



- Three-pole versions up to 630A in IEC AC3 duty
- Four-pole versions up to 1600A in IEC AC1 duty
- Versions for power factor correction up to 100kvar at 400VAC
- Four-pole versions with 2NO+2NC or 4NC main poles
- Versions for photovoltaic application
- Versions with AC, DC or AC/DC control
- Low-consumption versions with DC control circuit for control relays and 9-38A contactors in IEC AC3 duty
- Extensive choice of add-on blocks and accessories
- Certified by primary international authorities.

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THREE-POLE CONTACTORS

- IEC Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 16 to 1600A
- IEC Ie ratings in AC3 440V duty: 6 to 630A
- IEC Power ratings in AC3 400V duty: 2.2 to 335kW
- UL/CSA ratings: 3 to 500HP at 480V and 600V
- AC, DC, AC/DC and DC low-consumption coil.



Page 2-10

FOUR-POLE CONTACTORS

- IEC Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 20 to 1600A
- IEC Power ratings in AC1 400V duty: 14 to 950kW
- UL/CSA general use: 16 to 1000A
- AC, DC, AC/DC and DC low-consumption coil.



Page 2-14

FOUR-POLE CONTACTORS WITH 2NO+2NC MAIN POWER POLES AND WITH 4 NC POLES

- IEC Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 20 to 115A for type 2NO+2NC
- UL/CSA general use: 20 to 115A
- IEC Ith ratings in AC1 duty at $\leq 40^{\circ}\text{C}$: 25 to 40A
- UL/CSA general use: 20 to 55A for 4NC types
- AC, DC, AC/DC and DC low-consumption coil.



Page 2-15

CONTACTORS FOR PHOTOVOLTAIC APPLICATIONS

- Operational current up to 165A (DC1 600V at $\leq 55^{\circ}\text{C}$ with 4 NO poles in series) for photovoltaic applications.
- AC, and AC/DC coil.



Page 2-16

CONTACTORS FOR POWER FACTOR CORRECTION

- With limiting resistors included
- IEC Power ratings at 400V: 7.5 to 100kvar
- UL/CSA ratings: 9 to 100kvar at 480V; 10 to 120kvar at 600V
- AC coil.



Page 2-17

CONTROL RELAYS

- AC, DC and DC low-consumption coil
- Screw or Faston termination
- 4, 8 or 11 auxiliary contact composition.



LOVATO Electric contactors are suitable for new motors with high IE3 efficiency values

THE IDEAL SOLUTION!



● **45mm WIDE CONTACTORS**

Ratings up to 38A in AC3 (18.5kW) 400V 30HP 480V UL - merely 45mm wide: exceptional benefit for electric panel dimensions.

● **55mm WIDE CONTACTORS**

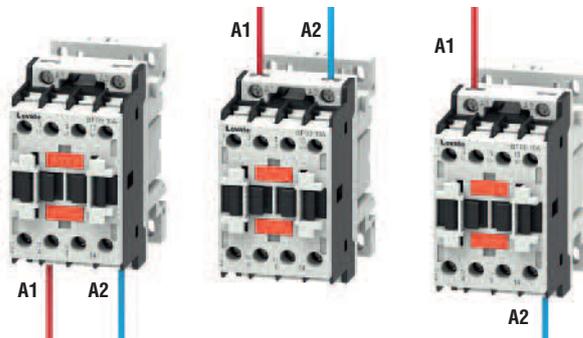
Ratings up to 95A in AC3 (45kW) 400V / 60HP 480V UL - merely 55mm wide: exceptional benefit for electric panel dimensions.

● **75mm WIDE CONTACTORS**

Ratings up to 150A in AC3 (75kW) 400V / 100HP 480V UL - merely 75mm wide: exceptional benefit for electric panel dimensions.

● **4-TERMINAL COIL**

Connecting cables can be coupled to the coil both on the line and load ends of the contactor.



● **ELECTRONIC COIL**

Contactors from 40 to 150A AC3 can be equipped with AC/DC electronic coil with wide operating range. Example: single 100 to 250V AC/DC coil.

● **BUILT-IN SURGE SUPPRESSOR**

BF series contactors up to 150A AC3 with voltages in DC or AC/DC already have a built-in surge suppressor.

● **LOW-CONSUMPTION COILS**

The BF...L contactors feature a 2.4W low consumption. This characteristic widely allows their direct control by PLC outputs.

● **COILS WITH WIDE OPERATING RANGE**

BF...D contactors are equipped with a wide operating range coil and are particularly useful in applications subject to considerable voltage variations, such as in electric traction railway equipment.

● **RAILWAY APPLICATIONS**



Thanks to the compliance with IEC 61373 (shock and vibration) and EN 45545 (fire behaviour), LOVATO Electric contactors are suitable for railway applications. Consult Technical support for detailed information; see contact details on inside front cover.

● **HOUSEHOLD AND COMMERCIAL APPLICATIONS**



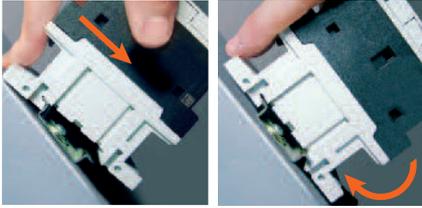
The plastic materials of the contactors comply with the EN 60335 standard typically applied in equipment for food industry and professional catering. Consult Technical support for detailed information; see contact details on inside front cover.

● **PHOTOVOLTAIC APPLICATIONS**



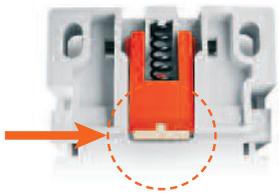
LOVATO Electric contactors are suitable for use in the various sections of the photovoltaic systems. In particular, there are specific contactors for use up to 1000VDC.

35MM DIN RAIL MOUNTING AND FIXING



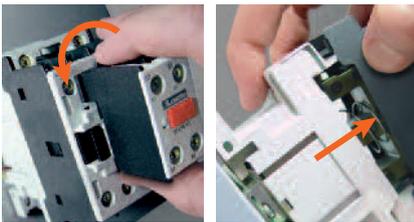
Contactor mounting on and removal from a 35mm DIN rail are tool-less operations and are done by simply applying pressure on the contactor.

RUBBER PAD INSERT TO PREVENT DIN RAIL SLIDING



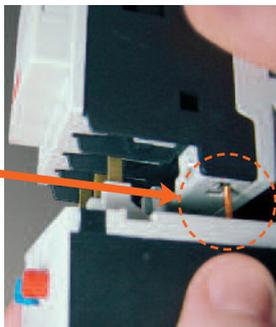
A rubber insert prevents the contactors from sliding on the 35mm DIN rail even when out of tolerance or mounted vertically.

SNAP-ON INSTALLATION



On the contactors, it's quick and easy to fit and remove auxiliary contacts and accessories, without using tools; the same applies to replacing the coil in the AC BF09...BF38 contactors.

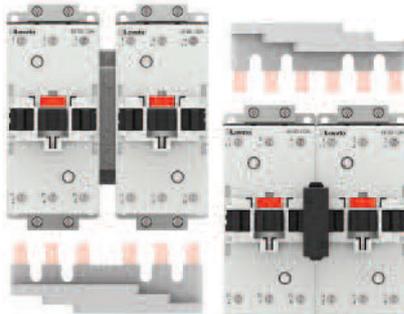
EFFORTLESS THERMAL OVERLOAD RELAY LINK RF38, RF82 AND RF110 TYPES



During the connection of the thermal overload relay to the contactor, its auxiliary contact is simultaneously linked to the contactor coil terminal rigid connector. The complete overload relay fixing is obtained with one single operation and without other connections.

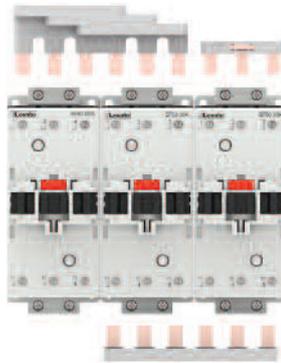
RIGID CONNECTION KITS FOR FAST WIRING WITHOUT MISTAKES

The assembly and wiring of electromechanical starters is extremely fast and reliable. Versatile electrical and mechanical connecting systems provide easy and foolproof assembly of compact starters and changeovers.



Changeover

Reversing starter



Star-delta starter

BREAKER-CONTACTOR CONNECTIONS

The rigid connections between breaker and contactor allow complete compact starters to be created easily, quickly and with less space used in the panel. It is fitted on a single DIN rail.



IP20 CONNECTION SECURITY

For BF09...BF38 contactors, the easy access and space for the terminals is combined with IP20 protection, preventing accidental contact with live parts.

IP20 ACCESSORY FOR CONTACTORS FROM 40A TO 150A AC3

IP20 protection can be obtained by adding a simple accessory.



SIDE ADD-ON FOURTH POLE

For the 45A to 165A AC1 ratings, a side-mount fourth power pole can be snapped on the three-pole contactor. This solution permits the optimisation of inventory.



MECHANICAL INTERLOCK



Various versions of mechanical interlock are available. One type can be integrated in the contactors from 9 to 38A AC3 without increasing the overall dimensions. They may have built-in contacts to also make the electrical interlock. The mounting position can be on the side or on the front of the contactors.

TERMINAL ADAPTABILITY

Terminals are suitable for every type of cable: flexible, rigid, according to AWG standards and interlocked with any type of cable terminal. For BF09...BF38 contactors, a single type of screwdriver tightens the screws for the power contacts, auxiliary contacts and coil.

DOUBLE LUG TERMINALS

40 to 150A AC3 contactors are equipped with double lug terminals for easy, functional access for power cables. It is extremely simple to create star-delta starters, reversing switches, changeovers and arrange parallel supply for several contactors.



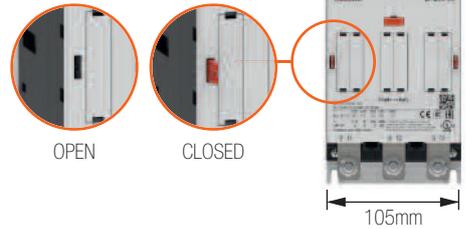
INNOVATION IS CONTINUING....



- **AC/DC COIL WITH ELECTRONIC CONTROL.**
 - Wide operating range: for example one single coil to cover 100...250VAC/DC range.
 - Low consumption during in-rush and in service
 - No chattering in the event of irregular voltage
 - Built-in surge suppressor filter.

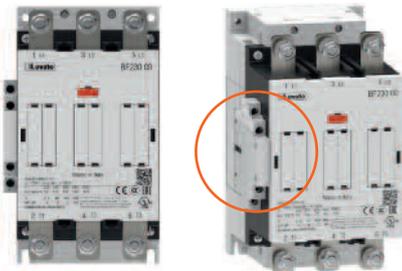
- **COMPACT DIMENSIONS**
 - Three-pole contactors: 105mm width for currents up to 230A AC3 - 350A AC1
 - Four-pole contactors: 140mm width for currents up to 350A AC1
 - Width identical with moulded-case circuit breakers of equal current.

- **CONTACT STATUS FRONT VIEW**
A front mechanical indicator allows to easily identify the status of the contacts.

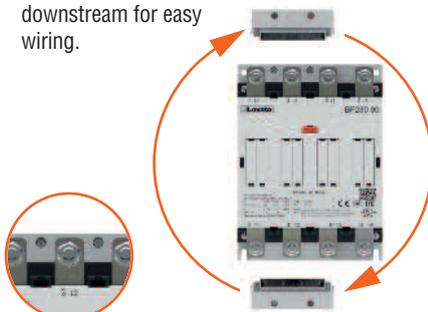


- **HIGH POWER TERMINALS FOR EASY AND SAFE WIRING**
High terminals to ensure a safe isolation distance from the panel in case of wiring with double terminals or bars for parallel or changeover.

- **SIDE-MOUNT AUXILIARY CONTACTS**
Useful in the event that the panel depth may be critical.



- **REVERSIBLE COIL TERMINALS BLOCK**
Easy coil terminal reversing upstream - downstream for easy wiring.



The coil terminals are easily accessible with a screwdriver as they are between the power terminals.

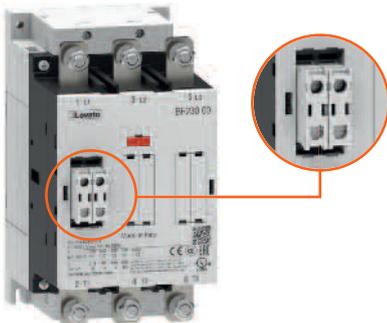
- **POWER TERMINAL PROTECTIONS PHASE BARRIERS.**
They guarantee the separation and protection of the power terminals and adjacent phases separation.



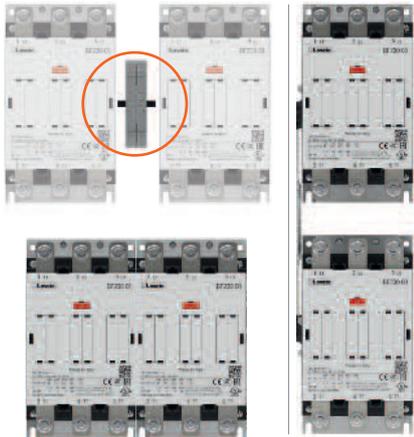
- **TERMINAL ENLARGEMENT**
They extend the pitch of the terminals from 35mm to 45mm to allow an easy wiring of standard flange lugs for cross-sectional cables of 185mm².



- **FRONT-MOUNT AUXILIARY CONTACTS**
Up to 6 NO or NC auxiliary contacts, with screw terminals, can be mounted without side dimensions increasing.



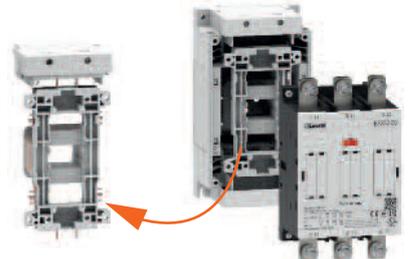
- **HORIZONTAL AND VERTICAL INTERLOCK**
Horizontal interlock with concealed mounting does not increase the dimensions.



- **CAPTIVE NUT**
Accessory that allows even easier wiring of the terminals using a single wrench.



- **EASY COIL AND POWER CONTACTS REPLACEMENT**



BG series mini-contactors



- AC and DC versions of same size
- Quick connect - snap on accessory mounting
- Distinct contact status indication
- Up to four auxiliary contacts can be mounted
- Mechanical interlock only 5mm depth
- Three-pole mini-contactors, 6 to 12A IEC AC3 duty / 3 to 7.5HP 480V - 3 to 10HP 600V UL/CSA
- Four-pole mini-contactors, 20A IEC AC1 duty
- Versions with 2NO+2NC main power poles
- Highly conductive auxiliary contacts with four contact points
- Coils with AC or DC supply
- Low-consumption DC versions
- Screw, faston and rear PCB solder pin termination.

| | 3 poles | | | 4 poles | | |
|-------|----------|----|----|-----------|----|----|
| | le (AC3) | AC | DC | lth (AC1) | AC | DC |
| BG06 | 6A | ● | ● | — | — | — |
| BG09 | 9A | ● | ● | 20A | ● | ● |
| BGF09 | 9A | ● | ● | 20A | ● | ● |
| BGP09 | 9A | ● | ● | 20A | ● | ● |
| BG12 | 12A | ● | ● | — | — | — |

BF series contactors



- Quick connect - snap on accessory mounting
- Distinct contact status indication
- Up to eight auxiliary contacts can be mounted
- Mechanical interlock without overall dimensions increasing
- Three-pole contactors, 9 to 230A IEC AC3 duty / 5 to 150HP 480V - 7.5 to 200HP 600V UL/CSA
- Four-pole contactors, 25 to 350A in AC1 duty
- Power factor correction contactors, 7.5 to 100kvar at 400V IEC / 9 to 110kvar at 480V UL/CSA
- Types with 2NO+2NC or 4NC main power poles
- Types for photovoltaic applications
- Highly conductive auxiliary contacts
- Coils with AC or DC supply
- Wide-range coils with electronic control for contactors from 40 to 230A AC3
- Low-consumption versions for control relays and 9-38A contactors in IEC AC3 duty.
- Screw terminals.

| | le (AC3) | 3 poles with coil type: | | | |
|-------|----------|-------------------------|----|-----------------|--------------------|
| | | AC | DC | DC ^① | AC/DC ^② |
| BF09 | 9A | ● | ● | ● | — |
| BF12 | 12A | ● | ● | ● | — |
| BF18 | 18A | ● | ● | ● | — |
| BF25 | 25A | ● | ● | ● | — |
| BF26 | 26A | ● | ● | ● | — |
| BF32 | 32A | ● | ● | ● | — |
| BF38 | 38A | ● | ● | ● | — |
| BF40 | 40A | ● | — | — | ● |
| BF50 | 50A | ● | — | — | ● |
| BF65 | 65A | ● | — | — | ● |
| BF80 | 80A | ● | — | — | ● |
| BF94 | 95A | ● | — | — | ● |
| BF95 | 95A | ● | — | — | ● |
| BF115 | 115A | ● | — | — | ● |
| BF150 | 150A | ● | — | — | ● |
| BF160 | 160A | — | — | — | ● |
| BF195 | 195A | — | — | — | ● |
| BF230 | 230A | — | — | — | ● |

| | lth (AC1) | 4 poles with coil type: | | | |
|-------|-----------|-------------------------|----|-----------------|--------------------|
| | | AC | DC | DC ^① | AC/DC ^② |
| BF09 | 25A | ● | ● | ● | — |
| BF12 | 28A | ● | — | — | — |
| BF18 | 32A | ● | ● | ● | — |
| BF26 | 45A | ● | ● | ● | — |
| BF38 | 56A | ● | ● | ● | — |
| BF40 | 70A | ● | — | — | — |
| BF50 | 90A | ● | — | — | — |
| BF65 | 100A | ● | — | — | ● |
| BF80 | 115A | ● | — | — | ● |
| BF95 | 140A | ● | — | — | ● |
| BF115 | 160A | ● | — | — | ● |
| BF150 | 165A | ● | — | — | ● |
| BF160 | 250A | — | — | — | ● |
| BF195 | 275A | — | — | — | ● |
| BF230 | 350A | — | — | — | ● |

① Low-consumption version.
② Wide-range coil with electronic control.

B series contactors



- 3 frame sizes offering 8 different contactors
- Coil operates indifferently on AC or DC supply voltage
- Coil with low in-rush and holding
- Coil removable without disconnecting power wiring
- Red indicator when contactor is energised
- Safety feature prevents contactor to be energised without arc chute in place and locked
- Convertible auxiliary contact block (2NO + 1NC or 1NO + 2NC), maximum of 4 blocks per contactor for a total of 12 contacts
- Contactor terminals with bolt, washer and nut
- Simple horizontal or vertical interlock
- Three-pole contactors, 265A to 630A IEC AC3 duty
- Four-pole contactors, 350A to 1600A IEC AC1 duty
- 100 to 500HP 600V UL/CSA
- Coils with AC/DC supply
- Screw termination.

| | 3 poles | | | 4 poles | | |
|----------|----------|----|-------|-----------|----|-------|
| | le (AC3) | AC | AC/DC | lth (AC1) | AC | AC/DC |
| B250 | 265A | — | ● | 350A | — | ● |
| B310 | 320A | — | ● | 450A | — | ● |
| B400 | 420A | — | ● | 550A | — | ● |
| B500 | 520A | — | ● | 700A | — | ● |
| B630 | 630A | — | ● | 800A | — | ● |
| B6301000 | ① | — | ● | 1000A | — | ● |
| B1250 | ① | ● | — | 1250A | ● | — |
| B1600 | ① | ● | — | 1600A | ● | — |

① For AC1 / general use duty only.

2 Contactors

Three-pole contactors with AC control circuit



INDEX



new



BG06A...BG12A

BF09A...BF25A

BF26A...BF38A

BF40A...BF94A

BF95A...BF150A

BF160E...BF230 E

B250...B400

Three-phase motor control in AC3 duty

UL/CSA details

| Order code | IEC operating current | | | | Maximum IEC power at ≤55°C (AC3) | | | | | | | | Maximum UL/CSA horsepower ratings | | | | | |
|----------------|-----------------------|----------|----------|----------------------|--|------|------|------|------|------|-------|--------------|-----------------------------------|------|------|------|------|---|
| | I _{th} (AC1) | | | I _e (AC3) | 230V | 400V | 415V | 440V | 500V | 690V | 1000V | Single phase | Three phase | | | | | |
| AC coil | ≤40°C | ≤55°C | ≤70°C | ≤440V at ≤55°C | | | | | | | | 120V | 240V | 200V | 240V | 480V | 600V | |
| [A] | [A] | [A] | [A] | [A] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [HP] | [HP] | [HP] | [HP] | [HP] | [HP] | |
| 11BG0601A① | 16 | 14 | 12 | 6 | 1.5 | 2.2 | 2.4 | 2.5 | 3 | 3 | — | 1/3 | 1 | 1½ | 2 | 3 | 3 | |
| 11BG0610A① | | | | | | | | | | | | | | | | | | |
| 11BG0901A① | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | 5 | — | 1/2 | 1½ | 2 | 3 | 5 | 5 | |
| 11BG0910A① | | | | | | | | | | | | | | | | | | |
| 11BGF0901A① | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | 5 | — | 1/2 | 1½ | 2 | 3 | 5 | 5 | |
| 11BGF0910A① | | | | | | | | | | | | | | | | | | |
| 11BGP0901A① | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | — | — | 1/2 | 1½ | 2 | 3 | 5 | — | |
| 11BGP0910A① | | | | | | | | | | | | | | | | | | |
| 11BG1201A①② | 20 | 18 | 15 | 12 | 3.2 | 5.7 | 6.2 | 5.5 | 5 | 5 | — | 1/2 | 1½ | 3 | 3 | 7½ | 10 | |
| 11BG1210A①② | | | | | | | | | | | | | | | | | | |
| BF0901A①② | 25 | 20 | 18 | 9 | 2.2 | 4.2 | 4.5 | 4.8 | 5.5 | 7.5 | — | ¾ | 2 | 3 | 3 | 5 | 7½ | |
| BF0910A①② | | | | | | | | | | | | | | | | | | |
| BF1201A①② | 28 | 23 | 20 | 12 | 3.2 | 5.7 | 6.2 | 6.2 | 7.5 | 10 | — | 1 | 2 | 5 | 5 | 7½ | 10 | |
| BF1210A①② | | | | | | | | | | | | | | | | | | |
| BF1801A①② | 32 | 26 | 23 | 18 | 4 | 7.5 | 9 | 9 | 10 | 10 | — | 1 | 3 | 5 | 5 | 10 | 15 | |
| BF1810A①② | | | | | | | | | | | | | | | | | | |
| BF2501A① | 32 | 26 | 23 | 25 | 7 | 12.5 | 13.4 | 13.4 | 15 | 11 | — | 2 | 3 | 7½ | 7½ | 15 | 15 | |
| BF2510A① | | | | | | | | | | | | | | | | | | |
| BF2600A①② | 45 | 36 | 32 | 26 | 7.3 | 13 | 14 | 14 | 15.6 | 18.5 | — | 2 | 5 | 7½ | 7½ | 15 | 20 | |
| BF3200A①② | 56 | 45 | 40 | 32 | 8.8 | 16 | 17 | 17 | 20 | 22 | — | 3 | 7½ | 10 | 10 | 20 | 25 | |
| BF3800A① | 56 (60④) | 45 (48④) | 40 (42④) | 38 | 11 | 18.5 | 18.5 | 18.5 | 20 | 22 | — | 3 | 7½ | 10 | 15 | 30 | 30 | |
| BF4000A① | 70 | 60 | 50 | 40 | 11 | 18.5 | 22 | 22 | 22 | 30 | 18.5 | 3 | 7½ | 10 | 15 | 30 | 40 | |
| BF5000A①② | 90 | 75 | 65 | 50 | 15 | 22 | 30 | 30 | 30 | 37 | 22 | 5 | 10 | 15 | 20 | 40 | 40 | |
| BF6500A①② | 100 | 80 | 70 | 65 | 18.5 | 30 | 37 | 37 | 37 | 45 | 30 | — | — | 20 | 25 | 50 | 60 | |
| BF8000A①② | 115 | 95 | 80 | 80 | 22 | 45 | 45 | 45 | 55 | 55 | 37 | — | — | 25 | 30 | 60 | 75 | |
| BF9400A① | 115 | 95 | 80 | 95 | 30 | 55 | 55 | 55 | 55 | 55 | 37 | — | — | 25 | 30 | 60 | 75 | |
| BF9500A① | 140 | 115 | 100 | 95 | 30 | 55 | 55 | 55 | 75 | 90 | 45 | — | — | 30 | 30 | 60 | 75 | |
| BF11500A① | 160 | 130 | 115 | 115 | 37 | 55 | 55 | 55 | 75 | 110 | 55 | — | — | 40 | 40 | 75 | 100 | |
| BF15000A① | 165 | 135 | 118 | 150 | 45 | 75 | 75 | 75 | 90 | 110 | 55 | — | — | 50 | 50 | 100 | 125 | |
| BF16000E② | 250 | 210 | 180 | 160 | 45 | 75 | 90 | 90 | 110 | 132 | 75 | — | — | 50 | 60 | 125 | 150 | |
| BF19500E② | 275 | 230 | 200 | 195 | 55 | 90 | 110 | 110 | 132 | 160 | 90 | — | — | 60 | 75 | 150 | 150 | |
| BF23000E② | 350 | 290 | 250 | 230 | 55 | 110 | 110 | 132 | 132 | 160 | 110 | — | — | 75 | 75 | 150 | 200 | |
| 11B25000E② | 350 | 300 | 250 | 265 | 83 | 140 | 155 | 164 | 176 | 212 | 156 | — | — | 75 | 100 | 200 | 250 | |
| 11B31000E② | 450 | 370 | 300 | 320 | 100 | 170 | 188 | 200 | 213 | 256 | 180 | — | — | 100 | 125 | 250 | 300 | |
| 11B40000E② | 550 | 430 | 360 | 420 | 130 | 225 | 247 | 263 | 271 | 352 | 208 | — | — | 125 | 150 | 350 | 400 | |
| 11B50000E② | 700 | 550 | 500 | 520 | 156 | 290 | 306 | 328 | 367 | 416 | 312 | — | — | 150① | 200① | 400① | 450① | |
| 11B63000E② | 800 | 640 | 540 | 630 | 198 | 355 | 368 | 368 | 368 | 440 | 368 | — | — | 200① | 250① | 500① | 500① | |
| 11B630100000E② | 1000 | 850 | 700 | — | For AC1/Resistive duty only. see page 2-8. | | | | | | | | — | — | — | — | — | — |
| 11B125024E② | 1250 | 1050 | 880 | — | For AC1/Resistive duty only. see page 2-8. | | | | | | | | No UL | — | — | — | — | — |
| 11B160024E② | 1600 | 1360 | 1120 | — | For AC1/Resistive duty only. see page 2-8. | | | | | | | | No UL | — | — | — | — | — |

① Complete order code with coil voltage digit or with voltage digit followed by 60 (if 60Hz). Standard voltages are as follows:
 - AC 50/60Hz 024 / 048 / 110 / 230 / 400V
 - AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
 Example: 11BG0610A230 for mini-contactor BG06, three poles, with one NO contact and 230VAC 50/60Hz coil.
 11BG0610A460 60 for mini-contactor BG06 with one NO contact and 460VAC 60Hz coil.

② The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage. Standard voltages are:
 - AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
 Example: 11B25000110 for contactor B250, three poles, without auxiliary contacts and with 110-125VAC/DC coil.
The 24VAC/DC voltage is not possible for B500...B6301000 contactors.
 Other voltages available on request.

③ If predisposed for mechanical latch (G495), the order code becomes 11B...SL00 ②.
 If already fitted with mechanical latch (G495), the order code becomes 11B...L00 ② ④.

④ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC. Available voltages are:
 - AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
 - DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
 Example: 11B250L0010220 for contactor B250 without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 220-240VAC.

⑤ G495 mechanical latch cannot be mounted.

⑥ Complete the order code with the digit of the coil voltage. For 110-125VAC (50/60Hz) indicate 110 or 220-240VAC (50/60Hz) indicate 220.
 Example: 11B125024110 for contactor B1250, three poles, with 2NO+4NC auxiliary contacts and 110-125VAC 50/60Hz coil.

⑦ Maximum voltage is limited at 300V for UL. For certified type up to 600V, consult Technical support for information; see contact details on inside front cover.

⑧ For voltages 024 / 230 / 400VAC 50-60Hz: 10 pieces/package.
 For all other voltages: 1 piece/package.

⑨ Highly conductive auxiliary contact.

