



# Solenoid coil

BI

## Description

BI is a solenoid coil with ATEX / IECEx approval, applicable for zone 1 Ex environments. The coils are designed to be used with Danfoss solenoid valves.

## Features & benefits

- Embedded coils with long lifetime, even under extreme conditions
- High reliability and long lifetime
- Easy mounting and dismounting
- Coils comes in two versions: Bottom and Frame version
- The product supports multiple voltage and frequency options, including 240 V 50/60 Hz, 230 V 50/60 Hz, 110 V 50/60 Hz, 24 V 50/60 Hz, and 24 V DC.

## Ordering

### Product code numbers

**Table: Ordering table for fluid controls valves**

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD	Cable length	Code no.
			[V]	[Hz]	[bar]	[m]	
EV220B/BW 15-50, EV220B 65-100, EV222B 15-50, EV250B/BW	BI240C	With Bottom	240	50/60	10	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NC 1.5, 2.0, EV224B 15-25	BI240C	With Bottom	240	50/60	30	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NC 3.0	BI240C	With Bottom	240	50/60	20	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NC 4.5	BI240C	With Bottom	240	50/60	10	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NC 6	BI240C	With Bottom	240	50/60	4	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B NC 8	BI240C	With Bottom	240	50/60	2	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B NC 10	BI240C	With Bottom	240	50/60	1.2	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589



EV210B NC 15	BI240C	With Bottom	240	50/60	0.3	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B NC 20	BI240C	With Bottom	240	50/60	0.28	5	018Z8585
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B NC 25	BI240C	With Bottom	240	50/60	0.25	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NO 1.5	BI240C	With Bottom	240	50/60	30	5	018Z8585
	BI230C		230	50/60			018Z8586
	B110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NO 2	BI240C	With Bottom	240	50/60	12	5	018Z8585
	BI230C		230	50/60			018Z8586
	B110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NO 3	BI240C	With Bottom	240	50/60	5	5	018Z8585
	BI230C		230	50/60			018Z8586
	B110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV210B/BW NO 4.5	BI240C	With Bottom	240	50/60	2	5	018Z8585
	BI230C		230	50/60			018Z8586
	B110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589
EV220B, EV221BW, EV251B	BI240C	With Frame	240	50/60	10	5	018Z8591
	BI230C		230	50/60			018Z8592
	B110C		110	50/60			018Z8593
	BI024C		24	50/60			018Z8595
	BI024D		24	DC			018Z8596
EV227B	BI240C	With Frame	240	50/60	5	5	018Z8591
	BI230C		230	50/60			018Z8592
	B110C		110	50/60			018Z8593
	BI024C		24	50/60			018Z8595
	BI024D		24	DC			018Z8596



**Table: Ordering table for refrigeration valves**

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD	Cable length	Code no.
			[V]	[Hz]	[bar]	[m]	
EVRS/T 10-20, EVRA/ EVRAT 10-15-20, VDHT 120	BI240C	With Frame	240	50/60	17	5	018Z8591
	BI230C		230	50/60			018Z8592
	BI110C		110	50/60			018Z8593
	BI024C		24	50/60			018Z8595
	BI024D		24	DC			018Z8596
AKV, AKVA, EVM, EVRP, EVR, EVRS(T)3, EVRA/EVRAT3, EVRA 25-32-40, ICF 25-50-65	BI240C	With Bottom	240	50/60	17	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589

**Table: Ordering table for HPP (High Pressure Pumps)**

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD	Cable length	Code no.
			[V]	[Hz]	[bar]	[m]	
VDH, VDHT, VDHT EAM, VPH, VRF	BI240C	With Bottom	240	50/60		5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		110	50/60			018Z8587
	BI024C		24	50/60			018Z8588
	BI024D		24	DC			018Z8589

