

## Data Sheet

# Solenoid coil Type BI



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**

- 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
- Covering voltage and frequency:
  - 240 V 50/60 Hz
  - 230 V 50/60 Hz
  - 110 V 50/60 Hz
  - 24 V 50/60 Hz
  - 24V DC

**Directive**

- RoHS 2011/65/EU
- ATEX 2014/34/EU

**Certification**

- Ex mb IIC T4 Gb
- IECEx ULD 21.0024X
- UL 21 ATEX 2606X
- UL21UKEX2374X

## Product specification

### Technical data

Table 1: 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	<table> <tr> <th></th><th>Power consumption holding [W]</th></tr> <tr> <td>240 V AC 50/60 Hz</td><td>10.7</td></tr> <tr> <td>230 V AC 50/60 Hz</td><td>12.5</td></tr> <tr> <td>110 V AC 50/60 Hz</td><td>10.0</td></tr> <tr> <td>24 V AC 50/60 Hz</td><td>10.3</td></tr> <tr> <td>24 V DC</td><td>12.0</td></tr> </table>		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
	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 °C – 40 °C												
Media temperature	-40 °C – 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 1: 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 2: Classification EN 60079**

Features	Description
Media	Gas, vapours 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.

## Installation, operation and maintenance

- Protect the coil against external impact.
- Protect the coil against direct sunlight and other ultraviolet sources.
- Disconnect the power before dismounting 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:  $r \geq 35 \text{ mm}$
- 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.

## Dimensions and weights

Figure 2: Coil dimension, Bottom version

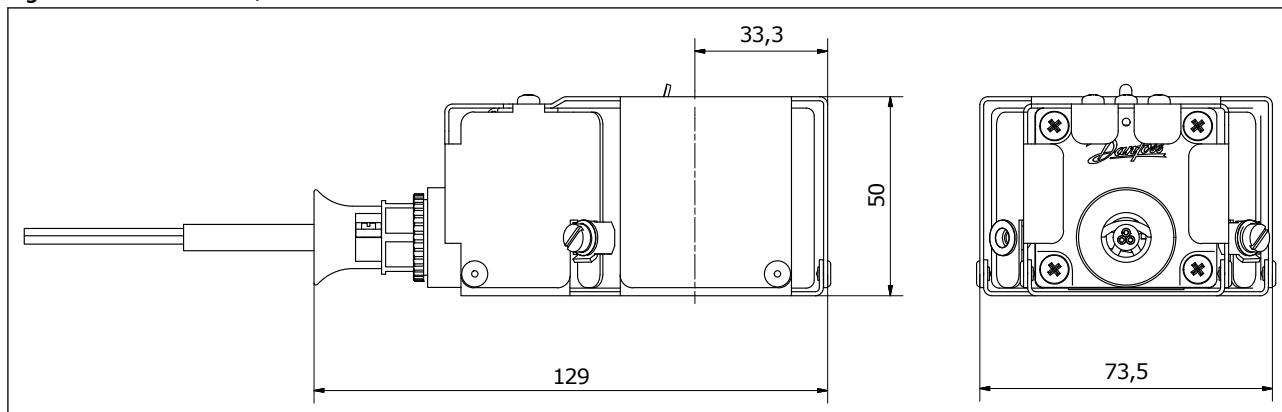
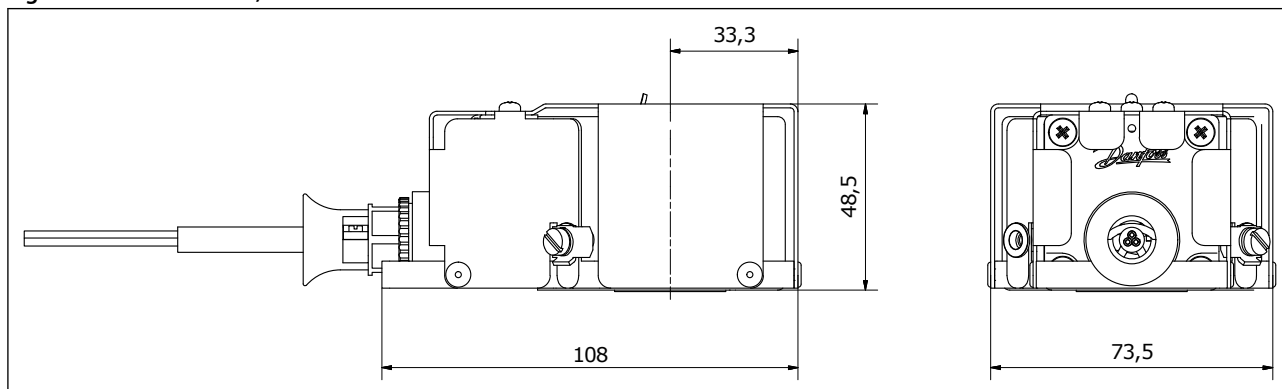


Figure 3: Coil dimension, Frame version



## Ordering

### Part program

Table 3: Ordering table for Fluid Controls valves

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD [bar]	Cable length [m]	Code no.
			[V]	[Hz]			
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
	BI230C		230	50/60			018Z8586
	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

## Solenoid coil, Type BI

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD	Cable length	Code no.
			[V]	[Hz]			
EV210B/BW NO 1.5	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 NO 2	BI240C	With Bottom	240	50/60	12	5	018Z8585
	BI230C		230	50/60			018Z8586
	BI110C		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
	BI110C		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
	BI110C		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
	BI110C		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
	BI110C		110	50/60			018Z8593
	BI024C		24	50/60			018Z8595
	BI024D		24	DC			018Z8596

**Table 4: Ordering table for Refrigeration valves**

Valve type	Coil type	Bottom or Frame version	Supply voltage	Frequency	MOPD	Cable length	Code no.
			[V]	[Hz]			
EVR5/T 10-20, ICF 20, EVRA/ EVRA(T) 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, EVRB, EVR, EVR5(T) 3, EVRA/EVRA(T) 3, 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 5: 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]			
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

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