

Data Sheet

Solenoid coils

Type BA, BD, BB, BE, BF, BG, BN, BO, BJ, BX, BY, BQ, AM, AZ, AS and AP

Solenoid coils for A and B system



Danfoss solenoid valves and coils are usually ordered separately to allow maximum flexibility, enabling you to select a valve and coil combination to best suit your needs.

The Danfoss coil program consists of both the easy-to-handle Clip-On system and traditional coils with threaded fastener.

Danfoss offer a wide range of application specific coils for e.g. steam or hazardous areas. The coils are available with approvals such as EN60730-1, EEx/ATEX and UL.

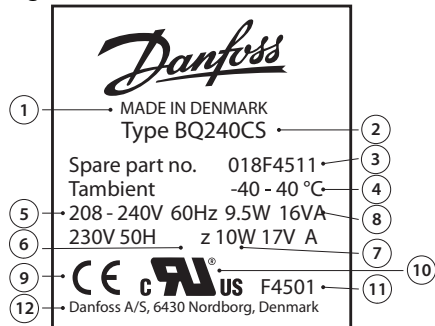
Features

- Encapsulated coils with long operating life, even under extreme conditions
- Standard coils for AC or DC
- Standard coils from 12 V – 400 V, 50, 60, 50 / 60 Hz or DC
- Standard coils available with:
 - Cable plugs
 - Industrial plugs
 - Terminal box
 - 3 core cable
 - Junction box
 - Conduit hub

1 Coil identification

Technical data is printed directly on the coil:

Figure 1: Identification label



| | |
|----|--|
| 1 | Country of origin |
| 2 | Coil type |
| 3 | Spare part no. (code no.) |
| 4 | Ambient temperature: (-40 – 40 °C = Ambient temperature range: -40 °C – 40 °C) |
| 5 | Supply voltage [V] |
| 6 | Frequency [Hz] |
| 7 | Power consumption [W] |
| 8 | Power consumption [VA] |
| 9 | CE marking |
| 10 | UL recognized coil |
| 11 | Raw coil number (F4501=Raw coil number 018F4501) |
| 12 | Point of contact |

2 Product specification

2.1 BA, High performance coils

Figure 2: BA, High performance coils



Features

- Cable plug enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with cable plug
- Nut and snap fastener included
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 1: BA, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|--------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BA024A | -40 – 40 | 24 | -15%, 10% | 50 | 8.5 | 17 | 042N7508 |
| BA048A | -40 – 40 | 48 | -15%, 10% | 50 | 9.5 | 18 | 042N7510 |
| BA115A | -40 – 40 | 115 | -15%, 10% | 50 | 9 | 18 | 042N7512 |
| BA230A | -40 – 40 | 220 – 230 | -15%, 6% | 50 | 12 | 22 | 042N7501 |
| BA240A | -40 – 40 | 240 | -15%, 10% | 50 | 10 | 20 | 042N7502 |
| BA400A | -40 – 40 | 380 – 400 | -15%, 6% | 50 | 12 | 22 | 042N7504 |
| BA024B | -40 – 40 | 24 | -15%, 10% | 60 | 9.5 | 19 | 042N7520 |
| BA115B | -40 – 40 | 115 | -15%, 10% | 60 | 12 | 23 | 042N7522 |
| BA220B | -40 – 40 | 220 | -15%, 10% | 60 | 11 | 21 | 042N7523 |
| BA012D | -40 – 40 | 12 | ±10% | DC | 14 | – | 042N7550 |
| BA024D | -40 – 40 | 24 | ±10% | DC | 14 | – | 042N7551 |

Table 2: Technical data

| | | |
|-----------------------------|---|--|
| Design | In accordance with VDE 0580 | |
| 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 connector, IP20 with protective cap, IP65 with cable plug | |
| Duty rating | Continuous | |
| Plug type | Cable plug (042N0156) | |

2.1.1 Dimensions and weight

Figure 3: BA, High performance coils

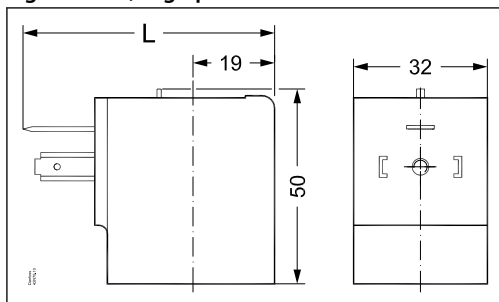


Table 3: BA, High performance coils

| Type | L without cable plug [mm] | L with protective cap [mm] | L with cable plug [mm] | Weight [kg] |
|------|---------------------------|----------------------------|------------------------|-------------|
| BA | 54 | 71 | 79 | 0.16 |

2.2 BD, High performance coils

Figure 4: BD, High performance coils



Features

- Cable plug enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with cable plug
- Nut and snap fastener included
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 4: BD, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|--------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BD024A | -40 – 40 | 24 | -15%, 10% | 50 | 15 | 29 | 042N7597 |
| BD230A | -40 – 40 | 230 | -10%, 6% | 50 | 14 | 28 | 042N7591 |

Table 5: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| 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 connector, IP20 with protective cap, IP65 with cable plug |
| Duty rating | Continuous |
| Plug type | Cable plug (042N0156) |

2.2.1 Dimensions and weight

Figure 5: BD, High performance coils

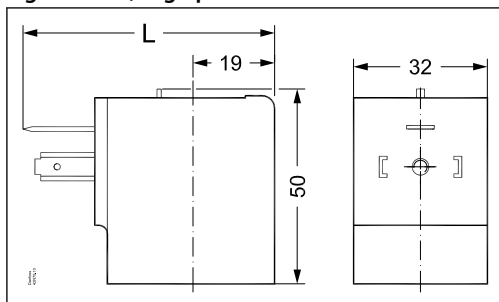


Table 6: BD, High performance coils

| Type | L without cable plug [mm] | L with protective cap [mm] | L with cable plug [mm] | Weight [kg] |
|------|---------------------------|----------------------------|------------------------|-------------|
| BD | 54 | 71 | 79 | 0.16 |

2.3 BB, High performance coils

Figure 6: BB, High performance coils



Features

- Enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with mounted cable plug
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 7: BB, High performance coils

| Type | Ambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|--------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BB024AS | -40 – 80 | 24 | -15%, 10% | 50 | 11 | 19 | 018F7358 |
| BB115AS | -40 – 80 | 115 | -15%, 10% | 50 | 11 | 19 | 018F7361 |
| BB230AS | -40 – 80 | 220 – 230 | -15%, 10% | 50 | 11 | 19 | 018F7351 |
| BB240AS | -40 – 80 | 240 | -15%, 10% | 50 | 11 | 19 | 018F7352 |
| BB440CS | -40 – 50 | 380 – 400 | -15%, 10% | 50 | 14 | 24 | 018F7353 |
| | | 440 | -15%, 10% | 60 | 15 | 24 | |
| BB024BS | -40 – 80 | 24 | -15%, 10% | 60 | 14 | 23 | 018F7365 |
| BB110CS | -40 – 50 | 110 | ±10% | 50 | 15 | 28 | 018F7360 |
| | | 110 | ±10% | 60 | 13 | 22 | |
| BB230CS | -40 – 50 | 220 – 230 | ±10% | 50 | 16 | 31 | 018F7363 |
| | | 220 – 230 | ±10% | 60 | 13 | 24 | |
| BB012DS | -40 – 50 | 12 | ±10% | DC | 14 | – | 018F7396 |
| BB024DS | -40 – 50 | 24 | ±10% | DC | 16 | – | 018F7397 |

Table 8: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| 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 connector, IP20 with protective cap, IP65 with cable plug |
| Duty rating | Continuous |
| Plug type | Cable plug (042N0156) |

2.3.1 Dimensions and weight

Figure 7: BB, High performance coils

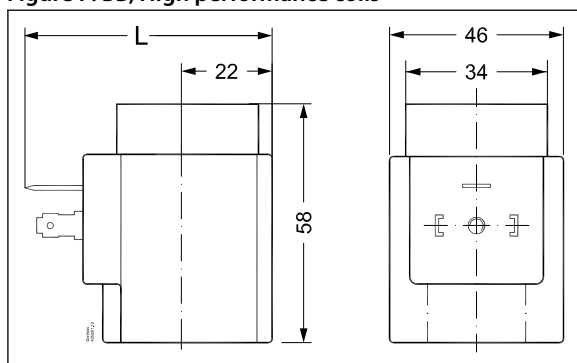


Table 9: BB, High performance coils

| Type | L without cable plug [mm] | L with protective cap [mm] | L with cable plug [mm] | Weight [kg] |
|------|---------------------------|----------------------------|------------------------|-------------|
| BB | 62 | 77 | 85 | 0.24 |

