ENGINEERING **TOMORROW**

Danfoss

September 2023 | Danfoss Climate Solutions for cooling

Cool Update

Introduction

Danfoss Cool Update keeps you updated with the latest news on the cooling and industrial products portfolios from Danfoss Climate Solutions. The content is intended to give a quick overview of core technical news and updates in our product portfolio, including 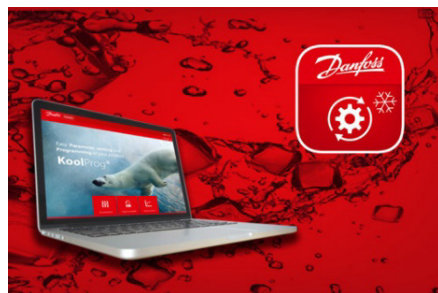links to relevant documentation and more information. Danfoss Cool Update is sent out, on a monthly basis, to ensure you are always up to date with the latest innovations and changes made to Danfoss products and solutions.
We hope you will enjoy reading Danfoss Cool Update!

Table of Contents

KoolProg Software Ver 5.0.x: Maintenance Release Update

A new version of KoolProg (Ver. 5.0) is now available for download in which we have made several improvements and enhancements.

Key highlights of version 5.0
- KoolProg can now support EKE 100 1V & 2V, EKE 200 1V & 2V.
- Supports new variant of ERC 112D with dual compressor control application.

Detailed description

1. Supports EKE 100 1V and EKE 200 2V Super heat Controllers.
   - KoolProg supports EKE 100
2. Supports new Dual compressor control application in ERC 112D, part code: 080G3471

Product description	Part code	Software version
EKE 100 1V IP00	080G5050	1.10
EKE 100 1V IP20	080G5051	1.10
EKE 100 1V IP20 with display	080G5052	1.10
EKE 200 2V IP00	080G5055	1.10
EKE 200 2V IP20	080G5056	1.10
EKE 200 2V IP20 with display	080G5057	1.10

Known issues/Specific limitations to this release:

1. KoolProg sometimes doesn't close communication port when MPK device is disconnected from KoolKey. This requires KoolKey disconnection and re-connection to free up communication port.
2. MPK (EKA 201) doesn't support Unknown controller file programming as these files cannot be opened in KP.
3. User may get Microsoft defender window while installing KoolProg for the very first time. User must click the button *Run Anyway* to continue with the installation whenever the window pops up.

The new version of KoolProg is now available for download at:
https://assets.danfoss.com/software/latest/297436/ID438422490287-0301.zip

Product Launch: EKE 100 Superheat Controllers and Valve Drivers

We are pleased to announce the release of the EKE 100 family of superheat controllers and valve drivers (6 models) for sales globally.

