

ENGINEERING  
TOMORROW



March 2024 | Danfoss Climate Solutions for cooling

# TECH INSIDER



## Introduction

Danfoss Tech Insider 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 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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## General Purpose EV220B Valves with Seal Material NBR Replaced by EPDM or FKM Seal

NBR (Nitrile) is a general rubber seal material with standard performance. This means that FKM or EPDM can replace and give better performance.

General purpose EV220B with NBR seal is in scope for this replacement.

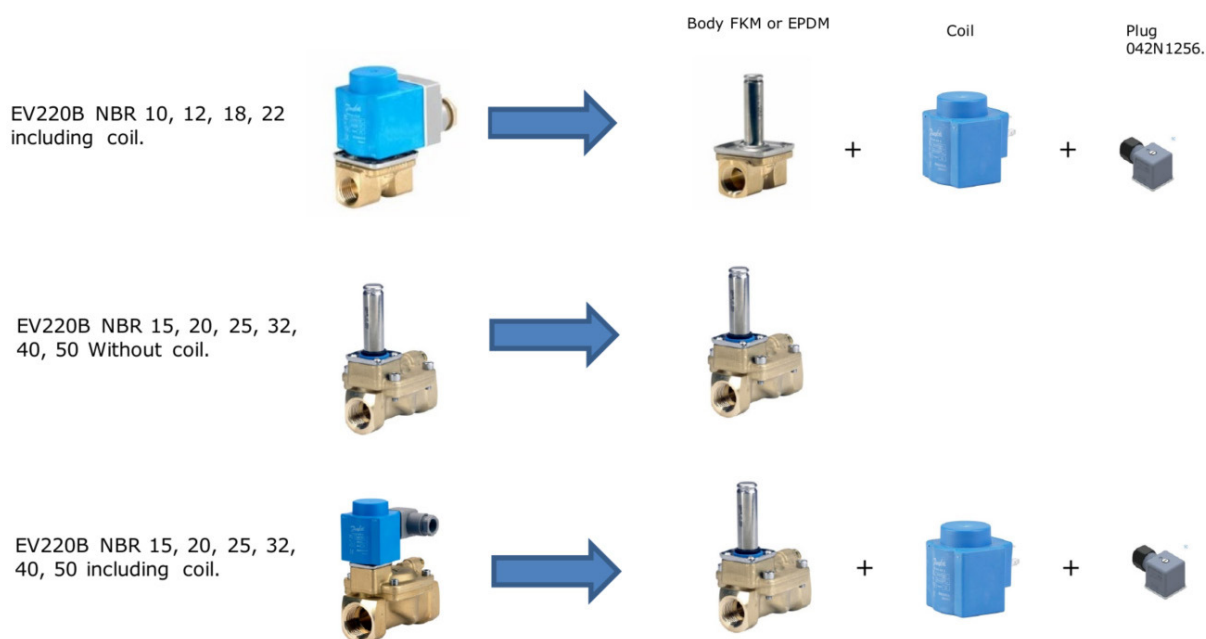
Danfoss have equivalent EV220B (in FKM) or EV220BW / EV221BW (in EPDM) seal that can fully replace.

### Description

NBR has a narrow temperature scope, -10 to 90 °C (recommended not higher than 70°C), while selecting FKM or EPDM gives a much larger scope depending on the media. FKM for air and oil is 0 to 100°C, and EPDM for water and brines -30°C manages up to 120°C. EV220BW EPDM valves (132UXXXX) with drinking water approval temperature range is -30 to 90°C.

Therefore, and for complexity and cost reduction reasons, NBR will be phased out for standard range EV220B DN 15-50 as fast as possible during 2024 in cooperation with sales and customers and replaced by EV220B 15-50 FKM and EV220B EPDM (032U71XX) or new EV220BW EPDM (132UXXXX).

For specific types, EV251B (NBR assisted lift) and high-pressure EV224B NBR (High pressure for air) will be kept for some years. Information will be provided a minimum of 12 months in advance.



