



TECH INSIDER

Your regular newsletter for technical updates and latest changes in refrigeration and industrial solutions.



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Introduction

Danfoss Tech Insider keeps you up to date with the latest developments in the Cooling and Industrial products portfolios from Danfoss Climate Solutions. Each edition offers a quick overview of key technical updates and product news, with direct links to relevant documentation and further details. Tech Insider ensures you're always informed about the latest innovations and changes across our products and solutions.

We hope you enjoy reading Danfoss Tech Insider and find it both useful and inspiring!

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Not all products/variants are available in all countries.
Please contact your local sales company for further info and product availability.

Release

Optyma™ Plus range expanded with new low-temperature A2L models

Expanded low-temperature capacity with standard A2L refrigerant validation

As part of ongoing product range improvements, Danfoss has updated the Optyma™ Plus (P00) condensing units. A **new NTZ model** expands the available cooling capacity for low-temperature applications, and the units are now validated as standard for use with A2L refrigerants. Factory settings include R454C and R455A.



Updated cooling-capacity data is available in:

- ✓ [Optyma™ catalogue](#)
- ✓ [Coolselector®](#)

CU code no	Model designation	Compressor	Refrigerant qualified	Cooling capacity
114X3205	OP-LPVM048NTP00E	NTZ048	R404A, R452A, R454C, R455A	0.76
114X3204	OP-LPVM048NTP00G	NTZ048	R404A, R452A, R454C, R455A	0.88
114X3207	OP-LPVM068NTP00E	NTZ068	R404A, R452A, R454C, R455A	1.22
New model <u>114X3366</u>	New model <u>OP-LPVM096NTP00E</u>	New model <u>NTZ096</u>	New model <u>R404A, R452A, R454C, R455A</u>	1.53
<u>114X3304</u>	<u>OP-LPKM067LLP02E</u>	<u>LLZ013T4B</u>	<u>R404A, R452A, R454C, R455A, R448A, R449A</u>	<u>2.23</u>
<u>114X3305</u>	<u>OP-LPKM084LLP02E</u>	<u>LLZ015T4B</u>	<u>R404A, R452A, R454C, R455A, R448A, R449A</u>	<u>2.76</u>

Installers must ensure that each application remains within the operating limits specified in the instruction guidelines and Coolselector®. Follow all requirements in the installation manual and user guide. For enhanced safety, the condensing units include built-in protections including high-pressure, low-pressure, and high-discharge-temperature safeguards. Please refer to the instructions and user guide for further details.

More information

For instructions on using approved refrigerants, customers should refer to the literature available through Danfoss-approved channels, including [Coolselector®](#), the [Product Store](#), and the documents listed below.

- ✓ [Optyma™ Plus instruction manual](#)
- ✓ [Optyma Controller user Guide](#)
- ✓ [Optyma Plus user guide](#)

Availability

The units are available to order now.

Release

GBC 90 bar CO₂ ball valve released with service port

Integrated service port simplifies pressure monitoring and system diagnostics

The CO₂ GBC 90 bar ball valve with service port is now available. The integrated service port is directly compatible with the Danfoss AKS 2050 pressure transmitter, supporting streamlined system monitoring and diagnostics while reducing installation complexity and lifetime service costs.

Product features

GBC 10HS solder ODF / G 3/8 in



GBC 10HS solder ODF / 1/4 in NPT



GBC 10HS							
Type	Code no	Connection [in]		Multi pack	PED category	Max working pressure	Media temperature range
		Solder	G/NPT	Qty/Pack	[Fluid group]	PS/MWP	
GBC 10HS	009L0035	3/8	G 3/8	30	Art. 4.3	90 bar / 1305 psig	-40 – 100 °C
GBC 10HS	009L0036	3/8	1/4 NPT	30			/ -40 – 212 °F

For questions about the new sales codes or the transition, contact your account manager or the Danfoss customer service team.

Release

AS-UI04 remote display released for Alsmart® controllers

New panel and wall-mounted interfaces enable remote monitoring and control

Product Version PV01 of the AS-UI04 remote display for the Alsmart® Universal Controller Platform is now released and available for sale.