The new EKE 100 is a family of superheat controllers and stepper valve drivers. EKE 100 1V is utilized for singular valve control, and EKE 100 2V is for dual valve control. EKE 100 series can be used in air conditioning, heat pumps, commercial refrigeration, and food retail applications. The product is intended to be used as a standalone controller for superheat management or as a valve driver in connection with a master/system controller.
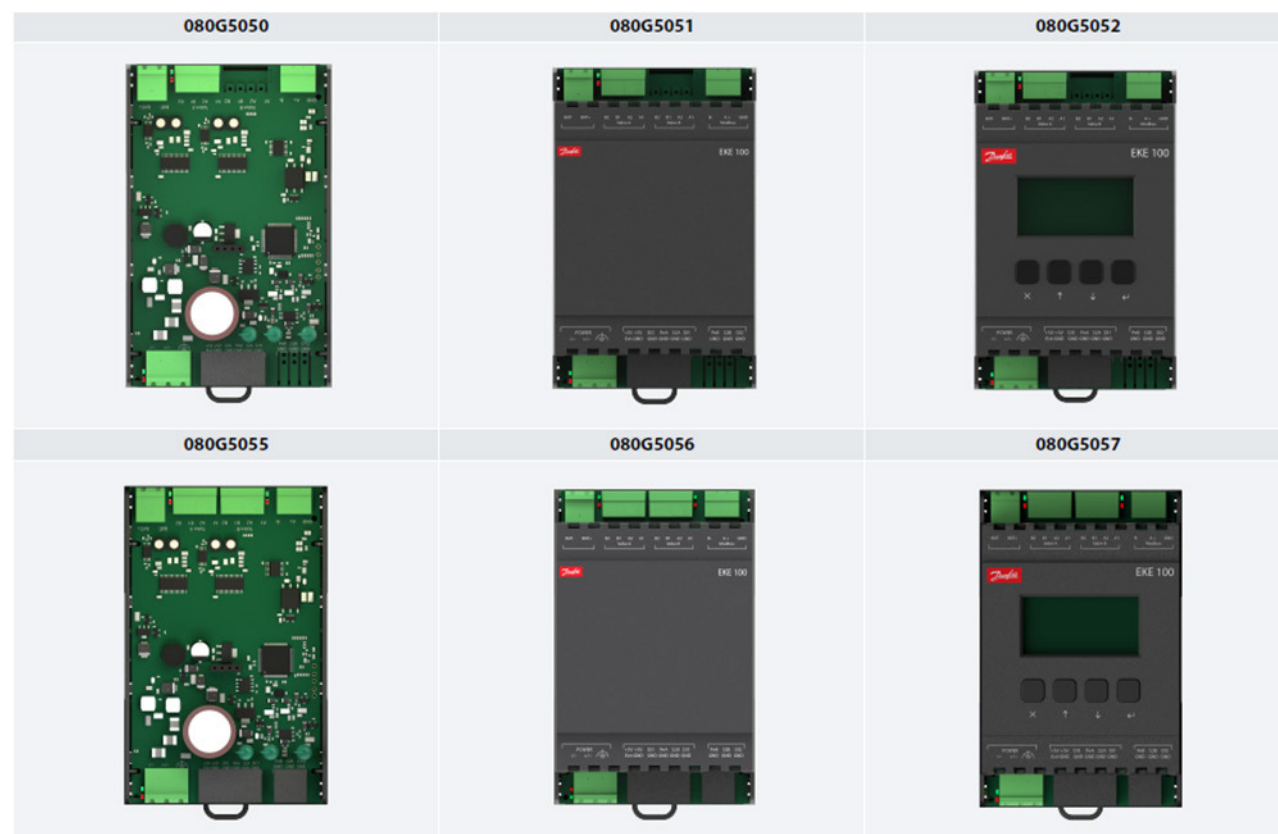
The EKE 100 Superheat controller and valve driver is designed with Danfoss stepper motor valves in mind (i.e., ETS series, ETS Colibri, ETS Large, ETS P, ETS 5M(Bipolar), ETS 8M(Bipolar), ETS 6, KVS, CCM/CCMT) but it can also be used with 3rd party valves. For more details, check the products technical documentation.

Features:

- Singular valve and dual valve independent control.
- Available in IP00, IP20, IP20 with display.
- Supports both NTC10K and PT1000 temperature sensors.
- Superheat control and stepper valve driver.
- Fast setup using KoolProg PC suite and Koolkey.
- Lost step prevention.
- Open circuit detection.
- LED indication for valve movement and alarm/warning.
- Digital output for alarm signal.
- Modbus communication.

Product code	Product description	Software version
080G5050	EKE 100 1V IP00	1.10
080G5051	EKE 100 1V IP20	1.10
080G5052	EKE 100 1V IP20 with display	1.10
080G5055	EKE 100 2V IP00	1.10
080G5056	EKE 100 2V IP20	1.10
080G5057	EKE 100 1V IP20 with display	1.10

EKE 100 2V variants

Approvals

CE and EMC, UKCA, EAC, and cURus are some of the major approvals obtained on the product.

For more information, please visit our **Danfoss Product Store** or contact your local sales representative.

VZH088/117/170 R410A Version Phase Out (Europe Only)

Danfoss will phase out VZH088-117-170 models for only the R410A version and replace them with VZH088-117-170 multi-refrigerant models. This is the second step for motor code J and H after code G which has been finished.

The variable-speed series has now matured to the third generation with IDV technology and tend to use multiple refrigerants with low GWP. VZH088-117-170 with multi-refrigerants for all codes has been released in Feb. 2023, keeping IDV technology, having better performance and larger operating envelope compared with VZH Gen2 and suitable for R410A/R454B/R452B. Thus, Danfoss will phase out VZH088-117-170 models for only R410A and replace them with VZH088-117-170 with multi refrigerants models.

