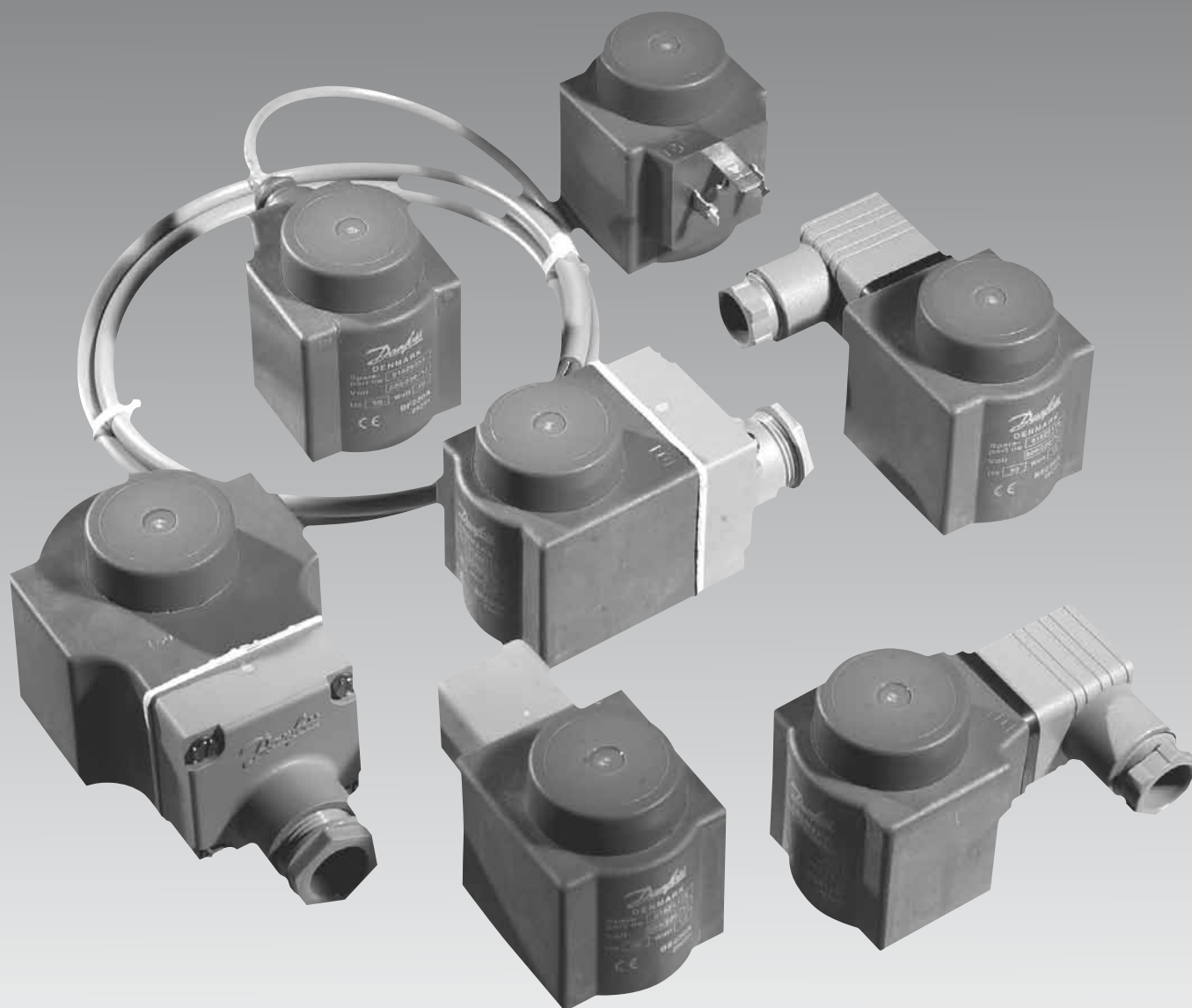
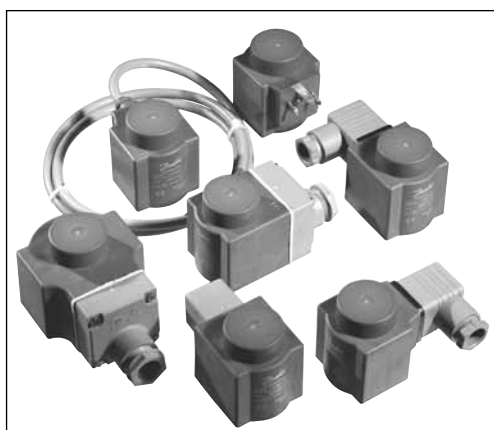


Technical leaflet

Coils for solenoid valves

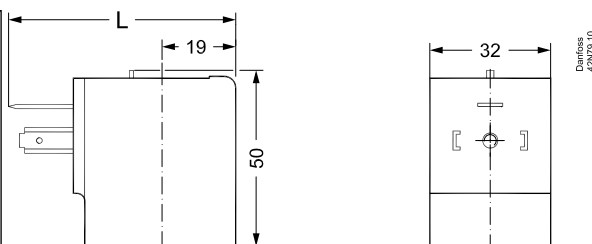



B and A coils

- Encapsulated coils with long operating life, even under extreme conditions
- Standard coils for a.c. or d.c.
- Standard coils from 12 V to 400 V, 50, 60 or 50/60 Hz
- Standard coils available with 3 core cable, Danfoss terminal box or for DIN plugs
- Coils can be fitted without use of tools
- Coils can only be removed with use of tools