2.4 BE, High performance coils

Figure 8: BE, High performance coils



Features

- Enclosure: IP67 for moist environments with terminal box
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 10: BE, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BE024AS | -40 – 80 | 24 | -15%, 10% | 50 | 12 | 21 | 018F6707 |
| BE048AS | -40 – 80 | 48 | -15%, 10% | 50 | 11 | 20 | 018F6709 |
| BE115AS | -40 – 80 | 115 | -15%, 10% | 50 | 11 | 19 | 018F6711 |
| BE230AS | -40 – 80 | 220 – 230 | -15%, 10% | 50 | 12 | 22 | 018F6701 |
| BE240AS | -40 – 80 | 240 | -15%, 10% | 50 | 11 | 19 | 018F6702 |

Solenoid coils, type BA, BD, BB, BE, BF, BG, BN, BO, BJ, BX, BY, BQ, AM, AS, AZ and AP

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BE440CS | -40 – 80 | 380 – 400 | -15%, 10% | 50 | 13 | 23 | 018F6703 |
| | | 440 | -15%, 10% | 60 | 14 | 24 | |
| BE024BS | -40 – 80 | 24 | -15%, 10% | 60 | 14 | 25 | 018F6715 |
| BE115CS | -40 – 80 | 100 | -15%, 10% | 50 | 11 | 19 | 018F6710 |
| | | 115 | -15%, 10% | 60 | 13 | 22 | |
| BE220BS | -40 – 80 | 220 | -15%, 10% | 60 | 13 | 23 | 018F6714 |
| BE110CS | -40 – 50 | 110 | ±10% | 50 | 15 | 28 | 018F6730 |
| | | 110 | ±10% | 60 | 13 | 22 | |
| BE230CS | -40 – 50 | 220 – 230 | ±10% | 50 | 17 | 31 | 018F6732 |
| | | 220 – 230 | ±10% | 60 | 14 | 24 | |
| BE012DS | -40 – 50 | 12 | ±10% | DC | 15 | – | 018F6756 |
| BE024DS | -40 – 50 | 24 | ±10% | DC | 16 | – | 018F6757 |

Table 11: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | 1 m 3-core flying lead |
| Enclosure, IEC 529 | IP67 |
| Duty rating | Continuous |

2.4.1 Dimensions and weight

Figure 9: BE, High performance coils

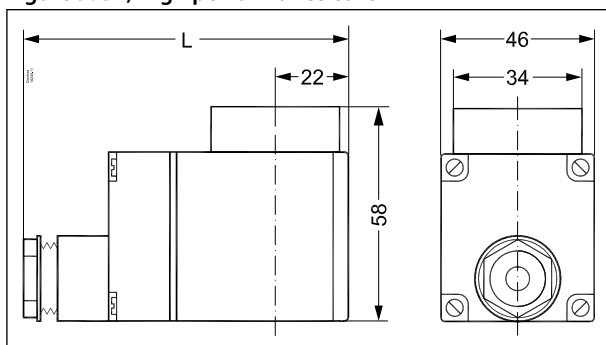


Table 12: BE, High performance coils

| Type | L with terminal box [mm] | L with 1 m cable [mm] | Weight [kg] |
|------|--------------------------|-----------------------|-------------|
| BE | 94 | 65 | 0.30 |

2.5 BF, High performance coils

Figure 10: BF, High performance coils



Features

- Enclosure: IP67 for moist environments with molded-in cable
- In accordance with:

- RoHS Directive 2011/65/EU
- Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 13: BF, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BF230AS | -40 – 80 | 220 – 230 | -15%, 10% | 50 | 12 | 22 | 018F6251 |
| BF240AS | -40 – 80 | 240 | -15%, 10% | 50 | 11 | 19 | 018F6252 |
| BF440CS | -40 – 80 | 380 – 400 | -15%, 10% | 50 | 14 | 24 | 018F6253 |
| | | 440 | -15%, 10% | 60 | 15 | 24 | |
| BF024AS | -40 – 80 | 24 | -15%, 10% | 50 | 12 | 20 | 018F6257 |
| BF115CS | -40 – 80 | 100 | -15%, 10% | 50 | 11 | 19 | 018F6260 |
| | | 115 | -15%, 10% | 60 | 13 | 22 | |
| BF220BS | -40 – 80 | 220 | -15%, 10% | 60 | 14 | 23 | 018F6264 |
| BF024BS | -40 – 80 | 24 | -15%, 10% | 60 | 14 | 25 | 018F6265 |
| BF110CS | -40 – 50 | 110 | ±10% | 50 | 15 | 29 | 018F6280 |
| | | 110 | ±10% | 60 | 13 | 23 | |
| BF230CS | -40 – 50 | 220 – 230 | ±10% | 50 | 16 | 31 | 018F6282 |
| | | 220 – 230 | ±10% | 60 | 14 | 24 | |

Table 14: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | 1 m 3-core flying lead |
| Enclosure, IEC 529 | IP67 |
| Duty rating | Continuous |

2.5.1 Dimensions and weight

Figure 11: BF, High performance coils

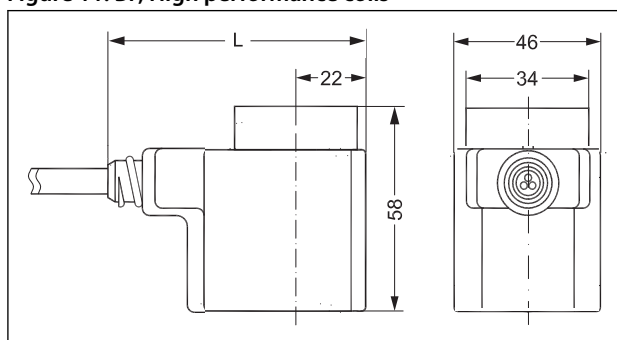
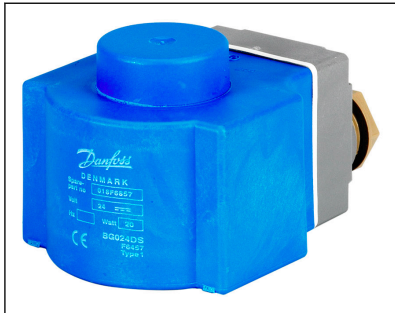


Table 15: BF, High performance coils

| Type | L with 1m cable [mm] | Weight [kg] |
|------|----------------------|-------------|
| BF | 67 | 0.30 |

2.6 BG, High performance coils

Figure 12: BG, High performance coils



Features

- Enclosure: IP67 for moist environments with terminal box
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 16: BG, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BG024AS | -40 – 80 | 24 | -15%, 10% | 50 | 11 | 21 | 018F6807 |
| BG110AS | -40 – 80 | 110 | -15%, 10% | 50 | 13 | 25 | 018F6811 |
| BG230AS | -40 – 80 | 220 – 230 | -15%, 10% | 50 | 15 | 28 | 018F6801 |
| BG240AS | -40 – 80 | 240 | -15%, 10% | 50 | 13 | 25 | 018F6802 |
| BG400AS | -40 – 80 | 380 – 400 | -15%, 10% | 50 | 15 | 29 | 018F6803 |
| BG024BS | -40 – 80 | 24 | -15%, 10% | 60 | 15 | 29 | 018F6815 |
| BG110BS | -40 – 80 | 110 | -15%, 10% | 60 | 16 | 29 | 018F6813 |
| BG220BS | -40 – 80 | 220 | -15%, 10% | 60 | 16 | 29 | 018F6814 |
| BG012DS | -40 – 50 | 12 | ±10% | DC | 20 | – | 018F6856 |
| BG024DS | -40 – 50 | 24 | ±10% | DC | 16 | – | 018F6857 |

Table 17: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | Terminal box |
| Enclosure, IEC 529 | IP67 |
| Duty rating | Continuous |
| Plug type | Terminal box |