The AS-UI04 can be used in a wide range of applications where remote monitoring and control of Alsmart® controllers is required. Its versatility, user-friendly interface, and customizable display make it suitable for both industrial and commercial environments.

Details

The AS-UI04 provides a user interface for Alsmart® controllers, allowing users to:

- ✓ Monitor system parameters
- ✓ Adjust setpoints and other application parameters
- ✓ View alarms and events
- ✓ Configure the controller



Affected products

Alsmart User Interface AS-UI04 Panel Mounted (080G6042) and AS-UI04 Wall Mounted Single Pack (080G6044).

Availability

The AS-UI04 panel-mounted and wall-mounted versions are now in stock.

Display characteristics

Function data	Value
Display	• TFT, IPS 480 x 272 dots • Colour display • 4.3 inches • Backlight dimmerable via software
Keyboard	6 touch keys individually managed via software
Data communication built-in	CAN-FD to controller
Connection to controller	RJ12 6/6 or CAN-FD 3.5 mm pitch connectors
Internal ambient temperature sensor	Only for wall mount Measuring range: -40 to +50 °C Accuracy ±1 K Resolution 0.1 K
Plastic housing	Self extinguishing V0 and glowing/hot wire test at 960 °C. Ball test: 125 °C Leakage current: ≥ 225 V according to IEC 60112
Type of control	Incorporated in Class I and/or II appliances or independently mounted. Not attended
Period of electric stress across insulating parts	Long
Mounting	Wall or panel depending on the model, vertical position. Panel mounting: refer to the panel cut-out shown in the figure and use the screws provided in the packaging. Wall mounting: flush mounting on standard modular boxes (e.g., IT, USA, DE, CHN). Refer to the mounting instructions in the figure.
Pollution	Suitable for use in environments with degree of pollution 2
Software class and structure	Class A
Purpose of control	Operating
Operating characteristic	Type 1 Action
Overvoltage category	II
Control Class	III
Impulse Voltage	500 V

Additional information

Data sheets are also available in other languages on the [Alsmart® website](#).

Alsmart® Design version 1.10.0011 fully supports the new AS-UI04 display and is available now from the dedicated Alsmart® section of the [Danfoss Partner Portal](#) or the [Danfoss Alsmart® Community](#).

For access instructions, see the [Alsmart Partner Portal – Quick setup guide](#) or use the [Join Alsmart Community](#) registration link.

For more information, please contact your local sales representative.

Product update

MTZ compressors qualified for use with R438A**R438A qualification supports R22 retrofit applications across selected MTZ models**

The listed Danfoss MTZ 1-, 2- and 4-cylinder reciprocating compressor models are now qualified for use with R438A. This provides an alternative refrigerant solution for applications requiring R22 replacement or retrofit support.

The refrigeration industry continues to move away from HCFC refrigerants in line with the Montreal Protocol. R438A offers a practical retrofit option for R22-based applications while supporting the continued use of existing Danfoss MTZ compressor technology in applicable markets and systems.



The MTZ compressor models included in this qualification are approved for use with R438A/175PZ POE oil. R438A is an HFC blend with an ODP of 0 and a GWP of 2264. Compared with R22, the cooling capacity with R438A is typically reduced by approximately 12–20%, depending on compressor size and operating conditions, based on EN12900 conditions at 50 Hz.