Contents

Coil type	Enclosure	Power consumption		Page
		a.c.	d.c.	
B-series, 13.5 mm system				
BA	IP 00-IP 65	9 W	15 W	3
BD	IP 00-IP 65	15 W	-	3
BB	IP 00-IP 65	10 W	18 W	4
BE/BF	IP 67	10 W	18 W	5
BG	IP 67	12 W	20 W	6
BN (hum-free)	IP 67	20 W	-	7
BO (EEx mII T4)	IP 67	10 W	10 W	8
BP (Ex mbII T4)	IP 67	12 W	10.5 W	9
A-series, 9 mm system				
AB	IP 00-IP 65	4.5 W	5 W	10
AC	IP 00-IP 65	7 W	10 W	10
AK	IP 00-IP 65	-	3 W	11
AL	IP 00-IP 65	4 W	-	11
AM	IP 00-IP 65	7.5 W	9.5 W	11
Power Connector for coil type AB and AC	IP 65			12
Power connector for coil type AK, AL, AM, BA, BD, BB	IP 65			13
Power (LED + Varistor) Indicator Connector for coil type AK, AL, AM, BA, BD, BB	IP 65			14
Power (LED + Varistor) Indicator Connector for coil type AB and AC	IP 65			15
Universal electronic multi-timer Type ET 20 M	IP 00-IP 65			16

BA/BD Coils


Weight 0.16 kg	L [mm]
Without cable plug	54
With protective cap	71
With cable plug	79

Technical data

Design	In accordance with VDE 0580	
Voltage tolerance	220 and 380 V a.c. coils: +10%, -15%. 230/400 V a.c. coils: +6%, -10%. Other a.c. coils with NC valve: +10%, -15% Other a.c. coils with NO valve and all d.c. coils: ± 10%	
Power consumption, cut in	BA	39 VA a.c. coils only
	BD	54 VA
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP00 with spade connec. IP 20 with protective cap, IP 65 with cable plug	
Ambient temperature	BA	Max. +40°C
	BD	Max. +50°C
Duty rating	Continuous	

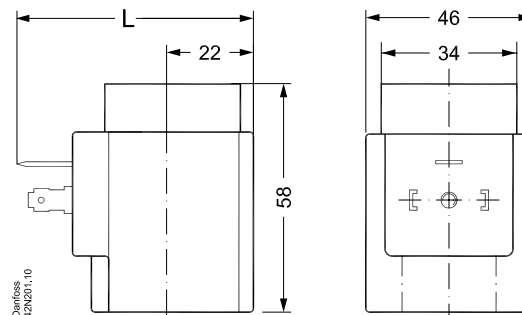
Ordering BA/BD Coils

Compatibility for Valve type	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	BA	9 W 19VA	BA024A	24 a.c.	50	042N7508
			BA048A	48 a.c.		042N7510
			BA115A	115 a.c.		042N7512
			BA230A	220-230 a.c.		042N7501
			BA240A	240 a.c.		042N7502
			BA380A	380-400 a.c.		042N7504
	BD	15 W 29 VA	BA024B	24 a.c.	60	042N7520
			BA115B	115 a.c.		042N7522
			BA220B	220 a.c.		042N7523
			BA012D	12 d.c.	d.c.	042N7550
			BA024D	24 d.c.		042N7551
			BD024A	24 a.c.		50
BD230A	230 a.c.	042N7591				

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	018Z0282
	Cable plug according to DIN 43650-A PG 11	IP 65	042N0156¹⁾

1) Ordering see page 13

Coils type BB-Clip on version


Weight 0.24 kg	L [mm]
Without cable plug	62
With protective cap	77
With cable plug	85

Technical data

Design	In accordance with VDE 0580
Voltage tolerance	220 and 380 V a.c. coils: +10%, -15%. 230/400 V a.c. coils: +6%, -10%. Other a.c. coils with NC valve: +10%, -15% Other a.c. coils with NO valve and all d.c. coils: ± 10%
Power consumption, cut in	44 VA a.c. coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Spade connector in accordance with DIN 43650 form A
Enclosure, IEC 529	IP 00 with spade connec. IP 20 with protective cap, IP 65 with cable plug
Ambient temperature	Max. +50°C / +80°C - see table below for details
Duty rating	Continuous

Ordering BB Coils

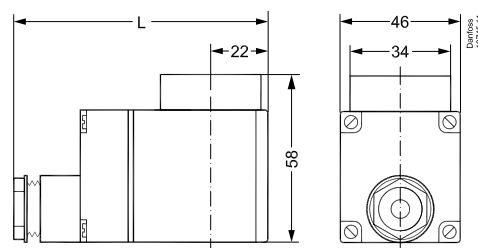
Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Ambient temperature [°C]	Code no.
All 2/2-way valves	10 W 21 VA	BB024AS	24 a.c.	50	80	018F7358
		BB115AS	115 a.c.			018F7361
		BB230AS	220-230 a.c.			018F7351
		BB240AS	240 a.c.			018F7352
		BB380AS	380-400 a.c.			018F7353
		BB024BS	24 a.c.			60
	18 W	BB110CS	110 a.c.	50/60	50	018F7360
		BB230CS	220-230 a.c.			018F7363
		BB012DS	12 d.c.	d.c.		018F7396
		BB024DS	24 d.c.			018F7397