### Affected products - NBR

EV220B 10, 12, 18, 22 with coil type BB 24V DC, 24 V 50Hz, 230 V 50Hz:

032U151802, 032U151816, 032U151831, 032U153802, 032U153816, 032U153831, 032U528602, 032U528616, 032U528631

EV220B 15, 20, 25, 32, 40, 50 without coil:

032U7180, 032U7181, 032U7182, 032U7183, 032U7184, 032U7185

EV220B 15, 20, 25, 32, 40, 50 with coil type BB 24V DC, 24 V 50Hz, 230 V 50Hz:

032U451402, 032U451416, 032U451431, 032U453002, 032U453016, 032U453031, 032U453402, 032U453416, 032U4534  
032U456802, 032U456816, 032U456831, 032U458502, 032U458516, 032U458531, 032U460402, 032U460416, 032U460431

Material Code	Material Description	Replacement Code Valve Drinking Water (EPDM)	Replacement Code Oil, Comp.Air, Vacuum (FKM)	Replacement Code Water and Brine (EPDM)	Replacement Code Coil	Replacement Code Plug
032U151802	Valve EV220B 10B G 38N NC000 BB024DS	132U1000	032U1247	032U1246	018F7397	042N1256
032U151816	Valve EV220B 10B G 38N NC000 BB024AS	132U1000	032U1247	032U1246	018F7358	042N1256
032U151831	Valve EV220B 10B G 38N NC000 BB230AS	132U1000	032U1247	032U1246	018F7351	042N1256
032U153802	Valve EV220B 12B G 12N NC000 BB024DS	132U1300	032U1255	032U1256	018F7397	042N1256
032U153816	Valve EV220B 12B G 12N NC000 BB024AS	132U1300	032U1255	032U1256	018F7358	042N1256
032U153831	Valve EV220B 12B G 12N NC000 BB230AS	132U1300	032U1255	032U1256	018F7351	042N1256
032U156631	Valve EV220B 10B G 38N NC663 BB230AS	132U1000	032U1247	032U1246	018F7351	042N1256
032U528331	Valve EV220B 18B G 34N NC663 BB230AS	132U2002	032U1260	032U1261	018F7351	042N1256
032U528602	Valve EV220B 18B G 34N NC000 BB024DS	132U2002	032U1260	032U1261	018F7397	042N1256
032U528616	Valve EV220B 18B G 34N NC000 BB024AS	132U2002	032U1260	032U1261	018F7358	042N1256
032U528631	Valve EV220B 18B G 34N NC000 BB230AS	132U2002	032U1260	032U1261	018F7351	042N1256
032U528702	Valve EV220B 22B G 1N NC000 BB024DS	132U2200	032U1266	032U1263	018F7397	042N1256
032U528716	Valve EV220B 22B G 1N NC000 BB024AS	132U2200	032U1266	032U1263	018F7358	042N1256
032U528731	Valve EV220B 22B G 1N NC000 BB230AS	132U2200	032U1266	032U1263	018F7351	042N1256
032U7170	Valve EV220B 15B G 12N NC000	132U1500	032U7116	032U7115		
032U7171	Valve EV220B 20B G 34N NC000	132U2000	032U7121	032U7120		
032U7172	Valve EV220B 25B G 1N NC000	132U2500	032U7126	032U7125		
032U7173	Valve EV220B 32B G 114N NC000	132U3200	032U7133	032U7132		
032U7174	Valve EV220B 40B G 112N NC000	132U4000	032U7141	032U7140		
032U7175	Valve EV220B 50B G 2N NC000	132U5000	032U7151	032U7150		
032U7180	Valve EV220B 15B G 12N NO000	132U1501	032U7118	032U7117		
032U7181	Valve EV220B 20B G 34N NO000	132U2001	032U7123	032U7122		
032U7182	Valve EV220B 25B G 1N NO000	132U2501	032U7128	032U7127		
032U7183	Valve EV220B 32B G 114N NO000	132U3201	032U7135	032U7134		
032U7184	Valve EV220B 40B G 112N NO000	132U4001	032U7143	032U7142		
032U7185	Valve EV220B 50B G 2N NO000	132U5001	032U7153	032U7152		
032U451402	Valve EV220B 15B G 12N NC000 BB024DS	132U1500	032U7116	032U7115	018F7397	042N1256
032U451416	Valve EV220B 15B G 12N NC000 BB024AS	132U1500	032U7116	032U7115	018F7358	042N1256
032U451431	Valve EV220B 15B G 12N NC000 BB230AS	132U1500	032U7116	032U7115	018F7351	042N1256
032U453002	Valve EV220B 20B G 34N NC000 BB024DS	132U2000	032U7121	032U7120	018F7397	042N1256
032U453016	Valve EV220B 20B G 34N NC000 BB024AS	132U2000	032U7121	032U7120	018F7358	042N1256
032U453031	Valve EV220B 20B G 34N NC000 BB230AS	132U2000	032U7121	032U7120	018F7351	042N1256
032U453402	Valve EV220B 25B G 1N NC000 BB024DS	132U2500	032U7126	032U7125	018F7397	042N1256
032U453416	Valve EV220B 25B G 1N NC000 BB024AS	132U2500	032U7126	032U7125	018F7358	042N1256
032U453431	Valve EV220B 25B G 1N NC000 BB230AS	132U2500	032U7126	032U7125	018F7351	042N1256
032U456802	Valve EV220B 32B G 114N NC000 BB024DS	132U3200	032U7133	032U7132	018F7397	042N1256
032U456816	Valve EV220B 32B G 114N NC000 BB024AS	132U3200	032U7133	032U7132	018F7358	042N1256
032U456831	Valve EV220B 32B G 114N NC000 BB230AS	132U3200	032U7133	032U7132	018F7351	042N1256
032U458502	Valve EV220B 40B G 112N NC000 BB024DS	132U4000	032U7141	032U7140	018F7397	042N1256
032U458516	Valve EV220B 40B G 112N NC000 BB024AS	132U4000	032U7141	032U7140	018F7358	042N1256
032U458531	Valve EV220B 40B G 112N NC000 BB230AS	132U4000	032U7141	032U7140	018F7351	042N1256
032U460402	Valve EV220B 50B G 2N NC000 BB024DS	132U5000	032U7151	032U7150	018F7397	042N1256
032U460416	Valve EV220B 50B G 2N NC000 BB024AS	132U5000	032U7151	032U7150	018F7358	042N1256
032U460431	Valve EV220B 50B G 2N NC000 BB230AS	132U5000	032U7151	032U7150	018F7351	042N1256