2 Contactors

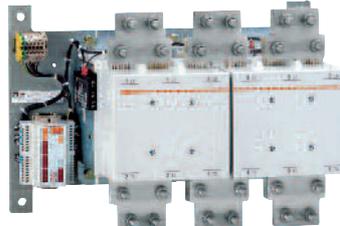
Three-pole contactors with AC control circuit



B500-B630



B6301000



B1250-B1600

| UL/CSA General (purpose) use | UL/CSA Short-circuit protection fuse, 600V ¹ | | | | Type of terminal | Incorporated auxiliary contacts | Qty per pkg | Wt |
|------------------------------|---|---------|-----------------------|-----------|---------------------|---------------------------------|-------------|--------|
| | High fault | | Standard fault | | | | | |
| | Short circuit current | Fuse | Short circuit current | Fuse | | | | |
| [A] | [kA] | [A] | [kA] | [A] | NO NC | n° | [kg] | |
| 16 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — 1 ¹ | 10 | 0.180 |
| | | | | | | 1 ¹ — | 10 | 0.180 |
| 20 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — 1 ¹ | 10 | 0.180 |
| | | | | | | 1 ¹ — | 10 | 0.180 |
| 20 | 100 | 30 (J) | 5 | 30 | Faston | — 1 ¹ | 10 | 0.180 |
| | | | | | | 1 ¹ — | 10 | 0.180 |
| 20 | 100 | 30 (J) | 5 | 30 | Rear PCB solder pin | — 1 ¹ | 10 | 0.197 |
| | | | | | | 1 ¹ — | 10 | 0.197 |
| 20 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — 1 ¹ | 10 | 0.180 |
| | | | | | | 1 ¹ — | 10 | 0.180 |
| 25 | 100 | 30 (J) | 5 | 60 | Clamp-screw | — 1 ¹ | 1 | 0.367 |
| | | | | | | 1 ¹ — | 1 | 0.367 |
| 28 | 100 | 30 (J) | 5 | 70 | Clamp-screw | — 1 ¹ | 1 | 0.367 |
| | | | | | | 1 ¹ — | 1 | 0.367 |
| 32 | 100 | 60 (J) | 5 | 80 | Clamp-screw | — 1 ¹ | 1 | 0.367 |
| | | | | | | 1 ¹ — | 1 | 0.367 |
| 32 | 100 | 60 (J) | 5 | 100 | Clamp-screw | — 1 ¹ | 1 | 0.367 |
| | | | | | | 1 ¹ — | 1 | 0.367 |
| 45 | 100 | 100 (J) | 5 | 100 | Clamp-screw | — — | 1 | 0.437 |
| 55 | 100 | 100 (J) | 5 | 125 | Clamp-screw | — — | 1 | 0.437 |
| 55 | 100 | 100 (J) | 5 | 150 | Clamp-screw | — — | 1 | 0.437 |
| 70 | 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — — | 1 | 1.020 |
| 90 | 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — — | 1 | 1.020 |
| 100 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — — | 1 | 1.020 |
| 115 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — — | 1 | 1.020 |
| 115 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — — | 1 | 1.020 |
| 140 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — — | 1 | 2.020 |
| 160 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — — | 1 | 2.020 |
| 165 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — — | 1 | 2.020 |
| 250 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 3.000 |
| 275 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 3.000 |
| 350 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 3.000 |
| 350 | — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 9.575 |
| 450 | — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 9.575 |
| 550 | — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 9.575 |
| 700 | — | — | 18 ¹ | 1200 (L) | Screw-nut | — — | 1 | 18.000 |
| 800 | — | — | 18 ¹ | 1500 (L) | Screw-nut | — — | 1 | 18.620 |
| 1000 | — | — | 18 ¹ | 1500 (L) | Screw-nut | — — | 1 | 21.400 |
| No UL | — | — | — | — | Screw-nut | 2 4 | 1 | 48.000 |
| No UL | — | — | — | — | Screw-nut | 2 4 | 1 | 50.000 |

¹ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
¹ No UL/CSA ratings; data given for indication and reference purposes only.
² Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.
³ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
 Complete the order code only with the digit of the coil voltage.
 Standard voltages are:
 - AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
 400 = 250...500VAC/DC.
⁴ The values in brackets indicate the class of the fuse to be used.
 Where there is no value in brackets, any type of fuse can be used.
 For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

Certifications and compliance

Certifications obtained:

| Type | CULus | UL | CSA | EAC | CCC | Register of shipping | |
|----------------------|----------------|----|----------------|----------------|----------------|----------------------|------|
| | | | | | | RINA | LROS |
| BG06A | ● | | | ● | ● | | |
| BG09A | ● | | | ● | ● | | |
| BG12A | ● | | | ● | ● | | |
| BGF09A | ● | | | ● | ● | | |
| BGP...A ⁴ | ● ¹ | | | ● | ● | | |
| BF09A | ● | | ● | ● | ● | ● | |
| BF12A | ● | | ● ⁵ | ● | ● | ● | |
| BF18A | ● | | ● | ● | ● | ● | |
| BF25A | ● | | ● ⁵ | ● | ● | ● | |
| BF26A | ● | | ● | ● | ● | ● | |
| BF32A | ● | | ● | ● | ● | ● | |
| BF38A | ● | | ● ⁵ | ● | ● | ● | |
| BF40A | ● | | | ● | ● | ● | |
| BF50A | ● | | | ● | ● | ● | |
| BF65A | ● ⁵ | | | ● | ● | ● | |
| BF80A | ● | | | ● | ● | ● | |
| BF94A | ● | | | | | | |
| BF95A | ● ⁵ | | | | | | ● |
| BF115A | ● | | | | | | ● |
| BF150A | ● ⁵ | | | | | | ● |
| B160 | ● | | | ● ⁶ | ● ⁶ | | |
| B195 | ● | | | ● ⁶ | ● ⁶ | | |
| B230 | ● | | | ● ⁶ | ● ⁶ | | |
| B250 | | ● | ● | ● | ● | ● | ● |
| B310 | | ● | ● | ● | ● | ● | ● |
| B400 | | ● | ● | ● | ● | ● | ● |
| B500 | ● | | | ● | | | |
| B630 | ● | | | ● | | | |
| B6301000 | ● | | | ● | | | |
| B1250 | | | | ● | | | |
| B1600 | | | | ● | | | |

● Certified products.

UL - UL Listed, for USA and Canada (cULus - File E93602) for BG...BF150 types indicated, as Motor Controllers - Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (File E93602 - Component - Products having this type of marking are intended for use as components of complete workshop-assembled equipment).
 BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information - see contact details on inside front cover.
 UL Listed for USA only (File E93602) for B250...B400 types indicated, as Motor Controllers - Contactors.
 UL Listed for USA and Canada (cULus - File E172189) for B500...B6301000 and B500SL... B630SL types as Industrial Control Switches.
 CSA - BF09...BF95 and B250...B400 contactors are also CSA certified, for Canada only (File 54332).
 In addition, BF12... BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65 is UL certified as "Elevator Equipment" (File E 93602).
 See technical characteristics on page 2-70.

⁵ This contactor has also achieved elevator equipment certification.
⁶ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
 Example: BF0910A230V260 for BF09, three poles, with one NO contact and 230V 50/60Hz coil with compliant plastic materials.
 Note: The contactors that have incorporated NC auxiliary contacts comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contacts.

2 Contactors

Three-pole contactors with DC and AC/DC control circuit



INDEX



BG06D...BG12D
BG09L



BF09D...BF25D
BF09L...BF25L



BF26D-BF38D
BF26L-BF38L



BF40E...BF94E



BF95E...BF150E

new



BF160E...BF230E



B250...B400

| Order code | | Three-phase motor control | | | | | | | | UL/CSA details | | | | | | | | | | |
|-----------------|-----------------|---|---------|---------|-------------------------------------|--|------|------|------|----------------|------|-------|--------------|-----------------------------------|-------|-------|-------|-------|-------|---|
| DC coil | DC coil | IEC operating current I _{th} (AC1) | | | I _e (AC3) ≤440V at ≤55°C | Maximum IEC power at ≤55°C (AC3) | | | | | | | | Maximum UL/CSA horsepower ratings | | | | | | |
| | | ≤40°C | ≤55°C | ≤70°C | | 230V | 400V | 415V | 440V | 500V | 690V | 1000V | Single phase | Three phase | | | | | | |
| Low consumption | Low consumption | [A] | [A] | [A] | [A] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [HP] | [HP] | [HP] | [HP] | [HP] | [HP] | |
| 11BG0601D | — | 16 | 14 | 12 | 6 | 1.5 | 2.2 | 2.4 | 2.5 | 3 | 3 | — | 1/3 | 1 | 1 1/2 | 2 | 3 | 3 | 3 | |
| 11BG0610D | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 11BG0901D | 11BG0901L | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | 5 | — | 1/2 | 1 1/2 | 2 | 3 | 5 | 5 | 5 | |
| 11BG0910D | 11BG0910L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 11BGF0901D | 11BGF0901L | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | 5 | — | 1/2 | 1 1/2 | 2 | 3 | 5 | 5 | 5 | |
| 11BGF0910D | 11BGF0910L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 11BGP0901D | — | 20 | 18 | 15 | 9 | 2.2 | 4 | 4.3 | 4.5 | 5 | — | — | 1/2 | 1 1/2 | 2 | 3 | 5 | — | — | |
| 11BGP0910D | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| 11BG1201D | — | 20 | 18 | 15 | 12 | 3.2 | 5.7 | 6.2 | 5.5 | 5 | 5 | — | 1/2 | 1 1/2 | 3 | 3 | 7 1/2 | 10 | 10 | |
| 11BG1210D | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BF0901D | BF0901L | 25 | 20 | 18 | 9 | 2.2 | 4.2 | 4.5 | 4.8 | 5.5 | 7.5 | — | 3/4 | 2 | 3 | 3 | 5 | 7 1/2 | 7 1/2 | |
| BF0910D | BF0910L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BF1201D | BF1201L | 28 | 23 | 20 | 12 | 3.2 | 5.7 | 6.2 | 6.2 | 7.5 | 10 | — | 1 | 2 | 5 | 5 | 7 1/2 | 10 | 10 | |
| BF1210D | BF1210L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BF1801D | BF1801L | 32 | 26 | 23 | 18 | 4 | 7.5 | 9 | 9 | 10 | 10 | — | 1 | 3 | 5 | 5 | 10 | 15 | 15 | |
| BF1810D | BF1810L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BF2501D | BF2501L | 32 | 26 | 23 | 25 | 7 | 12.5 | 13.4 | 13.4 | 15 | 11 | — | 2 | 3 | 7 1/2 | 7 1/2 | 15 | 15 | 15 | |
| BF2510D | BF2510L | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| BF2600D | BF2600L | 45 | 36 | 32 | 26 | 7.3 | 13 | 14 | 14 | 15.6 | 18.5 | — | 2 | 5 | 7 1/2 | 7 1/2 | 15 | 20 | 20 | |
| BF3200D | BF3200L | 56 | 45 | 40 | 32 | 8.8 | 18 | 17 | 17 | 20 | 22 | — | 3 | 7 1/2 | 10 | 10 | 20 | 25 | 25 | |
| BF3800E | BF3800L | 56 (60) | 45 (48) | 40 (42) | 38 | 11 | 18.5 | 18.5 | 18.5 | 20 | 22 | — | 3 | 7 1/2 | 10 | 15 | 30 | 30 | 30 | |
| BF4000E | — | 70 | 60 | 50 | 40 | 11 | 18.5 | 22 | 22 | 22 | 30 | 18.5 | 3 | 7 1/2 | 10 | 15 | 30 | 30 | 30 | |
| BF5000E | — | 90 | 75 | 65 | 50 | 15 | 22 | 30 | 30 | 30 | 37 | 22 | 5 | 10 | 15 | 20 | 40 | 40 | 40 | |
| BF6500E | — | 100 | 80 | 70 | 65 | 18.5 | 30 | 37 | 37 | 37 | 45 | 30 | — | — | 20 | 25 | 50 | 60 | 60 | |
| BF8000E | — | 115 | 95 | 80 | 80 | 22 | 45 | 45 | 45 | 55 | 55 | 37 | — | — | 25 | 30 | 60 | 75 | 75 | |
| BF9400E | — | 115 | 95 | 80 | 95 | 30 | 55 | 55 | 55 | 55 | 55 | 37 | — | — | 25 | 30 | 60 | 75 | 75 | |
| BF9500E | — | 140 | 115 | 100 | 95 | 30 | 55 | 55 | 55 | 75 | 90 | 45 | — | — | 30 | 30 | 60 | 75 | 75 | |
| BF11500E | — | 160 | 130 | 115 | 115 | 37 | 55 | 55 | 55 | 75 | 110 | 55 | — | — | 40 | 40 | 75 | 100 | 100 | |
| BF15000E | — | 165 | 135 | 118 | 150 | 45 | 75 | 75 | 75 | 90 | 110 | 55 | — | — | 50 | 50 | 100 | 125 | 125 | |
| BF16000E | — | 250 | 210 | 180 | 160 | 45 | 75 | 90 | 90 | 110 | 132 | 75 | — | — | 50 | 60 | 125 | 150 | 150 | |
| BF19500E | — | 275 | 230 | 200 | 195 | 55 | 90 | 110 | 110 | 132 | 160 | 90 | — | — | 60 | 75 | 150 | 150 | 150 | |
| BF23000E | — | 350 | 290 | 250 | 230 | 55 | 110 | 110 | 132 | 132 | 160 | 110 | — | — | 75 | 75 | 150 | 200 | 200 | |
| 11B25000E | — | 350 | 300 | 250 | 265 | 83 | 140 | 155 | 164 | 176 | 212 | 156 | — | — | 75 | 100 | 200 | 250 | 250 | |
| 11B31000E | — | 450 | 370 | 300 | 320 | 100 | 170 | 188 | 200 | 213 | 256 | 180 | — | — | 100 | 125 | 250 | 300 | 300 | |
| 11B40000E | — | 550 | 430 | 360 | 420 | 130 | 225 | 247 | 263 | 271 | 352 | 208 | — | — | 125 | 150 | 350 | 400 | 400 | |
| 11B50000E | — | 700 | 550 | 500 | 520 | 156 | 290 | 306 | 328 | 367 | 416 | 312 | — | — | 150 | 200 | 400 | 450 | 450 | |
| 11B63000E | — | 800 | 640 | 540 | 630 | 198 | 335 | 368 | 368 | 368 | 440 | 368 | — | — | 200 | 250 | 500 | 500 | 500 | |
| 11B630100000E | — | 1000 | 850 | 700 | — | For AC1/Resistive duty only, see page 2-8. | | | | | | | | — | — | — | — | — | — | — |

- 1 Complete order code with coil voltage digit.
For BG09...D 24VDC version complete with built-in surge suppressor, add suffix **V120** to the standard order code.
The BF09-BF38D types already have a standard supplied built-in TVS (Transient Voltage Suppressor). Standard voltages are as follows:
- DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
Example: 11BG0610D012 for mini-contactor BG06, three poles, with one NO contact and 12VDC coil.
11BG0910D024 V120 for mini-contactor BG09, three poles, with one NO contact and 24VDC coil, complete with built-in TVS (diode) suppressor.
- 2 Low-consumption version.
No add-on auxiliary contacts or mechanical interlock can be mounted on BG... type contactors. Complete order code with coil voltage digit.
The BF09-BF38L types already have a standard supplied built-in TVS (Transient Voltage Suppressor). Standard voltages are as follows:
- DC 024 / 048V.
Example: 11BG0901L024 for mini-contactor BG09, three poles, with one NC contact and 24VDC low-consumption coil.
- 3 The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
The order code must be completed with the coil voltage digit.

- The standard voltages are as follows:
- AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.
- 4 The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage.
Standard voltages are:
- AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
Example: 11B25000110 for contactor B250, three poles, without auxiliary contacts and with 110-125VAC/DC coil.
- 5 The 24VAC/DC voltage is not possible for B500...B6301000 contactors.
Other voltages available on request.
- 6 If predisposed for mechanical latch (G495), the order code becomes 11B...SL00 6.
If already fitted with mechanical latch (G495), the order code becomes 11B...L00 6 6.
- 7 Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC.
Standard voltages are:
- AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
- DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
Example: 11B250L00110C48 for contactor B250, three poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 48VDC.

2 Contactors

Three-pole contactors with DC and AC/DC control circuit



B500-B630



B6301000

| UL/CSA General (purpose) use | UL/CSA Short-circuit protection fuse, 600V [Ⓔ] | | | | | Type of terminal | Incorporated auxiliary contacts | Qty per pkg | Wt |
|------------------------------|---|---------|-----------------------|-----------|---------------------|------------------|---------------------------------|-------------|--------|
| | High fault | | Standard fault | | | | | | |
| | Short circuit current | Fuse | Short circuit current | Fuse | Fuse | | | | |
| [A] | [kA] | [A] | [kA] | [A] | | NO | NC | n° | [kg] |
| 16 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — | 1 [Ⓔ] | 10 | 0.214 |
| | | | | | | 1 [Ⓔ] | — | 10 | 0.214 |
| 20 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — | 1 [Ⓔ] | 10 | 0.214 |
| | | | | | | 1 [Ⓔ] | — | 10 | 0.214 |
| 20 | 100 | 30 (J) | 5 | 30 | Faston | — | 1 [Ⓔ] | 10 | 0.210 |
| | | | | | | 1 [Ⓔ] | — | 10 | 0.210 |
| 20 | 100 | 30 (J) | 5 | 30 | Rear PCB solder pin | — | 1 [Ⓔ] | 10 | 0.240 |
| | | | | | | 1 [Ⓔ] | — | 10 | 0.240 |
| 20 | 100 | 30 (J) | 5 | 30 | Clamp-screw | — | 1 [Ⓔ] | 10 | 0.214 |
| | | | | | | 1 [Ⓔ] | — | 10 | 0.214 |
| 25 | 100 | 30 (J) | 5 | 60 | Clamp-screw | — | 1 [Ⓔ] | 1 | 0.494 |
| | | | | | | 1 | — | 1 | 0.494 |
| 28 | 100 | 30 (J) | 5 | 70 | Clamp-screw | — | 1 [Ⓔ] | 1 | 0.494 |
| | | | | | | 1 | — | 1 | 0.494 |
| 32 | 100 | 60 (J) | 5 | 80 | Clamp-screw | — | 1 [Ⓔ] | 1 | 0.494 |
| | | | | | | 1 | — | 1 | 0.494 |
| 32 | 100 | 60 (J) | 5 | 100 | Clamp-screw | — | 1 [Ⓔ] | 1 | 0.494 |
| | | | | | | 1 | — | 1 | 0.494 |
| 45 | 100 | 100 (J) | 5 | 100 | Clamp-screw | — | — | 1 | 0.559 |
| 55 | 100 | 100 (J) | 5 | 125 | Clamp-screw | — | — | 1 | 0.559 |
| 55 | 100 | 100 (J) | 5 | 150 | Clamp-screw | — | — | 1 | 0.559 |
| 70 | 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — | — | 1 | 1.050 |
| 90 | 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — | — | 1 | 1.050 |
| 100 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — | — | 1 | 1.050 |
| 115 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — | — | 1 | 1.050 |
| 115 | 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — | — | 1 | 1.050 |
| 140 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.060 |
| 160 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.060 |
| 165 | 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.060 |
| 250 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 3.000 |
| 275 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 3.000 |
| 350 | 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 3.000 |
| 350 | — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 9.635 |
| 450 | — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 9.635 |
| 500 | — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 9.635 |
| 700 [Ⓔ] | — | — | 18 [Ⓔ] | 1200 (L) | Screw-nut | — | — | 1 | 18.060 |
| 800 [Ⓔ] | — | — | 18 [Ⓔ] | 1500 (L) | Screw-nut | — | — | 1 | 18.620 |
| 1000 | — | — | 18 [Ⓔ] | 1500 (L) | Screw-nut | — | — | 1 | 21.400 |

- Ⓔ G495 mechanical latch cannot be mounted.
- Ⓕ Maximum voltage is limited at 300V for UL. For certified type up to 600V, consult Technical support for information; see contact details on inside front cover.
- Ⓖ Highly conductive auxiliary contact.
- Ⓗ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
- Ⓘ No UL/CSA ratings; data given for indication and reference purposes only.
- Ⓚ Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.
- Ⓛ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
— AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.
- Ⓜ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

Certifications and compliance

Certifications obtained:

| Type | cULus | UL | CSA | EAC | CCC | RINA |
|---------------------|----------------|----|----------------|-----|-----|------|
| BG06D | ● | | | ● | ● | |
| BG09D | ● | | | ● | ● | |
| BG12D | ● | | | ● | ● | |
| BGF09D | ● | | | ● | ● | |
| BGP09D [Ⓔ] | ● [Ⓔ] | ● | ● | | | |
| BF09D - BF09L | ● | | ● | ● | ● | ● |
| BF12D - BF12L | ● | | ● [Ⓔ] | ● | ● | ● |
| BF18D - BF18L | ● | | ● | ● | ● | ● |
| BF25D - BF25L | ● | | ● [Ⓔ] | ● | ● | ● |
| BF26D - BF26L | ● | | ● | ● | ● | ● |
| BF32D - BF32L | ● | | ● | ● | ● | ● |
| BF38D - BF38L | ● | | ● [Ⓔ] | ● | ● | ● |
| BF40E | ● | | | ● | ● | |
| BF50E | ● | | | ● | ● | |
| BF65E | ● [Ⓔ] | | | ● | ● | |
| BF80E | ● | | | ● | ● | |
| BF94E | ● | | | | | |
| BF95E | ● [Ⓔ] | | | | | |
| BF115E | ● | | | | | |
| BF150E | ● [Ⓔ] | | | | | |
| B195E | ● | | | Ⓔ | Ⓔ | |
| B160E | ● | | | Ⓔ | Ⓔ | |
| B230E | ● | | | Ⓔ | Ⓔ | |
| B250 | | ● | ● | ● | ● | ● |
| B310 | | ● | ● | ● | ● | ● |
| B400 | | ● | ● | ● | ● | ● |
| B500 | ● | | | ● | | |
| B630 | ● | | | ● | ● | |
| B6301000 | ● | | | ● | | |

● Certified products.

- UL - UL Listed, for USA and Canada (cULus File E93602) for BG...BF110 types indicated, as Motor Controllers - Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (cULus File E93602 - Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information - see contact details on inside front cover.
UL Listed for USA only (File E93602) for B250...B400 types indicated, as Motor Controllers - Contactors.
UL Listed for USA and Canada (cULus - File E172189) for B500...B630 1000 and B500 SL... B630 SL types as Industrial Control Switches.
- CSA - BF09...BF95 and B250...B400 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12... BF25... and BF38... types are CSA certified as "Elevator Equipment" (File 54332, class 2411); BF65 is UL certified as "Elevator Equipment" (File E 93602).
See technical characteristics on page 2-70.

- Ⓔ This contactor has also achieved elevator equipment certification.
- Ⓕ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09 10 D024 V260 for BF09, three poles, with one NO contact and 24VDC coil with compliant plastic materials.
Note: The contactors that have incorporated NC auxiliary contacts comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contacts.

2 Contactors

Four-pole contactors with AC control circuit



BG09T4A **BF09AT4A...BF18T4A** **BF26T4A...BF38T4A** **BF40T4A...BF80T4A** **BF95T4A...BF150T4A** **BF160T4E...BF230T4E** **B2504...B4004**

| Resistive load control | | | | | | | | | | | | UL/CSA details |
|------------------------|---------------------------------|---------|---------|-------------------------|----------------------------------|------|------|------|------|------|-------|------------------------------|
| Order code | IEC operating current Ith (AC1) | | | | Maximum IEC power at ≤40°C (AC1) | | | | | | | UL/CSA General (purpose) use |
| | ≤40°C | ≤55°C | ≤70°C | Ie (AC3) ≤440V at ≤55°C | 230V | 400V | 415V | 440V | 500V | 690V | 1000V | |
| AC coil | [A] | [A] | [A] | [A] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [A] |
| 11BG09T4A | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | 22 | — | 20 |
| 11BGF09T4A | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | 22 | — | 20 |
| 11BGP09T4A | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | — | — | 20 |
| BF09T4A | 25 | 20 | 18 | 9 | 9.5 | 16 | 17 | 18 | 21 | 27 | — | 25 |
| BF12T4A | 28 | 23 | 20 | 12 | 10 | 18 | 19 | 20 | 23 | 32 | — | 28 |
| BF18T4A | 32 | 26 | 23 | 18 | 12 | 21 | 22 | 23 | 26 | 36 | — | 32 |
| BF26T4A | 45 | 36 | 32 | 26 | 17 | 30 | 31 | 33 | 37 | 51 | — | 45 |
| BF38T4A | 56 (60) | 45 (48) | 40 (42) | 38 | 21 | 36 | 38 | 40 | 45 | 62 | — | 55 |
| BF40T4A | 70 | 60 | 50 | 40 | 26 | 46 | 48 | 51 | 58 | 79 | 115 | 70 |
| BF50T4A | 90 | 75 | 65 | 50 | 34 | 59 | 61 | 65 | 74 | 102 | 148 | 90 |
| BF65T4A | 100 | 80 | 70 | 65 | 38 | 65 | 68 | 72 | 82 | 114 | 165 | 100 |
| BF80T4A | 115 | 95 | 80 | 80 | 43 | 76 | 79 | 83 | 95 | 120 | 185 | 115 |
| BF95T4A | 140 | 115 | 100 | 95 | 53 | 92 | 96 | 101 | 115 | 159 | 230 | 140 |
| BF115T4A | 160 | 130 | 115 | 115 | 61 | 105 | 109 | 116 | 132 | 182 | 263 | 160 |
| BF150T4A | 165 | 135 | 118 | 150 | 62 | 110 | 113 | 119 | 136 | 187 | 271 | 165 |
| BF160T4E | 250 | 210 | 180 | 160 | 95 | 165 | 171 | 181 | 206 | 284 | 411 | 250 |
| BF195T4E | 275 | 230 | 200 | 195 | 104 | 181 | 188 | 199 | 226 | 312 | 452 | 275 |
| BF230T4E | 350 | 290 | 250 | 230 | 132 | 230 | 239 | 253 | 288 | 397 | 576 | 350 |
| 11B250400 | 350 | 300 | 250 | 265 | 124 | 214 | 234 | 255 | 282 | 380 | 560 | 350 |
| 11B310400 | 450 | 370 | 300 | 320 | 158 | 270 | 293 | 325 | 350 | 488 | 700 | 450 |
| 11B400400 | 550 | 430 | 360 | 420 | 200 | 345 | 377 | 400 | 452 | 598 | 870 | 550 |
| 11B500400 | 700 | 550 | 500 | 520 | 252 | 438 | 478 | 500 | 575 | 755 | 1100 | 700 |
| 11B630400 | 800 | 640 | 540 | 630 | 288 | 500 | 545 | 580 | 655 | 860 | 1250 | 800 |
| 11B6301000400 | 1000 | 850 | 700 | — | 350 | 600 | 630 | 725 | 750 | 1000 | 1600 | 1000 |
| 11B1250424 | 1250 | 1050 | 880 | — | 480 | 830 | 900 | 905 | 1100 | 1450 | 2000 | No UL/CSA |
| 11B1600424 | 1600 | 1360 | 1120 | — | 550 | 950 | 1000 | 1160 | 1200 | 1650 | 2500 | No UL/CSA |

- ❶ Complete order code with coil voltage digit or voltage digit followed by 60 if 60Hz. Standard voltages are as follows:
 - AC 50/60Hz 024 / 048 / 110 / 230 / 400V
 - AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
 Example: 11BG09T4A230 for mini-contactor BG09, four poles, with 230VAC 50/60Hz coil. 11BGP09T4A460 60 for mini-contactor BG09, four poles, with 460VAC 60Hz coil.
- ❷ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage. Standard voltages are:
 - AC/DC 24 / 48 / 60 / 110-125 (indicate 110) / 220-240 (indicate 220) / 380-415 (indicate 380) / 440-480V (indicate 440).
 Example: 11B250400110 for contactor B250, four poles, without auxiliary contacts and with 110-125VAC/DC coil.
The 24VAC/DC voltage is not possible for B500...B6301000 contactors.
 Other voltages available on request.
- ❸ If predisposed for mechanical latch (G495), the order code becomes 11B...4SL00 ❷.
 If already fitted with mechanical latch (G495), the order code becomes 11B...4L00 ❷ ❹.
- ❹ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC. Standard voltages are:
 - AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380
 - DC 48 / 110-125 indicate 110 / 220-240V indicate 220.
 Example: 11B2504L00110C220 for contactor B250, four poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 220-240VDC.
- ❺ G495 mechanical latch cannot be mounted.
- ❻ Complete the order code with the digit of the coil voltage. For 110-125VAC 50/60Hz indicate 110 or 220-240VAC 50/60Hz indicate 220.
 Example: 11B1250424110 for contactor B1250, four poles, with 2NO+4NC auxiliary contacts and 110-125VAC/DC 50/60Hz coil.
- ❼ Maximum voltage is limited at 300V for UL. For certified type up to 600V. Consult Technical support for information; see contact details on inside front cover.
- ❽ Whenever the BF26T4 or BF38T4 types need to be mechanically interlocked with either the BFX5000 or BFX5001, the add-on fourth pole of one of the contactors needs to be removed from the right side and fitted on the left side.
- ❾ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
- ❿ Definite-purpose (DP) contactors are available. Consult Technical support for information; see contact details on inside front cover.



