

ENGINEERING  
TOMORROW

*Danfoss*

June/July 2020

Cooling and Industrial Automation

# Danfoss Tech Insider



## LLS 4000 / LLS 4000U - Liquid Level Switch

### New electronic Liquid Level Switches

We are pleased to announce the release of the Danfoss LLS 4000/4000U Liquid Level switch program. The new LLS 4000/4000U is specifically designed to industrial refrigeration application but can also be used in both Food retail and Commercial refrigeration applications.

### Easy installation & commissioning

Using new reflectometry-based technology to detect liquid in refrigeration applications, we offer a compact, reliable and robust product. Furthermore, installation is fast with only connection point. The LLS 4000/4000U has a built-in Bluetooth® connection which, via a Danfoss App, gives user flexibility to easy configure the product, during commissioning.

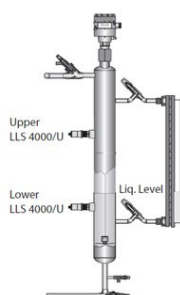


### Next level reliability with SIL2 design

LLS 4000/4000U portfolio also include variants that carry a SIL2 approval, which can be used in applications, where high level safety is required. The SIL2 design includes hardware redundancy on processor and relay and the software calculates every signal twice using the 2 out of 2 voting principle for extra precision.

Furthermore, the Auto diagnostics function monitors continuously that the hardware and temperature range is in a healthy condition. As a result, with a SIL2 designed product, the probability of possible failures is kept at a minimum.

### Design flexibility



LLS 4000/4000U liquid level switches can be used to control the liquid level of many different refrigerants in vessels, accumulators, receivers, standpipes, etc.

The LLS 4000/4000U is designed to be used for reliable detection of e.g. low or high liquid level.

The product is available in two types; LLS 4000 with G 3/4" thread and LLS 4000U with NPT 3/4" thread. Both available with a SIL2 approval and in a non-SIL2 variant

### Product sales code numbers

Sales code	Description
084H6001	LLS 4000 liquid level switch (excl. welding connector & M12 cable) G 3/4"
084H6002	LLS 4000 SIL2 liquid level switch (excl. welding connector & M12 cable) G 3/4"
084H6003	LLS 4000U liquid level switch (excl. welding connector & M12 cable) NPT 3/4"
084H6004	LLS 4000U SIL2 liquid level switch (excl. welding connector & M12 cable) NPT 3/4"

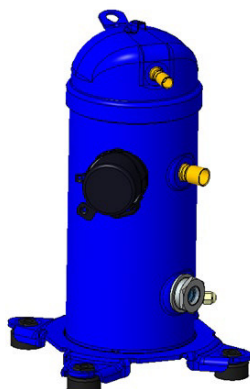
Learn more here: [liquidlevelswitch.danfoss.com](https://liquidlevelswitch.danfoss.com)

## New version of VZH028-035-044 scroll compressor with Oil Level Sensor

In order to provide more options for customer requirements, Danfoss will release extra codes of VZH028-035-044 scroll compressors with oil level sensor version. From now on the VZH028 will be available in version OLS in single pack and VZH028-044 will all be available in industrial pack. Form and fit will stay the same, extended envelop for B version.

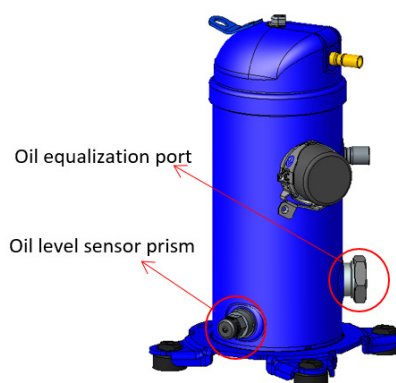
### VZH028-035-044 OSG version

(with oil sight glass)



### VZH028-035-044 OLS version

(with oil level sensor and oil equalization port, without oil sight glass)



Below is the latest sales code list of VZH028-035-044 series which was released in June 2020.