The models to be phased out include VZH version A (High-Pressure Ratio), version B (Low-Pressure Ratio), and version CN (with IDV) for R410A only. Versions are defined by nomenclature Digits 5 and 8.

Nomenclature:

1	2	3	4	5	6	7	8	9
V	Z	H	117	C	G	A	M	A

1: **Variable speed**

2: **Family**:
  VZH scroll

3: **Lubricant**:
  POE lubricant, R410A refrigerant

4: **Swept volume**
  in cm3/rev

5: **Design pressure ratio**
  A: High PR; B: Low PR; C: with IDV

6: **Motor voltage code to CDS303 or CDS803**
  G: 380-480V/3~/50&60Hz
  J: 200-240V/3~/50&60Hz
  H: 525-600V/3~/50&60Hz

7: **Equipment version**
  A: brazed connections, single version
  B: brazed connections, manifold version
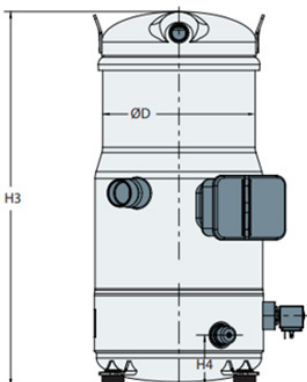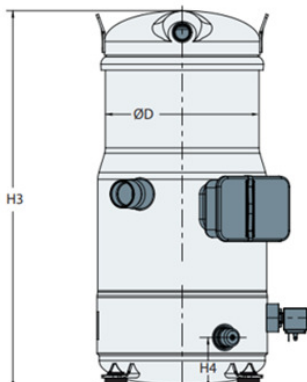 D: brazed connections, unified version
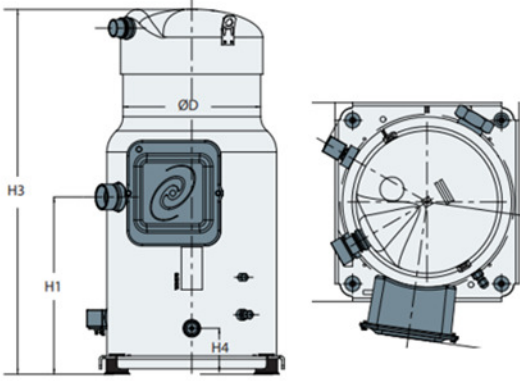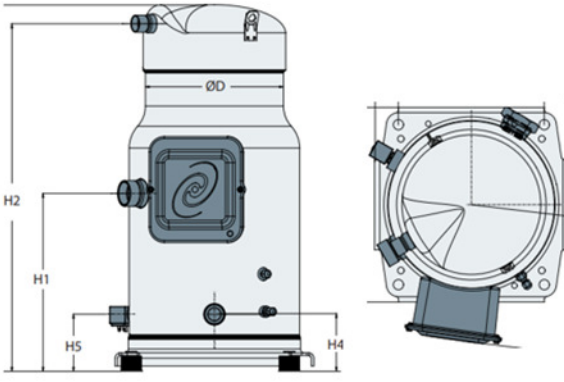
8: **Motor protection type**
  M: no internal motor protection (protection by drive), multi-refrigerant
  N: no internal motor protection (protection by drive), R410A only
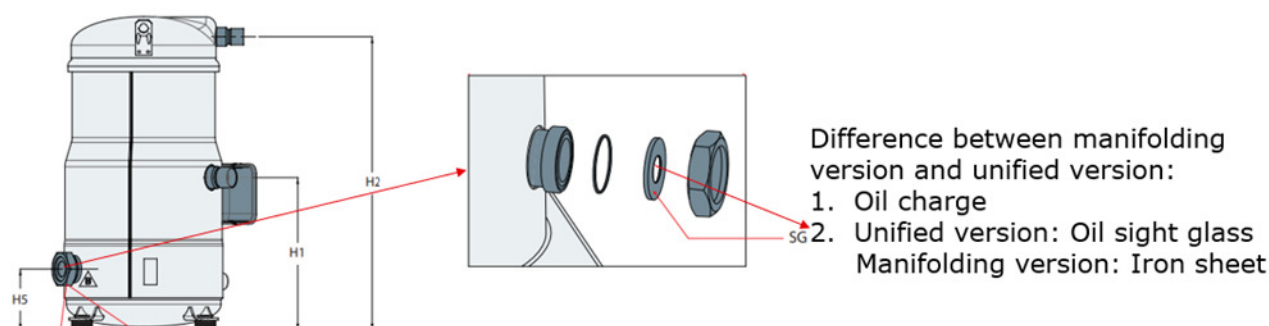
9: **Evolution index**