B5004-B6304



B63010004



B1250-B16004

| UL/CSA Short-circuit protection fuse, 600V | | | | Type of terminal | Incorporated auxiliary contacts | | Qty per pkg n° | Weight [kg] |
|--|---------|--------------------------------------|-----------|---------------------|---------------------------------|----|-------------------|----------------|
| High fault Short circuit current | Fuse | Standard fault Short circuit current | Fuse | | NO | NC | | |
| [kA] | [A] | [kA] | [A] | | | | | |
| 100 | 30 (J) | 5 | 30 | Clamp-screw | — | — | 10 | 0.180 |
| 100 | 30 (J) | 5 | 30 | Faston | — | — | 10 | 0.180 |
| 100 | 30 (J) | 5 | 30 | Rear PCB solder pin | — | — | 10 | 0.197 |
| 100 | 30 (J) | 5 | 60 | Clamp-screw | — | — | 1 | 0.367 |
| 100 | 30 (J) | 5 | 70 | Clamp-screw | — | — | 1 | 0.367 |
| 100 | 60 (J) | 5 | 80 | Clamp-screw | — | — | 1 | 0.367 |
| 100 | 100 (J) | 5 | 100 | Clamp-screw | — | — | 1 | 0.508 |
| 100 | 100 (J) | 5 | 150 | Clamp-screw | — | — | 1 | 0.508 |
| 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — | — | 1 | 1.240 |
| 100 | 150 (J) | 5 | 150 (RK5) | Double lug-clamp | — | — | 1 | 1.240 |
| 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — | — | 1 | 1.240 |
| 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — | — | 1 | 1.240 |
| 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.420 |
| 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.420 |
| 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — | — | 1 | 2.420 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 4.000 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 4.000 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — | — | 1 | 4.000 |
| — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 11.195 |
| — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 11.195 |
| — | — | 18 | 800 (L) | Screw-nut | — | — | 1 | 11.195 |
| — | — | 18 | 1200 (L) | Screw-nut | — | — | 1 | 20.910 |
| — | — | 18 | 1500 (L) | Screw-nut | — | — | 1 | 21.880 |
| — | — | 18 | 1500 (L) | Screw-nut | — | — | 1 | 25.620 |
| — | — | — | — | Screw-nut | 2 | 4 | 1 | 57.500 |
| — | — | — | — | Screw-nut | 2 | 4 | 1 | 58.400 |

- IEC/EN/BS 60947-1 designation: Pillar terminal.
- The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range. Complete the order code only with the digit of the coil voltage.
Standard voltages are:
— AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC; 400 = 250...500VAC/DC.
- The values in brackets indicate the class of the fuse to be used. Where there is no value in brackets, any type of fuse can be used. For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

IEC utilisation current with poles in parallel

If the poles of the contactors are arranged in parallel, the operating current is the one indicated in the table multiplied by the **K** factor given below, which account for the unequal distribution of the current in the various poles. To limit distribution inequality, it is advisable to use paralleling links (see pages 2-18, 2-23, 2-28 and 2-30).

- 2 POLES in parallel: **K** = 1.6
- 3 POLES in parallel: **K** = 2.2
- 4 POLES in parallel: **K** = 2.8

Certifications and compliance

Certifications obtained:

| Type | CULus | UL | CSA | EAC | CCC | RINA |
|-----------|-------|----|-----|-----|-----|------|
| BG09T4A | ● | | | ● | ● | |
| BGF09T4A | ● | | | ● | ● | |
| BGP09T4A | | | | ● | ● | |
| BF09T4A | ● | | ● | ● | ● | ● |
| BF12T4A | ● | | ● | ● | ● | ● |
| BF18T4A | ● | | ● | ● | ● | ● |
| BF26T4A | ● | | ● | ● | ● | ● |
| BF38T4A | ● | | ● | ● | ● | ● |
| BF40T4A | ● | | | ● | ● | ● |
| BF50T4A | ● | | | ● | ● | ● |
| BF65T4A | ● | | | ● | ● | ● |
| BF80T4A | ● | | | ● | ● | ● |
| BF95T4A | ● | | | | | ● |
| BF115T4A | ● | | | | | ● |
| BF150T4A | ● | | | | | ● |
| BF160T4E | ● | | | ● | ● | |
| BF195T4E | ● | | | ● | ● | |
| BF230T4E | ● | | | ● | ● | |
| B2504 | | ● | ● | ● | ● | |
| B3104 | | ● | ● | ● | ● | |
| B4004 | | ● | ● | ● | ● | |
| B5004 | ● | | | ● | | |
| B6304 | ● | | | ● | ● | |
| B63010004 | ● | | | ● | | |
| B12504 | | | | ● | | |
| B16004 | | | | ● | | |

● Certified products.

- UL - UL Listed, for USA and Canada (cULus File E93602) for BG...BF150 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (File E93602 – Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment. BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
- UL Listed for USA only (File E93602) for B250...B400 types indicated, as Motor Controllers – Contactors.
- UL Listed for USA and Canada (cULus - File E172189) for B5004... B63010004 and B5004SL... B6304SL types as Industrial Control Switches.
- CSA - BF09...BF80 and B250...B400 contactors are also CSA certified, for Canada only (File 54332).
- In addition, BF12... BF25... BF38... and BF65... types are CSA certified as "Elevator Equipment" (File 54332, class 2411). See technical characteristics on page 2-70.

- This contactor has also achieved elevator equipment certification.
- Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code. Example: BF09T4A230V260 for BF09, four poles, 230V 50/60Hz coil with compliant plastic materials.

2 Contactors

Four-pole contactors with DC and AC/DC control circuit



BG09T4D



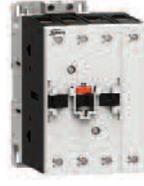
BF09T4D-BF18T4D
BF09T4L-BF18T4L



BF26T4D-BF38T4D
BF26T4L-BF38T4L



BF65T4E
BF80T4E



BF95T4E...BF150T4E

new



BF160T4E...BF230T4E



B2504...B4004

Resistive load control

| Order code DC coil | DC coil Low consumption | IEC operating current I _{th} (AC1) | | | I _e (AC3) ≤440V at ≤55°C | Maximum IEC power at ≤40°C (AC1) | | | | | | | UL/CSA General (purpose) use [A] |
|-----------------------------|----------------------------|--|-----------------------|-----------------------|--|----------------------------------|------|------|------|------|------|-------|---|
| | | ≤40°C | ≤55°C | ≤70°C | | 230V | 400V | 415V | 440V | 500V | 690V | 1000V | |
| | | [A] | [A] | [A] | [A] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [kW] | [A] |
| 11BG09T4D ^① | — | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | 22 | — | 20 |
| 11BGF09T4D ^① | — | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | 22 | — | 20 |
| 11BGP09T4D ^① | — | 20 | 18 | 15 | 9 | 8 | 14 | 14 | 15 | 16 | — | — | 20 ^⑤ |
| BF09T4D ^① | BF09T4L ^② | 25 | 20 | 18 | 9 | 9.5 | 16 | 17 | 18 | 21 | 27 | — | 25 |
| BF18T4D ^① | BF18T4L ^② | 32 | 26 | 23 | 18 | 12 | 21 | 22 | 23 | 26 | 36 | — | 32 |
| BF26T4D ^① | BF26T4L ^② | 45 | 36 | 32 | 26 | 17 | 30 | 31 | 33 | 37 | 51 | — | 45 |
| BF38T4D ^① | BF38T4L ^② | 56 (60 ^⑦) | 45 (48 ^⑦) | 40 (42 ^⑦) | 38 | 21 | 26 | 38 | 40 | 45 | 62 | — | 55 |
| BF65T4E ^③ | — | 100 | 80 | 70 | 65 | 38 | 65 | 68 | 72 | 82 | 114 | 165 | 100 |
| BF80T4E ^③ | — | 115 | 95 | 80 | 80 | 43 | 76 | 79 | 83 | 95 | 120 | 185 | 115 |
| BF95T4E ^③ | — | 140 | 115 | 100 | 95 | 53 | 92 | 96 | 101 | 115 | 159 | 230 | 140 |
| BF150T4E ^③ | — | 165 | 135 | 118 | 150 | 62 | 110 | 113 | 119 | 136 | 187 | 271 | 165 |
| BF160T4E ^④ | — | 250 | 210 | 180 | 160 | 95 | 165 | 171 | 181 | 206 | 284 | 411 | 250 |
| BF195T4E ^④ | — | 275 | 230 | 200 | 195 | 104 | 181 | 188 | 199 | 226 | 312 | 452 | 275 |
| BF230T4E ^④ | — | 350 | 290 | 250 | 230 | 132 | 230 | 239 | 253 | 288 | 397 | 576 | 350 |
| 11B250400 ^{④⑤} | — | 350 | 300 | 250 | 265 | 124 | 214 | 234 | 255 | 282 | 380 | 560 | 350 |
| 11B310400 ^{④⑦} | — | 450 | 370 | 300 | 320 | 158 | 270 | 293 | 325 | 350 | 488 | 700 | 450 |
| 11B400400 ^{④⑤} | — | 550 | 430 | 360 | 420 | 200 | 345 | 377 | 400 | 452 | 598 | 870 | 550 |
| 11B500400 ^{④⑤} | — | 700 | 550 | 500 | 520 | 252 | 438 | 478 | 500 | 575 | 755 | 1100 | 700 |
| 11B630400 ^{④⑤} | — | 800 | 640 | 540 | 630 | 288 | 500 | 545 | 580 | 655 | 860 | 1250 | 800 |
| 11B6301000400 ^{④⑤} | — | 1000 | 850 | 700 | — | 350 | 600 | 630 | 725 | 750 | 1000 | 1600 | 1000 |

① Complete order code with coil voltage digit.

The BF09-BF38D types already have a standard supplied built-in TVS (Transient Voltage Suppressor).

Standard voltages are as follows:

– DC 012 / 024 / 048 / 060 / 110 / 125 / 220VDC.

Example: 11BG09T4D012 for mini-contactor BG09, four poles, with 12VDC coil.

② Low consumption version. Complete the order code with coil voltage digit.

The BF09-BF38L types already have a standard supplied built-in TVS (Transient Voltage Suppressor).

Standard voltages are as follows:

– DC 024 / 048V

Example: BF09T4L024 for contactor BF09, four poles, with 24VDC low-consumption coil.

③ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.

Complete the order code only with the digit of the coil voltage.

Standard voltages are:

– AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.

④ The coil of the contactor can be powered indifferently in AC or DC. Complete the order code only with the digit of the coil voltage.

Standard voltages are:

– AC/DC 24 / 48 / 60 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415 indicate 380 / 440-480V indicate 440.

Example: 11B25000110 for contactor B250, four poles, without auxiliary contacts and with 110-125VAC/DC coil.

The 24VAC/DC voltage is not possible for B500-B630 1000 contactors.

The 24V voltage is not possible for B500...B6301000 contactors.

Other voltages available on request.

⑤ If predisposed for mechanical latch (G495), the order code becomes 11B...4SL00^④.

If already fitted with mechanical latch (G495), the order code becomes 11B...4L00^④ ⑥.

⑥ Indicate rated voltage of the mechanical latch, preceded by the letter C if in DC.

Standard voltages are:

– AC 50/60Hz 48 / 110-125 indicate 110 / 220-240 indicate 220 / 380-415V indicate 380

– DC 48 / 110-125 indicate 110 / 220-240V indicate 220.

Example: 11B250L00110C48 for contactor B250, four poles, without auxiliary contacts, with 110-125VAC/DC coil and mechanical latch powered at 48VDC.

⑦ G495 mechanical latch cannot be mounted.

⑧ Maximum voltage is limited at 300V for UL. For certified type up to 600V consult Technical support for information; see contact details on inside front cover.

⑨ For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.

2 Contactors

Four-pole contactors with DC and AC/DC control circuit



B5004-B6304



B63010004

| UL/CSA Short-circuit protection fuse, 600V [Ⓢ] | | | | Type of terminal | Incorporated auxiliary contacts | Qty per pkg | Weight [kg] |
|---|----------|--------------------------------------|-----------|---------------------|---------------------------------|-------------|-------------|
| High fault Short circuit current | | Standard fault Short circuit current | | | | | |
| [kA] | Fuse [A] | [kA] | Fuse [A] | | | | |
| 100 | 30 (J) | 5 | 30 | Clamp-screw | — — | 10 | 0.220 |
| 100 | 30 (J) | 5 | 30 | Faston | — — | 10 | 0.220 |
| 100 | 30 (J) | 5 | 30 | Rear PCB solder pin | — — | 10 | 0.242 |
| 100 | 30 (J) | 5 | 60 | Clamp-screw | — — | 1 | 0.498 |
| 100 | 60 (J) | 5 | 80 | Clamp-screw | — — | 1 | 0.498 |
| 100 | 100 (J) | 5 | 100 | Clamp-screw | — — | 1 | 0.665 |
| 100 | 100 (J) | 5 | 150 | Clamp-screw | — — | 1 | 0.665 |
| 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — — | 1 | 1.280 |
| 100 | 200 (J) | 10 | 200 (RK5) | Double lug-clamp | — — | 1 | 1.280 |
| 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — — | 1 | 2.460 |
| 100 | 200 (J) | 10 | 250 (RK5) | Double lug-clamp | — — | 1 | 2.460 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 4.000 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 4.000 |
| 100 | 400 (J) | 10 | 400 (RK5) | Screw-nut | — — | 1 | 4.000 |
| — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 11.195 |
| — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 11.195 |
| — | — | 18 | 800 (L) | Screw-nut | — — | 1 | 11.195 |
| — | — | 18 [Ⓢ] | 1200 (L) | Screw-nut | — — | 1 | 20.910 |
| — | — | 18 [Ⓢ] | 1500 (L) | Screw-nut | — — | 1 | 21.880 |
| — | — | 18 [Ⓢ] | 1500 (L) | Screw-nut | — — | 1 | 25.600 |

- Ⓢ No UL/CSA ratings; data given for indication and reference purposes only.
- Ⓢ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range.
Complete the order code only with the digit of the coil voltage.
Standard voltages are:
— AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC;
400 = 250...500VAC/DC.
- Ⓢ The values in brackets indicate the class of the fuse to be used.
Where there is no value in brackets, any type of fuse can be used.
For protection with motor protection circuit breaker (type F combination motor controller) see chapter 1.

IEC utilisation current with poles in parallel

If the poles of the contactors are arranged in parallel, the operating current is the one indicated in the table multiplied by the **K** factor given below, which account for the unequal distribution of the current in the various poles.
To limit distribution inequality, it is advisable to use paralleling links (see pages 2-18, 2-23, 2-28 and 2-30).

- 2 POLES in parallel: **K** = 1.6
- 3 POLES in parallel: **K** = 2.2
- 4 POLES in parallel: **K** = 2.8

Certifications and compliance

Certifications obtained:

| Type | cULus | UL | CSA | EAC | CCC | RINA |
|-----------------------|----------------|----|----------------|----------------|----------------|------|
| BG09T4D | ● | | | ● | ● | |
| BGF09T4D | ● | | | ● | ● | |
| BGP09T4D [Ⓢ] | ● | | | ● | ● | |
| BF09T4D - BF09T4L | ● | | ● | ● | ● | ● |
| BF18T4D - BF18T4L | ● | | ● | ● | ● | ● |
| BF26T4D - BF26T4L | ● | | ● [Ⓢ] | ● | ● | ● |
| BF38T4D - BF38T4L | ● | | ● [Ⓢ] | ● | ● | ● |
| BF65T4E | ● [Ⓢ] | | | ● | ● | |
| BF80T4E | ● | | | ● | ● | |
| BF95T4E | ● [Ⓢ] | | | | | |
| BF150T4E | ● [Ⓢ] | | | | | |
| BF160T4E | ● | | | ● [Ⓢ] | ● [Ⓢ] | |
| BF195T4E | ● | | | ● [Ⓢ] | ● [Ⓢ] | |
| BF230T4E | ● | | | ● [Ⓢ] | ● [Ⓢ] | |
| B2504 | | ● | ● | ● | ● | |
| B3104 | | ● | ● | ● | ● | |
| B4004 | | ● | ● | ● | ● | |
| B5004 | ● | | | ● | | |
| B6304 | ● | | | ● | ● | |
| B63010004 | ● | | | ● | | |

● Certified products.

- UL - UL Listed, for USA and Canada (cULus File E93602) for BG...BF150 types indicated, as Motor Controllers – Contactors, except for BGP09... types which are UL Recognized, for USA and Canada (●[Ⓢ], File E93602 – Component). Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
BGP is UL rated up to 300V; for type with rating up to 600V, consult Technical support for information – see contact details on inside front cover.
UL Listed for USA only (File E93602) for B250...B400 types indicated, as Motor Controllers – Contactors.
UL Listed for USA and Canada (cULus - File E172185) for B5004... B63010004 and B5004SL... B6304SL types as Industrial Control Switches.
- CSA - BF09...BF95 and B250...B400 contactors are also CSA certified, for Canada only (File 54332).
In addition, BF12..., BF25..., BF38... and BF65... types are CSA certified as "Elevator Equipment" (File 54332, class 2411).
See technical characteristics on page 2-70.

- Ⓢ This contactor has also achieved elevator equipment certification.
- Ⓢ Pending.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; UL 60947-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code.
Example: BF09T4D024V260 for BF09, four poles, 24VDC coil with compliant plastic materials.

Mini-contactor four power poles, 2 NO and 2 NC BG series



11BG09T2...

| Order code | IEC rated conventional free air thermal current Ith | | | Qty per pkg | Wt [kg] |
|-------------------------------------|---|-------|-------|-------------|---------|
| | ≤40°C | ≤55°C | ≤60°C | | |
| | [A] | [A] | [A] | n° | [kg] |
| AC COIL. Terminals: clamp screw. | | | | | |
| 11BG09T2A | 20 | 18 | 15 | 1 | 0.170 |
| DC COIL. Terminals: clamp screw. | | | | | |
| 11BG09T2D | 20 | 18 | 15 | 1 | 0.175 |

Note: on 11BG09T2D, maximum 2 auxiliary contacts may be mounted.

Contactors four power poles, 2 NO and 2 NC BF series



BF09T2...

| Order code | IEC rated conventional free air thermal current Ith | | | Qty per pkg | Wt [kg] |
|---|---|---------|---------|-------------|---------|
| | ≤40°C | ≤55°C | ≤60°C | | |
| | [A] | [A] | [A] | n° | [kg] |
| AC COIL. Terminals: clamp screw. | | | | | |
| BF09T2A | 25 | 20 | 18 | 1 | 0.340 |
| BF18T2A | 32 | 26 | 23 | 1 | 0.340 |
| BF26T2A | 45 | 36 | 32 | 1 | 0.420 |
| BF38T2A | 56 (60) | 45 (48) | 40 (42) | 1 | 0.420 |
| BF80T2A | 115 | 95 | 75 | 1 | 1.075 |
| DC COIL. Terminals: clamp screw. | | | | | |
| BF18T2D | 32 | 26 | 23 | 1 | 0.470 |
| BF26T2D | 45 | 36 | 32 | 1 | 0.540 |
| BF38T2D | 56 (60) | 45 (48) | 40 (42) | 1 | 0.540 |
| BF80T2E | 115 | 95 | 75 | 1 | 1.125 |
| DC COIL. Low consumption (2.4W). Terminals: clamp screw. | | | | | |
| BF18T2L | 32 | 26 | 23 | 1 | 0.470 |
| BF26T2L | 45 | 36 | 32 | 1 | 0.540 |
| BF38T2L | 56 (60) | 45 (48) | 40 (42) | 1 | 0.540 |

Contactors four power poles, 4 NC BF series



BF18T0...

| Order code | IEC rated conventional free air thermal current Ith | | | Qty per pkg | Wt [kg] |
|---|---|-------|-------|-------------|---------|
| | ≤40°C | ≤55°C | ≤60°C | | |
| | [A] | [A] | [A] | n° | [kg] |
| AC COIL. Terminals: clamp screw. | | | | | |
| BF18T0A | 32 | 26 | 23 | 1 | 0.340 |
| BF26T0A | 45 | 36 | 32 | 1 | 0.420 |
| DC COIL. Terminals: clamp screw. | | | | | |
| BF18T0D | 32 | 26 | 23 | 1 | 0.470 |
| BF26T0D | 45 | 36 | 32 | 1 | 0.540 |
| DC COIL. Low consumption (2.4W). Terminals: clamp screw. | | | | | |
| BF18T0L | 32 | 26 | 23 | 1 | 0.470 |

- 1 Complete with coil voltage digit if 50/60Hz or with voltage digit followed by 60 if 60Hz. N.B.: For BF80T2, 50/60Hz coils are suitable for 50Hz only.
Standard voltages are:
- AC 50/60Hz 024 / 048 / 110 / 230 / 400V
- AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).

- Example:
- 11BG09T2A230 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 230VAC 50/60Hz coil.
- 11BG09T2A46060 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 460VAC 60Hz coil.
- 2 Complete the order code with coil voltage digit.
Standard voltages are:
- DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
The BF18-BF26-BF38 T2D types already have a standard supplied built-in TVS (Transient Voltage Suppressor).
Example:
- 11 BG09T2D012 for mini-contactor BG09T2, 2 poles NO and 2 poles NC, with 12VDC coil.

- 3 Low consumption version with built-in TVS. Complete the order code with coil voltage digit.
Standard voltages are:
- DC 024 / 048V.
Example:
- BF18T2L024 for contactor BF18T2, 2 poles NO and 2 poles NC, with 24VDC low-consumption coil, supplied with TVS.
- 4 The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range. Complete the order code with coil voltage digit.
Standard voltages are:
- AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.
- 5 For use at this other current value, a 16mm² cable, headed with a fork terminal, must be used.
- 6 Maximum combinations of add-on blocks are given on page 2-19.
- 7 For BF80T2E... contactors, coil supply voltage must be AC or smoothed DC. For pulsating DC please consult our Technical support.

Operational characteristics

| Type | UL/CSA General use | Protection fuse | | Conductor section | |
|-----------|--------------------|-----------------|-----------|--------------------|-------|
| | [A] | IEC gG [A] | UL K5 [A] | [mm ²] | [AWG] |
| BG09...T2 | 20 | 20 | 30 | 0.75-2.5 | 18-12 |

Certifications and compliance

Certifications obtained: CCC, EAC; UL Listed, for USA and Canada (cULus - File E93602), as Motor Controllers - Contactors. Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Operational characteristics

| Type | UL/CSA General use | Protection fuse | | Conductor section | |
|------|--------------------|-----------------|------------|--------------------|-------|
| | [A] | IEC gG [A] | UL RK5 [A] | [mm ²] | [AWG] |

| | | | | | |
|--------|-----|-----|-----|--------|-------|
| BF09T2 | 25 | 32 | 60 | 1-6 | 16-10 |
| BF18T2 | 32 | 40 | 80 | 1-6 | 16-10 |
| BF26T2 | 45 | 50 | 100 | 1.5-10 | 14-6 |
| BF38T2 | 55 | 80 | 150 | 2.5-16 | 14-6 |
| BF80T2 | 115 | 115 | 250 | 6-50 | 18-2 |

Certifications and compliance

Certifications obtained: EAC, CCC, RINA; UL Listed for USA and Canada (cULus - File E93602) and CSA certified for Canada (File 54332), as Motor Controllers - Contactors. Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for all BF09...BF38 versions only, add suffix V260 to the standard product order code. Example: BF09T2A230 V260 for BF09, 2NO+2NC main poles, 230V 50/60Hz coil with compliant plastic materials).

Operational characteristics

| Type | UL/CSA General use | Protection fuse | | Conductor section | |
|------|--------------------|-----------------|------------|--------------------|-------|
| | [A] | IEC gG [A] | UL RK5 [A] | [mm ²] | [AWG] |

| | | | | | |
|--------|----|----|-----|--------|-------|
| BF18T0 | 32 | 40 | 80 | 1-6 | 16-10 |
| BF26T0 | 45 | 50 | 150 | 1.5-10 | 14-6 |

Certifications and compliance

Certifications obtained: EAC, CCC, RINA; UL Listed for USA and Canada (cULus - File E93602) and CSA certified for Canada (File 54332), as Motor Controllers - Contactors. Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for BF18 and BF26 versions only, add suffix V260 to the standard product order code. Example: BF18T0A230V260 for BF18, four NC main poles, 230VAC 50/60Hz coil with compliant plastic materials).

NOTE: The BF18-BF26T0D and BF18T0L types have a standard supplied built-in TVS (Transient Voltage Suppressor).

3 pole contactors to connect in series for photovoltaic applications BF series



BFD6500A - BFD8000A

new

| Order code | Operational current at 600V in DC1 ≤55°C with 3 poles in series | | Qty per pkg | Wt [kg] |
|------------|---|-------|-------------|---------|
| | [A] | [A] | | |
| | | 1000V | n° | |

AC COIL.
Terminals: double lug clamp.

| | | | | |
|-----------------|----|----|---|-------|
| BFD6500A | 75 | 35 | 1 | 1,020 |
| BFD8000A | 80 | 60 | 1 | 1,020 |

4 pole contactors to connect in series for photovoltaic applications BF series



BFD80T4...



BFD150T4E

| Order code | Operational current at 600V in DC1 ≤55°C with 4 poles in series | | Qty per pkg | Wt [kg] |
|------------|---|-------|-------------|---------|
| | [A] | [A] | | |
| | | 1000V | n° | |

AC COIL.
Terminals: double lug-clamp.

| | | | | |
|-----------------|-----|----|---|-------|
| BFD80T4A | 100 | 80 | 1 | 1.100 |
|-----------------|-----|----|---|-------|

AC/DC COIL.
Terminals: double lug-clamp.

| | | | | |
|------------------|-----|-----|---|-------|
| BFD80T4E | 100 | 80 | 1 | 1.100 |
| BFD150T4E | 165 | 100 | 1 | 2.550 |

- ① Complete with coil voltage digit if 50/60Hz or with voltage digit followed by 60 if 60Hz. Standard voltages are:
 - AC 50/60Hz 024 / 048 / 110 / 230 / 400V
 - AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
- ② The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range. Complete the order code with coil voltage digit. Standard voltages are:
 - AC/DC 024 = 20...48V; 110 = 60...110V; 230 = 100...250V.
- ③ The contactor coil is controlled electronically; it can have either an AC or a DC supply and has a wide operating range. Complete the order code only with the digit of the coil voltage. Standard voltages are:
 - AC/DC 024 = 24...60VAC/20...60VDC; 110 = 60...130VAC/DC; 230 = 100...250VAC/DC; 400 = 250...500VAC/DC.

General characteristics

The contactors are specifically made with magnetic elements in the arc extinction chambers to obtain high DC load operational capabilities. They are used to disconnect and isolate the load between the photovoltaic panel and the AC/DC inverter.

For add-on contact blocks, accessories and spare parts, consider indications of the corresponding standard contactors without the D letter in the code.

Italian Fire Department Directives

These directives provide for a disconnecting device for all current-carrying elements, that can be operated by remote control switch, placed in an easily reached and marked position, in order to safely isolate each part of the installation within the fire system compartment including the photovoltaic (PV) generator.

As an alternative, the PV generator must be installed, either externally of the fire system compartment or internally but in a dedicated compartment with adequate fire-resistant features. For such function, specifically designed contactors for on-load use in IEC DC1 duty up to 1000VDC are available.

Operational characteristics

Use in IEC DC1 duty

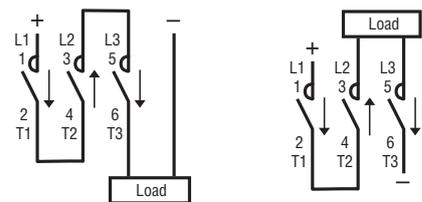
| Type | Poles in series | IEC operational voltage Ue | | | |
|--------------|-----------------|--|------|------|-------|
| | | 400V | 600V | 800V | 1000V |
| | | IEC max current Ie in DC1 with L/R ≤1ms with 4 poles in series | | | |
| | | [A] | [A] | [A] | [A] |
| BFD6500A... | 3 | 100 | 75 | 45 | 35 |
| BFD8000A... | 3 | 100 | 80 | 65 | 60 |
| BFD80T4A... | 4 | 115 | 100 | 90 | 80 |
| BFD80T4E... | 4 | 115 | 100 | 90 | 80 |
| BFD150T4E... | 4 | 165 | 165 | 125 | 100 |

Certification and compliance

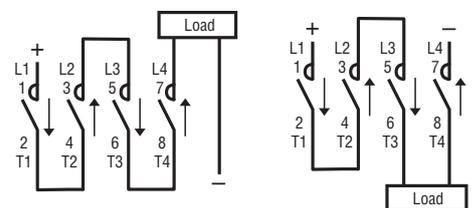
Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1.