### Compressor single pack - Version A – Codes that will expire

Compressor model	Equipment version	G 380-480V/3ph/50&60Hz		J 200-240V/3ph/50&60Hz		H 525-600V/3ph/50&60Hz	
		Compressor Name	Code No	Compressor Name	Code No	Compressor Name	Code No
VZH028	OSG	VZH028CGANA	120G0061	VZH028CJANA	120G0064	VZH028CHANA	120G0123
VZH035	OSG	VZH035CGANA	120G0060	VZH035CJANA	120G0063	VZH035CHANA	120G0124
	OLS	VZH035CGBNA	120G0073	VZH035CJBNA	120G0076	-	-
VZH044	OSG	VZH044CGANA	120G0059	VZH044CJANA	120G0062	VZH044CHANA	120G0125
	OLS	VZH044CGBNA	120G0072	VZH044CJBNA	120G0075	-	-

### Compressor industrial pack – Version A – Codes that will expire

Compressor model	Equipment version	G 380-480V/3ph/50&60Hz		J 200-240V/3ph/50&60Hz		H 575-600V/3ph/50&60Hz	
		Compressor Name	Code No	Compressor Name	Code No	Compressor Name	Code No
VZH028	OSG	VZH028CGANA/I	120G0138	VZH028CJANA/I	120G0135	VZH028CHANA/I	120G0129
VZH035	OSG	VZH035CGANA/I	120G0139	VZH035CJANA/I	120G0136	VZH035CHANA/I	120G0130
VZH044	OSG	VZH044CGANA/I	120G0140	VZH044CJANA/I	120G0137	VZH044CHANA/I	120G0131



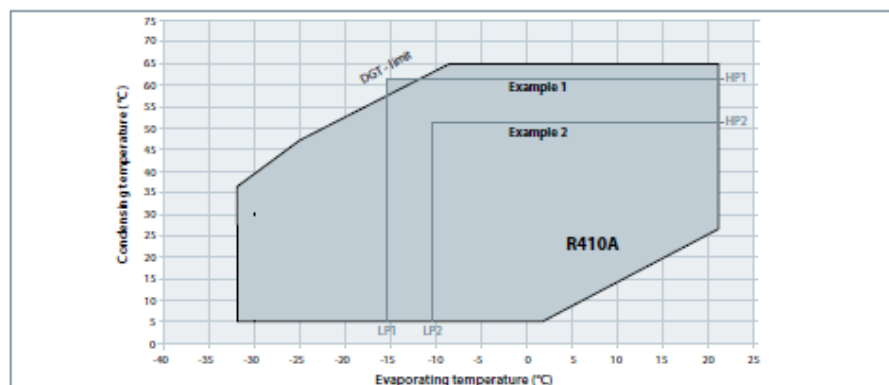
## Compressor single pack - Version B – New codes

Compressor model	Equipment version	G 380-480V/3ph/50&60Hz		J 200-240V/3ph/50&60Hz		H 525-600V/3ph/50&60Hz	
		Compressor name	Code n°	Compressor name	Code n°	Compressor name	Code n°
VZH028	OSG	VZH028CGANB	120G0188	VZH028CJANB	120G0186	VZH028CHANB	120G0187
	OLS	VZH028CGBNB	120G0263	VZH028CJBNB	120G0264	VZH028CHBNB	120G0301
VZH035	OSG	VZH035CGANB	120G0185	VZH035CJANB	120G0183	VZH035CHANB	120G0184
	OLS	VZH035CGBNB	120G0247	VZH035CJBNB	120G0246	VZH035CHBNB	120G0302
VZH044	OSG	VZH044CGANB	120G0182	VZH044CJANB	120G0180	VZH044CHANB	120G0181
	OLS	VZH044CGBNB	120G0245	VZH044CJBNB	120G0244	VZH044CHBNB	120G0243