## MTZ / NTZ Compressors Qualified with R454A/C and R455A

MTZ and NTZ models (see models below) are now approved for use with refrigerants R454A/C and R455A, which can replace R404A and R507 in their applications (please refer to the operating maps below).

Refrigerants R454A/C and R455A are classified in Refrigerant Group 1. For R454A, the GWP = 238, while for R454C and R455A, the stated GWP is below 150 limits. The refrigerants are 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

Compressor models according to the below table:

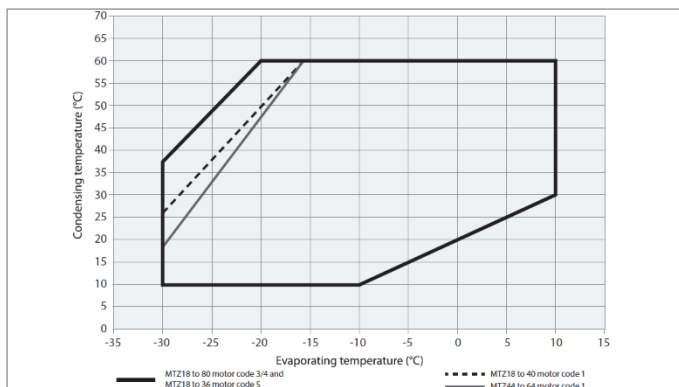
Compressor Model	Motor Code 1	Motor Code 3	Motor Code 4*	Motor Code 5*
	208 -230 V/1~/60Hz	200-230 V/3~/60 Hz	380-400 V/3~/50Hz & 460 V/3~/60Hz	200-230 V/1~/50 Hz
MTZ018	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	R454C, R455A
MTZ022	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	R454C, R455A
MTZ028	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	R454C, R455A
MTZ032	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	R454C, R455A
MTZ036	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	R454C, R455A
MTZ040	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ044	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ050	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ056	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ064	R454A, R454C, R455A	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ072	-	R454A, R454C, R455A	R454A, R454C, R455A	-
MTZ080	-	R454A, R454C, R455A	R454A, R454C, R455A	-
NTZ048	R454C, R455A	R454C, R455A	R454C, R455A	R454C, R455A
NTZ068	R454C, R455A	R454C, R455A	R454C, R455A	R454C, R455A

\* Compressors (voltage code 4 and 5 – one-cylinder models) have been qualified previously.

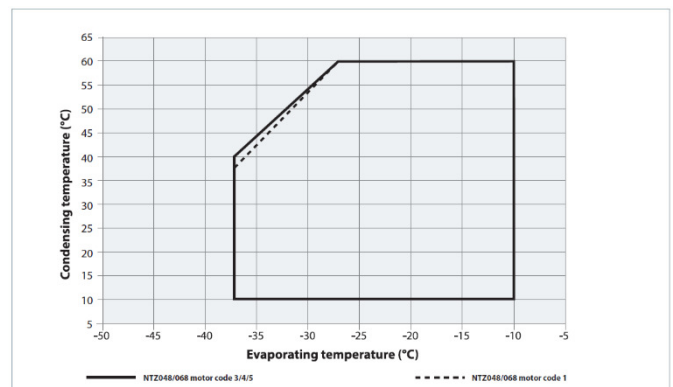
All compressor models listed above, starting from serial number QB1009172687, are qualified with R454A/C and 455A.