Wiring diagrams

Three-pole contactors



Four-pole contactors



BFK contactors (including limiting resistors)



BFK...

new

| Order code | Maximum IEC operational power at ≤50°C (AC-6b) ① | | | | NO | n° | Qty per pkg | Wt [kg] |
|--------------------|--|--------|--------|--------|----|----|-------------|---------|
| | 240V | 400V | 440V | 690V | | | | |
| | [kvar] | [kvar] | [kvar] | [kvar] | | | | |
| AC COIL | | | | | | | | |
| BFK0910A ② | 4.5 | 7.5 | 9 | 10 | 1 | 10 | 0.413 | |
| BFK1210A ② | 7 | 12.5 | 14 | 16 | 1 | 10 | 0.413 | |
| BFK1810A ② | 9 | 15 | 17 | 20 | 1 | 10 | 0.413 | |
| BFK2600A ② | 11 | 20 | 22 | 25 | – | 10 | 0.472 | |
| BFK3200A ② | 14 | 25 | 27.5 | 30 | – | 10 | 0.472 | |
| BFK3800A ② | 17 | 30 | 33 | 36 | – | 10 | 0.472 | |
| BFK5000A ② | 22 | 40 | 41 | 46 | – | 5 | 1.080 | |
| BFK6500A ② | 26 | 45 | 50 | 56 | – | 5 | 1.080 | |
| BFK8000A ② | 30 | 50 | 56 | 65 | – | 5 | 1.080 | |
| BFK9400A ②④ | 34 | 60 | 75 | 80 | – | 5 | 1.080 | |
| BFK9500A ② | 34 | 60 | 75 | 80 | – | 5 | 2.095 | |
| BFK11500A ② | 45 | 75 | 85 | 135 | – | 5 | 2.095 | |
| BFK15000A ② | 50 | 100 | 115 | 150 | – | 5 | 2.095 | |

- ① To use the contactor in the delta, consult our Technical support, see contact details on inside front cover..
- ② NO auxiliary contacts available.
- ③ The order code must be completed either with the coil voltage digit if 50/60Hz or with the coil voltage digit followed by the number 60 if 60Hz. Standard voltages are:
 – AC 50-60Hz 024 / 048 / 110 / 230 / 400VAC
 – AC 60Hz 024 60 / 048 60 / 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
 Example: BFK0910A230 for contactor BFK09 with one NO contact and 230VAC 50/60Hz coil.
 BFK0910A46060 for contactor BFK09 with one NO contact and 460VAC 60Hz coil.
- ④ **NOTE: the maximum thermal current Ith of the BFK94 contactor is 115A.**

UL/CSA details
Maximum UL/CSA kvar ratings

| | 240V | 480V | 600V |
|-----------|------|------|------|
| | kVAR | kVAR | kVAR |
| BFK0910A | 4.5 | 9 | 10 |
| BFK1210A | 7 | 14 | 16 |
| BFK1810A | 9 | 17 | 20 |
| BFK2600A | 11 | 22 | 27.5 |
| BFK3200A | 14 | 27.5 | 32 |
| BFK3800A | 17 | 33 | 36 |
| BFK5000A | 22 | 41 | 46 |
| BFK6500A | 26 | 50 | 56 |
| BFK8000A | 30 | 60 | 75 |
| BFK9500A | 40 | 80 | 100 |
| BFK11500A | 45 | 90 | 120 |
| BFK15000A | 50 | 100 | 125 |

Kit to assemble BFK contactors



11G46...

| Order code | For contactor | Qty per pkg | Wt |
|----------------|---|-------------|-------|
| | | n° | [kg] |
| 11G460 | BF0910A - BF1210A - BF1810A - BF2600A - BF3200A - BF3800A | 1 | 0.072 |
| BFX10K3 | BF5000A - BF6500A - BF8000A - BF9400A | 1 | 0.078 |
| BFX10K4 | BF9500A - BF11500A - BF15000A | 1 | 0.080 |

Operational characteristics

| Type | IEC rated operational current ≤440V [A] | IEC - UL/CSA protection fuse gG-SC [A] |
|--------|---|--|
| BFK09 | 12 | 16 |
| BFK12 | 18 | 25 |
| BFK18 | 23 | 40 |
| BFK26 | 30 | 40 |
| BFK32 | 36 | 63 |
| BFK38 | 43 | 63 |
| BFK50 | 58 | 80 |
| BFK65 | 65 | 100 |
| BFK80 | 75 | 125 |
| BFK94 | 90 | 125 |
| BFK95 | 90 | 125 |
| BFK115 | 115 | 160 |
| BFK150 | 144 | 160 |

Ambient operating temperature: ≤50°C. For ambient temperatures higher than 50°C and up to 70°C, the maximum operating power values indicated in the table must be reduced by a percentage equal to the difference between the operating ambient temperature and 50°C.
 E.g.: using a BFK2600 contactor at the ambient temperature of 60°C, the maximum operating power (at 400V) of the contactor will be equal to 20kvar – 10% = 18kvar.
 Operating cycle: ≤120 cycles/h
 Electrical life: ≥400,000 cycles.

Add-on auxiliary contacts

The following contact blocks, can be fitted on the BFK contactors: BFX12..., 11G418..., 11G481..., 11G482... and 11G218.

Certifications and compliance

Certification obtained (BFK9400A excluded):UL Listed for USA and Canada (cULus - File E93602), as Motor Controllers - Magnetic Capacitive Switches; CCC, EAC.
 Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14.
 Plastic materials are compliant with standards IEC/EN/BS 60335; for BFK versions only, add suffix V260 to the standard product order code.

General characteristics

To optimise contactor stock management, a kit is available to transform normal three-pole contactors into BFK types for power factor correction. The table to the left indicates which kits to purchase depending on the standard contactor in stock.

Control relays BG00 type



11BG00...



11BF00...

Control relays BF00 type



BF00...A...



BF00...D...
BF00...L...

| Order code | Configuration and n° of contacts ⑤ | | Quantity per pkg. n° | Wt [kg] |
|---|------------------------------------|----|----------------------|---------|
| | NO | NC | | |
| AC COIL. Terminals: clamp screw. | | | | |
| 11BG0040A① | 4 | 0 | 1 | 0.170 |
| 11BG0031A① | 3 | 1 | 1 | 0.170 |
| 11BG0022A① | 2 | 2 | 1 | 0.170 |
| Terminals: Faston. | | | | |
| 11BGF0040A① | 4 | 0 | 1 | 0.160 |
| 11BGF0031A① | 3 | 1 | 1 | 0.160 |
| 11BGF0022A① | 2 | 2 | 1 | 0.160 |
| DC COIL. Terminals: clamp screw. | | | | |
| 11BG0040D② | 4 | 0 | 1 | 0.175 |
| 11BG0031D② | 3 | 1 | 1 | 0.175 |
| 11BG0022D②⑥ | 2 | 2 | 1 | 0.175 |
| Terminals: Faston. | | | | |
| 11BGF0040D② | 4 | 0 | 1 | 0.165 |
| 11BGF0031D② | 3 | 1 | 1 | 0.165 |
| 11BGF0022D② | 2 | 2 | 1 | 0.165 |
| DC COIL. Low-consumption (2.3W). Terminals: clamp screw ⑦. | | | | |
| 11BG0040L③ | 4 | 0 | 1 | 0.175 |
| 11BG0031L③ | 3 | 1 | 1 | 0.175 |
| 11BG0022L③ | 2 | 2 | 1 | 0.175 |
| Terminals: Faston. | | | | |
| 11BGF0040L③ | 4 | 0 | 1 | 0.165 |
| 11BGF0031L③ | 3 | 1 | 1 | 0.165 |
| 11BGF0022L③ | 2 | 2 | 1 | 0.165 |

| Order code | Configuration and n° of contacts ⑤ | | Quantity per pkg. n° | Wt [kg] |
|---|------------------------------------|----|----------------------|---------|
| | NO | NC | | |
| AC COIL. Terminals: clamp screw. | | | | |
| BF0040A① | 4 | 0 | 1 | 0.340 |
| BF0031A① | 3 | 1 | 1 | 0.340 |
| BF0022A① | 2 | 2 | 1 | 0.340 |
| BF0004A① | 0 | 4 | 1 | 0.340 |
| DC COIL. Terminals: clamp screw. | | | | |
| BF0040D②⑥ | 4 | 0 | 1 | 0.470 |
| BF0031D②⑥ | 3 | 1 | 1 | 0.470 |
| BF0022D②⑥ | 2 | 2 | 1 | 0.470 |
| BF0004D②⑥ | 0 | 4 | 1 | 0.470 |
| DC COIL. Low consumption (2.4W). Terminals: clamp screw. | | | | |
| BF0040L③⑥ | 4 | 0 | 1 | 0.470 |
| BF0031L③⑥ | 3 | 1 | 1 | 0.470 |
| BF0022L③⑥ | 2 | 2 | 1 | 0.470 |
| BF0004L③⑥ | 0 | 4 | 1 | 0.470 |

- ① The order code must be completed either with the coil voltage digit if 50/60Hz or with the coil voltage digit followed by the number 60 if 60Hz. Standard voltages are:
 - AC 50/60Hz 024 / 048 / 110 - 230 / 400V
 - AC 60Hz 024 60 / 048 60 / - 120 60 / 220 60 / 230 60 / 460 60 / 575 60 (V).
 Example: 11BG0040A230 (auxiliary mini-contactor 4 NO auxiliary contacts supplied at 230VAC 50/60Hz).
 BF0040A46060 (auxiliary contactor with 4 NO auxiliary contacts supplied at 460VAC 60Hz).
- ② Complete the order code with coil voltage digit. Standard voltages are:
 - DC 012 / 024 / 048 / 060 / 110 / 125 / 220V.
 Example: BF0040D012 (auxiliary contactor with 4 NO auxiliary contacts supplied at 12VDC).
- ③ Low-consumption version. Complete the order code with coil voltage digit. Standard voltages are:
 - DC 024 / 048V.
 Example: 11BG0040L024 (low-consumption auxiliary mini-contactor with 4 NO auxiliary contacts supplied at 24VDC).
- ④ Maximum combinations of add-on blocks are given on page 2-19.
- ⑤ All contacts are highly conductive.
- ⑥ On 11BG0022D, maximum 2 auxiliary contacts may be mounted.
- ⑦ Auxiliary contact blocks and mechanical interlock cannot be mounted.

Operational characteristics

- IEC rated insulation voltage Ui: 690V
- IEC rated conventional free air thermal current Ith: 10A
- UL/CSA and IEC/EN/BS 60947-5-1 designation:
 - BG types: A600-Q600
 - BF types: A600-P600
- Low-consumption version of BG types cannot accept additional contacts.

NOTE: no coil change or replacement is possible.

Certifications and compliance

Certification obtained: CCC, EAC, UL Listed for USA and Canada (cULus - File E93602), as Motor Controllers - Auxiliary contactors for all; RINA for BF00 types. Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1. Plastic materials are compliant with standards IEC/EN/BS 60335; for BF00 version only, add suffix V260 to the standard product order code. Example: BF0040A230V260 for BF00 control relay having 4 NO auxiliary contacts and 230VAC 50/60Hz coil with compliant plastic materials.

NOTE: the BF00...D and BF00...L types have a standard supplied built-in TVS (Transient Voltage Suppressor).



11BGX10... (20-11-02)
11BGX1111



11BGX10... (40-31-22-13-04)
11BGX1122



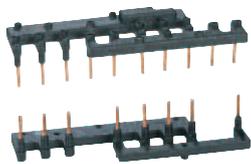
11BGXF...



11BGX77... -
11BGX78225 -
11BGX79...



11BGX5000



11SMX9021
11SMX9022

| Order code | Characteristics | Max qty per contactor | Qty per pkg | Wt |
|------------|-----------------|-----------------------|-------------|------|
| | | n° | n° | [kg] |

Auxiliary contacts.
Screw terminals.

| | | | | |
|------------|-----------|---|----|-------|
| 11BGX1002① | 2NC | 1 | 10 | 0.021 |
| 11BGX1011① | 1NO + 1NC | 1 | 10 | 0.021 |
| 11BGX1020① | 2NO | 1 | 10 | 0.021 |
| 11BGX1004② | 4NC | 1 | 10 | 0.028 |
| 11BGX1013② | 1NO + 3NC | 1 | 10 | 0.028 |
| 11BGX1022② | 2NO + 2NC | 1 | 10 | 0.028 |
| 11BGX1031③ | 3NO + 1NC | 1 | 10 | 0.028 |
| 11BGX1040③ | 4NO | 1 | 10 | 0.028 |

Auxiliary contacts for reversing and changeover assemblies.
Screw terminals.

| | | | | |
|------------|-----------|---|----|-------|
| 11BGX1111④ | 1NO + 1NC | 1 | 10 | 0.021 |
| 11BGX1122④ | 2NO + 2NC | 1 | 10 | 0.028 |

Auxiliary contacts.
Faston terminals.

| | | | | |
|-------------|-----------|---|----|-------|
| 11BGXF1002⑤ | 2NC | 1 | 10 | 0.021 |
| 11BGXF1011⑤ | 1NO + 1NC | 1 | 10 | 0.021 |
| 11BGXF1020⑤ | 2NO | 1 | 10 | 0.021 |
| 11BGXF1004⑥ | 4NC | 1 | 10 | 0.028 |
| 11BGXF1013⑥ | 1NO + 3NC | 1 | 10 | 0.028 |
| 11BGXF1022⑥ | 2NO + 2NC | 1 | 10 | 0.028 |
| 11BGXF1031⑦ | 3NO + 1NC | 1 | 10 | 0.028 |
| 11BGXF1040⑦ | 4NO | 1 | 10 | 0.028 |

Mechanical interlock.

| | | | | |
|------------|-----------------------|---|----|-------|
| 11BGX5000⑧ | For BG...A and BG...D | 1 | 10 | 0.008 |
|------------|-----------------------|---|----|-------|

Quick connect surge suppressors.

| | | | |
|------------|-----------------------------------|----|-------|
| 11BGX77048 | ≤48VAC/DC (Varistor) | 10 | 0.007 |
| 11BGX77125 | 48...125VAC/DC (Varistor) | 10 | 0.007 |
| 11BGX77240 | 125...240VAC/DC (Varistor) | 10 | 0.007 |
| 11BGX78225 | ≤225VDC (Diode) | 10 | 0.007 |
| 11BGX79048 | ≤48VAC (Resistor-Capacitor) | 10 | 0.007 |
| 11BGX79125 | 48...125VAC (Resistor-Capacitor) | 10 | 0.007 |
| 11BGX79240 | 125...240VAC (Resistor-Capacitor) | 10 | 0.007 |
| 11BGX79415 | 240...415VAC (Resistor-Capacitor) | 10 | 0.007 |

Modular shroud.

| | | | |
|------------|-----------------------|----|-------|
| 11BGX8000⑨ | IP40 front protection | 20 | 0.006 |
|------------|-----------------------|----|-------|

Paralleling links.

| | | | |
|---------|-------------|----|-------|
| 11G323⑩ | For 2 poles | 10 | 0.009 |
| 11G324 | | 10 | 0.009 |
| 11G325⑩ | For 4 poles | 10 | 0.014 |
| 11G326 | | 10 | 0.014 |

Rigid connecting kits.

| | | | |
|------------|---|----|-------|
| 11SMX9021⑪ | Rigid connections for star-delta starter with BG... mini-contactors | 10 | 0.040 |
| 11SMX9022⑪ | Rigid connections for reversing switches with BG... mini-contactors | 1 | 0.026 |

- ① Cannot be used with BG...L types.
- ② Cannot be used with BG...D and BG...L types.
- ③ Suitable for left-hand mini-contactor only of BGT and BGTP reversing and BGC changeover assemblies.
- ④ The shroud can be used with BG... types with screw termination only and with no auxiliary contacts, surge suppressor or mechanical interlock mounted. It raises the front degree of protection of the mini-contactor when these are used in consumer switchboards.
- ⑤ Cannot be used with BGX8000 shroud.
- ⑥ Contactors with one NC auxiliary contact, 01 type, are usually used. The SM1 breaker can be directly fitted with rigid connector; type connection SM1X3040P for SM1P... breaker and connection SM1X3040R for SM1R... breaker. The relay cannot be directly mounted on the contactor. Use the RF38 type and the RFX3804 independent mounting base.

Operational characteristics

| Type | | BGX10... BGX11... | BGXF10... |
|---|----------------------|----------------------|------------------------------|
| IEC rated conventional free air thermal current Ith | A | 10 | 10 |
| IEC rated insulation voltage Ui | V | 690 | 690 |
| Terminals | Screw | M3 | Faston 1x6.3mm 2x2.8mm |
| | Width | mm | 6.9 |
| Tightening torque | Nm | 0.8...1 | — |
| | lb.in | 7...9 | — |
| Conductor section maximum (with 1 or 2 cables) | flexible without lug | mm ² | 2.5 |
| | | mm ² | 2.5 |
| | AWG | n° | 14 |
| | | n° | 14 |
| UL/CSA and IEC/EN/BS 60947-5-1 designation | AC | A600 | A600 |
| | DC | Q600 | Q600 |
| Mechanical life (million) | cycles | 20 | 20 |

SM1 breaker - mini-contactor connecting kit

See page 1-12.

Certifications and compliance

Certifications obtained:

| Type | UL | cULus | EAC | CCC |
|-----------|----|-------|-----|-----|
| BGX10... | — | ● | ● | ● |
| BGX11... | — | ● | ● | ● |
| BGXF10... | — | ● | ● | — |
| BGX5000 | — | ● | ● | — |
| BGX7... | — | ● | ● | — |
| BGX8000 | — | — | ● | — |
| G32... | — | — | ● | — |
| SMX90... | UL | — | — | — |

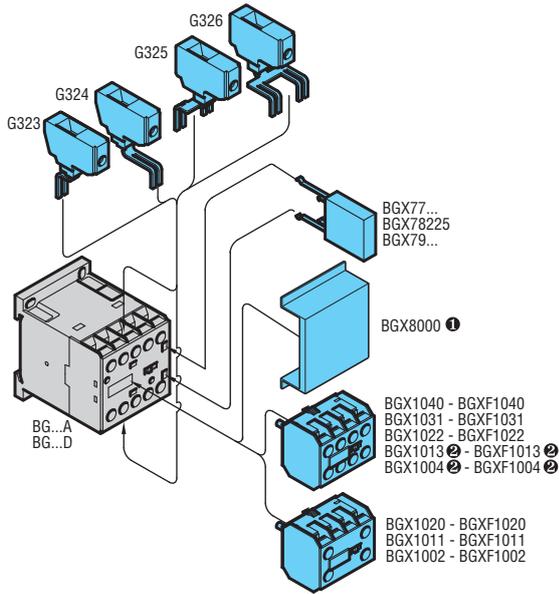
● Certified products;

UL - UL Recognized for USA only (File E197069) as Panel and Switchboard Accessories - Component. Products having this type of marking are intended for use as components of complete workshop-assembled equipment.
cULus - UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices - Component.

Compliant with standards: UL 60947-4-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-4-1; IEC/EN/BS 60947-1; IEC/EN/BS 60947-5-1 for auxiliary contacts.

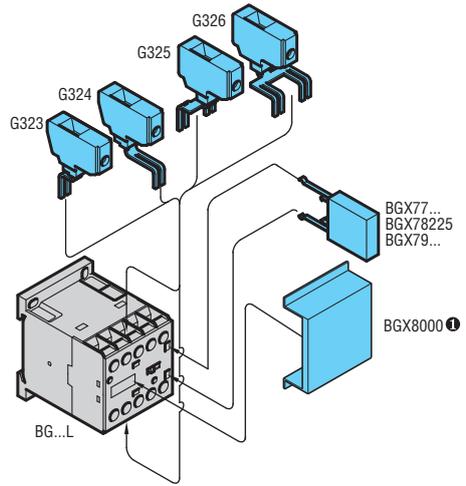
The add-on auxiliary contact blocks 11BGX... and 11BGXF... comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contact. They also comply with Annex L of the IEC/EN/BS 60947-5-1 standard "mechanically linked contact elements".

Combinations: mounting position on BG...A and BG...D mini-contactors

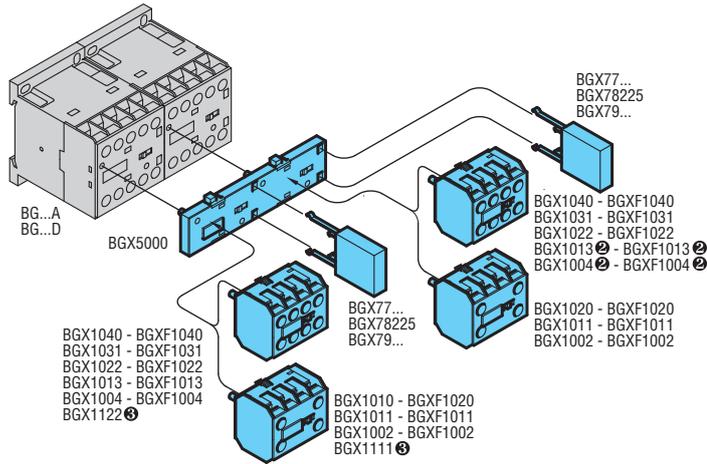


- ❶ Not suitable for mini-contactors BG... with auxiliaries contacts BGX10..., surge suppressor BGX7... and interlock BGX5000.
- ❷ Not suitable for BG...D types.

Combinations: mounting position on BG...L mini-contactors

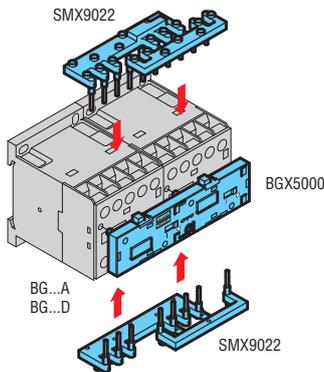


Combinations for reversing and changeover contactors assembled with BG...A and BG...D types

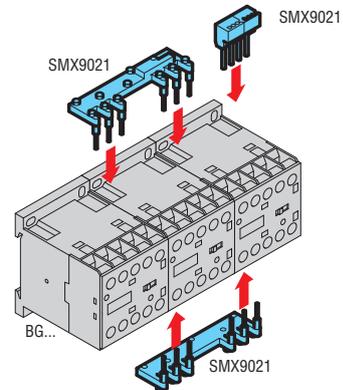


- ❸ Not suitable for BG...D types.
- ❹ For left-hand mini-contactor of BGT, BGTP and BGC contactor assemblies only. See page 4-5.

Connections for reversing contactor assembly



Connections for star-delta assembly





BFX10...



11G484...



BFX10...



11G418...

11G218



11G481...
11G482



11G428...

BFX12...



11G485...
11G486...
11G487

| Order code | Characteristics | Max qty per cont. | Qty per pkg. | Wt [kg] |
|------------|-----------------|-------------------|--------------|---------|
| | | n° | n° | [kg] |

Auxiliary contacts with front center mounting ^②.
Screw terminals.

| | | | | |
|------------------------------|--|---|---|-------|
| BFX1002 ^② | 2NC | 1 | 5 | 0.030 |
| BFX1011 ^② | 1NO + 1NC | 1 | 5 | 0.030 |
| BFX1020 ^② | 2NO | 1 | 5 | 0.030 |
| 11G48403 ^② | 3NC | 1 | 5 | 0.039 |
| 11G48412 ^② | 1NO + 2NC | 1 | 5 | 0.039 |
| 11G48421 ^② | 2NO + 1NC | 1 | 5 | 0.039 |
| 11G48430 ^② | 3NO | 1 | 5 | 0.039 |
| BFX1004 | 4NC | 1 | 5 | 0.048 |
| BFX1013 | 1NO + 3NC | 1 | 5 | 0.048 |
| BFX1022 | 2NO + 2NC | 1 | 5 | 0.048 |
| BFX1031 | 3NO + 1NC | 1 | 5 | 0.048 |
| BFX1040 | 4NO | 1 | 5 | 0.048 |
| BFX101111 | 1NO+1NC and 1EM ^③ +1LB ^④ | 1 | 5 | 0.048 |

Auxiliary contacts with front lateral mounting. Screw terminals^⑤.

| | | | | |
|------------------|------------------|---|----|-------|
| 11G41801 | 1NC | 2 | 10 | 0.014 |
| 11G41801D | 1LB ^⑥ | 2 | 10 | 0.014 |
| 11G41810 | 1NO | 2 | 10 | 0.014 |
| 11G41810A | 1EM ^⑦ | 2 | 10 | 0.014 |

Auxiliary contacts with front lateral mounting. Faston terminals^⑧.

| | | | | |
|----------------------------|-----------------------|---|----|-------|
| 11G218 | 1NO or 1NC reversible | 2 | 10 | 0.011 |
| 11G48102 | 2NC | 2 | 10 | 0.013 |
| 11G48111 | 1NO + 1NC | 2 | 10 | 0.013 |
| 11G48120 | 2NO | 2 | 10 | 0.013 |
| 11G482 ^⑨ | Changeover contact | 2 | 10 | 0.013 |

Adapter for auxiliary contact side mounting.

| | | | | |
|---------------|-------------------|---|----|-------|
| 11G280 | for G218 | 2 | 10 | 0.008 |
| 11G419 | for G418 | 2 | 10 | 0.010 |
| 11G483 | for G481 and G482 | 2 | 10 | 0.010 |

Auxiliary contacts with low side mounting. Screw terminals.

| | | | | |
|-----------------------------|------------------|---|----|-------|
| BFX1202 ^② | 2NC | 2 | 5 | 0.044 |
| BFX1211 ^② | 1NO+1NC | 2 | 5 | 0.044 |
| BFX1220 ^② | 2NO | 2 | 5 | 0.044 |
| 11G42801 | 1NC | 2 | 10 | 0.024 |
| 11G42801D | 1LB ^⑥ | 2 | 10 | 0.024 |
| 11G42810 | 1NO | 2 | 10 | 0.024 |
| 11G42810A | 1EM ^⑦ | 2 | 10 | 0.024 |

Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on energisation for front center mounting ^⑩^⑪.
Screw terminals.

| | | | | |
|------------------|------|---|---|-------|
| 11G4853 | 3s | 1 | 1 | 0.040 |
| 11G4856 | 6s | 1 | 1 | 0.040 |
| 11G48515 | 15s | 1 | 5 | 0.040 |
| 11G48530 | 30s | 1 | 5 | 0.040 |
| 11G48560 | 60s | 1 | 5 | 0.040 |
| 11G485120 | 120s | 1 | 1 | 0.040 |

Delayed auxiliary contacts 1NO + 1NC (pneumatic operation) on de-energisation for front center mounting ^⑫^⑬.
Screw terminals.

| | | | | |
|------------------|------|---|---|-------|
| 11G4863 | 3s | 1 | 1 | 0.040 |
| 11G4866 | 6s | 1 | 1 | 0.040 |
| 11G48615 | 15s | 1 | 5 | 0.040 |
| 11G48630 | 30s | 1 | 5 | 0.040 |
| 11G48660 | 60s | 1 | 5 | 0.040 |
| 11G486120 | 120s | 1 | 1 | 0.040 |
| 11G487 | 70ms | 1 | 1 | 0.040 |

Operational characteristics for add-on auxiliary contacts

| Type | | G418 ^④ G428 ^④ G485 ^④ G486 ^④ G487 ^④ | G484 BFX10 BFX12 | G218 ^⑦ G481 ^⑦ | G482 ^⑤ |
|---|--|---|------------------------|--|-------------------|
| IEC conventional free air thermal current Ith | A | 10 | 10 | 10 | 0.1 ^⑤ |
| IEC rated insulation voltage Ui | V | 690 | 690 | 690 | 690 |
| Terminals | Screw | M3.5 | M3 | — | — |
| | Width | mm | 7 | 7 | — |
| | Faston | — | — | 1x6.35 2x2.8 | 1x6.35 2x2.8 |
| Tightening torque | Nm | 0.8...1 | 0.8...1 | — | — |
| | lb.in | 7...9 | 7...9 | — | — |
| | Conductor section maximum with (1 or 2 cables) | | | | |
| flexible w/o lug | mm ² | 2.5 | 2.5 | — | — |
| flexible c/w lug | mm ² | 2.5 | 2.5 ^⑧ | 2.5 | 2.5 |
| AWG | n° | 14 | 14 | 14 | 14 |
| Terminal protection per IEC/EN/BS 60529 | AC | IP20 ^⑥ ^⑥ | IP20 | IP20 ^⑦ | IP20 ^⑤ |
| | DC | A600 P600 ^⑥ | A600 Q600 | A600 P600 | A600 P600 |
| Mechanical life (million) | cycles | 10 ^⑧ | 10 | 10 | 10 |

SM1 breaker - contactor connecting kit

See page 1-12.

Maximum assembly combination of add-on blocks

See pages 2-21 and 2-24...25.

Certifications and compliance

Certifications obtained:

| Type | UL | cULus | CSA | EAC | CCC |
|------------------|----|-------|-----|-----|-----|
| BFX10... | — | ● | — | ● | ● |
| BFX12... | — | ● | — | ● | — |
| G218 | | — | ● | ● | — |
| G418..., G428... | | — | ● | ● | — |
| G481... | | — | ● | ● | — |
| G482 | | — | ● | ● | — |
| G484... | | — | ● | ● | — |
| G485... | | — | ● | ● | — |
| G486... | | — | ● | ● | — |
| G487... | | — | ● | ● | — |

● Certified products; pending for BFX101111

- UL Recognized for USA only (File E93601) as Auxiliary Devices - Component.
Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

cULus - UL Listed for USA and Canada (cULus - File E93601) as Auxiliary Devices.

CSA - CSA certified for Canada only (File 54332) as Auxiliary Devices for motor controllers.

Add-on auxiliary contacts are compliant with the following standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-1, UL 60947-5-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-5-1.

The add-on auxiliary contact blocks BFX10... (BFX101111 excluded) and BFX12... comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contact. They also comply with Annex L of the IEC/EN/BS 60947-5-1 standard "mechanically linked contact elements".

For the BF40...BF150 contactors, compliance with Annex L of the IEC/EN/BS 60947-5-1 standard applies only to the versions with electronically controlled AC/DC coil.

- The contacts can also be fitted on B type contactors using the adapter G358. See pages 2-30 and 2-31.
- Highly conductive contacts.
- Normally closed late-break contact.
- Normally open early-make contact.
- Gold-plated contacts inside tight casing for use in pollutant environments.
The Ith value refers to 125VAC and 30VDC. Minimum applicable load: 5VDC 1mA. IEC IP20 protection is warranted to equipment wired with insulated Faston terminals.
- IEC IP20 protection is warranted to equipment wired with minimum 0.75mm² conductor section. Designation in DC is Q600 for G418 and G419 types.
- IEC IP20 protection is warranted to equipment wired with insulated Faston terminals.
- IEC IP20 protection is warranted to equipment wired with minimum 1mm² conductor section. Mechanical life is 3 million cycles.
- 1.5mm² for insulated bootlace ferrules.