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	018Z0282
	Cable plug according to DIN 43650-A PG 11	IP 65	042N0156¹⁾

1) Ordering see page 13

Description	Application	Code no.
O-ring (pack of 10 pcs.)	Sealing of clip-on coil	018F0094

Coils type BE/BF-Clip on version


Weight 0.30 kg	L [mm]
With terminal box	94
With 1 m cable	65

Technical data

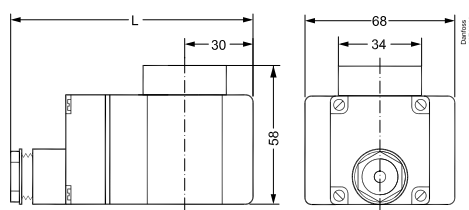
Design	In accordance with VDE 0580
Voltage tolerance	220 and 380 V a.c. coils: +10%, -15%. 230/400 V a.c. coils: +6%, -10%. Other a.c. coils with NC valve: +10%, -15% Other a.c. coils with NO valve and all d.c. coils: $\pm 10\%$
Power consumption, cut in	44 VA a.c. coils only
Insulation of coil windings	Class H according to IEC 85
Connection	BE - coils : Terminal box, Pg 13.5; BF - coils : 1 m 3-core flying lead
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +50°C /+80°C - see table below for details
Duty rating	Continuous

Ordering BE/BF Coils

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Ambient temperature [°C]	Code no.	
						BE - coils With terminal box	BF - coils With cable
All B - 2/2-way valves.	10 W 21 VA	BE024AS	24 a.c.	50	80	018F6707	018F6257
		BE048AS	48 a.c.			018F6709	018F6259
		BE115AS	115 a.c.			018F6711	018F6261
		BE230AS	220-230 a.c.			018F6701	018F6251
		BE240AS	240 a.c.			018F6702	018F6252
		BE380AS	380-400 a.c.			018F6703	018F6253
		BE024BS	24 a.c.			018F6715	018F6265
	60	BE115BS	115 a.c.	018F6710	018F6260		
		BE220BS	220 a.c.	018F6714	018F6264		
		BE110CS	110 a.c.	018F6730	018F6280		
	18 W	50/60	BE230CS	230 a.c.	50	018F6732	018F6282
			BE012DS	12 d.c.		018F6756	
		d.c.	BE024DS	24 d.c.	018F6757		

Contact Danfoss for delivery of coils for other voltages

	Application	Code no.
O-ring (pack of 10 pcs.)	Sealing of clip-on coil	018F0094
Danfoss terminal box for type BN, BE and BG coils	IP 67 Enclosure	018Z0081
Danfoss terminal box with LED indication for type BN, BE and BG coils	48-220 V d.c. 24-250 V a.c., 50/60 Hz	018Z0089

Coils type BG-Clip on version


Weight 0.50 kg	L [mm]
With terminal box	112

Technical data

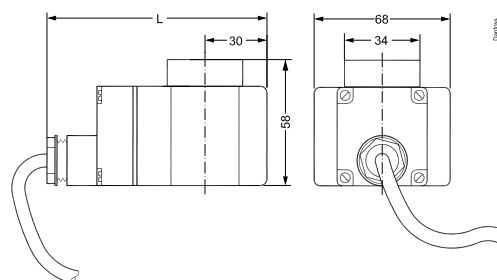
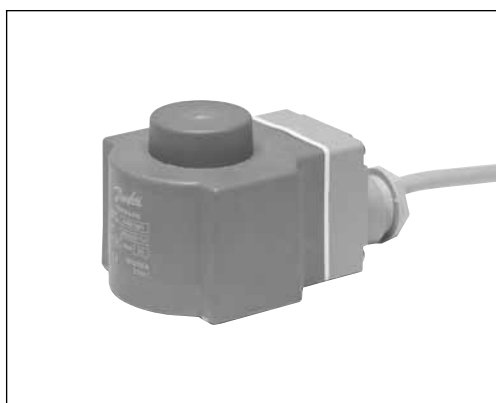
Design	In accordance with VDE 0580
Voltage tolerance	220 and 380 V a.c. coils: +10%, -15%. 230/400 V a.c. coils: +6%, -10%. Other a.c. coils with NC valve: +10%, -15% Other a.c. coils with NO valve and all d.c. coils: ± 10%
Power consumption, cut in	55 VA a.c. coils only
Insulation of coil windings	Class H according to IEC 85
Connection	Terminal box; Pg 13.5
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +80°C
Duty rating	Continuous

Ordering BG Coils

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All 2/2-way valves.	12 W 26 VA	BG024AS	24 a.c.	50	018F6807
		BG110AS	110 a.c.		018F6811
		BG230AS	220-230 a.c.		018F6801
		BG240AS	240 a.c.		018F6802
		BG380AS	380-400 a.c.		018F6803
		BG024BS	24 a.c.		60
	BG110BS	110 a.c.	018F6813		
	BG220BS	220 a.c.	018F6814		
	20 W	BG012DS	12 d.c.	d.c.	018F6856
		BG024DS	24 d.c.		018F6857

Contact Danfoss for delivery of coils for other voltages

Description	Application	Code no.
O-ring (pack of 10 pcs.)	Sealing of clip-on coil	018F0094
Danfoss terminal box for type BN and BG coils	IP 67 Enclosure	018Z0081
Danfoss terminal box with LED indication	48-220 V d.c. 24-250 V a.c., 50/60 Hz	018Z0089