2.6.1 Dimensions and weight

Figure 13: BG, High performance coils

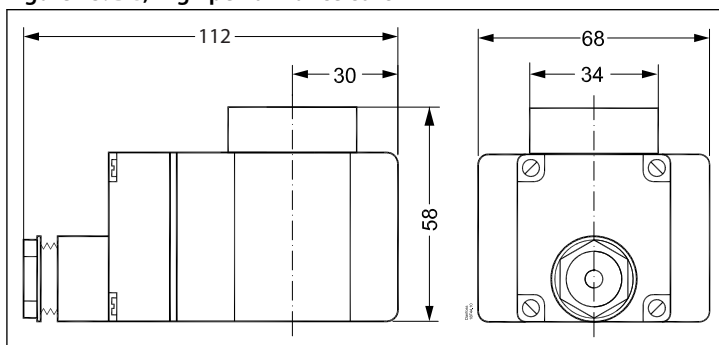
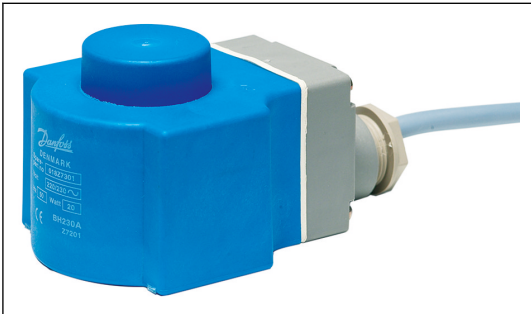


Table 18: BG, High performance coils

| Type | L with terminal box [mm] | Weight [kg] |
|------|--------------------------|-------------|
| BG | 112 | 0.50 |

2.7 BN, High performance coils Hum-free

Figure 14: BN, High performance coils



Features

- Hum-free
- Enclosure: IP67 for moist environments with flying lead
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 19: BN, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BN230CS | -40 – 50 | 220 – 230 | ±10% | 50 | 22 | 24 | 018F7301 |
| | | 220 – 230 | ±10% | 60 | 22 | 24 | |

Table 20: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | 1 m 3-core flying lead |
| Enclosure, IEC 529 | IP67 |
| Duty rating | Continuous |

2.7.1 Dimensions and weight

Figure 15: BN, High performance coils Hum-free

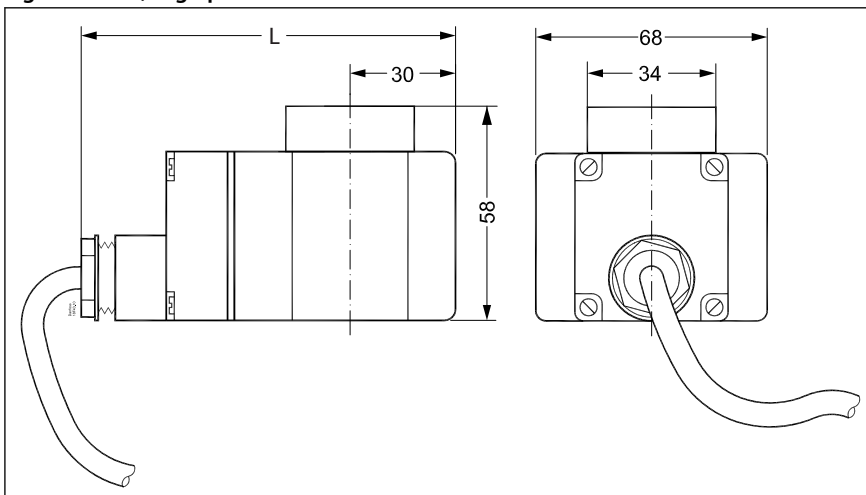


Table 21: BN, High performance coils

| Type | L with 1m cable [mm] | Weight [kg] |
|------|----------------------|-------------|
| BN | 112 | 0.60 |

2.8 BN, High performance coils Center boss

Figure 16: BN, High performance coils



Features

- Enclosure:
 - Center boss for mounting IP65/IP67 cable plug in accordance with DIN43650 form A
 - IP65/IP67 for moist environments with terminal box
- Used with EV215B, EV225B, and EV245B up to 160 °C low pressure steam and max. ambient temperature 40 °C (see additional information in the respective solenoid valve data sheets)
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8
- Mounted with the solenoid valves EV210B, EV220B, EV215B and EV225B, the assembly is UL recognized

Table 22: BN, High performance coils Center boss

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|----------|
| | | | | | [W] | [VA] | | |
| BN024DS | -40 – 50 | 24 | ±10% | DC | 20 | – | | 018F6968 |

Table 23: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | Cable plug in accordance with DIN43650 form A or terminal box |
| Enclosure, IEC 529 | IP65, IP67 |
| Duty rating | Continuous |

2.8.1 Dimensions and weight

Figure 17: BN, High performance coils Center boss

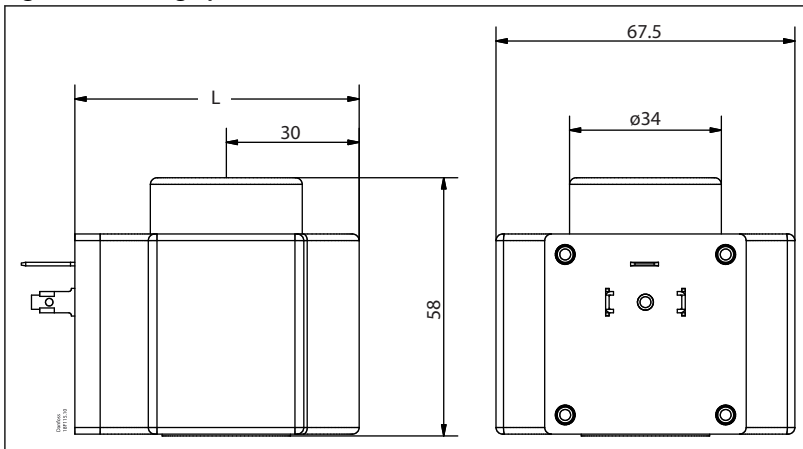


Table 24: BN, High performance coils Center boss

| Type | L [mm] | Weight [kg] |
|------|--------|-------------|
| BN | 64 | 0.47 |

2.9 BO, High performance coils

Figure 18: BO, High performance coils



Features

- ATEX Zone 1
- Enclosure: IP67 seal kit for moist environment included
- Approved in accordance with:
 - ATEX 2014/34/EU
 - Ex mb IIC T4 Gb
 - ITS 09 ATEX 16835X
- Media temperature: Up to 90 °C

Table 25: BO, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|--------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| BO024C | -40 – 60 | 24 | ±10% | 50 / 60 | 10 | 21 | 018Z6595 |
| BO110C | -40 – 60 | 110 | ±10% | 50 / 60 | 10 | 21 | 018Z6593 |
| BO230C | -40 – 60 | 230 | ±10% | 50 / 60 | 10 | 21 | 018Z6592 |
| BO240C | -40 – 60 | 240 | ±10% | 50 / 60 | 10 | 21 | 018Z6591 |
| BO024D | -40 – k60 | 24 | ±10% | DC | 10 | – | 018Z6596 |

Table 26: Technical data

| | |
|-----------------------------|--|
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | 5 m 3 x 0.75 mm ² flexible cord |
| Enclosure, IEC 529 | IP67 including seal kit |
| Media temperature | -40 °C – 90 °C |
| Duty rating | Continuous |

Solenoid coils, type BA, BD, BB, BE, BF, BG, BN, BO, BJ, BX, BY, BQ, AM, AS, AZ and AP

| | |
|---------------------------|--------------------|
| Humidity | 0 – 100% |
| Pollution degree | 3 (EN60730-1) |
| Impulse withstand voltage | 2.5 kV (EN60730-1) |

Table 27: Accessory

| Description | Application | Code no. |
|---------------------------------|--------------------------------------|----------|
| Seal kit (included as standard) | Wet environment (pollution degree 3) | 018Z0090 |