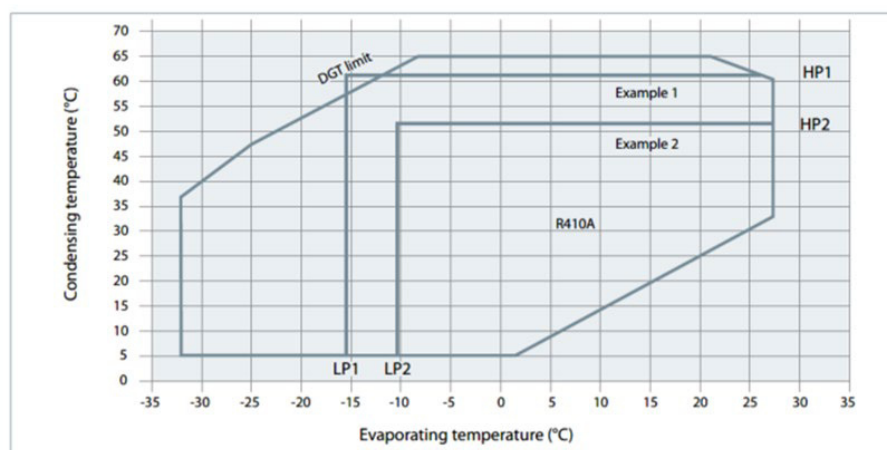
## Compressor industrial pack – Version B – New codes

Compressor model	Equipment version	G 380-480V/3ph/50&60Hz		J 200-240V/3ph/50&60Hz		H 525-600V/3ph/50&60Hz	
		Compressor name	Code n°	Compressor name	Code n°	Compressor name	Code n°
VZH028	OSG	VZH028CGANB/I	120G0179	VZH028CJANB/I	120G0259	VZH028CHANB/I	120G0178
	OLS	VZH028CGBNB/I	120G0303	VZH028CJBNB/I	120G0304	-	-
VZH035	OSG	VZH035CGANB/I	120G0258	VZH035CJANB/I	120G0256	VZH035CHANB/I	120G0257
	OLS	VZH035CGBNB/I	120G0252	VZH035CJBNB/I	120G0251	-	-
VZH044	OSG	VZH044CGANB/I	120G0255	VZH044CJANB/I	120G0253	VZH044CHANB/I	120G0254
	OLS	VZH044CGBNB/I	120G0250	VZH044CJBNB/I	120G0249	-	-

## Version A - Max Evap 22°C



## Version B - Max Evap 27°C



## Update of Compressor Nameplate with PED Category II information and refrigerant Group 1

The MTZ/NTZ One Cylinder compressor Models nameplate has been updated with PED Category II information and new refrigerant group – Group1.

As per preparation for the Refrigerant Group1, which will be available in future, compressor nameplate is adopted to the format containing all required by PED Category II technical information.

The complete list of compatible refrigerants is available in Danfoss' technical literature: e.g., instructions, guidelines, datasheets, etc. Download at: <https://www.danfoss.com/en/about-danfoss/our-businesses/cooling/commercial-compressors/documentation/> and Coolselector2 Danfoss Selection Software

### Affected products

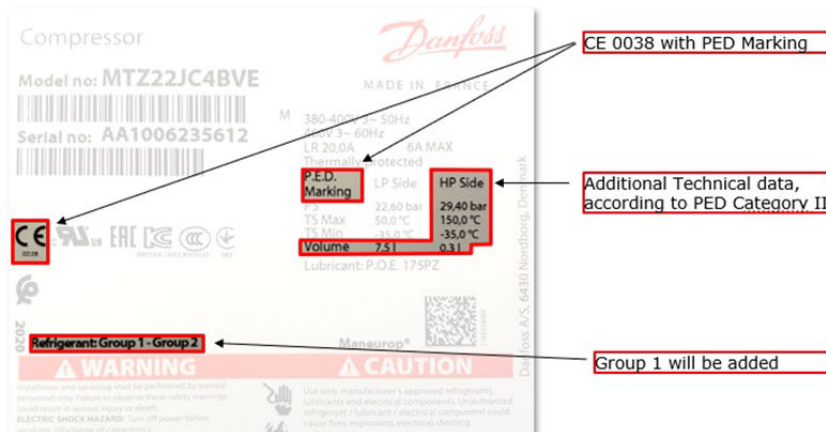
Compressors: MTZ18, MTZ22, MTZ28, MTZ32, MTZ36, MTZ40, NTZ048, NTZ068

Compressors: Voltage code 4 and 5 when released May 2020.