**Coils type BN-Clip on version
Hum-free coil**


Weight 0.60 kg	L [mm]
With 1 m cable	112

Technical data

Design	In accordance with VDE 0580
Voltage tolerance	220 and 380 V a.c. coils: +10%, -15%. 230/400 V a.c. coils: +6%, -10%. Other a.c. coils with NC valve: +10%, -15% Other a.c. coils with NO valve and all d.c. coils: $\pm 10\%$
Power consumption, cut in	24 VA
Insulation of coil windings	Class H according to IEC 85
Connection	1 m 3-core flying lead ; Pg 13.5
Enclosure, IEC 529	IP 67
Ambient temperature	Max. +50°C
Duty rating	Continuous

Ordering BN Coils

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All 2/2-way valves.	20 W 26 VA	BN230CS	220-230 a.c.	50/60	018F7301
O-rings (pack of 10 pcs.)		Sealing of clip-on coil			018F0094

**Coils type BO
Ex m II T4**


- For explosion-risk environments, such as where flammable liquids and gases are produced, transported or tapped
- Approvals for use in Zone 1 according to Directive 94/9/EC (ATEX 100A) EN50014 and EN50028
- Medium temperature: Up to +90°C
- Ambient temperature: Up to +40°C
- IP 67 version with 5 m 3-core flying lead
- Seal kit as a.c.cessory for extremely wet and aggressive environments (please contact Danfoss)

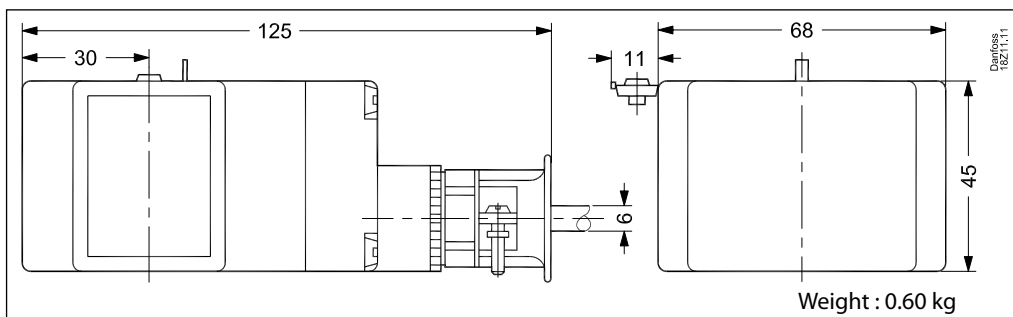
Technical data

Voltage tolerance	± 10%
Insulation of coil windings	Class H according to IEC 85
Connection	5 m 3-core flying lead
Enclosure, IEC 529	IP 67
Ambient temperature	-40°C → 60°C
Duty rating	Continuous
Media temperature	Max. +90°C

Ordering BO Coils
Conformity certification EX DEMKO 99ATEX 128981X

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
All B-series valves	10 W 21 VA	BO024C	24 a.c.	50/60	018Z6595
		BO048C	48 a.c.		018Z6594
		BO110C	110 a.c.		018Z6593
		BO230C	230 a.c.		018Z6592
		BO240C	240 a.c.		018Z6591
	10 W	BO024D	24 d.c.	d.c.	018Z6596

	Description	Application	Code no.
	Seal kit	Wet environment	018Z0090

Dimensions and weight


**Coils type BP
EEx m II T4**


- The coils are suitable for use in installations where flammable liquids and gases are produced, transported or tapped
- Approved for use in Zone 1 according to Directive 94/9/EC (ATEX 100A)
EN60079 - 0 : 2006
EN60079 - 18 : 2004
EN50281 - 1 - 1 : 1998
- Grade of enclosure IP 67
- Supplied with 3 m moulded-in 3-core cable

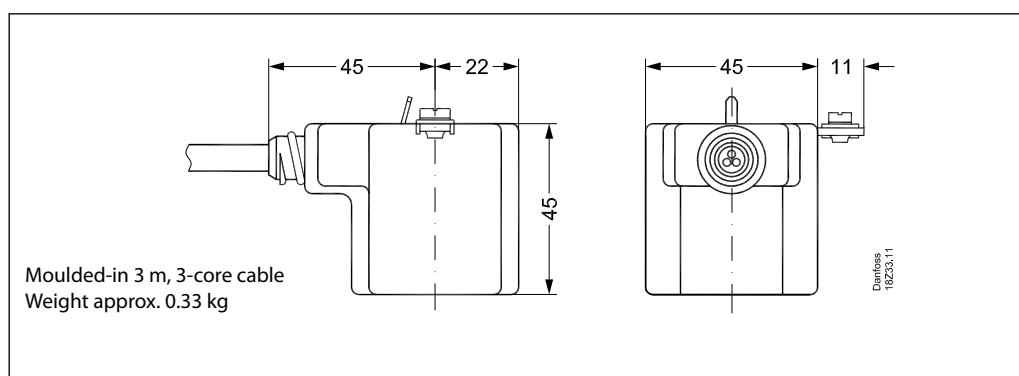
Technical data

Voltage tolerance	± 10%
Insulation of coil windings	Class H according to IEC 85
Connection	3 m 3-core cable
Enclosure, IEC 529	IP 67
Ambient temperature	Max. -40°C → +60°C
Duty rating	Continuous
Media temperature	Max. +90°C