2.9.1 Dimensions and weight

Figure 19: BO, High performance coils

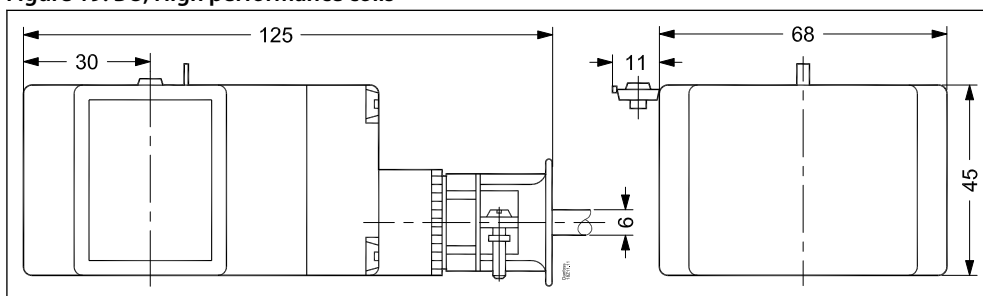


Table 28: BO, High performance coils

| Type | L [mm] | Weight [kg] |
|------|--------|-------------|
| BO | 125 | 0.60 |

2.10 BJ, High performance coils Junction box

Figure 20: BJ, High performance coils



Features

- Enclosure: IP30 / NEMA 2
- For UL listed valves (UL 429 and CSA)
- Ambient temperature: Up to 50 °C / 122 °F
- Media temperature: Up to 185 °C / 364 °F steam

Table 29: BJ, High performance coils

| Valve type | Coil type | Voltage tolerance | Supply voltage [V] | Frequency [Hz] | Power consumption [W] | Wire length | | Code no. |
|-------------|-----------|-------------------|--------------------|----------------|-----------------------|-------------|------|----------|
| | | | | | | [in.] | [cm] | |
| EV220B 6-50 | BJ024CS | ±10% | 24 | 50 / 60 | 14 | 7 | 18 | 018F4100 |
| | EV210B | ±10% | 110 | 50 / 60 | 16 | 7 | 18 | 018F4110 |
| EV215B | 120 | | 60 | 15 | | | | |
| EV225B | BJ240CS | ±10% | 208 – 240 | 60 | 14 | 7 | 18 | 018F4120 |
| EV250B | | | 230 | 50 | 17 | | | |

Table 30: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with UL 429 |
| Power consumption, cut in | 49 VA |
| Insulation of coil windings | Class H according to IEC 85 |

| | |
|---------------------|---------------------------------|
| Connection | Junction box |
| Enclosure, IEC 529 | Junction box NEMA 2 ~ IP12 – 30 |
| Ambient temperature | -40 – 50 °C / -40 – 122 °F |

2.10.1 Dimensions and weight

Figure 21: BJ, High performance coils Junction box

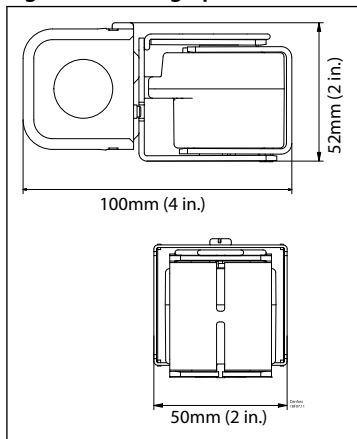
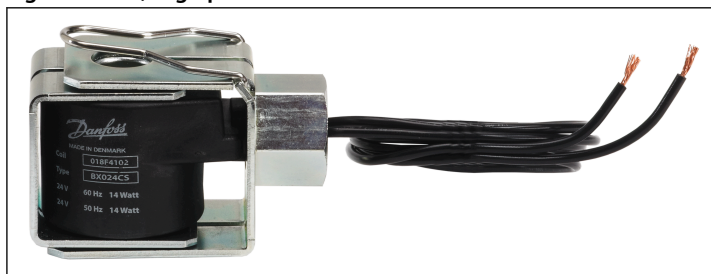


Table 31: BJ, High performance coils Junction box

| Type | L [mm] | Weight [kg] |
|------|--------|-------------|
| BJ | 100 | 0.39 |

2.11 BX, High performance coils Conduit hub

Figure 22: BX, High performance coils



Features

- Enclosure: IP54 / NEMA 4
- For UL listed valves (UL 429 and CSA)
- Ambient temperature: Up to 50 °C / 122 °F
- Media temperature: Up to 185 °C / 364 °F steam

Table 32: BX, High performance coils

| Valve type | Coil type | Voltage tolerance | Supply voltage [V] | Frequency [Hz] | Power consumption [W] | Wire length | | Code no. |
|---|-----------|-------------------|--------------------|----------------|-----------------------|-------------|----------|----------|
| | | | | | | [in.] | [cm] | |
| EV220B 6-50 EV210B EV215B EV225B EV250B | BX024CS | ±10% | 24 | 50 / 60 | 14 | 18 | 46 | 018F4102 |
| | BX024CS | ±10% | 24 | 50 / 60 | 14 | 71 | 180 | 018F4103 |
| | BX024CS | ±10% | 24 | 50 / 60 | 14 | 98 | 250 | 018F4104 |
| | BX120CS | ±10% | 110 | 50 / 60 | 16 | 18 | 46 | 018F4112 |
| | BX120CS | ±10% | | | | 36 | 91 | 018F4113 |
| | BX120CS | ±10% | 120 | 60 | 15 | 71 | 180 | 018F4114 |
| | BX120CS | ±10% | 208 – 240 | 60 | 14 | 98 | 250 | 018F4115 |
| | BX240CS | ±10% | | | | 18 | 46 | 018F4122 |
| BX240CS | ±10% | 230 | 50 | 17 | 98 | 250 | 018F4123 | |

Table 33: Technical data

| | |
|-----------------------------|-----------------------------|
| Design | In accordance with UL 429 |
| Power consumption, cut in | 49 VA |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | Conduit hub |
| Enclosure, IEC 529 | Conduit hub NEMA 4 ~ IP54 |
| Ambient temperature | -40 – 50 °C / -40 – 122 °F |

2.11.1 Dimensions and weight

Figure 23: BX, High performance coils Conduit hub

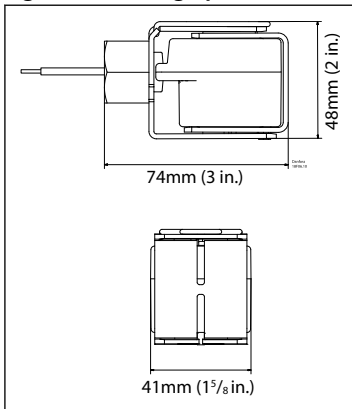


Table 34: BX, High performance coils Conduit hub

| Type | L [mm] | Weight [kg] |
|------|--------|-------------|
| BX | 74 | 0.33 |

2.12 BY, High performance coils

Figure 24: BY, High performance coils



Features

- Enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with mounted cable plug
- For UL recognised valves
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU

- EN60730-1
- EN60730-2-8

Table 35: BY, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|----------|
| | | | | | [W] | [VA] | | |
| BQ024CS | -40 – 50 | 24 | ±10% | 50 | 14 | 26 | | 018F7655 |
| | | 24 | ±10% | 60 | 12 | 21 | | |
| BQ120BS | -40 – 50 | 230 | ±10% | 50 | 16 | 32 | | 018F7658 |
| | | 208 – 240 | ±10% | 60 | 14 | 28 | | |
| BQ240CS | -40 – 50 | 110 | ±10% | 50 | 14 | 27 | | 018F7663 |
| | | 110 – 120 | ±10% | 60 | 14 | 27 | | |

Table 36: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | Spade connector in accordance with DIN 43650 form A |
| Enclosure, IEC 529 | Up to IP65 / NEMA 4 |
| Plug type | Cable plug (042N0156) |

2.12.1 Dimensions and weight

Figure 25: BY, High performance coils

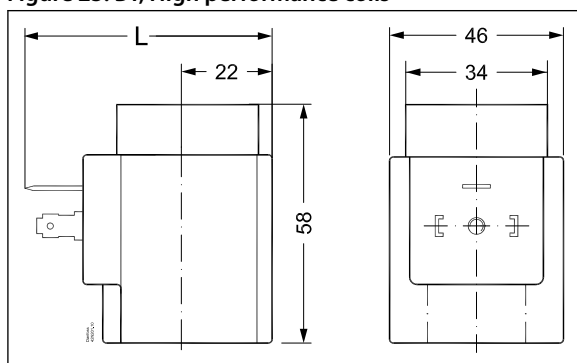


Table 37: BY, High performance coils

| Type | L without cable plug [mm] | L with protective cap [mm] | L with cable plug [mm] | Weight [kg] |
|------|---------------------------|----------------------------|------------------------|-------------|
| BY | 62 | 77 | 85 | 0.24 |

