivery dates no later than December 31st, 2021.

We apologize for any inconvenience this product discontinuation may cause you, and please reach out to your sales representative to discuss an alternate product within our current portfolio.

Discover Gas Detection Sensor Installation Recommendation

Based on observations in the field, to ensure a seamless installation of the Danfoss Gas Detection Sensor, besides the general installation guide, please observe below recommendations:

- Be careful, when punching out the holes for the cable glands, use less force and a controlled travel distance.
- Du to risk of short circuit ensure the power supply is off during installation.
- Connect the shield cable to the GND signal which in this case is the Negative Pole (Terminal 2) on the X4 connector.

MCX15/20B2 BIOS 1v10 Update

BIOS 1v10 for MCX15/20B has been released. It fixes a potential issue related to the Modbus communication and add few important security features.
The potential issue relates to the Modbus functionality. Therefore, if the Modbus functionality is used by the application software, it is recommended to update the BIOS.
In MCX15/20B2 the BIOS can be updated via USB and via the internal webserver, besides the usual ways as for the other types of MCX, that means via CANbus or RS485. Refer to the updated **MCX15/20B2 User Guide** for more details.
Improvements:

- Introduction of the HSTS policy and of the automatic management of certificates (ACME protocol) which greatly simplifies the procedure to get HTTPS secure connection.
- Thanks to this improvement, the user can automatically get a certificate signed by a Certification Authority. The only pre-requisite is to have a valid domain. Refer to the updated **MCX15/20B2 User Guide** for more details.
- FTP is disabled by default to enhance security. It can be enabled via webserver, via CANbus or USB (ResetNetConfig command)
- Increased the default software filter action for analog input AI11-AI16 when configured as PT1000, to improve the stability of the measurement.

The new BIOS Service Pack (ReleasedBios_20SP2.zip) is available for download at **http://www.danfoss.com/mcx** after registration.

Introduction of the New Electronic Thermostat Series EETc and EETa

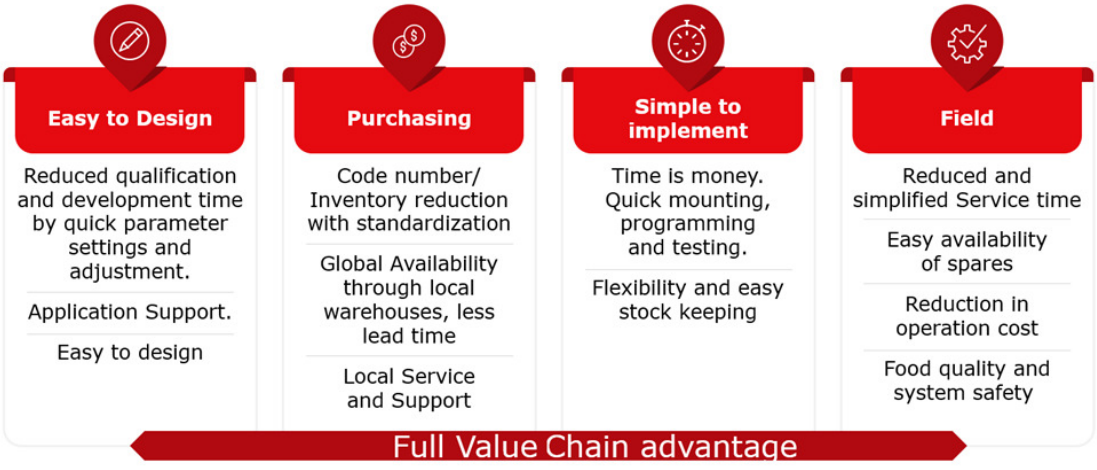
Danfoss is pleased to introduce a new electronic thermostat platform, EET series, in the entry level electronic solutions for easy transition from mechanical thermostat to electronic solutions. It continues to build on the more than 30 years of refrigeration expertise with high performance algorithms and features.

The EET series is comparable in form and fit with any standard mechanical thermostat, our existing ETC 1H range and competitor offerings of similar kind which helps in the easy transition without changing cabinet design and installation method. EET comes in two variants, a compact version, which is for basic food service application requiring up to 2 inputs and 2 outputs, and an advanced version for more advanced applications, requiring up to 3 inputs and 3 outputs, like dual compressor/evaporator control, dual band control or where more number of functions are controlled.

The EET Series has many new features and algorithms:

- Eco (Economy mode) and Holiday mode for more energy saving potential
- Door switch and light control
- Leakage detection and emergency run mode
- Standard 6 SKUs covering wide variety of application providing complexity reduction
- Future support connectivity with Danfoss Alsense cloud services
- Standard easy to plug in and out connectors and multiple temperature sensor type compatibility which offers great flexibility
- Easy programmability in R&D, testing and for mass production with Danfoss KoolProg PC Suit and programming accessories
- Installable inside cold space area

These features are hard to find in entry level electronic solutions, and because of which Danfoss promises best in class equipment performance



Learn more about the EET Series:
https://assets.danfoss.com/documents/DOC358038616614/DOC358038616614.pdf

Danfoss Cool YouTube – latest videos

HVACR Distillery:

- How to set an AK-PC 572 – LINK
- How to adjust superheat – LINK

Cooling United Live videos:

Main Stage


Air Conditioning


Food Retail


Commercial Refrigeration


Industrial Refrigeration

Danfoss Ref Tools – latest updates

- Product Finder tool Complete walkthrough – LINK
- How to access Spare Parts in Ref Tools – LINK
- Download Ref Tools – LINK

Upcoming Webinars

Webinar: Cold room series: Selection match condensing unit and evaporator

- Friday 5th February 2021 at 8:30 – 9:15 and 15:00 – 15:45 CET

Webinar: **Cold room series: Installation good practice**

- Wednesday 17th February 2021 at 9:00 – 9:45 and 15:00 – 15:45 CET

Details for Additional Information

UK/IE

Cooling United Support Hub
Support Made Easy
customerservice.uk@danfoss.com
Customer Service UK tel: 0330 808 6888
customerservice.ie@danfoss.com
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