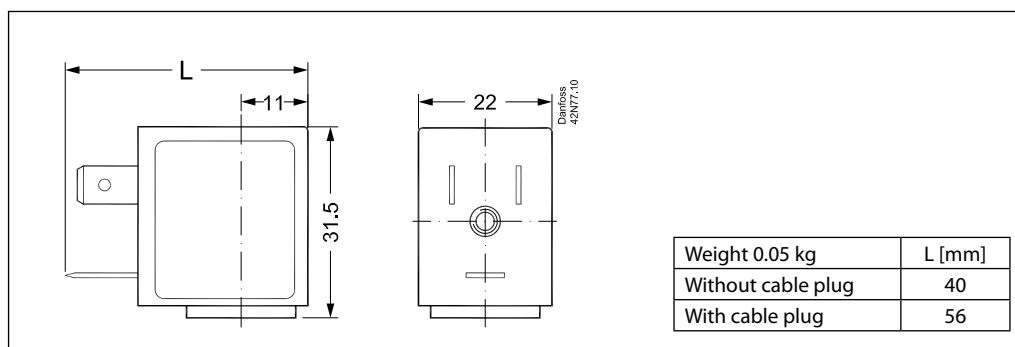
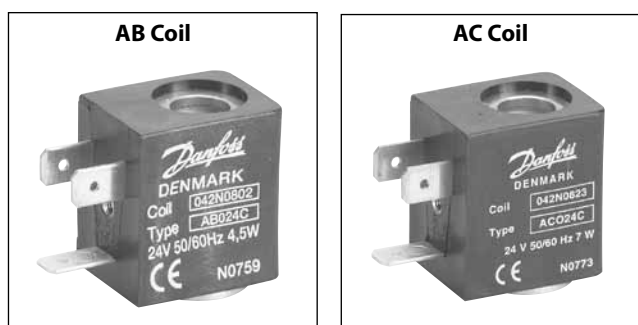
Ordering BP Coils
Conformity certification EX DEMKO 99ATEX 125688X

Compatibility for Valve type	Power consumption holding	Coil type	Supply voltage	Connection	Code no.
All B-series valves	12 W 12 W 10.5 W	BP024A BP230A BP024D	24 V 50 Hz 220V 50 Hz 24 V d.c.	3 m	018Z6643 018Z6653 018Z6623

	Description	Application	Code no.
	Seal kit	Wet environment	018Z0090

Dimensions

Special requirements:

The supply must be secured against a too high power compmion in case of a short circuit.

Coils type AB and AC

Technical data

1,411 mm	In accordance with VDE 0580	
Voltage tolerance	± 10%	
Power consumption, cut in	AB	9.5 VA a.c. coils only
	AC	15.7 VA a.c. coils only
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connectors, 6.3 x 0.8 mm	
Enclosure, IEC 529	IP 00 with spade connector, IP 65 with cable plug	
Ambient temperature	AB	Max. +50°C
	AC	Max. +50°C
Duty rating	Continuous	

Ordering AB/AC Coils

1,411 mm	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	AB	4.5 W 6.3 VA	AB024C	24 a.c.	50/60	042N0802
			AB110C	110 a.c.		042N0804
			AB230C	220-230 a.c.		042N0800
			AB240C	240 a.c.		042N0801
	AC	5 W	AB012D	12 d.c.	d.c.	042N0806
			AB024D	24 d.c.		042N0803
		7 W 10 VA	AC024C	24 a.c.	50/60	042N0823
			AC110C	110 a.c.		042N0825
			AC230C	220-230 a.c.		042N0821
			AC240C	240 a.c.		042N0822
10 W	AC024D	24 d.c.	d.c.	042N0824		

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Cable plug for 6.3 x 0.8 mm spade connectors	IP 65	042N0139¹⁾

1) Ordering see page 12

Coils type AK, AL and AM

Technical data

Design	In accordance with VDE 0580	
Voltage tolerance	± 10%	
Power consumption, cut in	AL	10 VA
	AM	22.5 VA a.c. coils only
Insulation of coil windings	Class H according to IEC 85	
Connection	Spade connector in accordance with DIN 43650 form A	
Enclosure, IEC 529	IP 00 with spade connector, IP 65 with cable plug	
Ambient temperature	AL	Max. +50°C
	AM	Max. +50°C
Duty rating	Continuous	

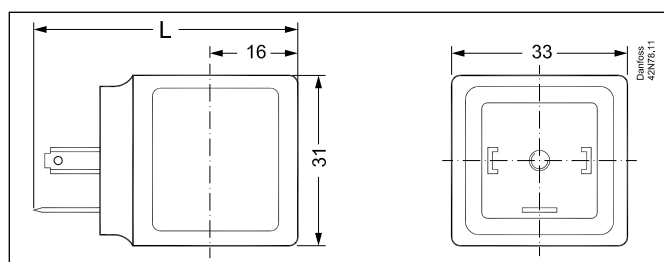
Ordering AK/AL/AM Coils

Compatibility for Valve type	Coil type	Power consumption holding	Coil type	Supply voltage	Frequency Hz	Code no.
See data sheets for valves	AM	7.5 W 15 VA	AM024C	24 a.c.	50/60	042N0842
			AM110C	110 a.c.		042N0845
			AM230C	220-230 a.c.		042N0840
			AM240C	240 a.c.		042N0841
	AL	4W	AM012D	12 d.c.	d.c.	042N0848
			AM024D	24 d.c.		042N0843
	AK	3 W	AL230C	230 a.c.	50/60	042N0864
				AK024D	24 d.c.	d.c.