2 Contactors

Add-on blocks and accessories for contactors BF00, BF09...BF150

BF00A, BF09A...BF150A, BF40E...BF150E

Maximum assembly combination for alternating-current contactors BF00A, BF09A...BF150.
Maximum assembly combination for alternating/direct-current contactors BF40E...BF150E.

| | | Front centre mount | | | | Front lateral mount | | | Side mount | | |
|------------|---------------|-----------------------------|---------|---------|---------------------------|-----------------------------|--------------|---------|------------------|--------------|---|
| | | | | | | | | | | | |
| | | BFX1002 | BFX1004 | G485... | G222... ^① | BFX5002 | BFX5303 | G418... | G428... | BFX1202 | |
| | | BFX1011 | BFX1013 | G486... | G272... ^② | BFX5003 | BFX5403 | G218 | G419+ G418... | BFX1211 | |
| | | BFX1020 | BFX1022 | G487 | BFX641... ^③ | ^④ | ^⑤ | G481... | G280+ G218 | BFX1220 | |
| | | | BFX1031 | | | | | G482 | G483+ G481... | BFX5000 | |
| | | | BFX1040 | | | | | | G483+ G482 | BFX5001 | |
| | | n° of blocks 1 type only | | | | n° of blocks 1 type only | | | n° of blocks | n° of blocks | |
| Contactors | Control relay | BF00A | 1 | 1 | 1 | 1 | — | 1 | 2 | 1 | 1 |
| | Three poles | BF09A...BF25A | 1 | 1 | 1 | 1 | — | — | 2 | 2 | 1 |
| | | BF26A...BF38A | 1 | 1 | 1 | 1 | — | — | 2 | 2 | 1 |
| | | BF40A...BF150A | 1 | 1 | 1 | 1 | 1 | — | 2 | 2 | 1 |
| | | BF40E...BF150E | 1 | 1 | 1 | 1 | — | 1 | 2 | 2 | 1 |
| | Four poles | BF09A...BF25A | 1 | 1 | 1 | 1 | 1 | — | 2 | 2 | 1 |
| | | BF26A...BF38A | 1 | 1 | 1 | 1 | 1 | — | 2 | 2 | 1 |
| | | BF40A...BF150A | 1 | 1 | 1 | 1 | — | 1 | 2 | 2 | 1 |
| | | BF40E...BF150E | 1 | 1 | 1 | 1 | — | 1 | 2 | 2 | 1 |

- ① Cannot be fitted with BFX10... with 4 contacts and G222.
- ② To fit the mechanical interlock, the add-on fourth pole needs to be mounted on the left side of the one of the contactors.
- ③ One only side-mount block can be fitted on each contactor whenever the BFX500... interlock is mounted.
- ④ One BFX10... or delayed G48... contact block can be mounted on the G222, G272 or BFX641 mechanical latch.
- ⑤ G222 mechanical latch.
- ⑥ G272 mechanical latch for BF40...BF80; BFX641 for BF95...BF150.
- ⑦ For BF40...BF94 code BFX5300 or BFX5301; for BF95...BF150 code BFX5400 or BFX5401.
- ⑧ BFX5303 for BF40...BF94; BFX5403 for BF95...BF150.
- ⑨ BFX5303 cannot be mounted if a contact block BFX10... with 4 contacts (BFX1004, BFX1013, BFX1022, BFX1031, BFX1040) is installed.

BF00D, BF09D...BF38D, BF00L, BF09L...BF38L

Maximum assembly combination for direct-current contactors BF00D, BF09D...BF38D
Maximum assembly combination for direct-current contactors BF00L, BF09L...BF38L with low consumption

| | | Front centre mount | | | | | | | | Front lateral mount | | | | Side mount | | | | |
|------------|---------------|-------------------------------|---|---|---|---|---|----------------------------|-------------------------|---|-----------------------------|---|---|--------------------------|---|---|---|--|
| | | | | | | | | | | | | | | | | | | |
| | | BFX10... ...02 ...11 ...20 | | BFX10... ...04 ...13 ...22 ...31 ...40 | | | | G485... G486... G487 | G222... ^① | 1 type only BFX50... ...02 ...03 ...00 ...01 | | | | BFX12... ^② | | | | |
| | | n° of blocks 1 type only | | | | | | | | n° of blocks | n° of blocks 1 type only | | | | | | | |
| Contactors | Control relay | BF00D | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | BF00L | 1 | — | — | — | 1 | — | — | 1 | — | — | — | — | — | — | — | |
| | Three poles | BF09D-BF25D | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | BF26D-BF38D | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | BF09L-BF25L | 1 | — | — | — | 1 | — | — | 1 | — | — | — | — | — | — | — | |
| | | BF26L-BF38L | 1 | — | — | — | 1 | — | — | 1 | — | — | — | — | — | — | — | |
| | Four poles | BF09D-BF25D | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | BF26D-BF38D | — | 1 | — | — | — | — | — | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | BF09L-BF25L | 1 | — | — | — | 1 | — | — | 1 | — | — | — | — | — | — | — | |
| | | BF26L-BF38L | — | 1 | — | — | — | — | — | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

- ① Mounting of BFX5003 interlock is not possible when BFX10... block with 4 contacts and G222 latch are mounted.
 - ② One only side-mount block can be fitted on each contactor whenever the BFX500... interlock is mounted.
 - ③ One BFX10... or delayed G48... contact block can be mounted on the G222 or G272 mechanical latch.
 - ④ To fit the mechanical interlock, the add-on fourth pole needs to be mounted on the left side of the one of the contactors.
- For other assembly combination, consult Technical support (E-mail: service@LovatoElectric.com).



BFX42
BFXD42



BFX5000
BFX5300
BFX5400
BFX5001
BFX5301
BFX5401



BFX5002
BFX5003
BFX5303
BFX5403



11G222...
11G272...
BFX641...



11G454
11G455
BFX642



BFX77...
BFX79...

| Order code | Characteristics | Max qty per cont. | Qty per pkg | Wt |
|---------------|--|-------------------|-------------|-------|
| | | n° | n° | [kg] |
| Fourth pole. | | | | |
| BFX42 | For BF26A, BF32A, BF38A | 1 | 1 | 0.100 |
| BFXD42 | For BF26D, BF32D, BF38D, BF26L, BF32L, BF38L | 1 | 1 | 0.108 |
| BFX43 | For BF40A... BF94A and BF40E...BF94E | 1 | 1 | 0.150 |
| BFX44 | For BF95A...BF150A and BF95E...BF150E | 1 | 1 | 0.500 |

| Mechanical interlock. | | | | |
|-----------------------|--|---|----|-------|
| BFX5000 | Side mount for BF00, BF09...BF38 | 1 | 5 | 0.039 |
| BFX5001 | Side mount with 2NC contacts for BF00, BF09...BF38 | 1 | 5 | 0.052 |
| BFX5002 | Front mount, low profile for BF00, BF09...BF38 | 1 | 5 | 0.006 |
| BFX5003 | Front mount for BF00, BF09...BF38 | 1 | 5 | 0.023 |
| BFX8910 | Spacer for interlocking BF09...BF38 AC/DC with types in DC | 1 | 10 | 0.017 |
| BFX5300 | Side mount for BF40...BF94 A/E | 1 | 5 | 0.039 |
| BFX5301 | Side mount with 2NC contacts for BF40...BF94 A/E | 1 | 5 | 0.052 |
| BFX5303 | Front mount for BF40...BF94 A/E | 1 | 5 | 0.034 |
| BFX5400 | Side mount for BF95...BF150 A/E | 1 | 5 | 0.039 |
| BFX5401 | Side mount with 2NC contacts for BF95...BF150 A/E | 1 | 5 | 0.052 |
| BFX5403 | Front mount for BF95...BF150 A/E | 1 | 5 | 0.034 |

| Mechanical latch. Screw terminals | | | | |
|-----------------------------------|-----------------------|---|---|-------|
| 11G222 | For BF00, BF09...BF38 | 1 | 1 | 0.070 |
| 11G272 | For BF40...BF94 | 1 | 1 | 0.070 |
| BFX641... | For BF95...BF150 | 1 | 1 | 0.070 |

| Manual closing mechanism. | | | | |
|---------------------------|-----------------------|---|---|-------|
| 11G454 | For BF00, BF09...BF38 | 1 | 1 | 0.021 |
| 11G455 | For BF40...BF94 | 1 | 1 | 0.021 |
| BFX642 | For BF95...BF150 | 1 | 1 | 0.021 |

| Quick connect surge suppressors for BF00A, BF09A...BF150A contactors. | | | | |
|---|-----------------------------------|---|-------|--|
| BFX77048 | ≤48VAC/DC (Varistor) | 5 | 0.012 | |
| BFX77125 | 48...125VAC/DC (Varistor) | 5 | 0.012 | |
| BFX77240 | 125...240VAC/DC (Varistor) | 5 | 0.012 | |
| BFX79048 | ≤48VAC (Resistor-Capacitor) | 5 | 0.012 | |
| BFX79125 | 48...125VAC (Resistor-Capacitor) | 5 | 0.012 | |
| BFX79240 | 125...240VAC (Resistor-Capacitor) | 5 | 0.012 | |
| BFX79415 | 240...415VAC (Resistor-Capacitor) | 5 | 0.012 | |

- ① Different sized contactors can be interlocked.
Example: BF09...BF25 with BF26...BF38.
- ② Replace with the digit of the voltage if 50 or 60Hz and with the letter C followed by the digit of the voltage if DC.
Standard voltages are:
- AC 50/60Hz 24 (indicate 24) - 48 (indicate 48) - 110...125 (indicate 110) - 220...240 (indicate 220) - 380...415V (indicate 380) - 12 (indicate 12) - 24 (indicate 24) - 48 (indicate 48) - 110...125 (indicate 110) - 220...240V (indicate 220).
- DC
- NOTE: All contactors BF series, equipped with DC or AC/DC electronic coil, have built-in surge suppressor filter.

Operational characteristics

| Type | | BFX42 BFXD42 | BFX43 | BFX44 | BFX5001 BFX5301 BFX5401 |
|---|---|--------------------|-------------|-----------|-------------------------------|
| IEC conventional free air thermal current Ith | A | 56 | 115 | 165 | 10 |
| IEC rated insulation voltage Ui | V | 690 | 1000 | 1000 | 690 |
| Terminals: Screw | M4 | M4 | M6 | M8 | M3 |
| | Width | mm 12.5 | 9.6 | 14.5 | 7 |
| Tightening torque | Nm | 2.5...3 | 4...5 | 5.5...6.5 | 0.8...1 |
| | lb.in | 21.6...26.4 | 35.4...44.2 | 48...57 | 7...9 |
| Conductor section maximum with 1 or 2 cables | flexible w/o lug | mm ² 16 | 35 | 70 | 2.5 |
| | flexible c/w lug | mm ² 16 | 35 | 70 | 2.5 |
| | AWG | n° 6 | 2 | 2/0 | 14 |
| | Terminal protection for IEC/EN/BS 60529 | IP20 | IP20 | IP20 | IP20 |
| UL/CSA and IEC/EN/BS 60947-5-1 designation | AC | — | — | — | A600 |
| | DC | — | — | — | Q600 |
| Mechanical life (million) | cycles | 20 | 15 | 15 | 10 |

| Type | | G222... | G272... | BFX641 |
|--|------------------|---------------------|----------|----------|
| Rated control circuit voltage | AC (50/60Hz) | V 24...415 | 24...415 | 24...415 |
| | DC | V 12...240 | 12...240 | 12...240 |
| Power consumption with control: | AC | VA 40 | 40 | 40 |
| | DC | W 70 | 70 | 70 |
| Minimum energising: | drop-out | ms 10 | 10 | 10 |
| | pick-up | ms 100 | 200 | 200 |
| Tightening torque | Nm | 0.8...1 | 0.8...1 | 0.8...1 |
| | lb.in | 7...9 | 7...9 | 7...9 |
| Conductor section Maximum with 1 or 2 cables | flexible w/o lug | mm ² 4 | 4 | 4 |
| | flexible c/w lug | mm ² 2.5 | 2.5 | 2.5 |
| | AWG | n° 14...12 | 14...12 | 14...12 |
| Mechanical life (million) | cycles | 0.1 | 0.1 | 0.01 |

③ The condition is front IP20 protection.

Maximum assembly combination of add-on blocks

See pages 2-21, 2-24...25.

Certifications and compliance

Certifications obtained:

| Type | UL | cULus | CSA | EAC |
|----------------------------|----|-------|-----|-----|
| BFX42 - BFXD42 - BFXD43 | — | ● | — | ● |
| BFX5... | — | ● | — | ● |
| BFX77... - BFX79... | — | ● | — | ● |
| G222... - G272... - BFX641 | UL | — | ● | ● |

● Certified products.

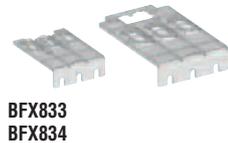
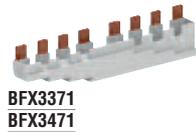
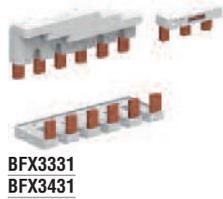
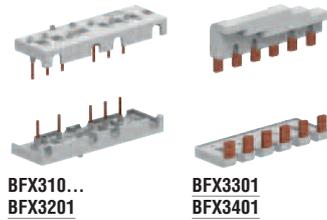
UL - UL Recognized for USA only (File E93601) as Auxiliary Devices Component.

Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

cULus - UL Listed for USA and Canada (cULus - File E93602) as Magnetic motor controllers.

CSA - CSA certified for Canada only (File 54332) as Auxiliary Devices for motor controllers.

Compliant with standards: IEC/EN/BS 60947-1, UL 60947-1, CSA C22.2 n° 60947-1. IEC/EN/BS 60947-5-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1 for auxiliary contacts IEC/EN/BS 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1 for four poles.



| Order code | Characteristics | Qty per pkg | Wt [kg] |
|--|---|-------------|---------|
| | | n° | [kg] |
| Rigid connecting kits for three-pole reversing contactor assembly. | | | |
| BFX3101 | For contactors BF09...BF25 side by side with BFX5002 or BFX5003 mechanical interlock | 1 | 0.052 |
| BFX3102 | For contactors BF09...BF25 side by side with BFX5000 or BFX5001 mechanical interlock | 1 | 0.054 |
| BFX3201 | For contactors BF26...BF38 side by side with BFX50... mechanical interlock | 1 | 0.060 |
| BFX3301 | For contactors BF40...BF94 side by side with BFX5303 mechanical interlock | 1 | 0.150 |
| BFX3401 | For contactors BF95...BF150 side by side with BFX5403 mechanical interlock | 1 | 0.200 |
| Rigid connecting kits for star-delta starters. | | | |
| BFX3131 | For contactors BF09...BF25 | 1 | 0.058 |
| BFX3231 | For contactors BF26...BF38 | 1 | 0.064 |
| BFX3232 | For contactors BF26...BF38 (L/Δ) BF09...BF25 (Λ) | 1 | 0.064 |
| BFX3332 | For contactors BF40...BF94 (L/Δ) BF26...BF38 (Λ) | 1 | 0.200 |
| BFX3331 | For contactors BF40...BF94 | 1 | 0.220 |
| BFX3432 | For contactors BF95...BF150 (L/Δ) BF40...BF94 (Λ) | 1 | 0.250 |
| BFX3431 | For contactors BF95...BF150 | 1 | 0.270 |
| Rigid connecting kits for changeovers. | | | |
| BFX3361 | For three pole contactors BF40...BF94 with BFX5300/BFX5301 mechanical interlock | 1 | 0.150 |
| BFX3461 | For three pole contactors BF95...BF150 with BFX5400/BFX5401 mechanical interlock | 1 | 0.200 |
| BFX3371 | For four pole contactors BF40...BF80 with BFX5300/BFX5301 mechanical interlock | 1 | 0.200 |
| BFX3471 | For four pole contactors BF95...BF150 with BFX5400/BFX5401 mechanical interlock | 1 | 0.300 |
| IP20 protection for power terminals. 2 pieces for each contactor are required. | | | |
| BFX833 | For three pole contactors BF40...BF94 | 10 | 0.020 |
| BFX834 | For three pole contactors BF95...BF150 | 10 | 0.030 |
| Non insulated paralleling links. | | | |
| 11BA135 | 2 poles for contactors BF09...BF25 types | 10 | 0.001 |
| 11BA235 | 2 poles for contactors BF26...BF38 types | 10 | 0.003 |
| BFX3392 | 2 poles for contactors BF40...BF94 types | 4 | 0.022 |
| BFX3492 | 2 poles for contactors BF95...BF150 types | 4 | 0.027 |
| BFX3393 | 3 poles for contactors BF40...BF94 types | 4 | 0.038 |
| 11BA435 | 3 poles for contactors BF95...BF150 types | 10 | 0.030 |
| Insulated paralleling link with terminal. | | | |
| BFX3399 | 3 pole (for contactors BF40...BF94) Conductor section connectable: 25...95mm ² (95mm ² without lug) | 10 | 0.135 |
| One-pole enlarged terminals. | | | |
| 11G231 | 1x6mm ² for contactors BF09...BF25 types | 12 | 0.009 |
| 11G232 | 1x16mm ² for contactors BF26...BF38 types | 12 | 0.014 |
| Sealing cover. | | | |
| BFX80 | Sealing cover for contactors BF00 and BF09...BF38 | 10 | 0.001 |
| Screw fixing adapters for contactors. | | | |
| BFX8901 | Universal base to screw fix BF09...BF38 contactors | 5 | 0.016 |
| BFX8902 | Screw fixing brackets for BF09...BF38 contactors | 10 | 0.002 |
| Marking element for BF00, BF09...BF150 contactors. | | | |
| BFX30 | Blank label for writing | 50 | 0.001 |

Operational characteristics

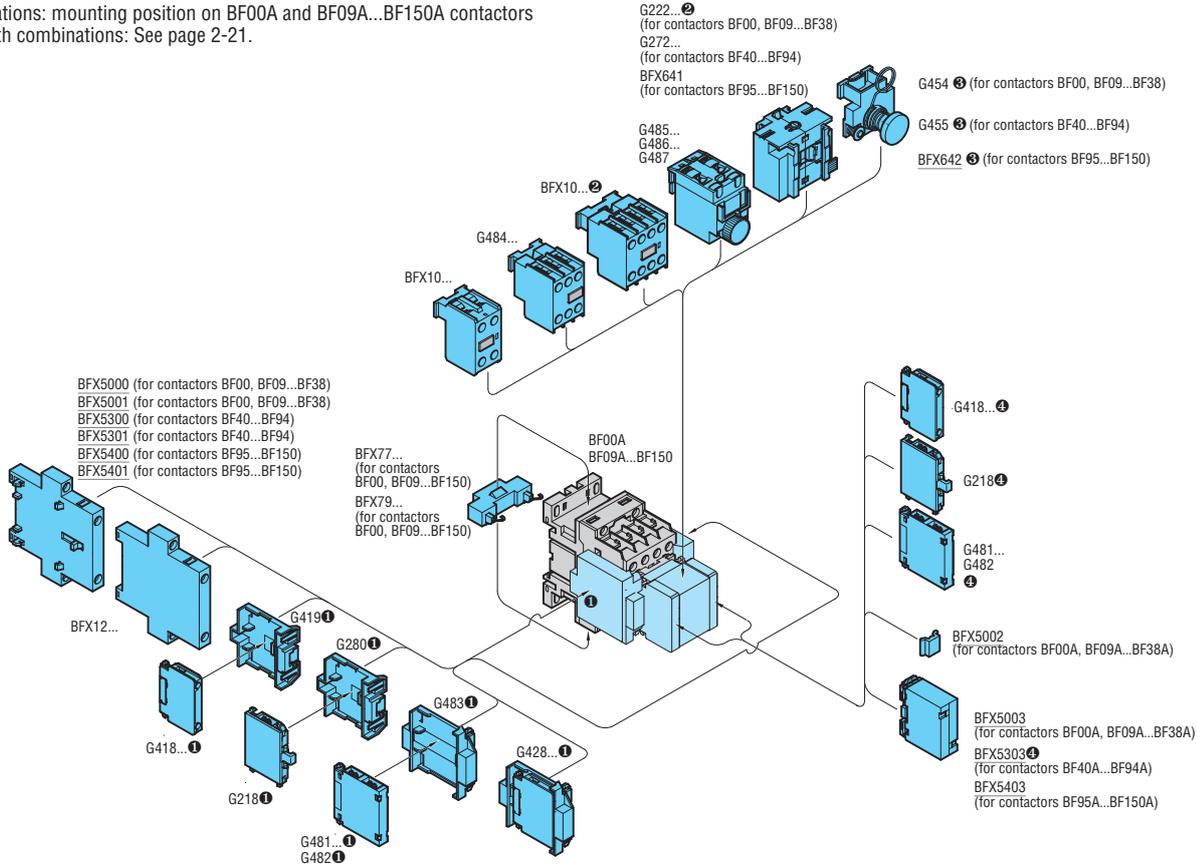
| Type | | BFX3399 | 11G231 | 11G232 |
|-------------------|-------|-------------|---------|--------|
| Tightening torque | Nm | 13Nm | 1.5-1.8 | 2.5-3 |
| | lb.in | 115 | 13.2-18 | 7-9 |
| Tool | Type | Allen key 6 | PH1 | PH2 |

Certifications and compliance

Certifications obtained: UL Listed for USA and Canada (cULus - File E93602), for all connecting kits for starters and changeovers BFX3...; EAC.
Compliant with standards: IEC/EN/BS 60947-1, UL 60947-1, CSA C22.2 n° 60947-1.

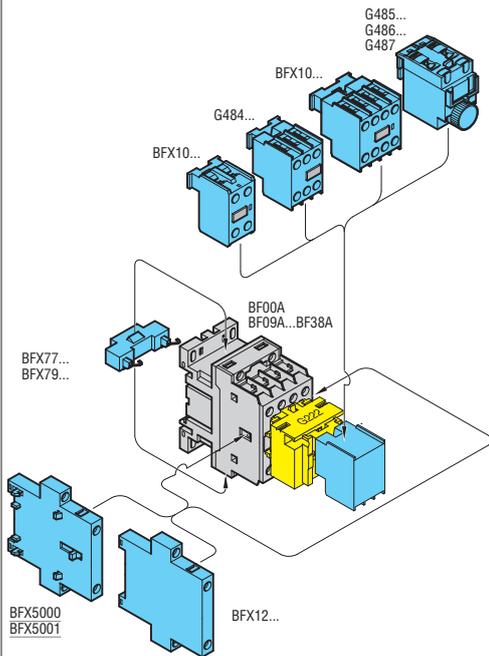
Add-on blocks for AC and AC/DC contactors

Combinations: mounting position on BF00A and BF09A...BF150A contactors
Table with combinations: See page 2-21.

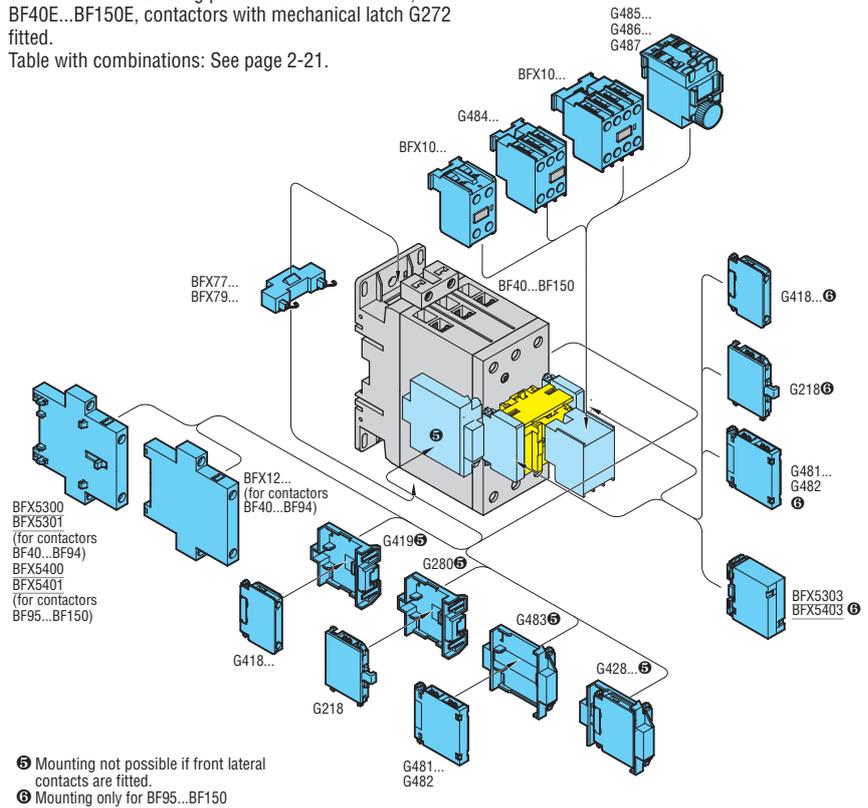


- ① Mounting is not possible if front lateral contacts or mechanical interlock BFX5000 or BFX5001 are mounted. BF00, BF09...38 cannot be fitted with BFX10 with 4 contacts or G222...
- ② Refer to the diagrams below for use of G222..., G272 and BFX641; see also the table of combinations on page 2-21.
- ③ No add-on block can be mounted on front when the manual closing mechanism G454 or G455 is fitted.
- ④ This accessory, for contactors BF09...BF94, cannot be mounted if a contact block BFX10... with 4 contacts (BFX1004, BFX1013, BFX1022, BFX1031, BFX1040) is installed.

Combinations: mounting position on BF00A and BF09A-BF38A contactors with mechanical latch G222 fitted.
Table with combinations: See page 2-21.



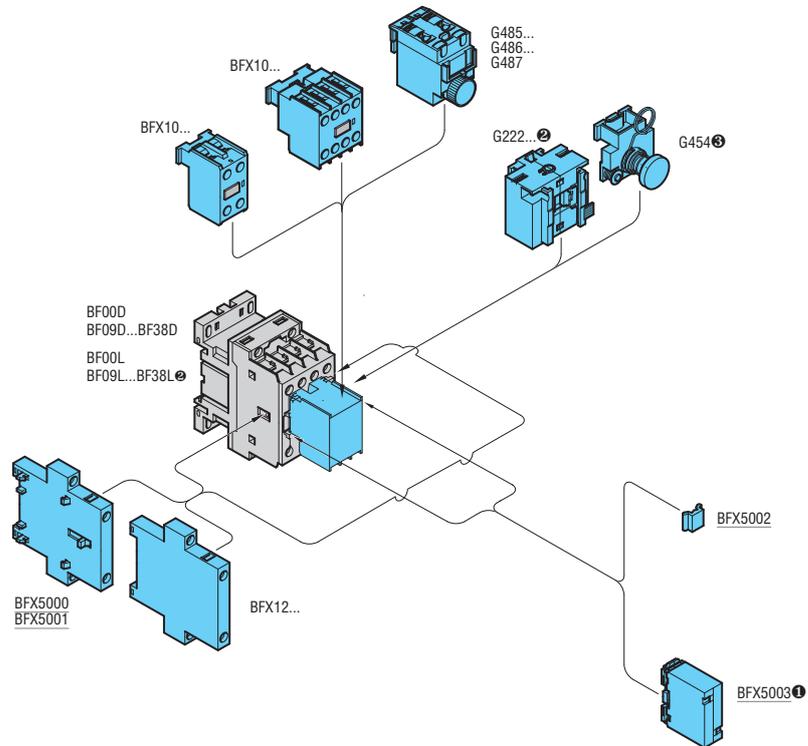
Combinations: mounting position on BF40A...150A, BF40E...BF150E, contactors with mechanical latch G272 fitted.
Table with combinations: See page 2-21.



- ⑤ Mounting not possible if front lateral contacts are fitted.
- ⑥ Mounting only for BF95...BF150

Add-on blocks for DC and DC low consumption contactors

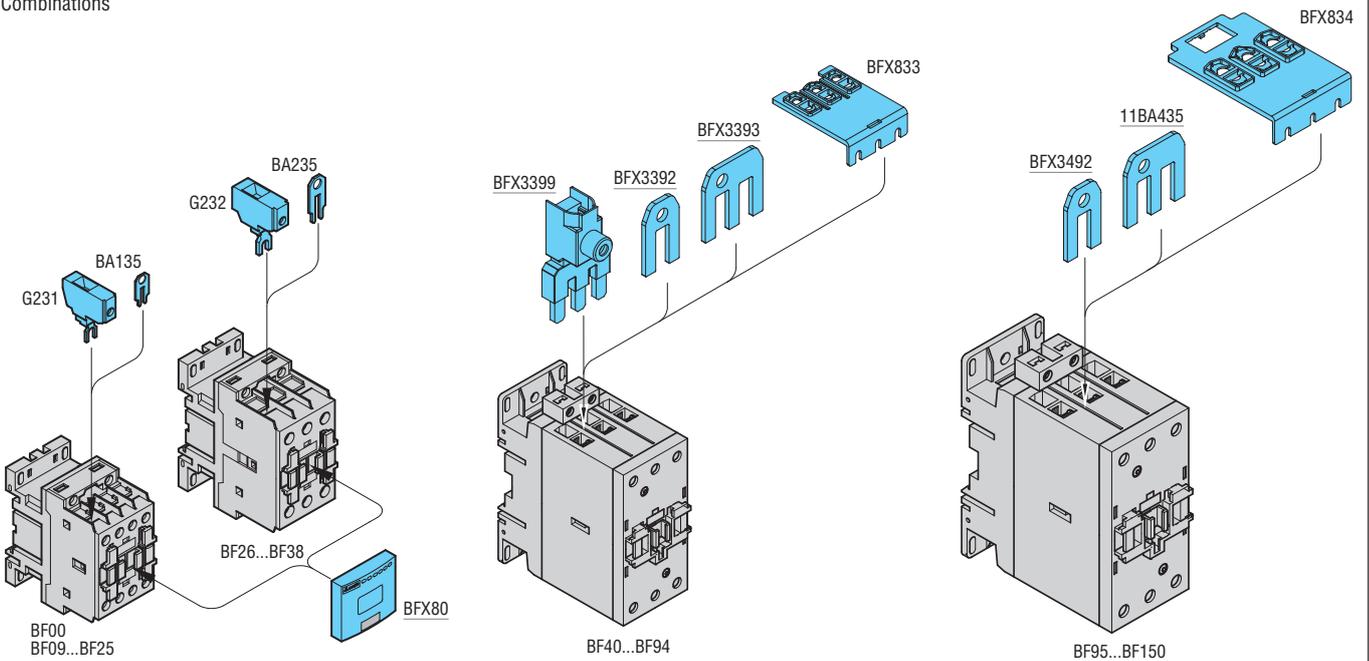
Combinations: mounting position on BF00 and BF09-BF38, D and L versions
 Table with combinations: See page 2-21.