### Operating Maps

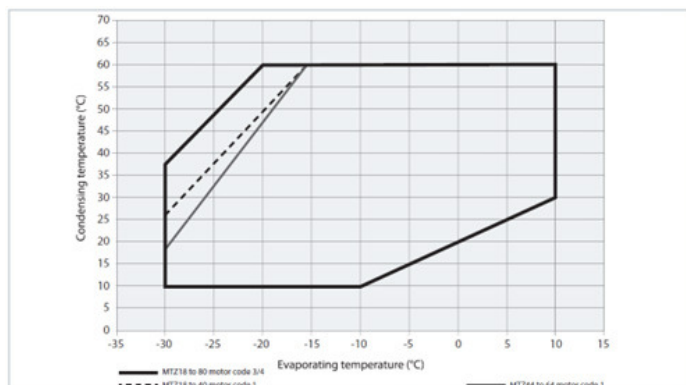
MTZ - R454A at SH10K



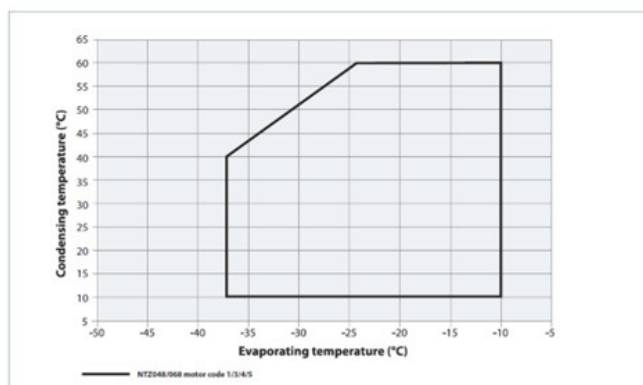
NTZ - R455A at SH10K



MTZ - R454A at SH10K



NTZ - R455A at SH10K



## Recommendations

R454A/C and R455A are the zeotropic refrigerants and have a temperature glide of about 6 to 12K and, therefore, must be charged in the liquid phase.

Even if MTZ and NTZ compressors are loaded with 175PZ, R454A/C and R455A can highly dilute the oil. To prevent any lack of lubrication, 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. However, 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.

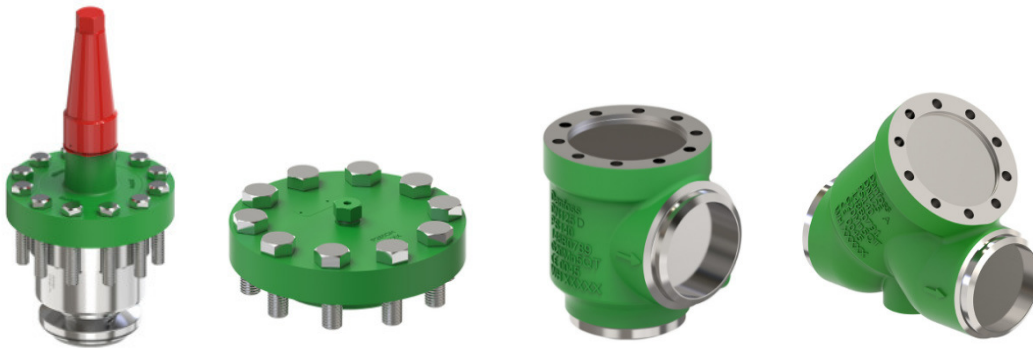
For details, please refer to the following application guidelines:

[Maneurop® reciprocating compressors MT/MTZ](#)

[Maneurop® reciprocating compressors NTZ](#)

Code numbers for ordering and technical references printed on the compressor nameplates are unchanged. Compressor nameplates for Refrigerant Group 1 will be adopted accordingly, as informed in “Compressor nameplate: Group 1 and 2, PED MTZ/NTZ One Cylinder Models”. Compressors are also marked with a flammable refrigerant logo.

## SVL-140B Parts Program DN 50 - 150 for Industrial CO<sub>2</sub> Applications



SVL-140 bar portfolio is now available as a parts program and the range for the Stop Valves (SVA) and Filter (FIA) have been extended to DN 125 and DN 150, to meet the increasing demand for flexible installations of large solutions for CO<sub>2</sub> applications. The existing complete valves of SVA/FIA-140B DN 50-100 will be phased out.

A phasing out of the existing complete valves of SVA/FIA-140B DN 50-100 from the beginning of April 2024 as they are replaced with a parts program.