Contact Danfoss for delivery of coils for other voltages

Symbol	Description	Enclosure	Code no.
	Protective cap (pack of 100 pcs.)	IP 20	018Z0282
	Cable plug according to DIN 43650-A PG 11	IP 65	042N0156¹⁾

1) Ordering see page 13

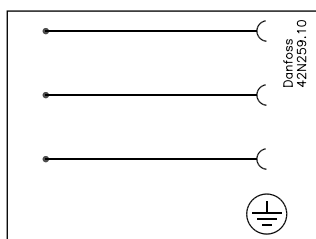
Dimensions and weight


Weight 0.10 kg	L[mm]
Without cable plug	48
With protective cap	64
With cable plug	72

Features

Power Connector

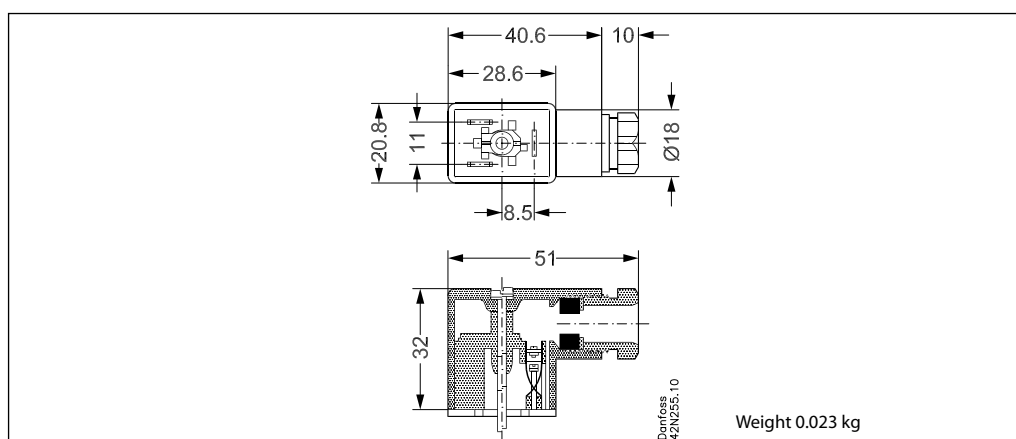
- Industrial standard 11 mm
- For use with Danfoss coil type AB and AC
- a.c./d.c. all voltages up to 250 V
- Enclosure: Up to IP 65
- Ambient temperature: Up to +80°C

Technical data


Type	GM 209 N (Bl.a.c.k)
Design	DIN 43650-B
Cable gland	PG 9
Poles	2 + I
Max. voltage	250 V a.c./d.c.
Approvals	US CSA
Protection class	IP 65 (IEC 60529)
Max. operating current	16 A
Contact resistance	≤ 4m Ω
Cable diameter	4,5 to 7 mm
Wire cross section	Max. 1,5 mm ²
Ambient temperature	-25 to + 80°C
Materials	Contacts: CuZn (Tin plated) Terminal block: PA Flat gasket: NBR Housing: PA

Ordering

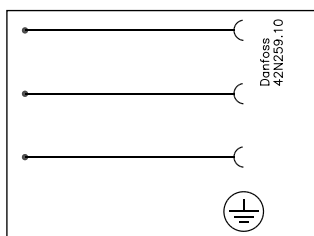
Symbol	Description	Code no.
	Cable plug for 6.3 x 0.8 mm spade connectors Suitable for coil types AB + AC	042N0139

Dimensions and weight


Features

Power Connector

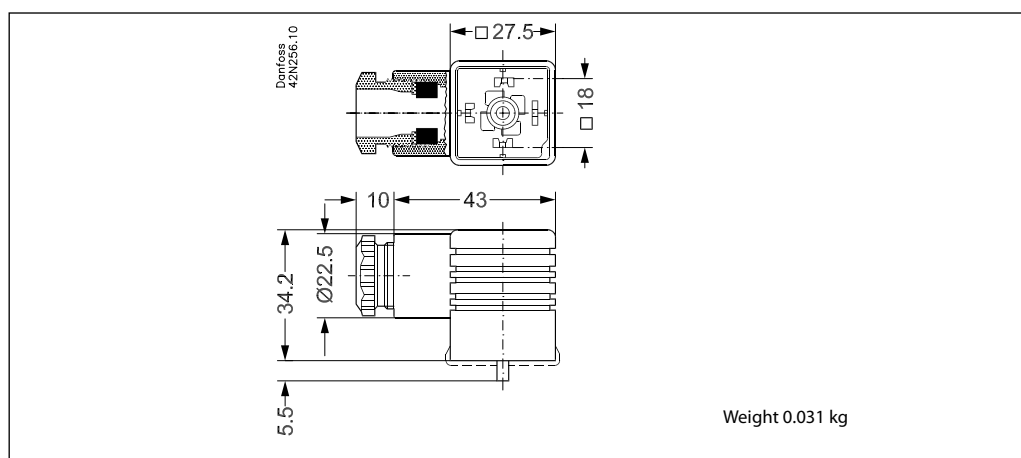
- For use with Danfoss coils type AK, AL, AM, BA, BD and BB
- AC/DC all voltages up to 250 V
- Enclosure: Up to IP 65
- Ambient temperature: Up to +125°C