Affected compressor models

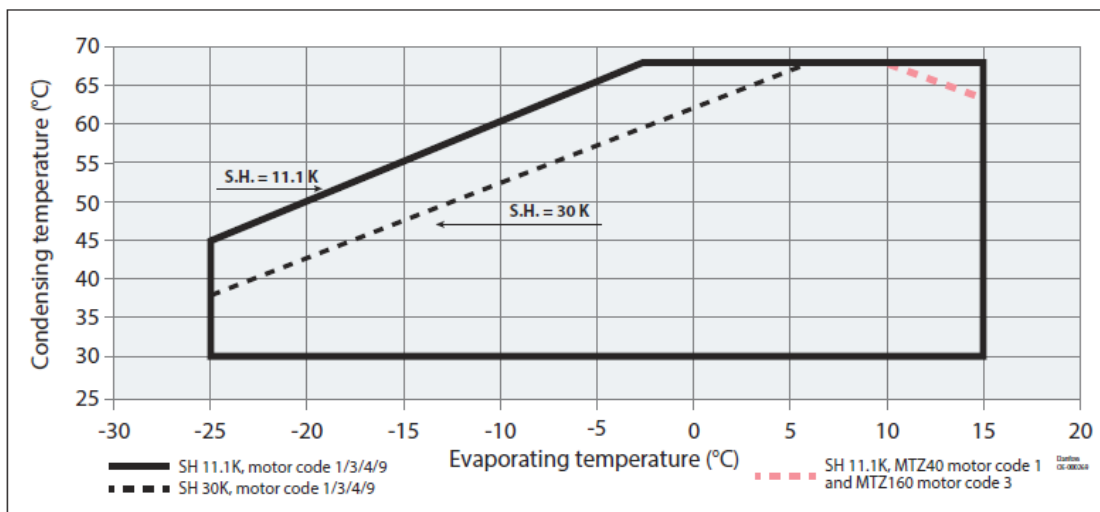
R438A qualified compressor models		
Compressor model	Motor code	Voltage
MTZ22 – MTZ64	1	208-230 V /1~/60 Hz
MTZ22 – MTZ160	3	200-230 V/3~/60 Hz
MTZ22 – MTZ160	4	380-400 V/3~/50 Hz & 460 V/3~/60 Hz
MTZ22 – MTZ160	9	380 V/3~/60 Hz

Timing

Since 16th July 2026, all listed compressor models from serial number 1009693401 are qualified for use with R438A within the defined operating envelope.

Operating maps

Nominal performance data and operating limits are available in the official documentation. Please follow the corresponding operating maps for proper application of R438A.



Important information

R438A is a retrofit refrigerant intended for conversion of existing R22 installations.

When converting a system from R22 to R438A:

- ✓ The system manufacturer's retrofit procedure should be followed.
- ✓ Correct oil level and oil return must be verified during commissioning and operation.
- ✓ Expansion valve settings may require adjustment.
- ✓ System performance and discharge temperatures should be checked after conversion.
- ✓ Existing safety controls must be verified and adjusted if required.
- ✓ The refrigerant must be charged in the liquid phase due to its temperature glide of approx. 4 °C.

Ordering

There is no change in the ordering process; compressor codes remain the same.

Product update

NTZ 2-cylinder compressors qualified for R454C and R455A

Lower-GWP A2L options extend approved refrigerant use for selected NTZ models



The listed NTZ compressor models are now approved for use with R454A/C and R455A as alternatives to R404A and R507 in applicable systems.

The refrigeration industry continues to reduce the use of ozone-depleting refrigerants, while the transition to lower-GWP synthetic refrigerants is accelerating in response to global climate objectives. Danfoss supports the development and application of these refrigerants to help customers reduce GWP and improve energy efficiency.

The NTZ models listed below are qualified for use with R454C and R455A. These Group 1 refrigerants have a GWP below 150 and are classified as A2L, indicating low flammability. For safe use, please follow European regulations EN 378 and EN 60335, applicable EPA requirements in the United States, and relevant local regulations in other markets.

Affected compressor models

Code	Model	Technical name	Voltage	Packing
120F0234	NTZ096 -4	NTZ096A4LR1B	380-400 V/3~/50 Hz & 460 V/3~/60 Hz	Single pack
120F0235	NTZ096 -4	NTZ096A4LR1B		Industrial pack
120F0238	NTZ108 -4	NTZ108A4LR1B		Single pack
120F0239	NTZ108 -4	NTZ108A4LR1B		Industrial pack
120F0236	NTZ136 -4	NTZ136A4LR1B		Single pack
120F0237	NTZ136 -4	NTZ136A4LR1B		Industrial pack

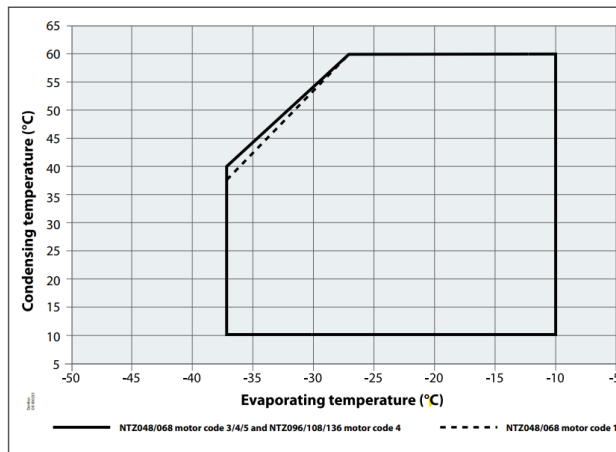
Timing

Since 21 May 2026, all listed compressor models from serial number **SE1009657794** are qualified for use with R454C and R455A within the defined operating envelope.