- ① Mounting not possible when the G222 mechanical latch is fitted.
- ② The G222 mechanical latch cannot be fitted on BF26L - BF38L four-pole types.
- ③ No add-on block can be mounted on front when the G454 manual closing mechanism is fitted.

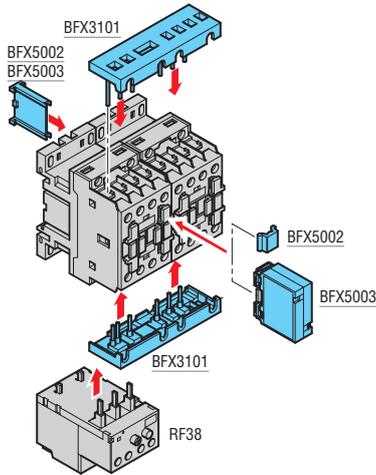
Accessories for AC, DC and DC low consumption contactors

Combinations

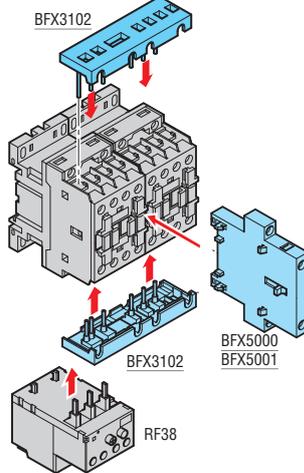


Accessories for AC, DC and DC low consumption contactors

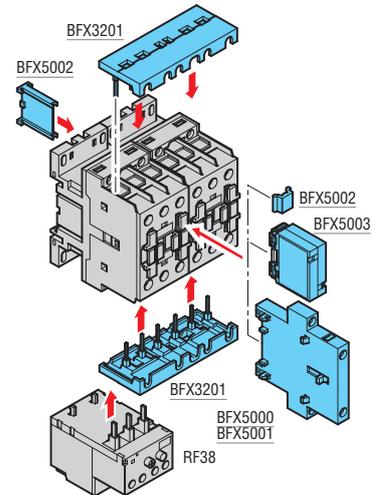
Rigid connecting kits for three-pole reversing contactor assembly. For BF09...BF25



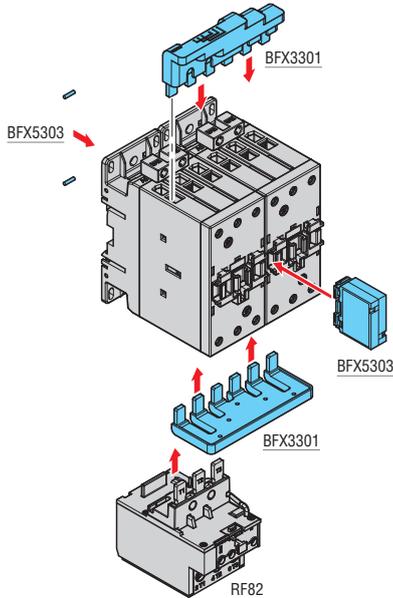
Rigid connecting kits for three-pole reversing contactor assembly. For BF09...BF25 and mechanical interlock BFX5000 or BFX5001



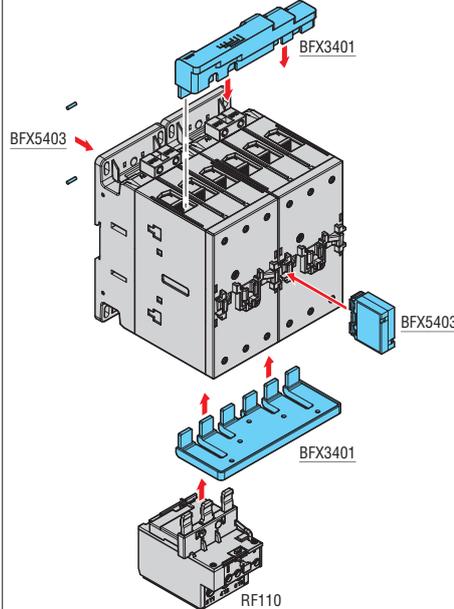
Rigid connecting kits for three-pole reversing contactor assembly. For BF26...BF38



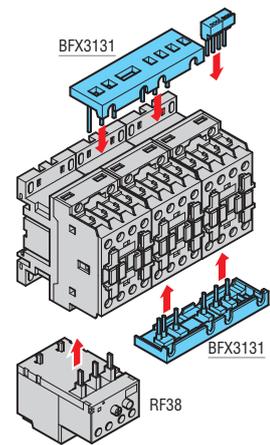
Rigid connecting kits for three-pole reversing contactor assembly. For BF40...BF94



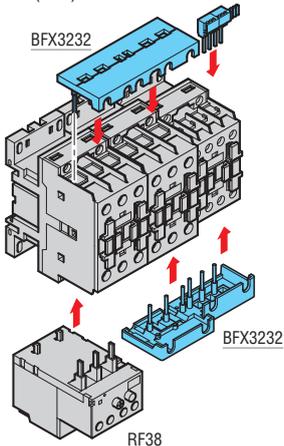
Rigid connecting kits for three-pole reversing contactor assembly. For BF95...BF150



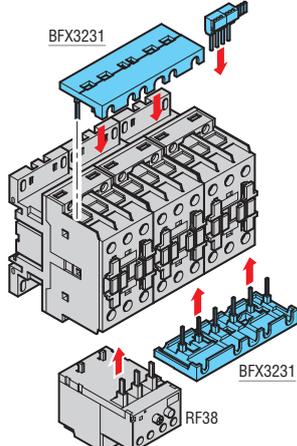
Rigid connecting kits for three-pole reversing contactor assembly. For BF09...BF25 contactors



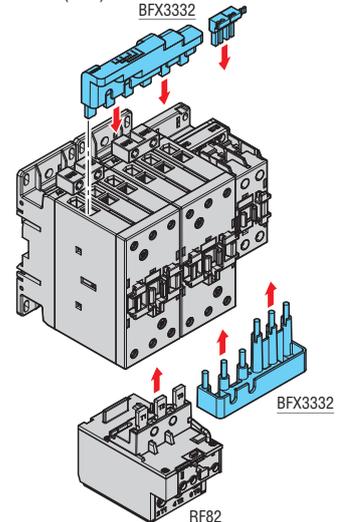
Rigid connecting kits for three-pole reversing contactor assembly. For BF26...BF38 (line-delta) and BF09...BF25 (star) contactors



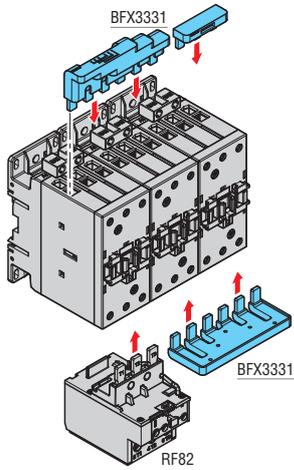
Rigid connecting kits for three-pole reversing contactor assembly. For BF26...BF38 contactors



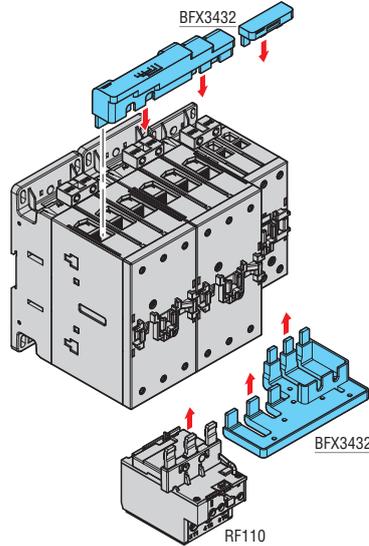
Rigid connecting kits for three-pole reversing contactor assembly. For BF40...BF94 (line-delta) and BF26...BF38 (star) contactors



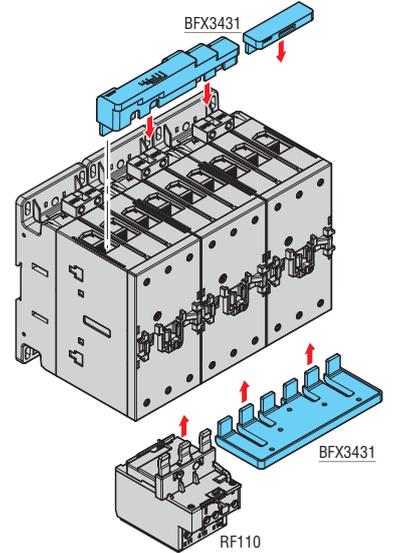
Rigid connecting kits for three-pole reversing contactor assembly. For BF40...BF94 contactors



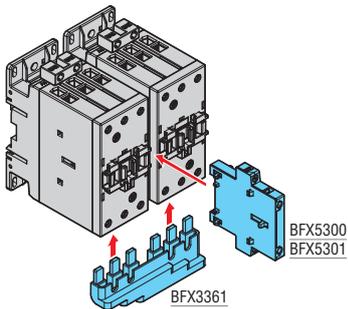
Rigid connecting kits for three-pole reversing contactor assembly. For BF95...BF150 (line-delta) and BF40...BF94 (star) contactors



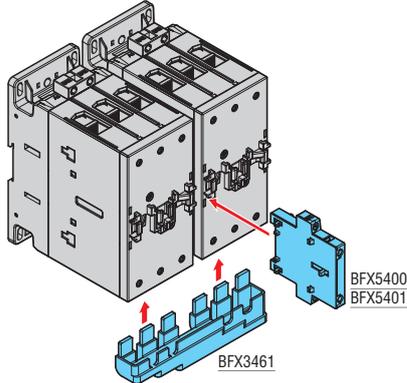
Rigid connecting kits for three-pole reversing contactor assembly. For BF95...BF150 contactors



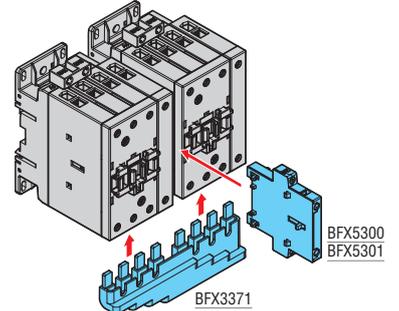
Rigid connecting kits for three-pole reversing contactor assembly. For BF40...BF94 contactors



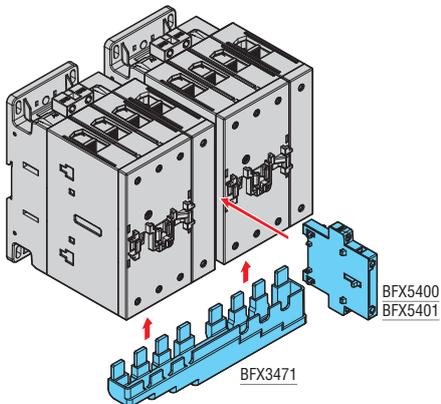
Rigid connecting kits for three-pole reversing contactor assembly. For BF95...BF150 contactors



Rigid connecting kits for four-pole reversing contactor assembly. For BF40...BF94 contactors

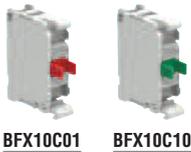


Rigid connecting kits for four-pole reversing contactor assembly. For BF95...BF150 contactors



2 Contactors

Add-on blocks and accessories for contactors BF160...BF230



BFX10C01 **BFX10C10**

new



BFX12C...

new



BFX5500

BFX5503
BFX5504

new

new

new



BFX815

new



BFX835

BFX845



BFX805

new



GLX500
GLX501

GMX500

GMX501



BFX3583



BFX3584

| Order code | Characteristics | Max qty per cont. | Qty per pkg. | Wt |
|------------|-----------------|-------------------|--------------|------|
| | | n° | n° | [kg] |

Auxiliary contacts with front mounting
Screw terminals.

| | | | | |
|-----------------|-----|---|----|-------|
| BFX10C10 | 1NO | 6 | 10 | 0.048 |
| BFX10C01 | 1NC | 6 | 10 | 0.048 |

Auxiliary contacts with low side mounting.
Screw terminals.

| | | | | |
|-----------------|-----------|---|---|-------|
| BFX12C02 | 2NC | 2 | 5 | 0.048 |
| BFX12C11 | 1NO + 1NC | 2 | 5 | 0.048 |
| BFX12C20 | 2NO | 2 | 5 | 0.048 |

Mechanical interlock.

| | | | | |
|----------------|--|---|---|-------|
| BFX5500 | For contactors BF160...BF230. Side by side mounting. | 1 | 1 | 0.050 |
| BFX5503 | For contactors BF160...BF230. One on top of other mounting. Interaxis: 305...345mm | 1 | 1 | 0.150 |
| BFX5504 | For contactors BF160...BF230. One on top of other mounting. Interaxis: 345...385mm | 1 | 1 | 0.200 |

| Order code | Characteristics | Qty per pkg. | Wt |
|------------|-----------------|--------------|------|
| | | n° | [kg] |

Power terminal protection.

| | | | |
|-----------------|---|---|-------|
| BFX815 ① | One-pole terminal cover for BF160...BF230 | 6 | 0.026 |
| BFX835 | Three-pole terminal cover for BF16000...BF23000 | 1 | 0.050 |
| BFX845 | Four-pole terminal cover for BF160T4...BF230T4 | 1 | 0.070 |

Phase barrier.

| | | | | |
|---------------|--|---|---|-------|
| BFX805 | For BF160...BF230 order 4 pcs for three-pole contactors order 6 pcs for four-pole contactors | 1 | ② | 0.010 |
|---------------|--|---|---|-------|

Terminal clamp sets for rigid and flexible cables.

| | | | |
|-----------------|---|---|-------|
| GLX500 | 1-piece set, each covers 1 pole. For AWG 6...kcmil 250 wires | 1 | 0.011 |
| GLX501 | 3-piece set, each covers 1 pole. For AWG 6...kcmil 250 wires | 1 | 0.011 |
| GMX500 ② | 6-piece set, each covers 1 pole. For AWG 14...2/O wires | 1 | 0.200 |
| GMX501 | 6-piece set, each covers 1 pole. For AWG 4...kcmil 300 wires | 1 | 0.200 |

Connecting kits

| | | | |
|----------------|--|---|-------|
| BFX3583 | Terminal enlargement for three-pole contactors BF160...BF230 | 1 | 0.100 |
| BFX3584 | Terminal enlargement for four-pole contactors BF160...BF230 | 1 | 0.130 |
| BFX3592 | Two-pole non insulated paralleling link | 1 | 0.050 |
| BFX3593 | Three-pole non insulated paralleling link | 1 | 0.070 |
| BFX3501 | Connecting kit for reversing contactor assembly | 1 | 1.000 |
| BFX3531 | Connecting kits for star-delta starter | 1 | 1.100 |
| BFX3561 | Rigid connecting kit for three-pole changeover | 1 | 0.900 |
| BFX3571 | Rigid connecting kit for four-pole changeover | 1 | 1.200 |
| BFX8508 | Captive nut. 8-piece set | 1 | 0.009 |

- ① It is supplied for one terminal only. Example: for three-pole contactor, order 3 pieces for the upper terminals or 6 pieces for all the upper and lower terminals.
- ② For currents higher than 175A, 2 pieces can be mounted for each contactor terminal.
- ③ Kit 4 pieces. For three-pole contactor order 1x BFX805; for four pole contactor order 2x BFX805.

Operational characteristics for add-on auxiliary contacts

| Type | | BFX10C10 BFX10C01 | BFX12 |
|--|------------------|----------------------|---------|
| IEC conventional free air thermal current Ith | A | 10 | 10 |
| IEC rated insulation voltage Ui | V | 690 | 690 |
| Terminals | Screw | M3.5 | M3 |
| | Width | mm | 7 |
| Tightening torque | Nm | 0.8...1 | 0.8...1 |
| | lb.in | 7...9 | 7...9 |
| Conductor section maximum with (1 or 2 cables) | flexible w/o lug | mm ² | 2.5 |
| | flexible c/w lug | mm ² | 2.5 |
| | AWG | n° | 14 |
| | | | 14 |
| Terminal protection per IEC/EN/BS 60529 | | IP20 | IP20 |
| UL/CSA and IEC/EN/BS 60947-5-1 designation | AC | A600 | A600 |
| | DC | Q600 | Q600 |
| Mechanical life (million) | cycles | 10 | 10 |

Certifications and compliance

Certifications obtained:

| Type | cULus | EAC | CCC |
|-----------|-------|-----|-----|
| BFX10C... | ● | ① | ① |
| BFX12C... | ● | ① | ① |

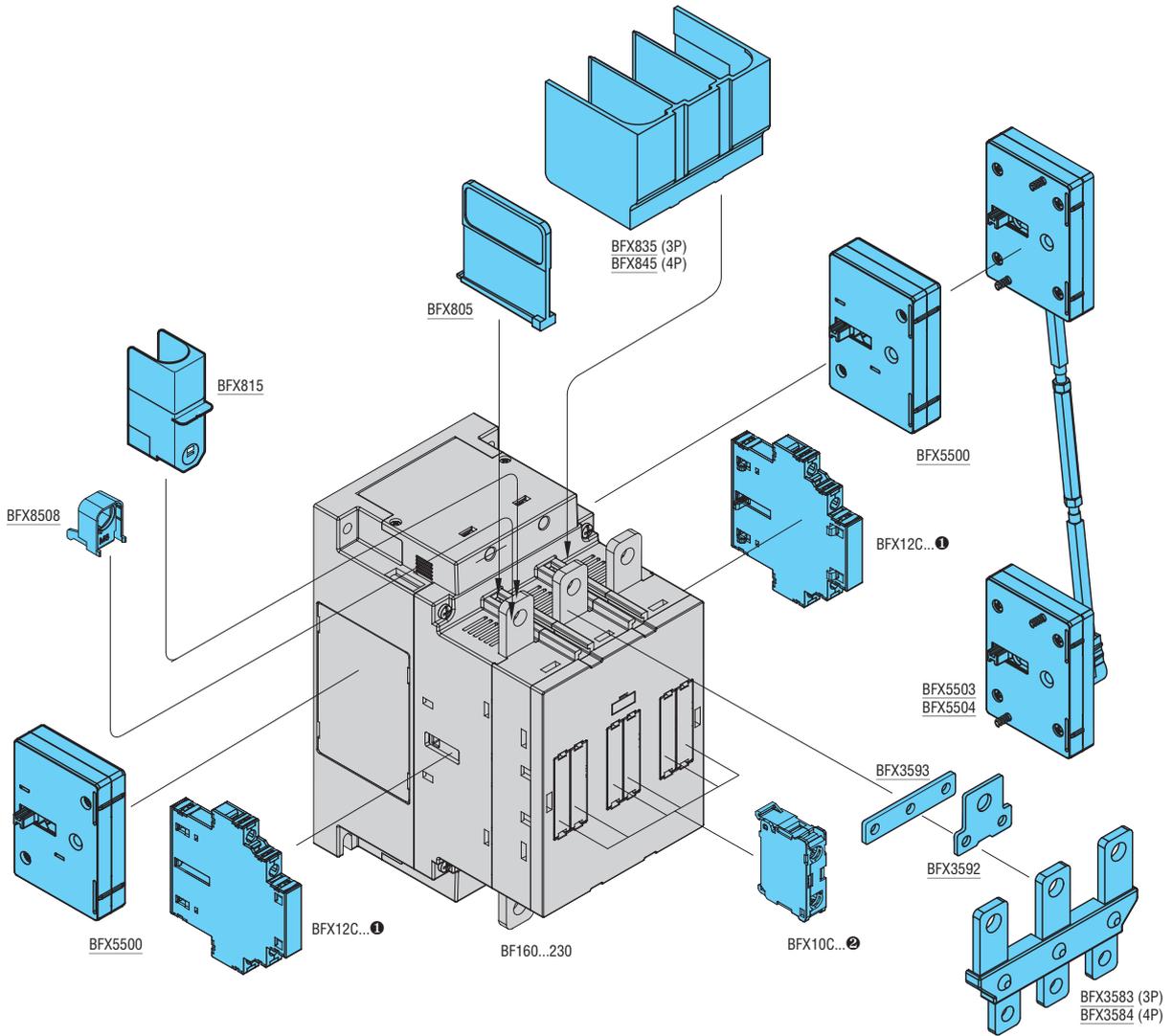
① Pending.

Add-on auxiliary contacts are compliant with the following standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-5-1, UL 60947-1, UL 60947-5-1, CSA C22.2 n° 60947-1, CSA C22.2 n° 60947-5-1.

The add-on auxiliary contact blocks BFX10C... and BFX12C... comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contact.

They also comply with Annex L of the IEC/EN/BS 60947-5-1 standard "mechanically linked contact elements".

Combinations: Mounting position on BF160...BF230 contactors



- ❶ Max 2 BFX12C... contact blocks per each contactor side.
- ❷ Max 6 BFX10C... contact blocks for three-pole contactors and 8 contact blocks for four-pole contactors.

Add-on blocks



11G350 - 11G354



11G358

| Order code | Characteristics | Max qty per. contactor | Qty per pk | Wt sg |
|---|--|------------------------|------------|-------|
| | | n° | n° | [kg] |
| Auxiliary contacts. Faston terminals. Side mounting. | | | | |
| 11G350① | 2NO+1NC or 1NO+2NC reversible | 4 | 1 | 0.082 |
| 11G354① | 1NO+1NC | 4 | 1 | 0.078 |
| Adapter. | | | | |
| 11G358② | For fitting auxiliary contacts BFX10..., with 2 contacts, G484..., G485..., G486... and G487 on contactors B250...B6301000 | 4 | 5 | 0.050 |
| Mechanical interlock. | | | | |
| 11G355②③ | Side by side | 1 | 1 | 0.026 |
| 11G356 1②④ | One on top of other | 1 | 1 | 0.120 |
| 11G356 2②④ | One on top of other | 1 | 1 | 0.126 |
| 11G356 3②④ | One on top of other | 1 | 1 | 0.132 |
| 11G356 4②④ | One on top of other | 1 | 1 | 0.140 |
| 11G356 5②④ | One on top of other | 1 | 1 | 0.146 |
| 11G356 6②⑤ | One on top of other | 1 | 1 | 0.150 |
| Mechanical latch. | | | | |
| 11G495⑥⑦⑧ | For B250...B630③ | 1 | 1 | 0.795 |

⑥ For use with mechanical interlock see page 2-77.

Accessories



11G363



11G527 - 11G528 - 11G529
11G530



11G370



11G371

| Order code | Characteristics | Qty per pkg | Wt |
|---------------------------------------|--|-------------|-------|
| | | n° | [kg] |
| Power terminal protection. | | | |
| 11G363⑨ | For contactors B250-B310-B400 | 6 | 0.046 |
| 11G527 | For contactor B500 | 1 | 0.238 |
| 11G528 | For contactor B5004 | 1 | 0.265 |
| 11G529 | For contactor B630 | 1 | 0.238 |
| 11G530 | For contactor B6304 | 1 | 0.266 |
| 3 pole star connecting bars. | | | |
| 11BA1721 | For contactors B250-B310-B400 | 1 | 0.140 |
| 11BA1846 | For contactors B500-B630 | 1 | 0.341 |
| 2 pole bars for parallel arrangement. | | | |
| 11BA1720 | For contactors B250-B310-B400 | 1 | 0.149 |
| 11BA1845 | For contactors B500-B630 | 1 | 0.322 |
| Terminal adapter. | | | |
| 11G370 | To transform Faston terminals of auxiliary contacts and coils into screw terminals | 10 | 0.003 |
| 11G371 | To transform both coil Faston terminals into screw terminals | 5 | 0.022 |

- ① Only for B250-B310-B400-B500-B630-B6301000.
- ② Not suitable for B6301000-B1250-B1600 ⑤.
- ③ For use with three-pole B6301000, consult Technical support for information; see contact details on inside front cover.
- ④ Allowed distances see page 2-76.
- ⑤ For contactors B1250 and B1600, two G3566 mechanical interlocks are required.
- ⑥ Replace with the digit of the voltages if 50 or 60 Hz or with the letter C followed by voltage if DC. The standard voltages are:
 - AC 50/60Hz 48 - 110...125 (indicate 110) - 220...240 (indicate 220) - 380...415 (indicate 380)
 - DC 48 - 110...125 (indicate 110) - 220...240 (indicate 220).
- ⑦ It can be mounted only in contactors if predisposed for it. Technical support for information; see contact details on inside front cover.
- ⑧ Not suitable for B310 and B310 4.
- ⑨ Provided for one pole terminal only. Example: For three-pole contactors, purchase 3 pieces for the upper terminals only or 6 pieces for all upper and lower terminals.

Operational characteristics of auxiliary contacts

| Type | G350-G354 | |
|---|-----------------|-------------------------|
| IEC conventional free-air thermal current I _{th} | A | 16 |
| IEC rated insulation voltage U _i | V | 690 |
| Terminals Faston | | 1-6.35x0.8 2-2.8x0.8 |
| Conductor section maximum (with 1 or 2 cables) | | |
| flexible c/w lug | mm ² | 2.5 |
| AWG | n° | 14 |
| UL/CSA and IEC/EN/BS 60947-5-1 designation | AC | A600 |
| | DC | P600 |
| Mechanical life (million) | cycles | 5 |

| Type | G495⑩ | |
|------------------------------------|-------|-----------|
| Rated AC control circuit voltage | V | 48...480 |
| AC (50/60Hz) | V | 48...480 |
| DC | V | 48...480 |
| Power consumption with control in: | | |
| AC | VA | 1500 |
| DC | W | 1100 |
| Minimum energising: | | |
| drop-out | ms | 40 |
| pick-up | ms | 300 |
| Terminals Faston | | 1-6.3x0.8 |

| Type | G370-G371 | |
|--|-----------------|-----|
| Tightening torque | Nm | 1 |
| | lb.in | 8.9 |
| Tool | Type | PH2 |
| Conductor section (with 1 or 2 cables) | mm ² | 4 |
| | AWG | 10 |

Certifications and compliance

Certifications obtained:

| Type | UL | CSA | EAC | CCC |
|----------|----|-----|-----|-----|
| G350 | UL | ● | ● | ● |
| G354 | UL | ● | ● | — |
| G355 | — | ● | ● | — |
| G356 ... | — | ● | ● | — |
| G361 | — | ● | ● | — |
| G362 | — | ● | ● | — |
| G363 | — | ● | ● | — |
| G370 | — | ● | ● | — |

● Certified products.

UL - UL Recognized for USA only (File E93601) as Auxiliary Devices - Component.

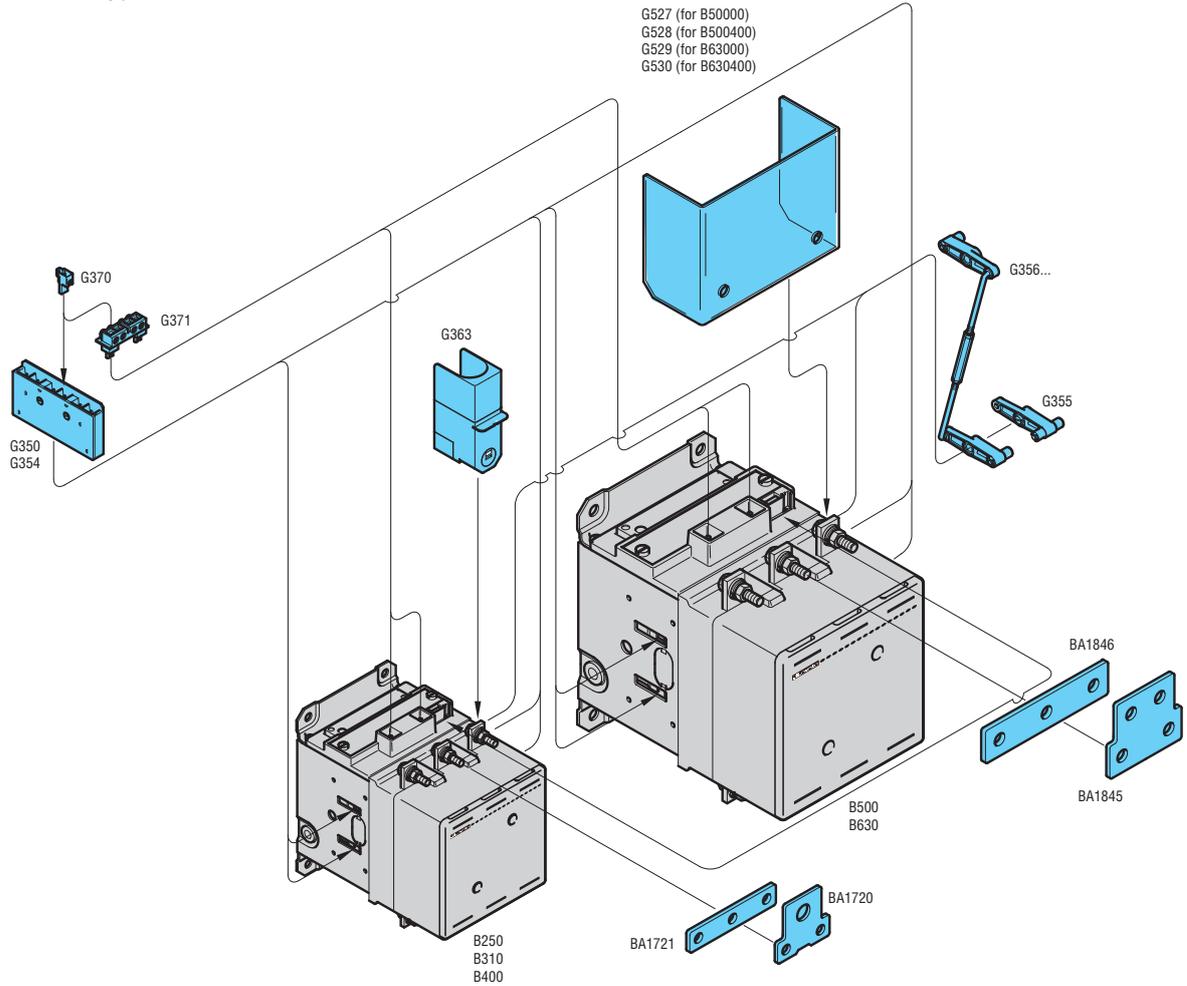
Products having this type of marking are intended for use as components of complete workshop-assembled equipment.