Technical data


Type	GDM 2011 J (Grey)
Design	DIN 43650-A
Cable gland	PG 11
Poles	2,3 + PE
Max. voltage	250 V a.c./d.c.
Approvals	US CSA
Protection class	IP 65 (IEC 60529)
Max. operating current	16 A
Contact resistance	≤ 4m Ω
Cable diameter	6 to 9 mm
Wire cross section	Max. 1,5 mm ²
Ambient temperature	-40 to + 125°C
Materials	Contacts: CuSn (Tin plated) Terminal block: PA Profiled gasket: NBR Housing: PA

Ordering

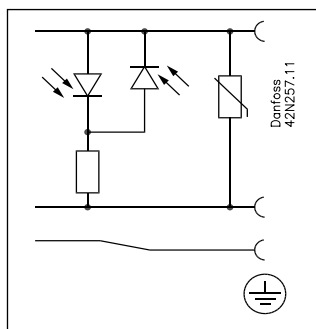
Symbol	Description	Code no.
	Cabel plug according to DIN 43650-A PG 11 Suitable for coil types AK, AL, AM, BA, BD, BB	042N0156

Dimensions and weight


Features

Power (LED + Varistor) Indicator Connector

- For use with Danfoss coils type AK, AL, AM, BA, BD and BB
- 24 V a.c./d.c. and 230 V a.c. versions
- Enclosure: Up to IP 65
- Ambient temperature: Up to +60°C

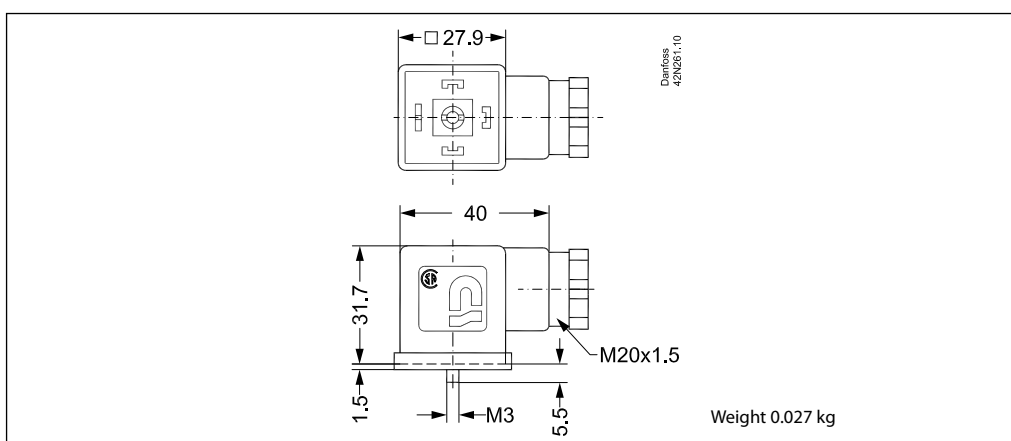
Technical data


Design	EN 175301-803 A	
Supply voltage tolerance	± 10%	
Power consumption	Max. 5 mA	
Protection class	IP65 (IEC 60 529)	
Max. operating current	1,5 A clamping contact	
Contact resistance	≤ 4 m Ω	
Protection against wrong polarity	yes	
Cable diameter	6 to 8 mm and 8 to 10 mm	
Wire cross section	Max. 1,5mm ²	
Ambient temperature	-25 to + 60°C	
Materials	Contacts:	CuZn, Cu/Sn-plated
	Terminal block:	PA6 + 30% FG, bla.c.k
	Flat gasket:	NBR LABS-free
	Housing (translucent):	PA6
	Wire holder:	PA6.6 + 50% FG P7,5 bla.c.k

Ordering

1,411 mm	LED colour	Build in VDR ¹⁾ resistor	Code no.	Suitable for coil types
24 V a.c./d.c.	Red	Yes	042N0263	AK, AL, AM, BA, BD, BB
230 V a.c.	Red	Yes	042N0265	

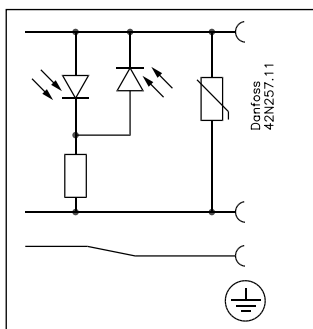
1) Protects against voltage peaks

Dimensions and weight


Features

Power (LED + Varistor) Indicator Connector

- For use with Danfoss coil type AB and AC
- 24 V a.c./d.c. and 230 V a.c. versions
- Enclosure: Up to IP 65
- Ambient temperature: Up to +60°C