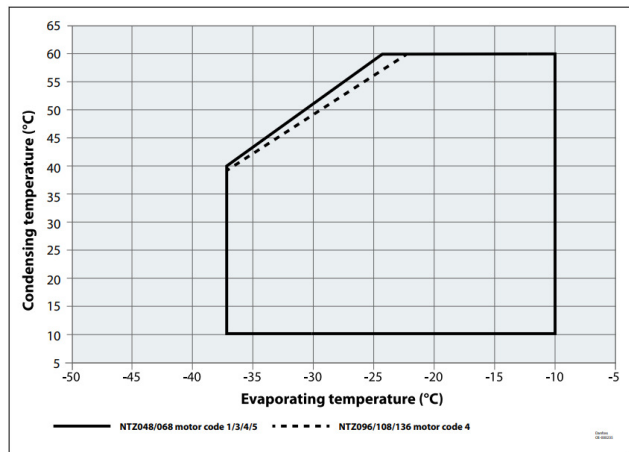
Operating maps

Nominal performance data and operating limits are available in the official documentation. Please follow the corresponding operating maps for proper application of these refrigerants.

R545C - SH10K



R555A - SH10K



Important information

R454A/C and R455A are zeotropic refrigerants with a temperature glide of approximately 6–12 K and must be charged in the liquid phase. A crankcase heater is recommended to prevent oil dilution, protect against refrigerant migration, and maintain the oil temperature 8–10 K above the saturated low-pressure temperature. Testing should confirm a suitable oil temperature under all operating conditions.

A PTC crankcase heater is recommended for all stand-alone compressors and split systems; under extreme conditions, an additional belt-type crankcase heater may be used.

Ordering

There is no change in the ordering process; compressor codes remain the same.

Compressor nameplates will specify Refrigerant Group 1 and will include a flammable refrigerant marking to ensure clear identification and compliance with safety standards.

For more information, please contact your local Danfoss representative.

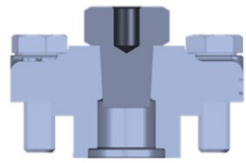
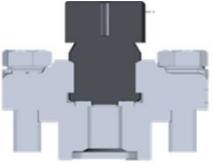
Product update

FIA DN15–40 top-cover Pressure Relief Screw upgraded to G 1/2**More robust pressure-relief connection improves sealing and serviceability**

Danfoss has upgraded the top cover pressure relief screw for all FIA products in the DN15 to DN40 size range to improve product quality and performance. The top-cover pressure-relief screw is being upgraded from a 1/4 NPT connection to G 1/2. The change improves and standardizes sealing performance while ensuring design consistency across the product range.

What this means for you

- ✓ The new G 1/2 version will be phased in as stock of the current 1/4 NPT version is depleted.
- ✓ Both versions may be supplied during the transition. Customers who require the current 1/4 NPT connection should order as early as possible, as remaining NPT stock will not be replenished.
- ✓ While there is no difference in the function of the top cover, please note that there is a minor impact on the fit due to the thread change
- ✓ To allow easy identification for customers, a marking will be added on Pressure relief screw (indicating G1/2)
- ✓ As a result of this recent design modification, the top cover's minimum wall thickness for Carbon Steel FIAs (sizes DN15-DN20) has been upgraded from 10 mm to 15 mm, therefore, the current top cover's bolt change will be changed from M8X25 to M8X30.
- ✓ New sales code numbers will be issued for the G 1/2 version. The existing codes for the 1/4 NPT version will be phased out.
- ✓ If you prefer to continue using 1/4 NPT thread, an adapter connector 1/2 G to 1/4 NPT "148H3461: Connection kit for Purge valve" can be purchased separately.
- ✓ **The 148X code numbers for FIA DN15–DN40 will remain unchanged.** Their packaging will be updated to **include adapter 148H3461**, the connection kit for the purge valve.
Be aware that 148X code numbers involving sizes DN50–DN150 are currently including this adapter inside of packing box.
- ✓ Current SVL Inspection kits for sizes DN15–DN20 (code 148B6051) as well as DN25–DN40 (code number 148B6052) will be updated by adding Aluminium Gasket as spare part.