All compressor models listed above starting from serial number: **LE1008426494** will be equipped with new nameplate.

Code numbers printed on the compressor nameplate will remain unchanged. Technical references will be extended, and the refrigerant reference will be added (see image below).

### Changes on the New Nameplate



## Optyma™ Light Commercial Condensing Unit Phaseout

Danfoss has manufactured light commercial condensing units for refrigeration applications for many years. However, changing market trends prompted a careful portfolio review. As a result of this review, a decision has been made to phase out selected **Optyma™ Light Commercial Condensing Unit** product codes in May 2020.

### Affected products

CU Code	CU Description	Compressor Model
114N0002	OP-MCGB0020R60000B NF6.1FX2	NF6.1FX2
114N0009	OP-MCGB0075R60000B NJ6220Z	NJ6220Z
114N0036	OP-MCGB0025RC0009B NF7.3FX	NF7.3FX2
114N0037	OP-MCGB0033RC0010B NF11FX	NF11FX
114N0059	OP-MCGB0045RDF600B SC15G	SC15G
114N0416	OP-LCHB0040RDFSR600B SC10CL	SC10CL
114N0420	OP-LCHB0050RDR600B SC12CLX.2	C12CLX.2
114N0424	OP-LCHB0033MF0000G NF7MLX	NF7MLX
114N0436	OP-LCHB0060RC0013B SC15CLX.2	C15CLX.2
114N0441	OP-LCHB0040RC0083G SC10CLX	SC10CLX
114N0442	OP-LCHB0025RC0084G FR6CL	FR6CL
114N0819	OP-MCHA0040RC0019B SC10CL	SC10CL
114N0826	OP-MCGB0020RC0100B NF6.1FX2	NF6.1FX2
114N0827	OP-LCHB0033RC0101B NF7CL	NF7CL
114N0828	OP-HCHC0075UC0102N NT6222GKV	NT6222GKV
114N0829	OP-HCHC0100UCF103N NT6222GKV	NT6222GKV
114N1216	OP-MCGA0020RF6000B NF6.1FX2	NF6.1FX2
114N1223	OP-MCGA0020RC0105B NF6.1FX2	NF6.1FX2
114N1416	OP-LCHC0033RC0001B NF7CLX	NF7CLX
114N1417	OP-LCHC0033RC0001B NF7CLX	NF7CLX
114N1421	OP-UCGC0017RC0121B TL4G	TL4G
114N1671	OP-LCHC0050RC0082G SC12CL	SC12CL
114N1672	OP-LCHC0050RC0087N SC12CLX.2	SC12CLX.2
114N1673	OP-LCHC0060RC0088G SC15CLX.2	SC15CLX.2
114N1674	OP-LCHC0075RC0089G SC18CLX.2	SC18CLX.2
114N2016	OP-UCGC0017RWA000B TL4G	TL4G
114N2020	OP-HCGC0033RWA000B NF11FX	NF11FX
114N2026	OP-HCGC0055RWB000B NT6215Z	NT6215Z
114N2054	OP-HCGC0050RC0022B SC18G	SC18G
114N2069	OP-HCGC0025M60000N NF10FX	NF10FX
114N2329	OP-HCHC0060UWC000N SC12MLX	SC12MLX
114N2336	OP-LCHC0060UWC000N SC15CL	SC15CL
114N2364	OP-HCHC0100RC0050N NJ9232GK	NJ9232GK
114N2385	OP-HCGC0050RC0071N SC18G	SC18G
114N2390	OP-UHC0033RC0200B NF7CLX	NF7CLX
114N2391	OP-UHC0050RC0201B SC10CL	SC10CL
114N2392	OP-UHC0050RC0202N SC10CL	SC10CL
114N2393	OP-HCHC0060RC0203B SC12MLX	SC12MLX
114N2394	OP-HCHC0060RC0204N SC12MLX	SC12MLX
114N2395	OP-HCHC0075RC0205N NT6220GK	NT6220GK
114N2396	OP-HCHC0100RC0206N NT6222GKV	NT6222GKV

## KoolProg Ver 4.2: Maintenance Release Update



We are pleased to release an update of KoolProg Software (Ver. 4.2).