CSA - CSA Recognized for Canada only (File 54332) as Auxiliary Devices for motor controllers.

Compliant with standards: IEC/EN/BS 60947-1, IEC/EN/BS 60947-4-1, UL 60947-1, UL 60947-4-1, IEC/EN/BS 60947-4-1, UL508, CSA C22.2 n° 14; add-on auxiliary contacts also comply with: IEC/EN/BS 60947-5-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1.

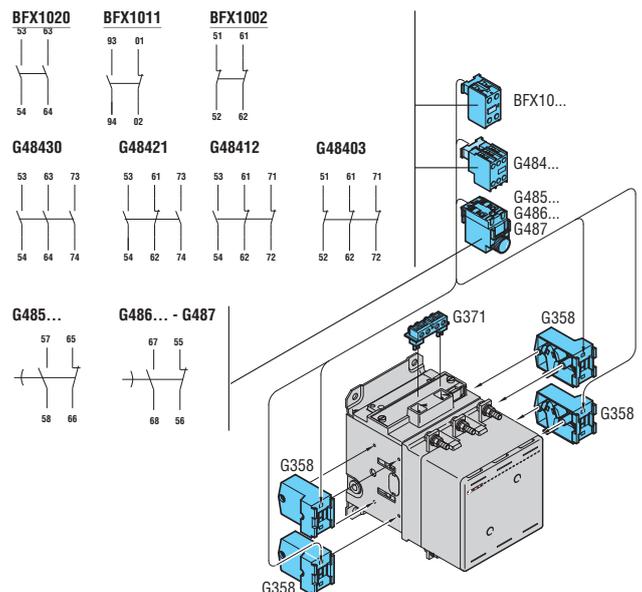
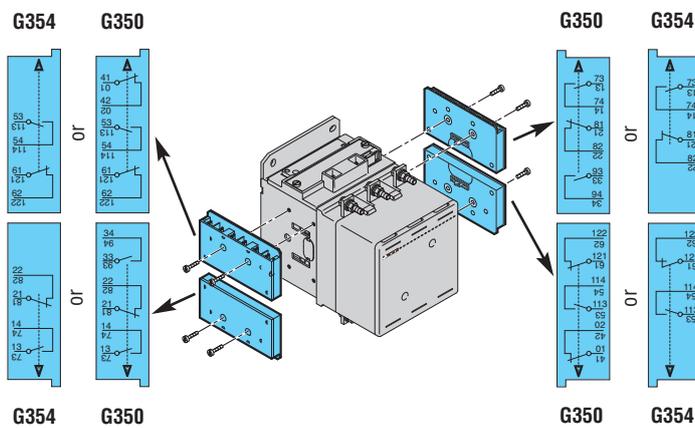
The add-on auxiliary contact blocks 11G350 and 11G354 comply with annex F of the IEC/EN/BS 60947-4-1 standard "auxiliary contact linked with power contact" also known as mirror contact.

Combinations: Mounting position on B250...B630 contactors



The add-on auxiliary contact blocks G350 and G354 can be applied to contactors B250-B6301000 only up to a maximum of four pieces for each contactor, for a total of 12 contacts.
The contact block G350 provides a 2NO+1NC or 1NO+2NC combination depending on its mounting position; see the drawing below. The G354 block consists of 1NO+1NC.

Contact blocks, BFX10 with 2 contacts, G484, G485, G486 and G487 types, can be mounted using the G358 adapter, refer to page 2-20 for exact types and order codes of the blocks.
A maximum of four adapters can be possibly used per contactor and each adapter can hold one BFX10, G484, G485, G486 and G487.



2 Contactors

Spare parts for BF series contactors

INDEX

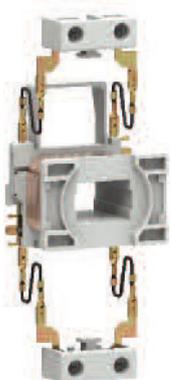
AC coils



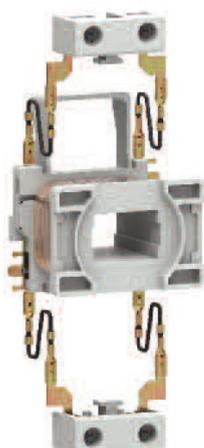
BFX91A...



BFX92A...



BFX93A...



BFX94A...

| Order code | Rated frequency and voltage | | Qty per pkg n° | Wt [kg] |
|------------|-----------------------------|-----|-------------------|------------|
| | [Hz] | [V] | | |

For contactors BF00A-BF09A-BF12A-BF18A-BF25A.

| | | | | |
|-----------------------|--------|--------|-------|-------|
| BFX91A024 ① | 50/60 | 24VAC | 1 | 0.085 |
| BFX91A048 ① | | 48VAC | 1 | 0.085 |
| BFX91A110 ① | | 110VAC | 1 | 0.085 |
| BFX91A230 ① | | 230VAC | 1 | 0.085 |
| BFX91A400 ① | | 400VAC | 1 | 0.085 |
| BFX91A024 60 ① | 60 | 24VAC | 1 | 0.085 |
| BFX91A048 60 ① | | 48VAC | 1 | 0.085 |
| BFX91A120 60 ① | | 120VAC | 1 | 0.085 |
| BFX91A220 60 ① | | 220VAC | 1 | 0.085 |
| BFX91A230 60 ① | | 230VAC | 1 | 0.085 |
| BFX91A460 60 ① | | 460VAC | 1 | 0.085 |
| BFX91A575 60 ① | 575VAC | 1 | 0.085 | |

For contactors BF26A-BF32A-BF38A.

| | | | | |
|----------------------|--------|--------|-------|-------|
| BFX92A024 ① | 50/60 | 24VAC | 1 | 0.088 |
| BFX92A048 ① | | 48VAC | 1 | 0.088 |
| BFX92A110 ① | | 110VAC | 1 | 0.088 |
| BFX92A230 ① | | 230VAC | 1 | 0.088 |
| BFX92A400 ① | | 400VAC | 1 | 0.088 |
| BFX92A02460 ① | 60 | 24VAC | 1 | 0.088 |
| BFX92A04860 ① | | 48VAC | 1 | 0.088 |
| BFX92A12060 ① | | 120VAC | 1 | 0.088 |
| BFX92A22060 ① | | 220VAC | 1 | 0.088 |
| BFX92A23060 ① | | 230VAC | 1 | 0.088 |
| BFX92A46060 ① | | 460VAC | 1 | 0.088 |
| BFX92A57560 ① | 575VAC | 1 | 0.088 | |

For contactors BF40A-BF50A-BF65A-BF80A-BF94A-BFD65A-BFD80A.

| | | | | |
|----------------------|--------|--------|-------|-------|
| BFX93A024 ① | 50/60 | 24VAC | 1 | 0.150 |
| BFX93A048 ① | | 48VAC | 1 | 0.150 |
| BFX93A110 ① | | 110VAC | 1 | 0.150 |
| BFX93A230 ① | | 230VAC | 1 | 0.150 |
| BFX93A400 ① | | 400VAC | 1 | 0.150 |
| BFX93A02460 ① | 60 | 24VAC | 1 | 0.150 |
| BFX93A04860 ① | | 48VAC | 1 | 0.150 |
| BFX93A12060 ① | | 120VAC | 1 | 0.150 |
| BFX93A22060 ① | | 220VAC | 1 | 0.150 |
| BFX93A23060 ① | | 230VAC | 1 | 0.150 |
| BFX93A46060 ① | | 460VAC | 1 | 0.150 |
| BFX93A57560 ① | 575VAC | 1 | 0.150 | |

For contactors BF95A-BF115A-BF150A.

| | | | | |
|----------------------|--------|--------|-------|-------|
| BFX94A024 ① | 50/60 | 24VAC | 1 | 0.185 |
| BFX94A048 ① | | 48VAC | 1 | 0.185 |
| BFX94A110 ① | | 110VAC | 1 | 0.185 |
| BFX94A230 ① | | 230VAC | 1 | 0.185 |
| BFX94A400 ① | | 400VAC | 1 | 0.185 |
| BFX94A02460 ① | 60 | 24VAC | 1 | 0.185 |
| BFX94A04860 ① | | 48VAC | 1 | 0.185 |
| BFX94A12060 ① | | 120VAC | 1 | 0.185 |
| BFX94A22060 ① | | 220VAC | 1 | 0.185 |
| BFX94A23060 ① | | 230VAC | 1 | 0.185 |
| BFX94A46060 ① | | 460VAC | 1 | 0.185 |
| BFX94A57560 ① | 575VAC | 1 | 0.185 | |

① Four-terminal coil.

new

Operational characteristics for BFX91A, BFX92A, BFX93A and BFX94A coils

AC control

| | | | | | |
|-----------------------------------|---------------------------|---------------|---------------|-----------|-----------|
| Rated voltage at 50/60, 60Hz | V | 12...600 | | | |
| Operating voltage limits | | | | | |
| 50/60Hz coil 50Hz powered at | pick-up | % Us 80...110 | | | |
| | drop-out | % Us 20...55 | | | |
| | 60Hz | pick-up | % Us 85...110 | | |
| | | drop-out | % Us 20...55 | | |
| 60Hz coil powered at 60Hz | pick-up | % Us 80...110 | | | |
| | drop-out | % Us 20...55 | | | |
| Average coil consumption at ≤20°C | | | | | |
| 50/60Hz coil 50Hz powered at | 60Hz | in-rush VA | BFX91 75 | BFX93 210 | BFX94 300 |
| | | holding VA | 9 | 15 | 20 |
| | 60Hz | in-rush VA | 70 | 195 | 275 |
| | | holding VA | 6.5 | 13 | 17 |
| | 60Hz coil powered at 60Hz | in-rush VA | 75 | 210 | 300 |
| | | holding VA | 9 | 15 | 20 |
| Dissipation at 50Hz | W | 2.5 | 5 | 6.5 | |

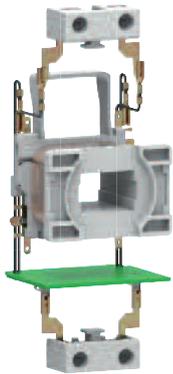
Materials

Class F enamelled copper wire.

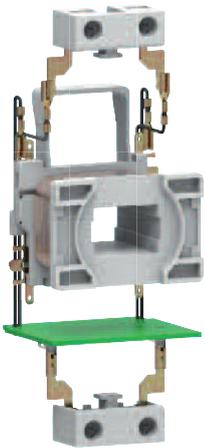
Special versions

For coils with non standard voltages, consult Technical support for information; see contact details on inside front cover.

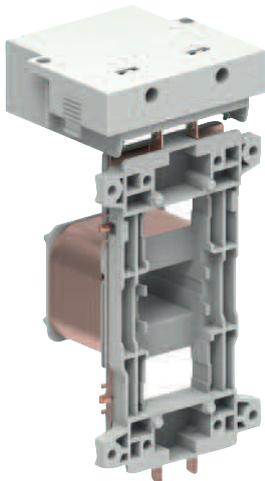
AC/DC and DC coils



BFX93E...



BFX94E...



BFX95E...

new

| Order code | Rated voltage | Qty per pkg | Wt |
|---|-------------------------|-------------|-------|
| | [V] | n° | [kg] |
| For contactors BF40E-BF50E-BF65E-BF80E-BF94E-BFD80E❶. | | | |
| BFX93E024❶ | 20...48V AC/DC | 1 | 0.190 |
| BFX93E110❶ | 60...110V AC/DC | 1 | 0.190 |
| BFX93E230❶ | 100...250V AC/DC | 1 | 0.190 |
| For contactors BF95E-BF115E-BF150E-BFD150E. | | | |
| BFX94E024❶ | 20...48V AC/DC | 1 | 0.225 |
| BFX94E110❶ | 60...110V AC/DC | 1 | 0.225 |
| BFX94E230❶ | 100...250V AC/DC | 1 | 0.225 |
| For contactors BF160E-BF195E-BF230E-BFD230E. | | | |
| BFX95E024 | 24...60VAC / 20...60VDC | 1 | 0,400 |
| BFX95E110 | 60...130VAC/DC | 1 | 0,400 |
| BFX95E230 | 100...250VAC/DC | 1 | 0,400 |
| BFX95E400 | 250...500VAC/DC | 1 | 0,400 |

NOTE: no coil replacement for contactors BF00 D, BF09D-BF38D, BF00L, BF09L-BF38L is possible.

- ❶ For BF80T2E... contactors the coil supply voltage must be AC or smoothed DC. For pulsating DC please consult our Technical support.
- ❷ Four-terminal coil.

Operational characteristics for BFX93E coil

| AC/DC control | | | |
|--|----------|------|-------------|
| Rated voltage | | V | 20...250 |
| Operating voltage limits: 50/60 Hz coil powered at or in DC | pick-up | % Us | 80...110❶ |
| | drop-out | % Us | ≤70% Us min |
| Average coil cons. at ≤20°C | in-rush | W | 45...75 |
| | holding | W | 1.2...2.1 |

Operational characteristics for BFX94E...

| AC/DC control | | | |
|--|----------|------|-------------|
| Rated voltage | | V | 20...250 |
| Operating voltage limits: 50/60 Hz coil powered at or in DC | pick-up | % Us | 80...110❶ |
| | drop-out | % Us | ≤70% Us min |
| Average coil cons. at ≤20°C | in-rush | W | 65...110 |
| | holding | W | 1.8...3 |

Operational characteristics for BFX95E...

| AC/DC control | | | |
|--|----------|------|-------------|
| Rated voltage | | V | 20...250 |
| Operating voltage limits: 50/60 Hz coil powered at or in DC | pick-up | % Us | 80...110❶ |
| | drop-out | % Us | ≤70% Us min |
| Average coil cons. at ≤20°C | in-rush | W | 160...230 |
| | holding | W | 1.5...3 |

❶ 80% of Us min. and 110% of Us max.

Materials

Class F enamelled copper wire.

Special versions

For coils with non standard voltages, consult Technical support for information; see contact details on inside front cover.

AC/DC coils



Coil



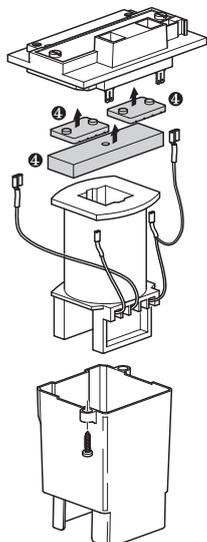
Bridge rectifier



Coil protection



Coil assembly



| Order code | Rated voltage AC 50/60Hz and DC | Qty per pkg | Wt |
|------------|------------------------------------|-------------------|------|
| | [V] | n° | [kg] |

| Coil for B250-B310-B400 contactors. | | | |
|-------------------------------------|-----------------|---|-------|
| 11BA169924 | 24VAC/DC | 1 | 1.800 |
| 11BA169948 | 48VAC/DC | 1 | 1.800 |
| 11BA169960 | 60VAC/DC | 1 | 1.800 |
| 11BA1699110 | 110...125VAC/DC | 1 | 1.800 |
| 11BA1699220 | 220...240VAC/DC | 1 | 1.800 |
| 11BA1699380 | 380...415VAC/DC | 1 | 1.800 |
| 11BA1699440 | 440...480VAC/DC | 1 | 1.800 |

| Coil for B500-B630-B630 1000 contactors. | | | |
|--|-----------------|---|-------|
| 11BA180048 | 48VAC/DC | 1 | 3.400 |
| 11BA180060 | 60VAC/DC | 1 | 3.400 |
| 11BA1800110 | 110...125VAC/DC | 1 | 3.400 |
| 11BA1800220 | 220...240VAC/DC | 1 | 3.400 |
| 11BA1800380 | 380...415VAC/DC | 1 | 3.400 |
| 11BA1800440 | 440...480VAC/DC | 1 | 3.400 |

| Coil for B1250-B1600 contactors. | | | |
|----------------------------------|---------------|---|-------|
| 11BA1800110Ⓢ | 110...125VACⓈ | 1 | 3.400 |
| 11BA1800220Ⓢ | 220...240VACⓈ | 1 | 3.400 |

| Order code | For contactor | Qty per pkg | Wt |
|------------|---------------|-------------------|------|
| | | n° | [kg] |

| Bridge rectifier (Faston terminals). | | | |
|--------------------------------------|-----------------------------------|---|-------|
| 11BA17001Ⓢ | B250-B310-B400 | 1 | 0.230 |
| 11BA1799Ⓢ | B500-B630-B6301000 B1250-B1600 | 1 | 0.520 |

| Coil protection. | | | |
|------------------|-----------------------------------|---|-------|
| 11BA1678 | B250-B310-B400 | 1 | 0.079 |
| 11BA1803 | B500-B630-B6301000 B1250-B1600 | 1 | 0.164 |

| Coil assembly (Coil, rectifier and coil protection). | | | |
|---|------------------------------------|---|-------|
| 11BA1671Ⓢ | B250-B310-B400 | 1 | 2.290 |
| 11BA1796Ⓢ | B500-B630-B630 1000 B1250-B1600 | 1 | 4.650 |

- Ⓢ Available for AC supply only.
- ② Add the coil voltage digit. Standard voltages are:
- AC/DC 24 - 48 - 60 - 110...125 (indicate 110) - 220...240 (indicate 220) - 380...415 (indicate 380) - 440...480V (indicate 440).
Example: 11BA1671110 for B250...B400 contactor coil assembly suitable for 110-125VAC/DC supply.
- ③ Add the coil voltage digit. Standard voltages are:
- AC/DC 48 - 60 - 110...125 - 220...240 - 380...415 - 440...480V.
Example: 11 BA1796 110 for B500-B1600 contactor coil assembly suitable for 110-125VAC/DC supply.
For B1250 and B1600 only 110...125 and 220...240VAC voltages are available.
- ④ When replacing the coil, retrieve the dampers (1 pair for B250...B400 and 2 pairs for B500...B1600) and the fixed core and refit them with the new coil.
- ⑤ For contactors with coil voltage up to 415V. For higher voltages add suffix 440 to the code. E.G.: 11BA17001440.

Operational characteristics

| AC and DC control | | | |
|-----------------------|----------|--------------------|----------|
| For contactor type | | B250 - B310 - B400 | |
| Supply voltage | | AC and DC | |
| Rated control voltage | | V | 24...480 |
| Operating limits | pick-up | % Us | 80...110 |
| | drop-out | % Us | 20...60 |
| Consumption | in-rush | VA/W | 300 |
| | holding | VA/W | 10 |
| Dissipation | | W | 10 |

| | | | |
|-----------------------|----------|-------------------------|----------|
| For contactor type | | B500 - B630 - B630 1000 | |
| Supply voltage | | AC and DC | |
| Rated control voltage | | V | 48...480 |
| Operating limits | pick-up | % Us | 80...110 |
| | drop-out | % Us | 20...60 |
| Consumption | in-rush | VA/W | 400 |
| | holding | VA/W | 18 |
| Dissipation | | W | 18 |

| | | | |
|-----------------------|----------|---------------|----------|
| For contactor type | | B1250 - B1600 | |
| Supply voltage | | AC | |
| Rated control voltage | | V | 110/240 |
| Operating limits | pick-up | % Us | 80...110 |
| | drop-out | % Us | 20...60 |
| Consumption | in-rush | VA/W | 800 |
| | holding | VA/W | 45 |
| Dissipation | | W | 40 |

Materials

Class F enamelled copper wire.

Coil assembly

Comprises the coil, bridge rectifier, fixed core, coil protection, cross piece and fixing screws.

Special versions

For coils with non standard voltages, consult Technical support for information; see contact details on inside front cover.

2 Contactors

Spare parts for B series contactors

Main contacts for BF contactors



BFX99...

| Order code | For contactor | Qty per pkg | Wt |
|------------|---------------|-------------|------|
| | | n° | [kg] |

Main contacts.
3 or 4 pole set complete with screws.

| | | | |
|------------------|---------|---|-------|
| BFX99026T | BF2600 | 1 | 0.038 |
| BFX99026F | BF26T4 | 1 | 0.051 |
| BFX99032T | BF3200 | 1 | 0.070 |
| BFX99038T | BF3800 | 1 | 0.070 |
| BFX99038F | BF38T4 | 1 | 0.093 |
| BFX99040T | BF4000 | 1 | 0.095 |
| BFX99040F | BF40T4 | 1 | 0.127 |
| BFX99050T | BF5000 | 1 | 0.095 |
| BFX99050F | BF50T4 | 1 | 0.127 |
| BFX99065T | BF6500 | 1 | 0.095 |
| BFX99065F | BF65T4 | 1 | 0.127 |
| BFX99080T | BF8000 | 1 | 0.100 |
| BFX99080F | BF80T4 | 1 | 0.130 |
| BFX99094T | BF9400 | 1 | 0.100 |
| BFX99095T | BF9500 | 1 | 0.210 |
| BFX99095F | BF95T4 | 1 | 0.280 |
| BFX99115T | BF11500 | 1 | 0.225 |
| BFX99115F | BF115T4 | 1 | 0.300 |
| BFX99150T | BF15000 | 1 | 0.225 |
| BFX99150F | BF150T4 | 1 | 0.300 |
| BFX99160T | BF160 | 1 | 0.350 |
| BFX99160F | BF160T4 | 1 | 0.450 |
| BFX99195T | BF195 | 1 | 0.350 |
| BFX99195F | BF195T4 | 1 | 0.450 |
| BFX99230T | BF230 | 1 | 0.350 |
| BFX99230F | BF230T4 | 1 | 0.450 |

new

Main contacts and arc chutes for B contactors



11G383... - 11G384... - 11G385...
11G525... - 11G526... - 11G537...

| Order code | For contactor | Qty per pkg | Wt |
|------------|---------------|-------------|------|
| | | n° | [kg] |

Main contacts.
3 or 4 pole set complete with Allen screws and key for contact replacement.

| | | | |
|----------------|-----------|---|-------|
| 11G383 | B250 | 1 | 0.770 |
| 11G3834 | B2504 | 1 | 1.030 |
| 11G385 | B310 | 1 | 0.770 |
| 11G3854 | B3104 | 1 | 1.030 |
| 11G384 | B400 | 1 | 0.770 |
| 11G3844 | B4004 | 1 | 1.030 |
| 11G525 | B500 | 1 | 2.520 |
| 11G5254 | B5004 | 1 | 3.360 |
| 11G526 | B630 | 1 | 2.660 |
| 11G5264 | B6304 | 1 | 3.550 |
| 11G537 | B6301000 | 1 | 2.660 |
| 11G5374 | B63010004 | 1 | 3.550 |
| 11G538 | B125024 | 1 | 5.040 |
| 11G5384 | B1250424 | 1 | 6.720 |
| 11G539 | B160024 | 1 | 5.320 |
| 11G5394 | B1600424 | 1 | 7.100 |

Arc chutes.

| | | | |
|-----------------|-------------------------|---|-------|
| BFX9805T | BF16000-BF19500-BF23000 | 1 | 1.000 |
| BFX9805F | BF160T4-BF195T4-BF230T4 | 1 | 1.200 |
| 11BA1713 | B250-B310-B400 | 1 | 1.210 |
| 11BA1714 | B2504-B3104-B4004 | 1 | 1.600 |
| 11BA1838 | B500-B630-B6301000 | 1 | 1.910 |
| 11BA1839 | B5004-B6304-B63010004 | 1 | 2.490 |

new



Arc chute 11BA...

Special versions

For non standard spare contact configurations, contact Technical support; see contact details on inside front cover.

NOTE: For B1250 and B1600 contactor spares, consult Technical support for information; see contact details on inside front cover.

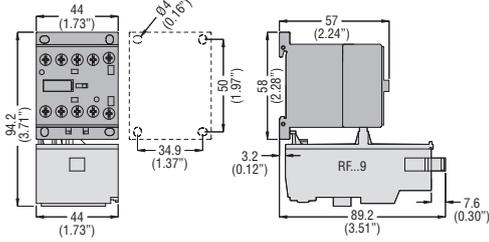
2 Contactors

Dimensions [mm (in)]

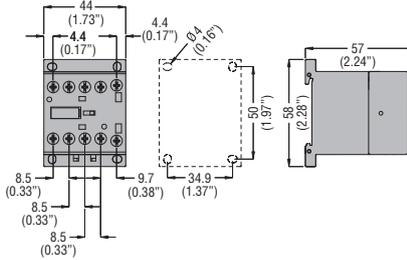
INDEX

BG... MINI-CONTACTORS WITH AC OR DC SUPPLY VOLTAGE

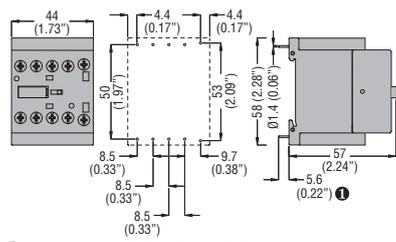
BG... three poles with screw terminals
and **RF...9** thermal overload relay



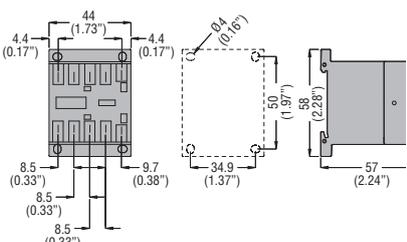
BG...T... four poles, with screw terminals



BGP... with rear PCB solder pins



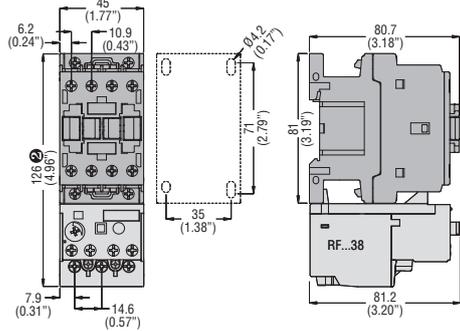
BGF... with Faston terminals



① Recommended PCB drillings 1.7-2mm.