Current 1/4 NPT	New G1/2				Adapter
		To allow easy identification for customers, a marking will be added on pressure relief screw (indicating G1/2)		Adapter connector 1/2 G to 1/4 NPT: 148H3461 connection kit for Purge valve code number to be purchased separately	

We have updated our technical documentation to reflect this change.

Software release

New Alsmart® firmware, Design and Service Tool versions released

Updates add new interfaces, tools, and performance improvements across the Alsmart® platform

New Alsmart® firmware, Alsmart® Design, and Alsmart® Service Tool versions are now available for the Alsmart® Universal Controller Platform. This release also includes the UI04 firmware.

Firmware version 1.44.0004 for all AS-CX06 controllers is released together with corresponding Alsmart® Design and Service Tool versions. The updates add new functions, improvements and tools. Several application notes are also available for download to support controller use and configuration.

The release improves stability and adds new functions and interfaces.

Key highlights

Alsmart Firmware version 1.44.0004

Please check the change log included in the package for more details.

- ✓ CAN-FD Read/Write Support: Enables CAN bus to read/write with dedicated API.
- ✓ Startup Logo Customization: Custom branding for device startup screens.
- ✓ UI04 Management: Enhanced HMI support and integration.

Alsmart Design version 1.10.0011

Please check the change log included in the package for more details.

- ✓ UI04 HMI Simulator: Dedicated simulator with Port Connector enabled by default for CANbus simulation.
- ✓ Improved SSR Definition Handling: Better Solid State Relay management.
- ✓ ASPKG Maker: Now available as standalone tool with extended file support.

Alsmart ServiceTool version 2.24.0017

Please check the change log included in the package for more details.

- ✓ Small improvements and bug fixes
- ✓ Added "IO configuration" functionality.
- ✓ Updated to support new controller codes and firmware functionalities with improved debugging, diagnostics, and configuration capabilities.

UI04 Firmware Update (v1.08.0000)

Please check the change log included in the package for more details.

- ✓ Faster file transfers (2-3 min vs 15 min).
- ✓ Increased max UI size (2 MB)
- ✓ Auto-baud rate detection, and no reboot required for baud rate changes.
- ✓ Mirror Mode: Can mirror Snap-on display for systems without dedicated UI04 software.

Application notes

The application notes provide detailed guidance on using the functions of the Alsmart® Universal Controller. The change log and all available application notes can be downloaded from the Documentation Hub in the Partner Portal.

Affected products

Alsmart Firmware v1.44.0004 for Pro/Pro+
v1.44.0004 for Mid+/Mid/Lite
Alsmart Service Tool v2.24.0017
Alsmart Design v2.24.0017
UI04 Firmware v1.08.0000

Stock units will not be recalled or updated.

Downloads

Alsmart Firmware 1.44.0004, Alsmart Design v. 1.10.00011, Service Tool v. 2.24.000517, UI04 1.08.0000 and the Application Notes can be downloaded from the dedicated Alsmart section in the [Danfoss Partner Portal](#).

Follow the instructions to get access [Alsmart Partner Portal - Quick setup guide](#) from [Alsmart Community](#)

Software release

AK-CC55 software versions released for Compact, Single Coil and Multi Coil**Web releases introduce fixes, restored functions and new control capabilities**

New web-release software is available for AK-CC55 Compact (v2.32), Single Coil (v2.40) and Multi Coil (v2.01). The versions resolve issues identified in earlier releases and restore functions across the AK-CC55 portfolio. They are currently only available as web releases through AK-CC Connect or KoolProg and are not pre-installed on controllers from production. A production release is planned for calendar week 35.