We have completed several improvements, enhancements and bug fixes to give you better and smoother experience working with KoolProg tool and our AKCC55, EKE 1A/B/C/D, ETC 1H and ERC range of controllers.

The new version of KoolProg is now available for download at:

<http://refrigerationandairconditioning.danfoss.com/support-center/apps-and-software/koolprog/#/>

We hope that you will like the experience of working with this new version of KoolProg. For any queries, please reach out to your Danfoss Sales Contact.

## EAC mark on all Optyma™ condensing unit



We have implemented a new compliance on our full range of Optyma™ bare and package condensing units. This new EAC Logo will be visible on all condensing unit label as well on:

- Spare parts
- Packaging

No modification has been done on the product and the Condensing Unit performance will be similar, the products remain unchanged in terms of code numbers, descriptions, designations, equipment, and features. Only the labels have been updated with this new certification letter.

Implementation will be for:

- Optyma bare condensing unit - Date: April 2020 - Serial number: 102008000089
- Optyma package condensing unit: implemented earlier

## Availability of R452A for Optyma™ bare light commercial condensing unit range and phase-out of CU codes with TL4CL/TL4DL and GS compressor models

The Optyma™ bare light commercial catalog model (114X Series) condensing unit range is currently qualified for R404A/R507 refrigerants and can be used now for refrigerant R452A.

The performance of condensing units with R452A is similar to R404A for your calculation and meet the Eco-Design requirements with mid-point as per Regulation EU/2015/1095 and Directive 2009/125/EC. Updated data will be given in Coolselector2 by the end of Q2 2020 and inside the product catalogue by Q4 2020. For the newest version of the catalogue go to [Store.danfoss.com](https://store.danfoss.com) and search for the condensing unit in interest or click [here](#).

For current standard models, the LBP and MBP range with refrigerant letter “H” will be changed to refrigerant letter “Q” with existing code numbers, remaining model on stock can be charge with this new refrigerant. Designation cross-references can be found below.