2.13 BQ, High performance coils

Figure 26: BQ, High performance coils



Features

- Enclosure:

Solenoid coils, type BA, BD, BB, BE, BF, BG, BN, BO, BJ, BX, BY, BQ, AM, AS, AZ and AP

- IP00 version with DIN 43650 A spade connectors
- IP20 version with protective cap
- IP65/IP67 version with mounted cable plug
- Max. media temperature: 185 °C steam
- For UL recognised valves
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 38: BQ, High performance coils

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|----------|
| | | | | | [W] | [VA] | | |
| BQ024CS | -40 – 40 | 24 | -15%, 10% | 50 | 10 | 17 | | 018F4517 |
| | | 24 | -15%, 10% | 60 | 9 | 16 | | |
| BQ120BS | -40 – 40 | 110 / 120 | -15%, 6% | 60 | 13.5 | 19 | | 018F4519 |
| BQ240CS | -40 – 40 | 230 | -15%, 6% | 50 | 10 | 17 | | 018F4511 |
| | | 208 / 240 | -6%, 6% | 60 | 9.5 | 16 | | |

Table 39: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| Insulation of coil windings | Class H according to IEC 85 |
| Connection | Spade connector in accordance with DIN 43650 form A |
| Enclosure, IEC 529 | Up to IP65 / NEMA 4 |
| Plug type | Cable plug (042N0156) |

2.13.1 Dimensions and weight

Figure 27: BQ, High performance coils

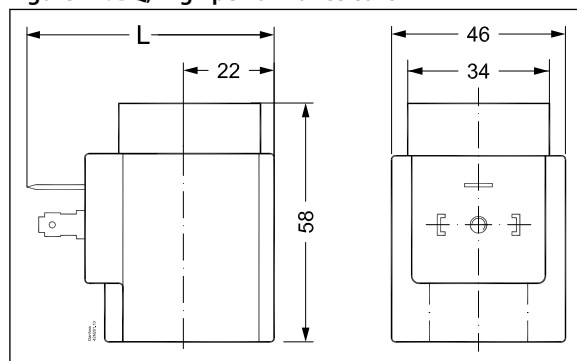
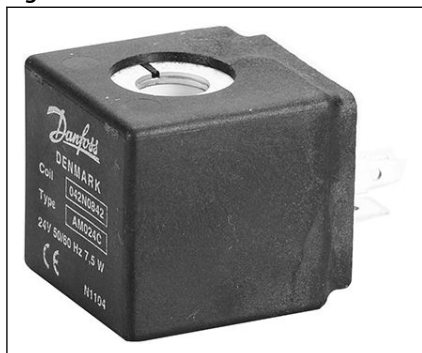


Table 40: BQ, High performance coils

| Type | L without cable plug [mm] | L with protective cap [mm] | L with cable plug [mm] | Weight [kg] |
|------|---------------------------|----------------------------|------------------------|-------------|
| BY | 62 | 77 | 85 | 0.24 |

2.14 AM coil

Figure 28: AM coi



Features

- Cable plug enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with cable plug
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 41: AM coil

| Type | Tambient [°C] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Code no. |
|--------|---------------|--------------------|-------------------|----------------|-------------------|------|----------|
| | | | | | [W] | [VA] | |
| AM024C | -40 – 50 | 24 | ±10% | 60 | 5.5 | 11 | 042N0842 |
| | | 24 | ±10% | 50 | 7.5 | 14 | |
| AM110C | -40 – 50 | 110 | ±10% | 60 | 5.5 | 11 | 042N0845 |
| | | 110 | ±10% | 50 | 7.5 | 14 | |
| AM230C | -40 – 50 | 230 | ±10% | 60 | 6.5 | 13 | 042N0840 |
| | | 230 | ±10% | 50 | 9.5 | 18 | |
| AM240C | -40 – 50 | 240 | ±10% | 60 | 5.5 | 11 | 042N0841 |
| | | 240 | ±10% | 50 | 7.5 | 15 | |
| AM012D | -40 – 50 | 12 | ±10% | DC | 8.5 | – | 042N0848 |
| AM024D | -40 – 50 | 24 | ±10% | DC | 9 | – | 042N0843 |

Table 42: Technical data

| | |
|-----------------------------|---|
| Design | In accordance with VDE 0580 |
| Power consumption, cut in | 22.5 VA AC 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 | IP00 with spade connector, IP65 with cable plug |
| Duty rating | Continuous |
| Plug type | Cable plug (042N0156) |

2.14.1 Dimensions and weight

Figure 29: AM coil

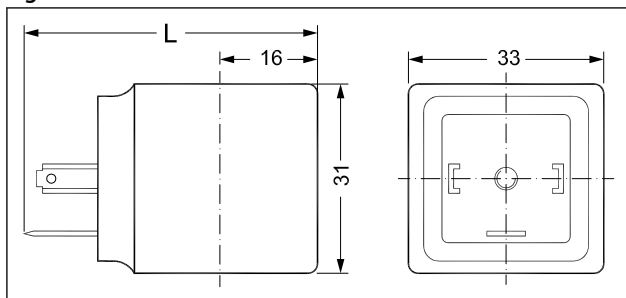


Table 43: AM coil

| Type | L without cable plug [mm] | L with cable plug [mm] | L with protective cap [mm] | Weight [kg] |
|------|---------------------------|------------------------|----------------------------|-------------|
| AM | 48 | 72 | 64 | 0.10 |

2.15 AP, Compact UL recognised coils

Figure 30: AP Coil



Features

- Cable plug enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with cable plug
- For UL recognised valves
- Ambient temperature: Up to 50 °C / 122 °F
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8

Table 44: AP, Compact UL recognised coils

| Type | Tambient [°C / °F] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|--------|----------------------|--------------------|-------------------|----------------|-------------------|------|----------|----------|
| | | | | | [W] | [VA] | | |
| AP240C | -40 – 50 / -40 – 122 | 208 – 240 | ±10% | 60 | 5.5 | 11 | | 042N4291 |
| | | 230 | | 50 | 7.5 | 15 | | |
| AP120B | -40 – 50 / -40 – 122 | 110 – 120 | ±10% | 60 | 5 | 11 | | 042N4292 |
| AP024B | -40 – 50 / -40 – 122 | 24 | ±10% | 60 | 5 | 11 | | 042N4293 |

Table 45: Technical data

| | |
|-----------------------------|--|
| Design | In accordance with VDE 0580 |
| 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 connector, IP65 / NEMA 2 with cable plug |
| Duty rating | Continuous |
| Plug type | Cable plug (042N0156) |

2.15.1 Dimensions and weight

Figure 31: AP, Compact UL recognised coils

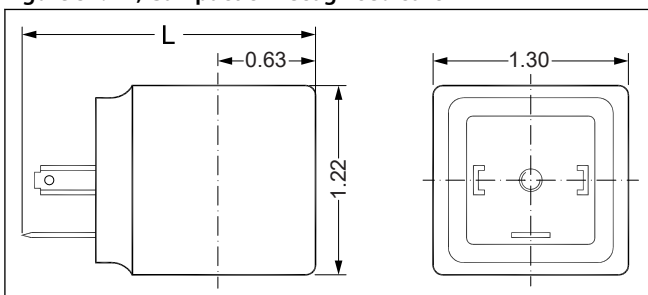


Table 46: AP, Compact UL recognised coils

| Type | L without cable plug [mm] | L with cable plug [mm] | L with protective cap [mm] | Weight [kg] |
|------|---------------------------|------------------------|----------------------------|-------------|
| AP | 48 | 72 | 64 | 0.10 |

2.16 AS/AZ, Compact UL recognised clip-on coils

Figure 32: AS/AZ Coil



Features

- Cable plug enclosure:
 - IP00 version with DIN 43650 A spade connectors
 - IP20 version with protective cap
 - IP65/IP67 version with cable plug
- Ambient temperature: Up to 50 °C / 122 °F
- In accordance with:
 - RoHS Directive 2011/65/EU
 - Low Voltage Directive 2014/35/EU
 - EN60730-1
 - EN60730-2-8
- UL recognized