New features reintroduced with these new SW versions include:

For OEM and production use, customers must update existing setting files from the previous software version to the latest version using Set parameters in KoolProg. This prepares production lines for the new production software release.

Function	Single Coil	Compact	Multi Coil
Injection			
Updated injection algorithm	x	x	x
Improved SH control, flooding protection			
New refrigerants R454A, R454C, R455A, R516A, R469A	x	x	x
Support for external stepper valve driver control Via 0–10 V signal	Existing functionality	x	
Day/Night schedule			
Local Day/Night schedule	x	x	x
Defrost			
Defrost via electrical pulsing heaters	x	x	x
Support for 2 defrost stop sensors Option to select two defrost stop sensors S5A and S5B	Existing functionality	x	
Compressor			
Compressor speed control		x	
Compressor safety monitoring		x	
Fan			
Fan speed control (0–10V)	x		
Fan ECO mode options: At thermostat cut-out night or always at cut-out	x		x
Fan ECO control during defrost	x		x
Performance indicators			
Door opening history	x	x	x
Average defrost time	x	x	x
Temp. quality indicator	x	x	x
No. of high temp. alarms	x	x	x
KoolProg support			
KoolProg support via Modbus RS-485	x	x	x
Back-to-back applications			
Separate thermostat air read-out for back-to-back	x		
DO3 and DO5 flexible in back to back applications	x		
Flexible configuration mode			
Fully flexible IO configuration		x	x
Other			
Leak alarm action	x		x
DO for safety valve	x		x
New default settings for dewpoint-based rail-heat control	x	x	x

Phase out

Selected MCX products scheduled for phase-out

Early notice supports service planning, final purchases, and platform migration

As part of ongoing product lifecycle management, Danfoss plans to phase out selected MCX products (not accessories like MMIGRS2 or cables). This communication is intended to provide timely visibility and transition planning in line with standard discontinuance practice used across the electronics industry.

Affected products and principal reason

Product	Principal reason
MCX061V	Critical component unavailability
MCX152V	Critical component unavailability
MCX15B2	Cybersecurity lifecycle and compliance alignment
MCX20B2	Cybersecurity lifecycle and compliance alignment
MCX06C	Cybersecurity lifecycle and compliance alignment
CFTR1	Cybersecurity lifecycle and compliance alignment
MCX06D	Cybersecurity lifecycle and compliance alignment
MCX08M2	Planned portfolio phaseout in 2029

Additional information

For MCX061V and MCX152V, production continuity is impacted by the obsolescence or unavailability of critical components required for manufacturing.

For the CRA-related products, the phaseout supports transition toward platforms better suited for long-term cybersecurity maintenance, vulnerability handling, and lifecycle support expectations for connected digital products.

The commercial milestones

Notice issue date	July-1-2026
Last-time-buy date	January-15-2027
Final ship date	December-10-2027

MCX08M2 is not part of the immediate phase-out wave. Its phase-out is planned for 2029 to allow time for migration, software porting, validation, and an orderly transition.

Customers are encouraged to review current demand, service-spare requirements, and migration planning as early as possible. Where appropriate, successor-platform guidance and transition support will be provided separately.

New and updated content

- | | |
|-------------------|--|
| Case story | <ul style="list-style-type: none">• <u>Danfoss Optyma™ Plus safeguards £40 million of pharmaceutical stock in critical cooling upgrade</u>• <u>Re-thinking heating efficiency in flower bulb processing with ICFD</u> |
| Training | <ul style="list-style-type: none">• <u>Alsmart® Controllers – System Architecture & Programming with Design Tool</u> |
| Podcast | <ul style="list-style-type: none">• <u>TXV vs EEV: Taking the Temperature of modern refrigeration control</u> |
| Video | <ul style="list-style-type: none">• <u>Alsense® performance rules</u> |
| Website | <ul style="list-style-type: none">• <u>Integrated food retail solutions from case to cloud</u>• <u>Efficient HVAC solutions for food retail environments</u> |

Contact information

Contact Danfoss Sales office, customer service and technical support

[Sales and services](#)

[Customer service](#)

Get technical support for installing Danfoss cooling solutions

[Cooling installer hub](#)

Get technical support for installing Danfoss sensing solutions

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