## Product details

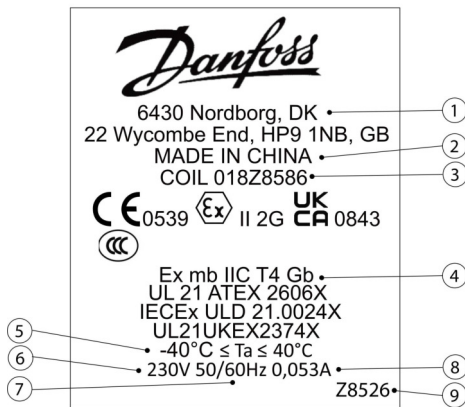
### General data

**Table: Technical data**

Features	Description	
Mode of operation	Type 1 action (EN60730-1)	
Protection against electrical shock	Class I (EN60730-1)	
Humidity	0 – 97% RH	
Enclosure	IP54 (EX certification) IP67 (Evaluated by Danfoss)	
Pollution degree	3 ((BS) IEC/EN 60730-1 Annex N)	
Max. altitude above sea level	2000 m	
Permissible voltage variation	240V 50/60Hz: -10%, +6% 230V 50/60Hz: -10%, +6% 110V 50/60Hz: -10%, +6% 24V 50/60Hz: -10%, +6% 24V DC: -10%, +6%	
Rated impulse voltage	4 kV	
Over voltage category	III (EN60730-1)	
Nominal current		Power consumption holding [W]
	240 V AC 50/60 Hz	10.7
	230 V AC 50/60 Hz	12.5
	110 V AC 50/60 Hz	10.0
	24 V AC 50/60 Hz	10.3
	24 V DC	12.0
Duty rating	Continuous	
Ambient temperature	-40 – 40 °C	
Media temperature	-40 – 90 °C	
Insulation of coil windings	UL, class 200	
Connection	Terminal box with cable	
Cable specification	PVC 60227 IEC53 - 3x0.75mm <sup>2</sup> - Ø 6.6	
External earth core	Minimum area > 4 mm <sup>2</sup>	

## Coil identification

Figure: Coil identification



1	Point of contact
2	Country of origin
3	Code number
4	Approval/certificate numbers
5	Ambient temperature
6	Supply voltage
7	Frequency
8	Current
9	Raw coil number (Z8526=018Z8526)

## Classification EN 60079

Table: Classification EN 60079

Features	Description
Media	Gas, vapors and mists
Explosion proof area	Zone 1
Equipment group	II
Equipment category	2G
Equipment Protection Level (EPL)	Gb
Gas group	IIC
Temperature class	T4
Type of protection	mb
Exposed to SUN/UV light	No
Impact height	Max 0.4 m

**NOTE:**

Must be protected against ultraviolet sources.

Moist-Clean only. The cable must be protected according to IEC/EN EN BS 60079-14.

- Use only for system in compliance with ATEX. Ignition risk is evaluated in accordance to ATEX.
- Coil type BI can be applied on systems with R290, R600, R600a and R1270 as the working fluid.
- For countries where safety standards are not an indispensable part of the safety system Danfoss recommend the installer to get a third-party approval of the system containing flammable refrigerant.
- Please follow specific selection criteria stated in the datasheet for these particular refrigerants.

## Dimensions

Figure: Bottom version

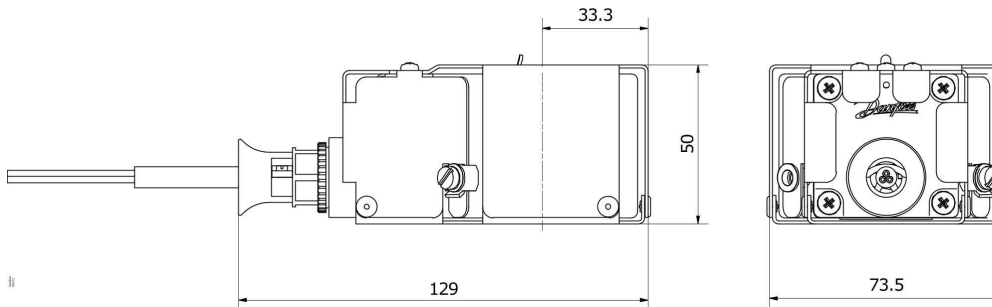
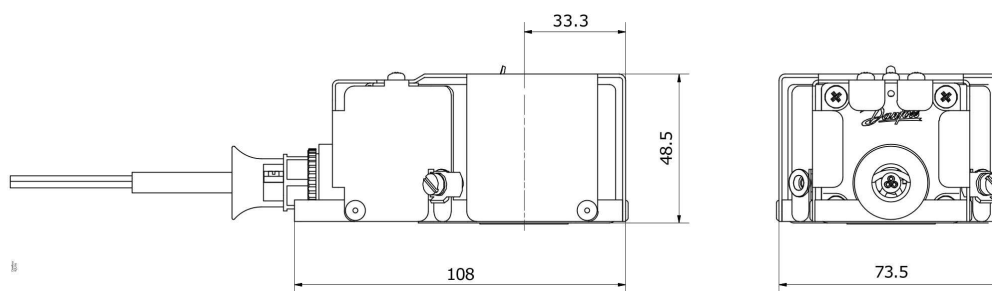


Figure: Frame version



## Installation

### Installation, operation and maintenance

- Protect the coil against external impact.
- Protect the coil against direct sunlight and other ultraviolet sources.
- Disconnect the power before dismantling the coil.
- Install the coil and cable according to EN60079-14.
- The cable supplied with the solenoids must not be handled or flexed, and shall be protected against impact if the ambient temperature is below 0 °C.
- Installation and handling of the cable shall be done at temperature above 0 °C.
- The cable is only for fixed installation and the minimum bending diameter for fixed installation:  $r \geq 35$  mm
- The cable jacket material is PVC.
- The cable operating temperature range is -40 – 90 °C.
- The product is provided with a yellow / green PE wire as well as an external earth terminal. These shall not be used simultaneously. If the external earth connection is connected to earth or bonding system, the Y / G earth wire must be cut off, isolated and not connected. If the Y / G wire is connected to earth, the external earth terminal must be left without any connection. For the external earth terminal, the size of the earth core shall be minimum 4 mm<sup>2</sup> and the installer shall use a suitable method e.g. crimp terminal to ensure secureness of the external earth connection. The screw for external PE shall be mounted with 1.2 Nm  $\pm$ 0.2. The external earth conductors shall be physically secured close to the coil connection to ensure that the conductors cannot be readily loosened or twisted.
- The end user must ensure the earthing of the coil is maintained.
- Non-detachable cords method Z repairing not allowed. If the coil failed, it must be replaced by a new coil.