Table 47: AS/AZ, Compact UL recognised clip-on coils

| Type | Tambient [°C / °F] | Supply voltage [V] | Voltage variation | Frequency [Hz] | Power consumption | | Approval | Code no. |
|---------|----------------------|--------------------|-------------------|----------------|-------------------|------|----------|----------|
| | | | | | [W] | [VA] | | |
| AS024CS | -40 – 50 / -40 – 122 | 24 | -10%, +6% | 50 | 9.5 | 18 | | 042N7608 |
| | | 24 | | 60 | 7.0 | 14 | | |
| AS230CS | -40 – 50 / -40 – 122 | 230 | -10%, +6% | 50 | 8.0 | 16 | | 042N7601 |
| | | 208 – 240 | ±6% | 60 | 7.0 | 14 | | |
| AZ012DS | -40 – 50 / -40 – 122 | 12 | -10%, +6% | DC | 6.0 | - | | 042N7616 |
| AZ024DS | -40 – 50 / -40 – 122 | 24 | -10%, +6% | DC | 6.5 | - | | 042N7617 |

Table 48: Technical data

| | |
|-----------------------------|--|
| Design | In accordance with UL 429 |
| 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 connector, IP65 / IP67 with cable plug |
| Duty rating | Continuous |
| Plug type | Cable plug (042N1256) |

2.16.1 Dimensions and weight

Figure 33: AS/AZ, Compact UL recognised clip-on coils

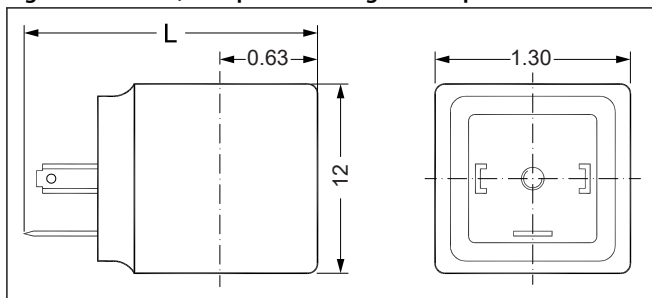
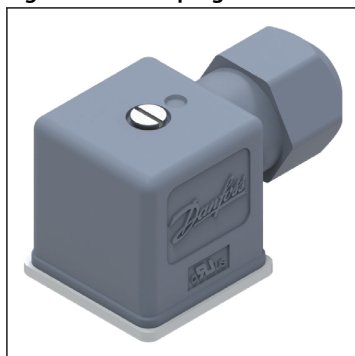


Table 49: AS/AZ, Compact UL recognised clip-on coils

| Type | L without cable plug [mm] | L with cable plug [mm] | L with protective cap [mm] | Weight [kg] |
|-------|---------------------------|------------------------|----------------------------|-------------|
| AS/AZ | 48 | 72 | 64 | 0.10 |

2.17 Cable plug

Figure 34: Cable plug



Features

- Enclosure: IP67 / NEMA 4X
- For use with Danfoss coils type AL, AM, AS, AZ, BA, BB, BD, BN (Center boss), BQ, and BY
- AC / DC all voltages up to 250 V
- In accordance with:
 - RoHS 2011/65/EU
 - LVD 2014/35/EU
 - US
- Design according to:
 - Flammability
 - UL94 V0
 - IEC 60695-11-5

Table 50: DIN 18

| Cable plug size | Description | Code no. |
|-----------------|-----------------|----------|
| DIN 18 | Cable plug IP67 | 042N1256 |

Figure 35: Pin

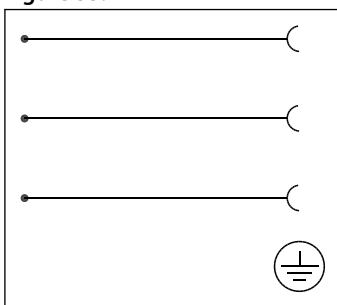


Table 51: Technical data

| | | |
|------------------------|-----------------------------------|--------------------|
| Type | Cable plug with Danfoss logo | |
| Design | EN 175301-803 Form A | |
| Cable gland | Ext. thread diameter range 4-9 mm | |
| Poles | 2+1 (Earth) | |
| Max. voltage | 250 V AC / DC | |
| Enclosure | IP67 (IEC 60529) | |
| Max. operating current | 16 A | |
| Contact resistance | ≤ 15 mΩ | |
| Cable diameter | Ø 4 - 9 mm | |
| Wire cross section | Max. 1.5 mm ² | |
| Ambient temperature | -40 - 125 °C / -40 - 257 °F | |
| Materials | Housing | PA66 GF (Polymide) |
| | Terminal block | PA66 GF (Polymide) |
| | Profiled gasket | Silicone |

2.17.1 Dimensions and weight

Figure 36: Cable plug

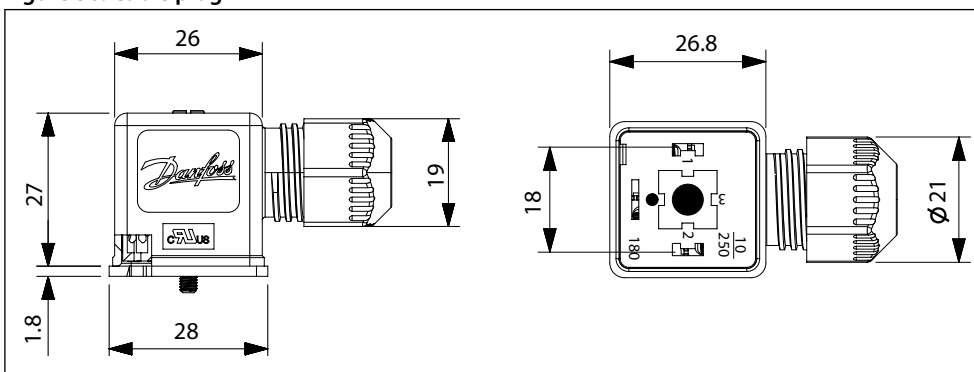


Table 52: Cable plug

| Type | Weight [kg / lbs] |
|------------|-------------------|
| Cable plug | 0.026 / 0.057 |

2.18 Cable plug

Figure 37: Cable plug



Features


- Enclosure: IP65 / NEMA 4
- For use with Danfoss coils type AL, AM, AS, AZ, BA, BB, BD, BN (Center boss), BQ, and BY
- AC / DC all voltages up to 250 V
- In accordance with:
 - RoHS 2011/65/EU
 - LVD 2014/35/EU
 - 
- Design according to:
 - Flammability
 - UL94 V0
 - IEC 60695-11-5

Table 53: DIN 18

| Cable plug size | Description | Code no. |
|-----------------|-----------------|----------|
| DIN 18 | Cable plug IP65 | 042N1278 |

Figure 38: Pin

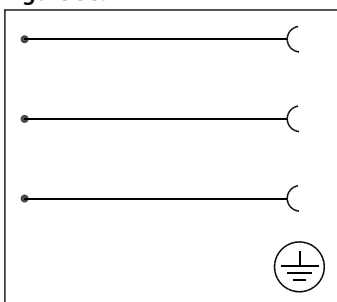


Table 54: Technical data

| | | |
|------------------------|------------------------------|--------------------|
| Type | Cable plug with Danfoss logo | |
| Design | EN 175301-803 Form A | |
| Cable gland | PG 9 | |
| Poles | 2+1 (Earth) | |
| Max. voltage | 250 V AC / DC | |
| Enclosure | IP65 (IEC 60529) | |
| Max. operating current | 16 A | |
| Contact resistance | ≤ 15 mΩ | |
| Cable diameter | Ø 6 - 8 mm | |
| Wire cross section | Max. 1.5 mm ² | |
| Ambient temperature | -40 - 90°C / -40 - 194°F | |
| Materials | Housing | PA66 GF (Polymide) |
| | Terminal block | PA66 GF (Polymide) |
| | Profiled gasket | NBR |