Differences between versions are shown in the following tables:

Items	VZH088/117 A,B,CN	VZH088/117 CM
Shell	✓ Middle shell material spec. tensile strength 270MPa.	✓ Middle shell material spec. tensile strength 360MPa.
Comments: No dimension change.		

Items	VZH170 A,B,CN	VZH170 CM
Shell		
	✓ Middle shell material spec. tensile strength 270MPa. ✓ Middle shell and lower shell welding way--T type.	✓ Middle shell material spec. tensile strength 360MPa. ✓ Middle shell and lower shell. Welding way-- overlap type for conforming with EN14276-1. ✓ New base-plate with increased PED compliance to facilitate safe usage A2L refrigerants over full working-envelope

Comments: No change for installation dimension.

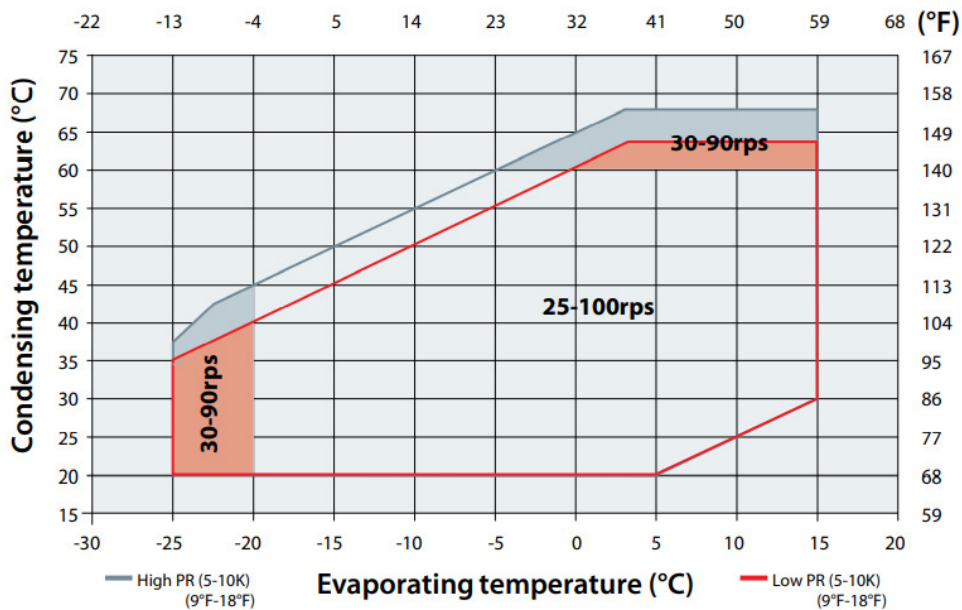| Items	Version A	Version B	Version CN	Version CM
Refrigerant	R410A	R410A	R410A	R410A/R454B/R452B
Scroll set	High Pressure ratio	Low pressure ratio	With IDV	With IDV
Oil charge	✓ 160SZ ✓ Single and manifolding version: VZH088 3.3L, VZH117 3.6L, VZH170 6.7L ✓ Unified version: VZH088 3.8L, VZH117 4.1L, VZH170 7.7L		✓ 160SZ ✓ VZH088 3.8L, VZH117 4.1L, VZH170 7.7L ✓ Unified oil charge same as A, B unified version	✓ 160SZ ✓ VZH088 3.8L, VZH117 4.1L, VZH170 7.7L ✓ Unified oil charge same as A, B unified version

At the same time, manifolding version will be phased out and replaced by a unified version (OLS + OSG version).