## Certificates, declarations and approvals

The list contains all certificates, declarations, and approvals for this product type. Individual code number may have some or all of these approvals, and certain local approvals may not appear on the list.

When you click on the link you will be directed to the latest version of the 'Declaration of Conformity'. Products developed and sold before this date of issue conform to the directives/standards in force at the time of their sale.

Approval type	Title	Certification body	Approval topic
Explosive Safety Certificate	<a href="#">UL Demko IECEx ULD 21.0024X.2</a>	UL Demko - UL International DEMKO A - S	Explosive
Explosive Safety Certificate	<a href="#">CCC 2022312307000338</a>	CCC - China Compulsory Certification	Explosive
EU-UK Declaration	<a href="#">Danfoss EU-UK 018R9200.AC</a>	Danfoss	EMC, EU RoHS, ATEX, UK RoHS
Explosive Safety Certificate	<a href="#">UL21UKEX2374X Rev. 1</a>	UL - Underwriters Laboratories inc.	Explosive
Explosive Safety Certificate	<a href="#">DEMKO UL 21 ATEX 2606X Rev. 2</a>	UL Demko - UL International DEMKO A - S	ATEX, Explosive
Quality Assurance Certificate	<a href="#">DEMKO 12 ATEX Q1209493 Rev. 13</a>	UL Demko - UL International DEMKO A - S	ATEX, Explosive
Quality Assurance Certificate	<a href="#">UL21UKQAN2258 Rev. 5</a>	UL - Underwriters Laboratories inc.	Explosive
Export Control Declaration	<a href="#">Solenoid Coils</a>	Danfoss	

## Contact details

### Online support

Danfoss offers a wide range of support along with our products, including digital information, software, mobile apps and expert guidance. See the possibilities below.



#### The Danfoss Design center

Discover the Design Center, our advanced digital platform that streamlines product selection. With integrated tools and enhanced type pages, it's simpler than ever to access product information and documentation, and to select the right products. Check the availability of Danfoss products at partner locations and enjoy seamless transitions from selection to purchase with our basket-to-basket functionality. Whether you're buying from our distributors or directly from the Product Store, the Design Center simplifies your experience. Learn more at: [designcenter.danfoss.com](https://designcenter.danfoss.com).



#### The Danfoss product store

The Danfoss Product Store is a one-stop shop available 24/7 for our customers, no matter where you are in the world or what area of industry you work in. Browse our catalog, check product details and documentation, view your prices and product availability, and quickly finalize your purchase. Start browsing at: [store.danfoss.com](https://store.danfoss.com).



#### Danfoss Partner Portal/Product Data tool

Designed to support you with easy access to product data extracts, essential resources, tools, and information. The Partner Portal provides a centralized hub for product documentation, training materials, marketing assets, and technical support, ensuring you have everything you need to succeed and grow your business with Danfoss. The Partner Portal is available 24/7 at: [partner.danfoss.com](https://partner.danfoss.com) and is ready to support your business.



#### Find technical documentation

Find technical documentation you need to get your project up running. Get direct access to our official collection of data sheets, certificates and declarations, manuals and guides, 3D models and drawings, case stories, brochures, and much more. Start searching now at: [documentation.danfoss.com](https://documentation.danfoss.com).



#### Danfoss Learning

Danfoss Learning is a free online learning platform. It features courses and materials specifically designed to help engineers, installers, service technicians, and wholesalers better understand the products, applications industry topics, and trends that will help you do your job better. Find your local Danfoss website here: [learning.danfoss.com](https://learning.danfoss.com).



#### Get local information and support

Local Danfoss websites are the main sources for help and information about our company and products. Find product availability, get the latest regional news, or connect with a nearby expert - all in your own language. Find your local Danfoss website here: [danfoss.com](https://danfoss.com).

#### Danfoss A/S

Climate Solutions . danfoss.com . +45 7488 2222

---

Any information, including, but not limited to information on selection of product, its application or use, product design, weight, dimensions, capacity or any other technical data in product manuals, catalogues description, advertisements, etc. and whether made available in writing, orally, electronically, online or via download, shall be considered informative, and is only binding if and to the extent, explicit reference is made in a quotation or order confirmation. Danfoss cannot accept any responsibility for possible errors in catalogues, brochures, videos and other material. Danfoss reserves the right to alter its products without notice. This also applies to products ordered but not delivered provided that such alterations can be made without changes to form, fit or function of the products. All trademarks in this material are property of Danfoss A/S or Danfoss group companies. Danfoss and the Danfoss logo are trademarks of Danfoss A/S. All rights reserved.

---