2.18.1 Dimensions and weight

Figure 39: Cable plug

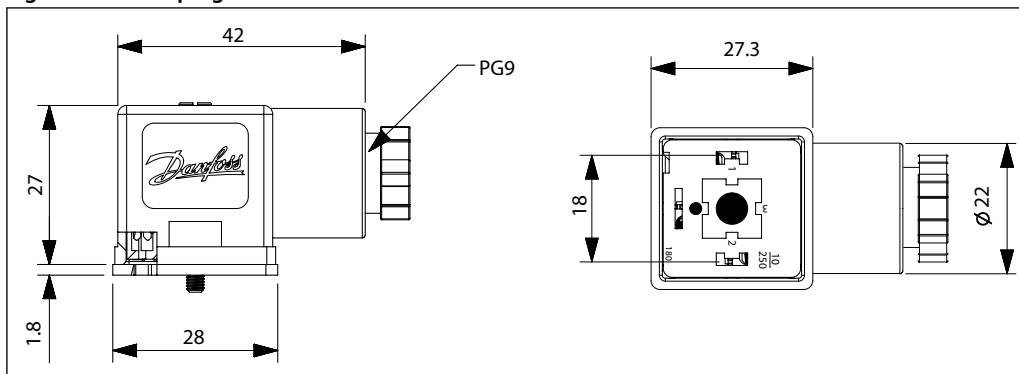
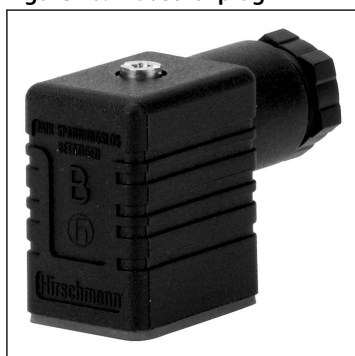


Table 55: Cable plug

| Type | Weight [kg / lbs] |
|------------|-------------------|
| Cable plug | 0.031 / 0.067 |

2.19 Industrial plug

Figure 40: Industrial plug



Features

- Enclosure: Up to IP65
- For use with Danfoss coils type AB and AC
- AC / DC all voltages up to 250 V
- Approved in accordance with:

- US
- CSA

Table 56: DIN 11

| Industrial plug size | Description | Suitable for coil types | Code no. |
|----------------------|--|-------------------------|----------|
| DIN 11 | Cable plug for 6.3 x 0.8 mm spade connectors | AB, AC | 042N0139 |

Figure 41: Pin

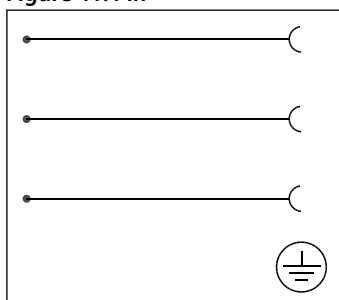


Table 57: Technical data

| | | |
|------------------------|----------------------------|-------------------|
| Type | GM 209 J (Black) | |
| Design | DIN 43650-B | |
| Cable gland | PG 9 | |
| Poles | 2 + PE | |
| Max. voltage | 250 V AC / DC | |
| Enclosure | IP65 (IEC 60529) | |
| Max. operating current | 16 A | |
| Contact resistance | < 10m Ω | |
| Cable diameter | Ø4.5 – 7 mm | |
| Wire cross section | Max. 1.5 mm ² | |
| Ambient temperature | -30 – 90 °C / -22 – 194 °F | |
| Materials | Contacts: | CuSn (Tin plated) |
| | Terminal block: | PA 6 GF |
| | Flat gasket: | NBR |
| | Housing: | PA 6 GF |

2.19.1 Dimensions and weight

Figure 42: Industrial plug

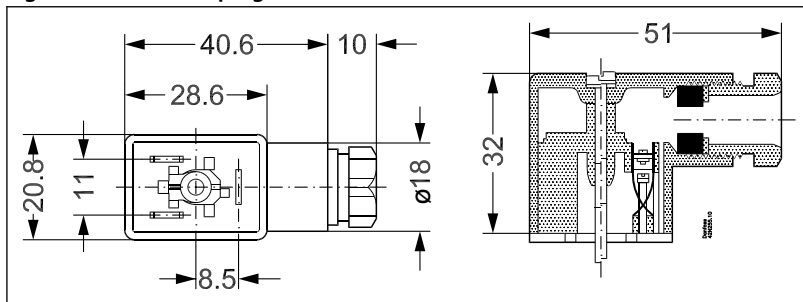


Table 58: Industrial plug

| Type | Weight [kg / lbs] |
|-----------------|-------------------|
| Industrial plug | 0.023 / 0.050 |

2.20 Cable plug (LED + Varistor)

Figure 43: Cable plug



Features

- Enclosure: Up to IP65
- For use with Danfoss coils type AM, AK, AL, AS, AZ, BA, BD, BB, and BY
- 24 V AC / DC and 230 V AC version
- DIN 18
- Approved in accordance with: CSA
- In accordance with:
 - RoHS 2011/65/EU
 - LVD 2014/35/EU

Table 59: DIN 18

| Industrial plug size | Voltage | | Voltage variation | Suitable for coil types | LED colour | Built-in VDR ⁽¹⁾ resistor | Code no. |
|----------------------|---------|--------|-------------------|--------------------------------|------------|--------------------------------------|----------|
| | [V AC] | [V DC] | | | | | |
| DIN 18 | 24 | 24 | ±10% | AM, AL, AS, AZ, BA, BB, BD, BY | Red | Yes | 042N0263 |
| DIN 18 | 230 | - | ±10% | AM, AL, AS, AZ, BA, BB, BD, BY | Red | Yes | 042N0265 |

⁽¹⁾ Protects against voltage peaks

Figure 44:

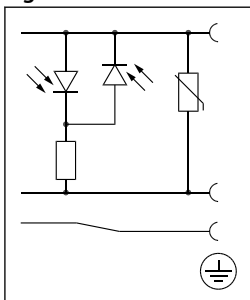


Table 60: Technical data

| | | |
|-----------------------------------|----------------------------|---------------------------|
| Design | EN 175301-803 A | |
| Power consumption | Max. 5 mA | |
| Approval | CSA | |
| Enclosure | IP65 (IEC 60529) | |
| Max. operating current | 1.5 A clamping contact | |
| Contact resistance | ≤ 4m Ω | |
| Protection against wrong polarity | Yes | |
| Cable diameter | 6 – 8 mm and 8 – 10 mm | |
| Wire cross section | Max. 1.5 mm ² | |
| Ambient temperature | -25 – 60 °C / -13 – 140 °F | |
| Materials | Contacts: | CuZn, Cu/Sn-plated |
| | Terminal block: | PA6 + 30% FG, black |
| | Flat gasket: | NBR LABS-fre |
| | Housing: | PA6 |
| | Wire holder: | PA6.6 + 50% FG P7,5 black |

2.2.0.1 Dimensions and weight

Figure 45: Cable plug (LED + Varistor)

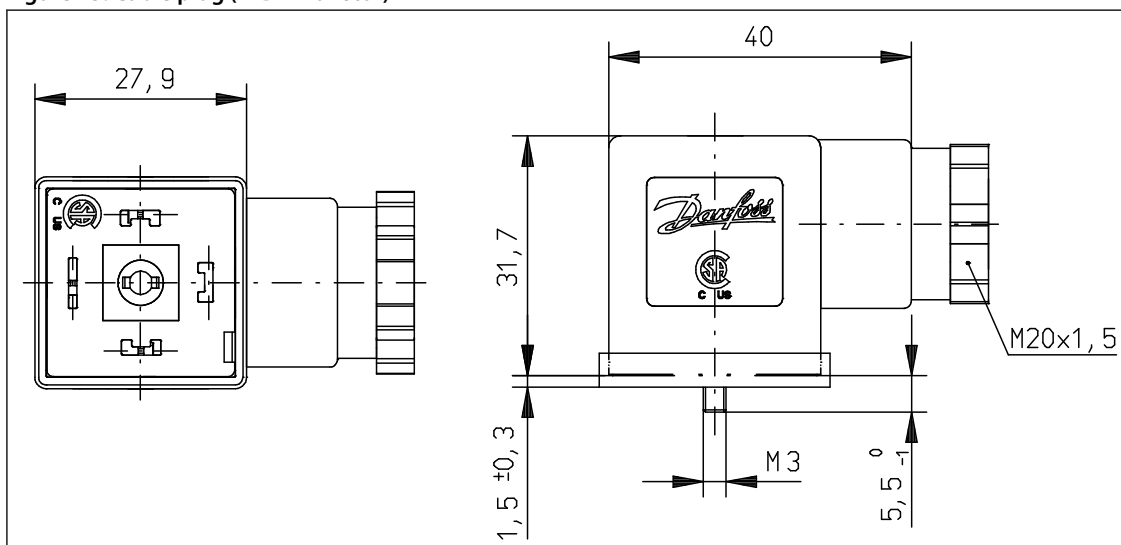


Table 61: Cable plug (LED + Varistor)

| Type | Weight [kg / lbs] |
|-----------------------------|-------------------|
| Cable plug (LED + Varistor) | 0.027 / 0.059 |