Code number	Old designation	Previous listed refrigerant	New designation	New listed refrigerant
114X1216	OP-LCHC006FRA00G	R404A/R507	OP-LCQC006FRA00G	R404A/R507, R452A
114X1328	OP-LCHC007NLA00G	R404A/R507	OP-LCQC007NLA00G	R404A/R507, R452A
114X1324	OP-LCHC008FRA00G	R404A/R507	OP-LCQC008FRA00G	R404A/R507, R452A
114X1304	OP-LCHC008NLA00G	R404A/R507	OP-LCQC008NLA00G	R404A/R507, R452A
114X1440	OP-LCHC012SCA00G	R404A/R507	OP-LCQC012SCA00G	R404A/R507, R452A
114X1444	OP-LCHC012SCA00G	R404A/R507	OP-LCQC012SCA00G	R404A/R507, R452A
114X1548	OP-LCHC015SCA00G	R404A/R507	OP-LCQC015SCA00G	R404A/R507, R452A
114X1556	OP-LCHC018SCA00G	R404A/R507	OP-LCQC018SCA00G	R404A/R507, R452A
114X1600	OP-LCHC021SCA00G	R404A/R507	OP-LCQC021SCA00G	R404A/R507, R452A
114X1217	OP-LCHC006FRA01G	R404A/R507	OP-LCQC006FRA01G	R404A/R507, R452A
114X1329	OP-LCHC007NLA01G	R404A/R507	OP-LCQC007NLA01G	R404A/R507, R452A
114X1325	OP-LCHC008FRA01G	R404A/R507	OP-LCQC008FRA01G	R404A/R507, R452A
114X1301	OP-LCHC008NLA01G	R404A/R507	OP-LCQC008NLA01G	R404A/R507, R452A
114X1441	OP-LCHC012SCA01G	R404A/R507	OP-LCQC012SCA01G	R404A/R507, R452A
114X1549	OP-LCHC015SCA01G	R404A/R507	OP-LCQC015SCA01G	R404A/R507, R452A
114X1557	OP-LCHC018SCA01G	R404A/R507	OP-LCQC018SCA01G	R404A/R507, R452A
114X1601	OP-LCHC021SCA01G	R404A/R507	OP-LCQC021SCA01G	R404A/R507, R452A
114X1219	OP-LCHC006FRA04G	R404A/R507	OP-LCQC006FRA04G	R404A/R507, R452A
114X1331	OP-LCHC007NLA04G	R404A/R507	OP-LCQC007NLA04G	R404A/R507, R452A
114X1327	OP-LCHC008FRA04G	R404A/R507	OP-LCQC008FRA04G	R404A/R507, R452A
114X1302	OP-LCHC008NLA04G	R404A/R507	OP-LCQC008NLA04G	R404A/R507, R452A
114X1443	OP-LCHC012SCA04G	R404A/R507	OP-LCQC012SCA04G	R404A/R507, R452A
114X1551	OP-LCHC015SCA04G	R404A/R507	OP-LCQC015SCA04G	R404A/R507, R452A
114X1559	OP-LCHC018SCA04G	R404A/R507	OP-LCQC018SCA04G	R404A/R507, R452A
114X1602	OP-LCHC021SCA04G	R404A/R507	OP-LCQC021SCA04G	R404A/R507, R452A
114X2316	OP-MCHC006FRA00G	R404A/R507	OP-MCQC006FRA00G	R404A/R507, R452A
114X2424	OP-MCHB007NFA00G	R404A/R507	OP-MCQB007NFA00G	R404A/R507, R452A
114X0403	OP-MCHC010SCA00G	R404A/R507	OP-MCQC010SCA00G	R404A/R507, R452A
114X0406	OP-MCHC013SCA00G	R404A/R507	OP-MCQC013SCA00G	R404A/R507, R452A
114X2317	OP-MCHC006FRA01G	R404A/R507	OP-MCQC006FRA01G	R404A/R507, R452A



Code number	Old designation	Previous listed refrigerant	New designation	New listed refrigerant
114X2425	OP-MCHB007NFA01G	R404A/R507	OP-MCQB007NFA01G	R404A/R507, R452A
114X0404	OP-MCHC010SCA01G	R404A/R507	OP-MCQC010SCA01G	R404A/R507, R452A
114X0407	OP-MCHC013SCA01G	R404A/R507	OP-MCQC013SCA01G	R404A/R507, R452A
114X2649	OP-MCHC015SCA01G	R404A/R507	OP-MCQC015SCA01G	R404A/R507, R452A
114X0702	OP-MCHC018SCA01G	R404A/R507	OP-MCQC018SCA01G	R404A/R507, R452A
114X2319	OP-MCHC006FRA04G	R404A/R507	OP-MCQC006FRA04G	R404A/R507, R452A
114X2427	OP-MCHB007NFA04G	R404A/R507	OP-MCQB007NFA04G	R404A/R507, R452A
114X0405	OP-MCHC010SCA04G	R404A/R507	OP-MCQC010SCA04G	R404A/R507, R452A
114X0408	OP-MCHC013SCA04G	R404A/R507	OP-MCQC013SCA04G	R404A/R507, R452A
114X2651	OP-MCHC015SCA04G	R404A/R507	OP-MCQC015SCA04G	R404A/R507, R452A
114X0703	OP-MCHC018SCA04G	R404A/R507	OP-MCQC018SCA04G	R404A/R507, R452A

## Phase out

The following condensing unit codes with compressor model TL4CL, TL4DL, GS21MLX, GS26CLX, and GS34CL will be phased out. We have initiated phase-out until stock is empty.