Meaning, you need to order housing and top complete separately. This update includes new inspections and repairs kit which have glyde ring and puller strap to allow service of the piston.

The extension of the size DN 125 and DN 150 require a high operating and closing torque and to accommodate this a tool (handwheel) is included in the Top complete for DN 125 and DN 150 and offered as a spare part.

The entire SVA/FIA-140B DN 50-150 will be UL certified, will have the UL marking on the labels.

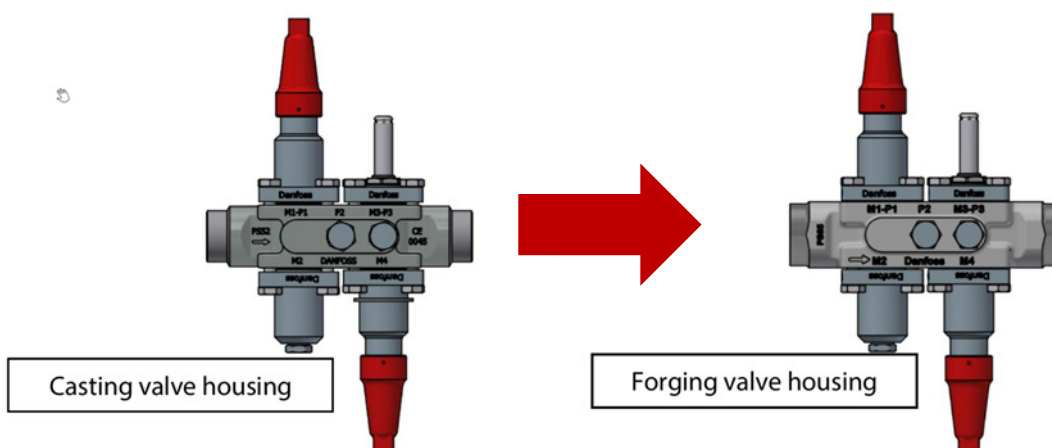
### Learn more and contact us

To learn more about how the new SVA-140B Stop Valve can help you save time and money on valve replacements, please contact your local Danfoss representative and access.

Learn more on our website: [SVA/FIA-140B | Danfoss](#)

## ICF 20-4/6 and ICF 25-4/6 Valve Stations Housings Manufacturing Process Change

The ICF 20-4/6 and ICF 25-4/6 valve station housings will undergo a manufacturing process change from casting to forging and be upgraded for 65 bar PS (MWP).



This change has no impact on the functionality or external dimension of the product. The only specification/characteristic that is changed, is the MWP that is upgraded to 65 bar; all other specs remain exactly the same.

Due to the process change, the shape and appearance of the housings have visual differences, which do not affect the external dimensions. The fitting of the valves is not affected since the external dimensions remain the same.

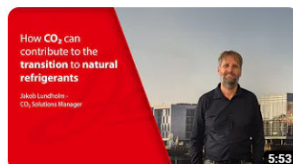
We estimate that the last ICF code numbers will be changed into forged material in CW40 2025 depending on the order received and the consumption of casting housings we have in-house.

During the transition period, our warehouse may mix products from the old and new manufacturing processes. If you are interested in ordering the ICF 20-4/6 and ICF 25-4/6 coming from new process, please contact your local sales representative.

For more information, please visit [Danfoss Product Store](#) or contact your local Danfoss sales representative.

## Videos and Infograms

- ICAD B actuator: a step-by-step guide on mechanical installation - [LINK](#)
- ICAD B actuator: a step-by-step guide on electrical installation - [LINK](#)
- Embracing CO<sub>2</sub> in industrial refrigeration: the transition to natural refrigerants - [LINK](#)
- CO<sub>2</sub> transcritical vs ammonia: unveiling efficiency in industrial refrigeration - [LINK](#)
- Building industrial CO<sub>2</sub> transcritical systems: key considerations - [LINK](#)
- Micro Channel low carbon heat exchanger platform, short introduction - [LINK](#)





## Details for Additional Information

### UK/IE

[Cooling United Support Hub](#)

[Support Made Easy](#)

[customerservice.uk@danfoss.com](mailto:customerservice.uk@danfoss.com)

[customerservice.ie@danfoss.com](mailto:customerservice.ie@danfoss.com)

Customer Service UK & IE tel: 0330 808 6888

### Denmark

[Cooling United Support Hub](#)

[Support Made Easy](#)

[kundeservice.dk@danfoss.com](mailto:kundeservice.dk@danfoss.com)

Kundeservice tel: 69 91 80 80

### Norway

[Cooling United Support Hub](#)

[Support Made Easy](#)

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### Sweden

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