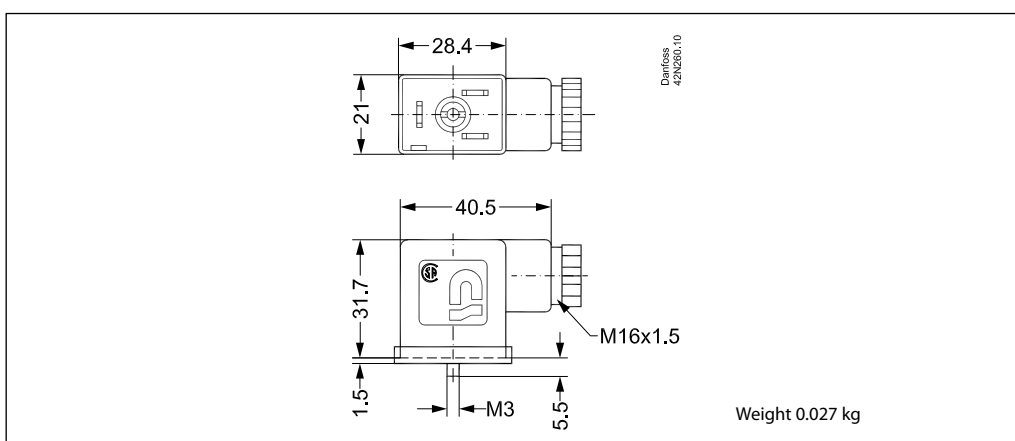
Technical data


Design	Industrial form	
Supply voltage tolerance	± 10%	
Power consumption	Max. 5 mA	
Protection class	IP 65 (IEC 60 529)	
Max. operating current	1,5 A clamping contact	
Contact resistance	≤ 4m Ω	
Protection against wrong polarity	yes	
Cable diameter	5 to 6 mm and 6 to 9 mm	
Wire cross section	Max. 1 mm ²	
Ambient temperature	-25 to + 60°C	
Materials	Contacts:	CuZn, Cu/Sn-plated
	Terminal block:	PA6 + 30% FG, bla.c.k
	Flat gasket:	NBR LABS-free
	Housing (translucent):	PA6
	Wire holder:	PA6.6 + 50% FG P7,5 bla.c.k

Ordering

Voltage	LED colour	Build in VDR ¹⁾ resistor	Code no.	Suitable for coil types
24 V a.c./d.c.	Red	Yes	042N0267	AB, AC
230 V a.c.	Red	Yes	042N0269	

¹⁾ Protects against voltage peaks

Dimensions and weight


Features



Universal electronic multi-timer Type ET 20 M

- Outside adjustments
- Light weight and small size
- External adjustable timing from 1 minute to 45 minutes with 1 to 15 seconds drain open
- One solid state timer fits all coil voltages from 24-240 V a.c
- Light diodes for indication
- All in one unit
- Manual override (test button).

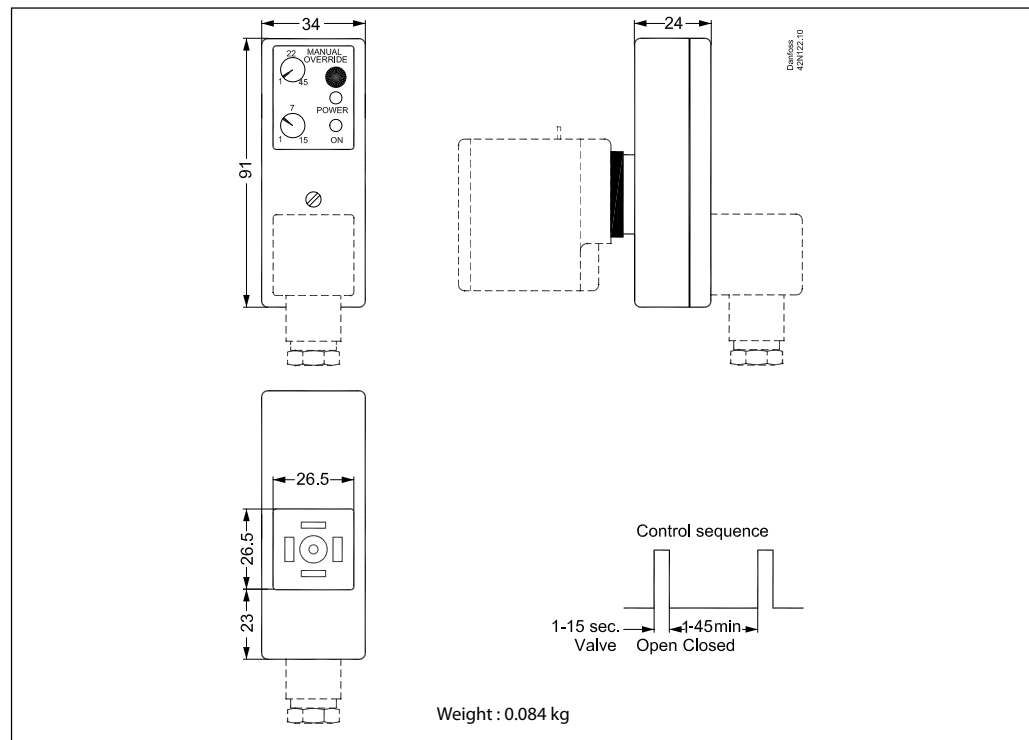
Technical data

Type	ET 20 M
Voltage	24-240 V a.c/ 50-60 Hz.
Power rating	Max. 20 Watt
Enclosure	IP 00, IP 65 with cable plug
Electrical connection	DIN connector (DIN 43650-A)
Ambient operating temperature range	-10°C to +50°C
Function	Start with pulse
Interval timer	0-45 min.
"On" timer	0-15 Sec.

Ordering

Voltage	Code no.	Suitable for coil types
24-240 V a.c.	042N0185	AK, AL, AM, BA, BD, BB

Dimensions and weight



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