Difference between manifolding version and unified version:
1. Oil charge
2. Unified version: Oil sight glass
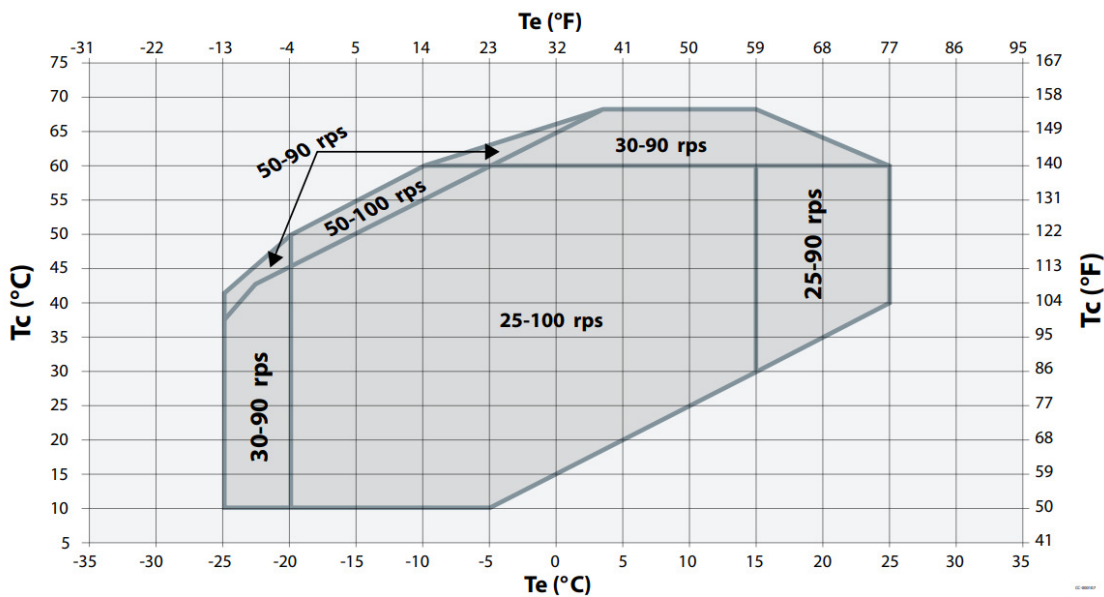   Manifolding version: Iron sheet

Related CDS303 drive could still be used for VZH Gen3. They have already been upgraded to the A2L requirement without code change. CDS803 18.5/22/30 kW drive could also be used for code G.

Operating envelopes for VZH088-117-170 version A & B:

VZH operating map - 575V/400V/208V

Operating envelopes for VZH088-117-170 Version CN & CM:

Affected products are VZH088/117/170 version A, B & CN.

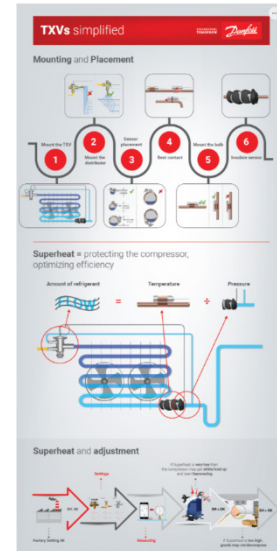VZH 088/117/170 R410A will replace only compressor code numbers with VZH multi-code numbers.

When using with A2L, Danfoss has implemented a new oil sensor, and the old ones are phasing-out.

The suction separator kits for hybrid manifolding have been modified (new codes) when A2L usage.

If you need additional information regarding the VZH088/117/170 R410A version phase-out, please contact Danfoss technical support.

Videos and Infograms

- CO$_2$ transcritical refrigeration explained: Essential principles for engineers and technicians **- LINK**
- Setting the cut-out on a Danfoss KP switch - **LINK**
- Infogram: TXVs simplified - **LINK**
- Infogram: Compressor check-up tips **- LINK**

Danfoss Climate Solutions EER Region

– Bulgaria, Croatia, Czech Republic, Hungary, Poland, Romania, Serbia, Slovakia, Slovenia, Ukraine