Code number	Description	Model Type	Application	Compressor Model
114X1673	OP-LCHC026GSA01G	Catalog	LBP	GS26CLX
114X1208	OP-LCHC004TLA00G	Catalog	LBP	TL4CL
114X1209	OP-LCHC004TLA01G	Catalog	LBP	TL4CL
114X1211	OP-LCHC004TLA04G	Catalog	LBP	TL4CL
114X1781	OP-LCHC034GSA01G	Catalog	LBP	GS34CL
114X1783	OP-LCHC034GSA04G	Catalog	LBP	GS34CL
114H1506	TL4CLXN0 COND.UNIT	Non-Catalog	LBP	TL4CL
114E2471	TL4CLXN0 COND. UNIT	Non-Catalog	LBP	TL4CL
114X0301	OP-MCHC004TLA00G	Catalog	MBP	TL4DL
114X2765	OP-MCHC021GSA01G	Catalog	MBP	GS21MLX
114X0302	OP-MCHC004TLA01G	Catalog	MBP	TL4DL
114X0303	OP-MCHC004TLA04G	Catalog	MBP	TL4DL
114X2767	OP-MCHC021GSA04G	Catalog	MBP	GS21MLX

Spare parts will be still provided for compressor maintenance for the next years.

Products remain unchanged in terms of code numbers, equipment, and features. Please contact your local Danfoss contact for more information about the impact for each product.

## Solenoid valves EV220BW for drinking water in NC and NO version meet strict legislative requirements

Danfoss solenoid valves meet or exceed many European regulations and standards including the British WRAS, the Swedish RISE, the Norwegian SINTEF, the France ACS and the Polish PZH for drinking water.

Unique for these valves is the ECO brass housing, which gives the valves the edge when it comes to keeping water as pure as possible.

### Features:

- Long product life
- Clip-on coil for easy installation and use
- Safe EPDM sealing protects against bacterial and other hazardous contamination

To find the right solution for your application see our Selection Guide in [English](#), [Danish](#), [Swedish](#), and [Finnish](#).



### Part numbers for the most common versions

Gasket EPDM, Media temp 0 – 90°C, Differential pressure 0,3 – 10 bar

Connection	Normally Closed	Normally Open	Part no
G1/2	X		132U1500
G1/2		X	132U1501
G3/4	X		132U2000
G3/4		X	132U2001
G1	X		132U2500
G1		X	132U2501

All valves are used together with our standard coils type BB and BE

## DST P40I titanium pressure transmitter for harsh environments

Danfoss Sensor Technology (DST) P40I [Pressure Transmitter](#) has been designed for use in corrosive industrial environments such as [Desalination Systems](#), sea water cooling, wastewater, etc.

### Features and benefits:

- High corrosion resistance designed for use in harsh environments.
- Transmitter housing made of Titanium Grade 2, which is exceptionally resistant to a wide range of acids, alkalis, Sodium Chloride, and polluted water.
- Ceramic sensing element made of Al<sub>2</sub>O<sub>3</sub> 96 %
- Pressure range 0-100 bar (standard)

You can find more information and part numbers for easy ordering in this [Link](#)



## Upcoming global and regional online webinars

Are you interested in learning more about our new products, solutions and portfolio? Join our live webinars planned for the coming months and ask your questions to our experts:

### News in industrial refrigeration portfolio: IPS 8, LLS 4000 & SFA 10

Wednesday 8 July at 13.00 BST / 14.00 CEST - **English**

Register here: <https://register.gotowebinar.com/register/6955328445400888847>

### Coolselector®2 - Industrial Refrigeration Deep Dive

Thursday 9 July at 13.00 BST / 14.00 CEST - **English**

Register here: <https://register.gotowebinar.com/register/560431379910534671>

### Danfoss Optyma™ controllers – solutions for cold rooms

Thursday 27 August at 11.00 CEST – **Swedish** Danish Norwegian

Register here: <https://register.gotowebinar.com/register/7383341933806598411>

Thursday 27 August at 13.00 BST / 14.00 CEST - **English**

Register here: <https://register.gotowebinar.com/register/4207696167418945551>

### Cooling United Live 2020 – Join our online experience of the year and hear from industry experts

Wed-Thursday 7-8 October starting at 8:00 CEST - **English**

[Pre-register here to receive early access to all event information, including agenda, speakers and more](#)

## Contact details for additional information

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