2.21 Industrial plug (LED + Varistor)

Figure 46: Industrial plug



Features

- Enclosure: Up to IP65
- For use with Danfoss coils type AB and AC
- 24 V AC
- Approved in accordance with: CSA
- In accordance with:
 - RoHS 2011/65/EU
 - LVD 2014/35/EU

Table 62: DIN 11

| Industrial plug size | Voltage | | Suitable for coil types | LED colour | Built-in VDR ⁽¹⁾ resistor | Code no. |
|----------------------|---------|--------|-------------------------|------------|--------------------------------------|----------|
| | [V AC] | [V DC] | | | | |
| DIN 11 | 24 | 24 | AB, AC | Red | Yes | 042N0267 |

⁽¹⁾ Protects against voltage peaks.

Figure 47:

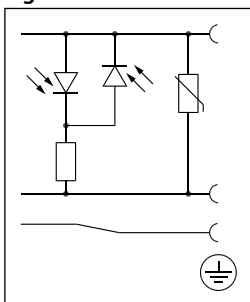


Table 63: Technical data

| | |
|-----------------------------------|----------------------------|
| Design | Industrial form |
| Supply voltage variation | ±10% |
| Power consumption | Max. 5 mA |
| Approval | CSA |
| Enclosure | IP65 (IEC 60529) |
| Max. operating current | 1.5 A clamping contact |
| Contact resistance | ≤ 4m Ω |
| Protection against wrong polarity | Yes |
| Cable diameter | 5 – 6 mm and 6 – 9 mm |
| Wire cross section | Max. 1 mm ² |
| Ambient temperature | -25 – 60 °C / -13 – 140 °F |

| | | |
|-----------|-----------------|---------------------------|
| Materials | Contacts: | CuZn, Cu/Sn-plated |
| | Terminal block: | PA6 + 30% FG, black |
| | Flat gasket: | NBR LABS-fre |
| | Housing: | PA6 |
| | Wire holder: | PA6.6 + 50% FG P7,5 black |

2.21.1 Dimensions and weight

Figure 48: Industrial plug (LED + Varistor)

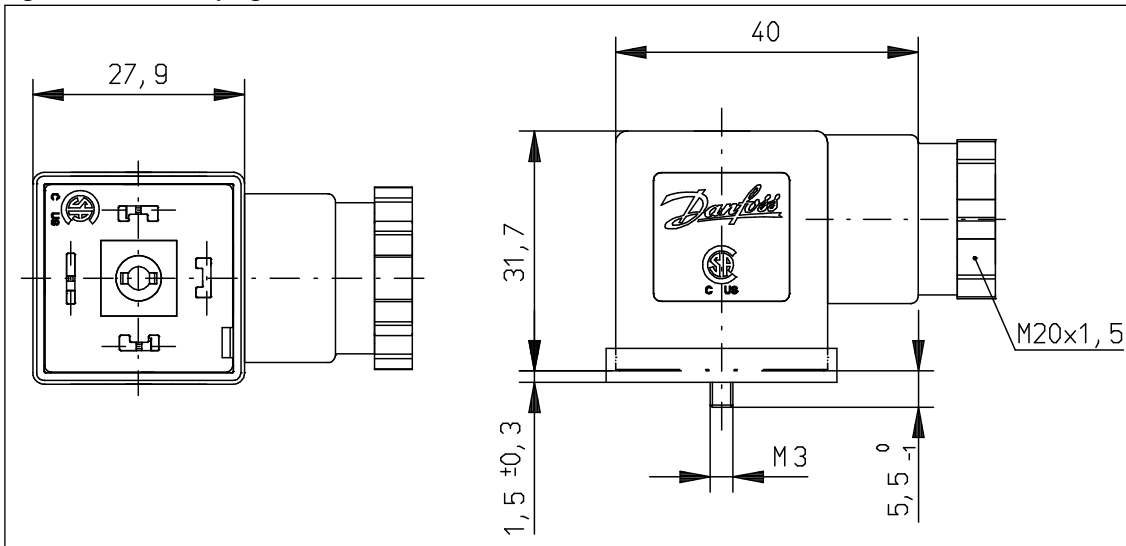


Table 64: Industrial plug (LED + Varistor)

| Type | Weight [kg / lbs] |
|----------------------------------|-------------------|
| Industrial plug (LED + Varistor) | 0.027 / 0.059 |

2.22 Universal electronic multi-timer Type ET 20 M

Figure 49: ET 20 M



Features

- 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 AC

- Light diodes for indication
- All in one unit
- Manual override (test button)

Table 65: BA024A

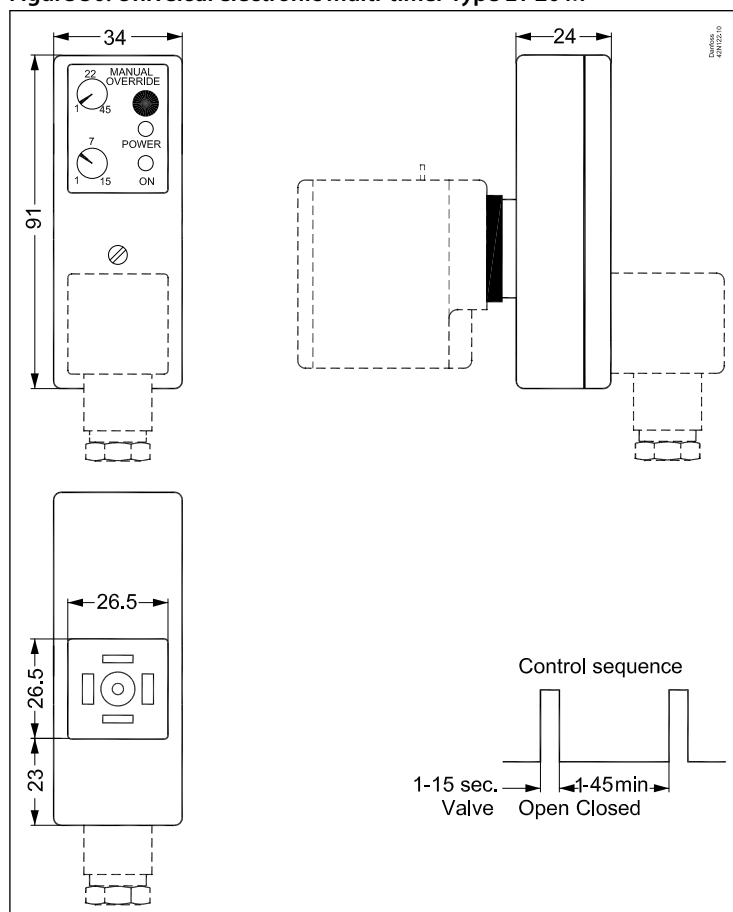
| Type | Voltage [V] | Suitable for coil types | Code no. |
|--------|-------------|----------------------------|----------|
| BA024A | 24 – 240 | AL, AM, AS, AZ, BA, BD, BB | 042N0185 |

Table 66: Technical data

| | |
|-------------------------------------|-----------------------------|
| Type | ET 20 M |
| Voltage | 24 – 240 V AC / 50 – 60 Hz |
| Power rating | Max. 20 W |
| Enclosure | IP00, IP65 with cable plug |
| Electrical connection | DIN connector (DIN 43650-A) |
| Ambient operating temperature range | -10 – 50 °C |
| Function | Start with pulse |
| Interval timer | 0 – 45 min. |
| "On" timer | 0 – 15 sec. |

2.2.2.1 Dimensions and weight

Figure 50: Universal electronic multi-timer Type ET 20 M



3 Online support

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