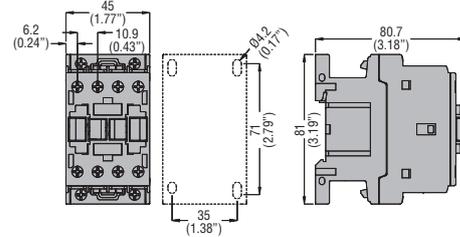
BF... CONTACTORS WITH AC SUPPLY VOLTAGE

BF00A... BF09 A... - BF12A... - BF18A... - BF25A... three poles with **RF...38** thermal overload relay

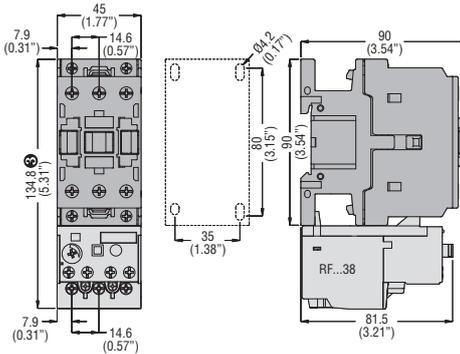


② 135mm/5.31" for RFE45

BF09T...A... - BF12T...A... - BF18T...A... four poles

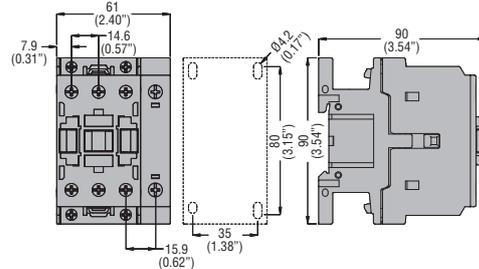


BF2600A... - BF3200A... - BF3800A... three poles with **RF...38** thermal overload relay

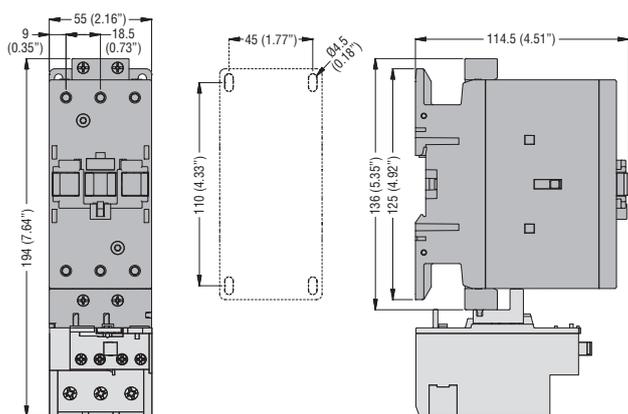


③ 144mm/5.67" for RFE45

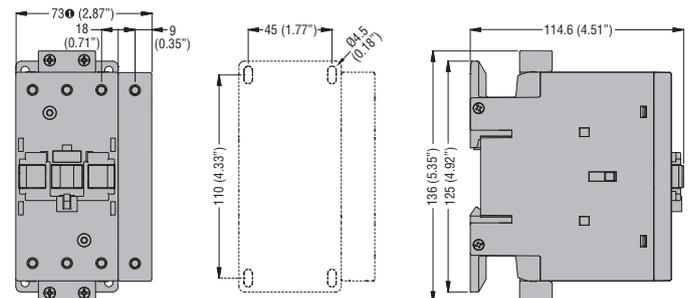
BF26T...A... - BF38T...A... four poles



BF4000A... - BF5000A... - BF6500A... - BF8000A... - BF9400A... three poles with **RF82** thermal overload relay



BF40T4...A... - BF50T4...A... - BF65T4...A... - BF80T4...A... - BFD80T4... - BF80T2A... four poles

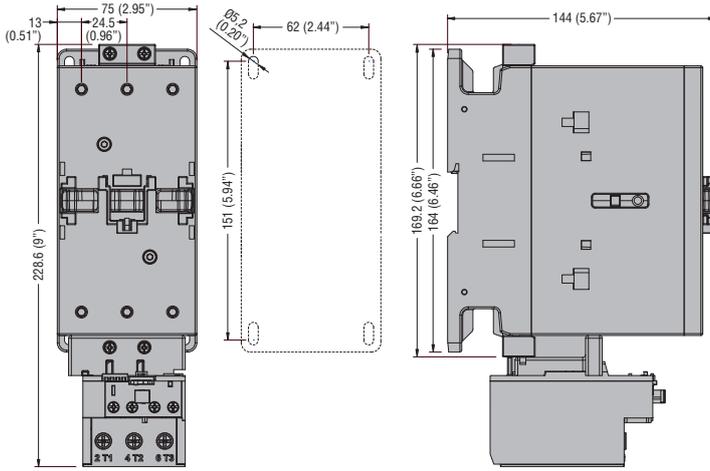


④ BF80T2 91mm/3.58", BFD6500... 55mm/2.16"

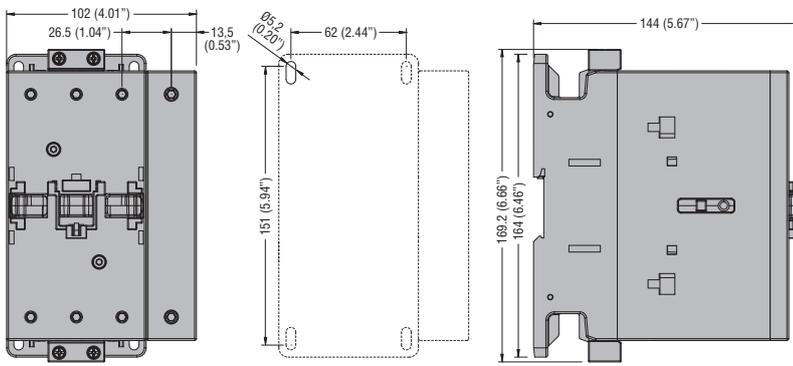
2 Contactors

Dimensions [mm (in)]

BF9500A... - BF11500A... - BF15000A... three poles with **RF110** thermal relay

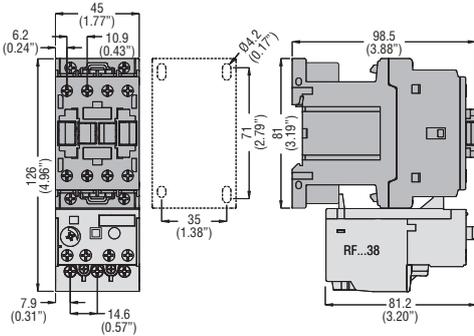


BF95T4A... - BF115T4A... - BF150T4A... four poles



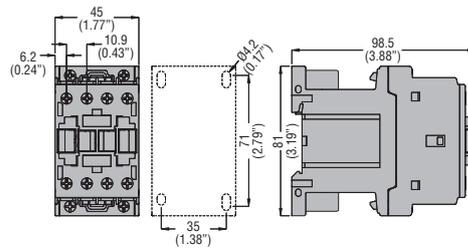
BF...CONTACTORS WITH DC SUPPLY VOLTAGE

BF00...D and BF00...L - BF09... - BF12... - BF18... - BF25...D and L three poles with **RF...38** thermal overload relay

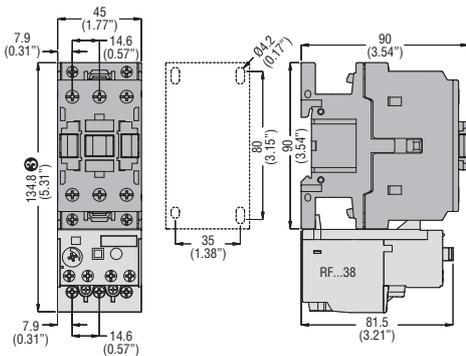


Control relays

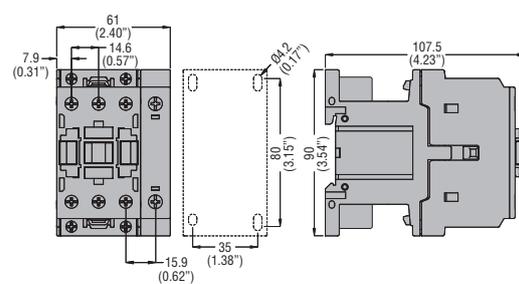
BF00...D and BF00...L
BF09T... - BF18T... D and L four poles



BF26... - BF32... - BF38...D and L three poles with **RF...38** thermal overload relay



BF26T... - BF38 T...D and L four poles

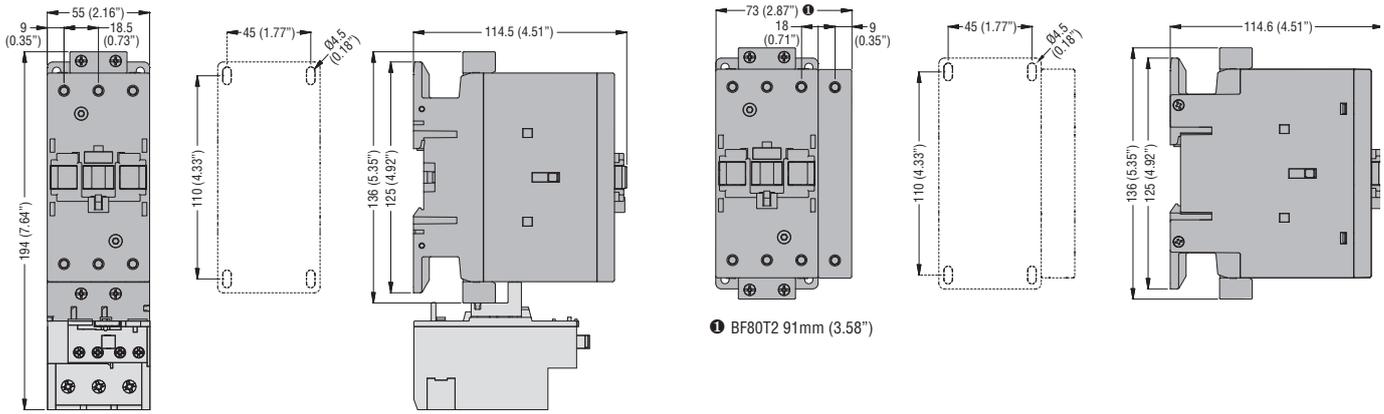


2 Contactors

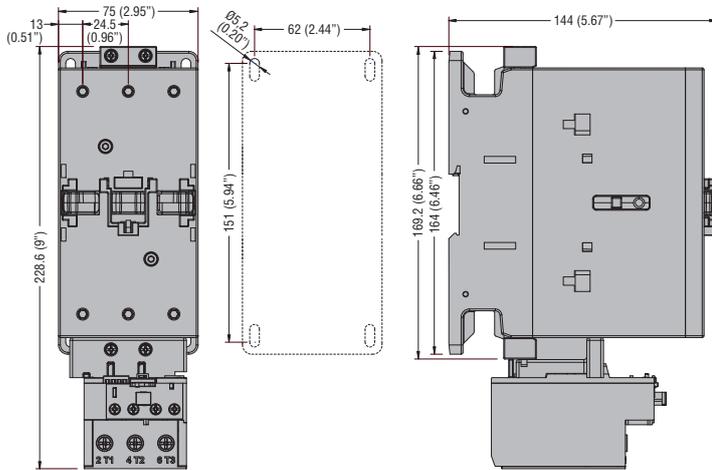
Dimensions [mm (in)]

BF4000E... - BF5000E... - BF6500E... - BF8000E... - BF9400E...
three poles with **RF82** thermal overload relay

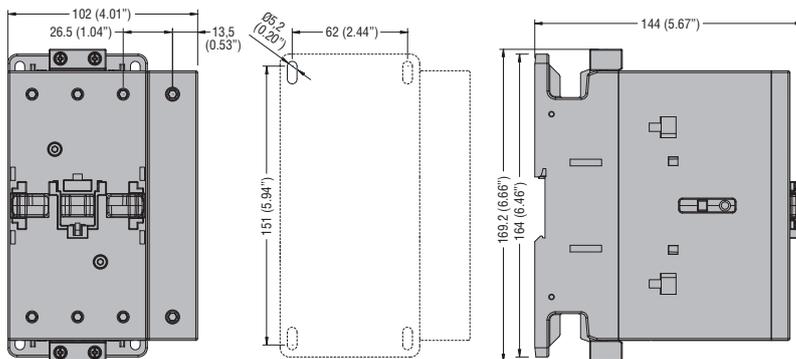
BF65T4E... - BF80T4E... - BF80T2E... four poles



BF9500E... - BF11500E... - BF15000E... three poles with **RF110** thermal relay



BF95T4E... - BF115T4E... - BF150T4E... - BFD150T4E... four poles

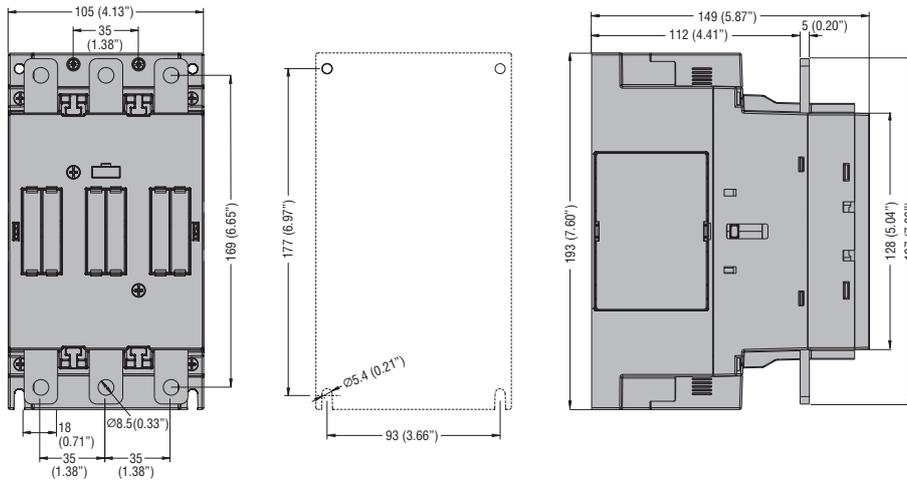


2 Contactors

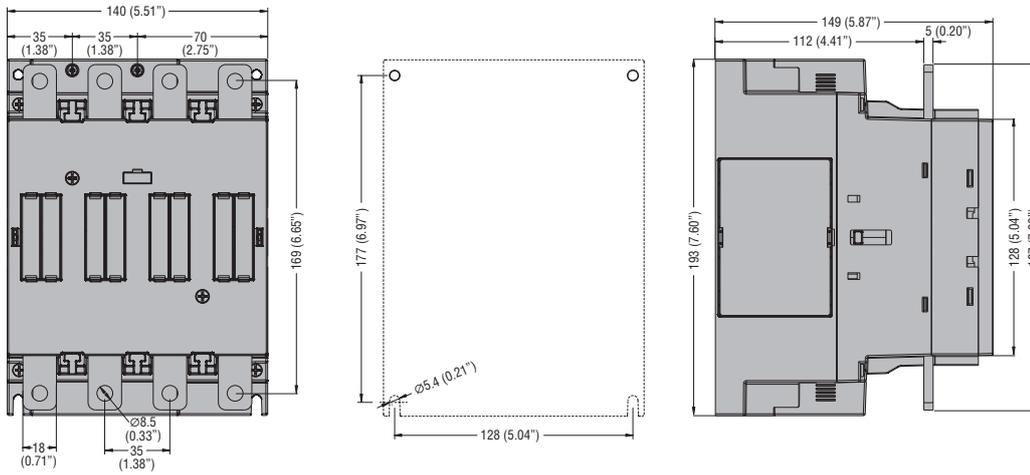
Dimensions [mm (in)]

BF...CONTACTORS WITH AC/DC SUPPLY VOLTAGE

BF16000E... - BF19500E... - BF23000E... three poles



BF160T4E... - BF195T4E... - BF230T4E... four poles

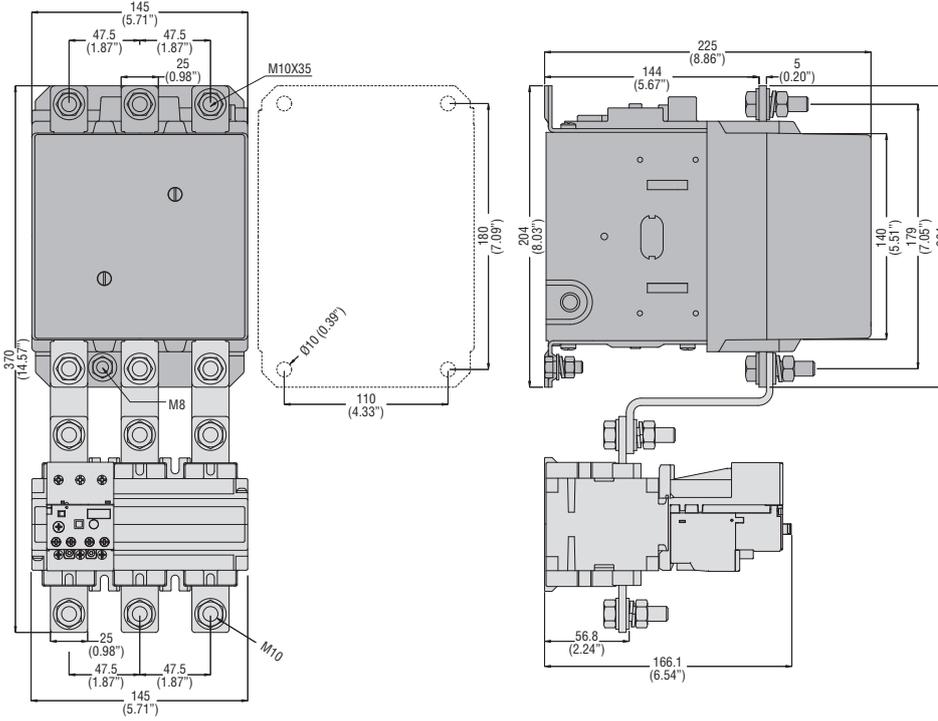


2 Contactors

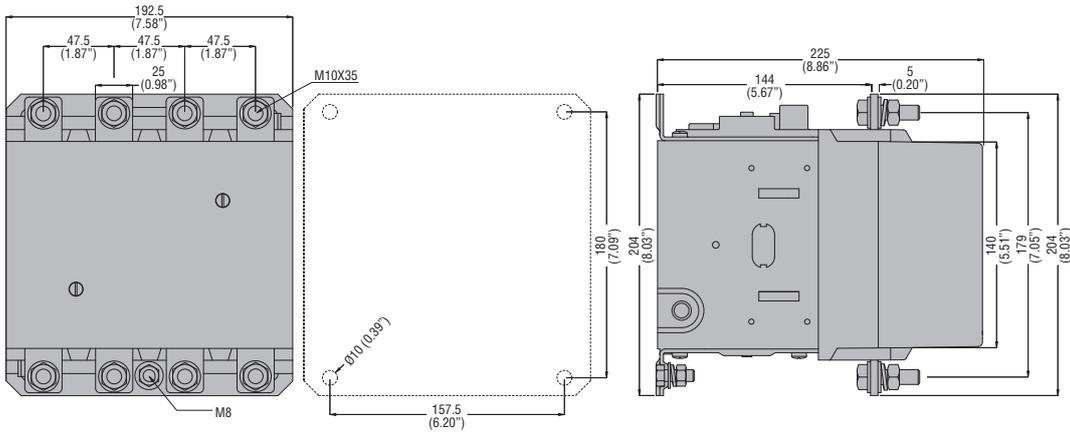
Dimensions [mm (in)]

INDEX

B250 - B310 - B400 three poles with **RF...420** thermal overload relay



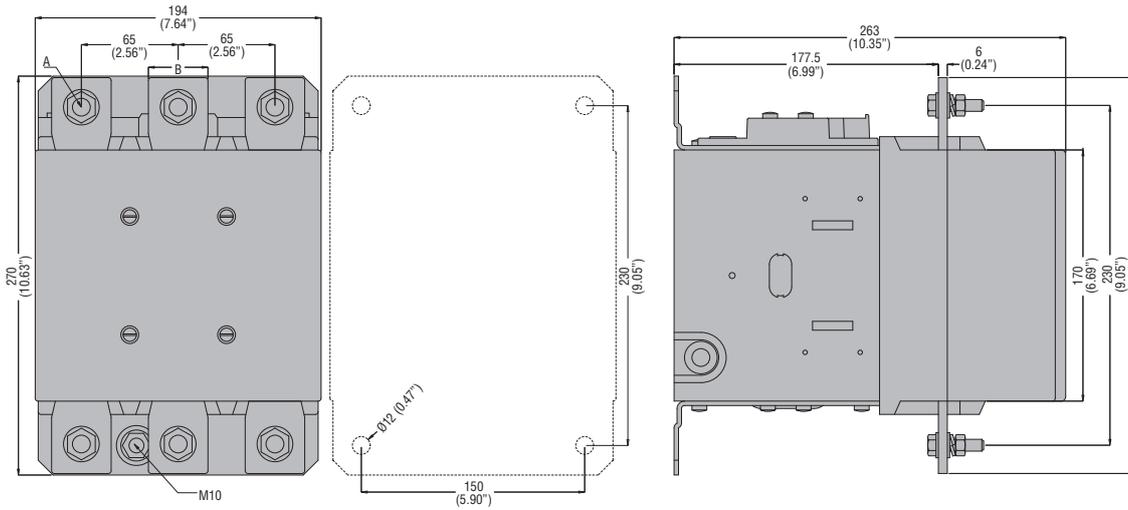
B2504 - B3104 - B4004 four poles



2 Contactors

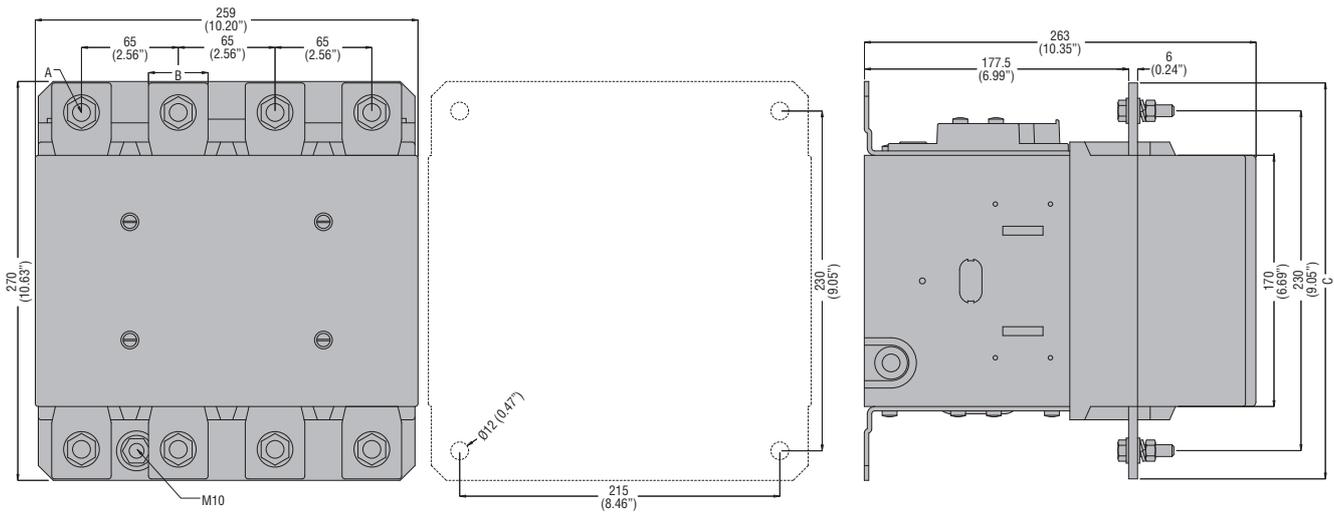
Dimensions [mm (in)]

B500 - B630 three poles



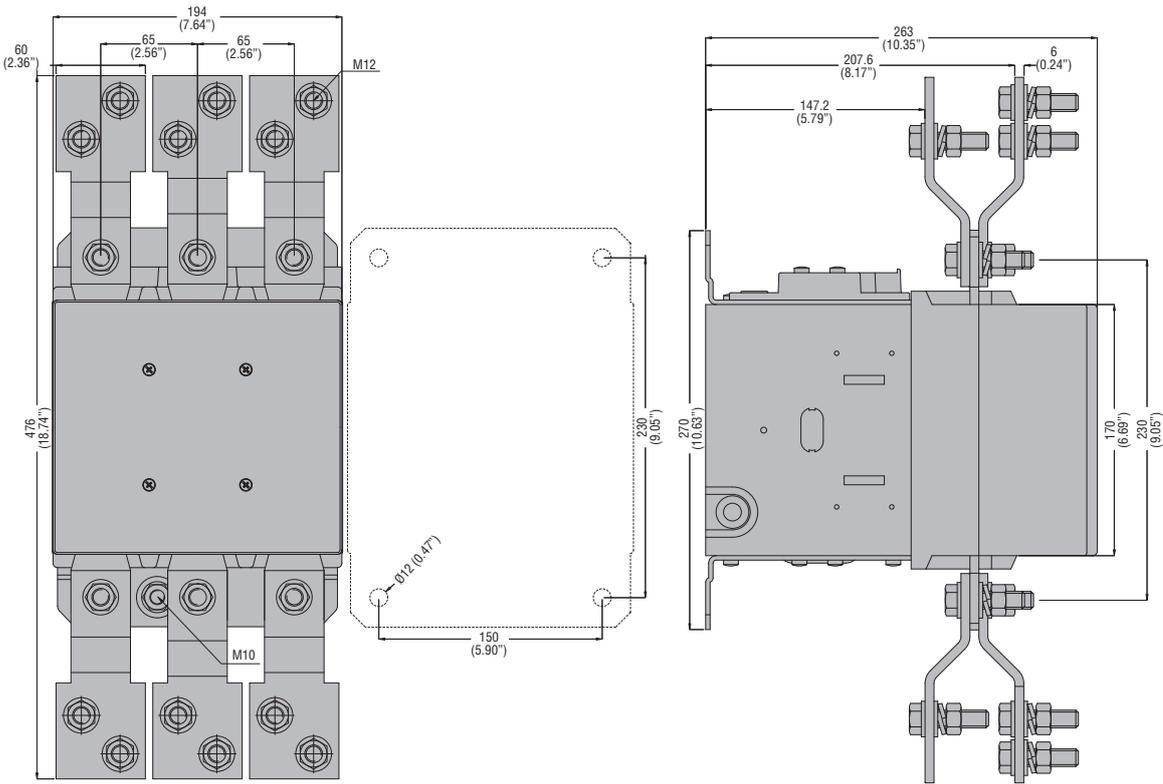
| CONTACTOR TYPE | A | B | C |
|----------------|-----|------------|--------------|
| B500 | M10 | 35 (1.38") | 265 (10.43") |
| B630 | M12 | 40 (1.57") | 270 (10.63") |

B5004 - B6304 four poles

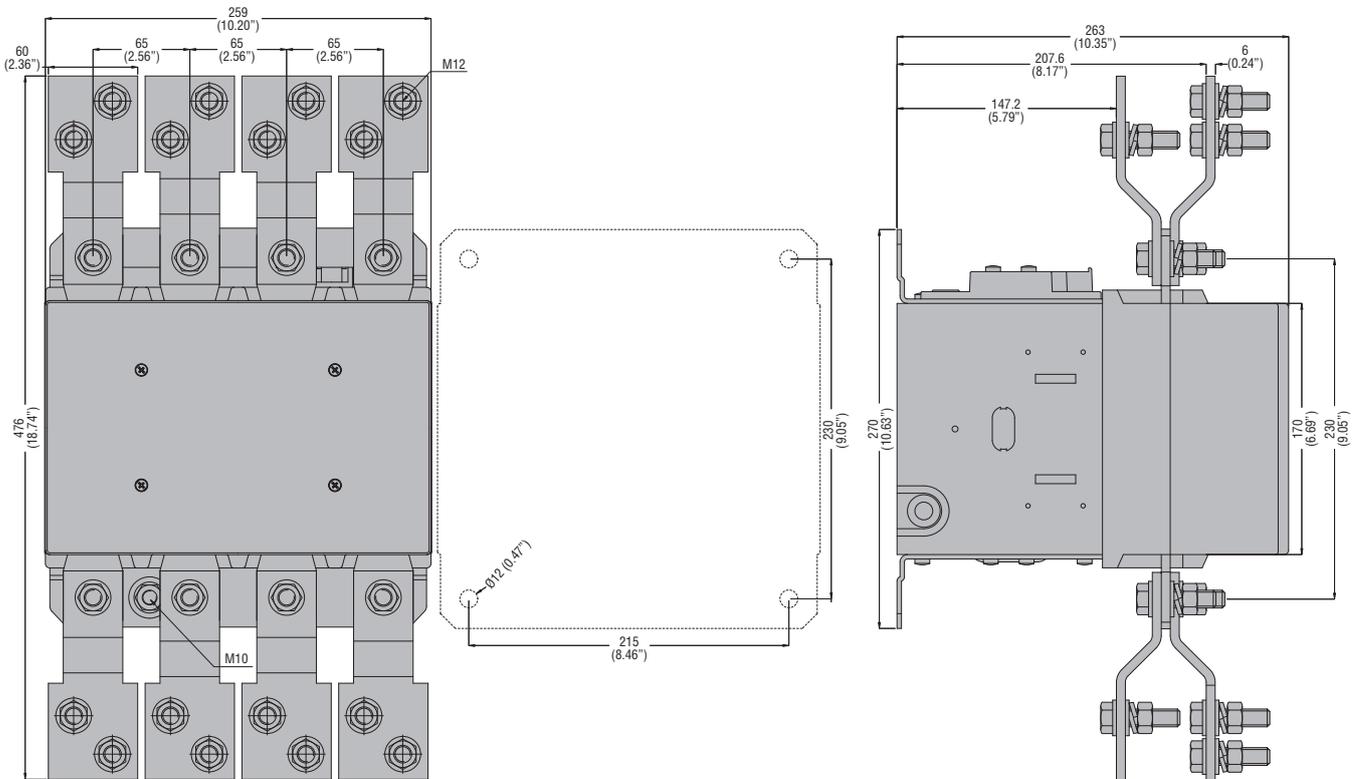


| CONTACTOR TYPE | A | B | C |
|----------------|-----|------------|--------------|
| B500 | M10 | 35 (1.38") | 265 (10.43") |
| B630 | M12 | 40 (1.57") | 270 (10.63") |

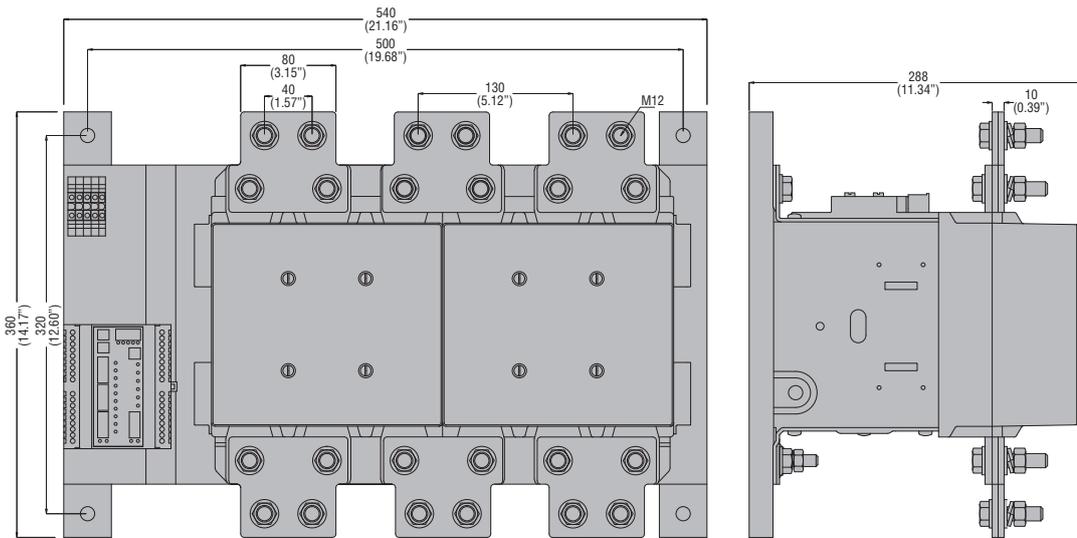
B6301000 three poles



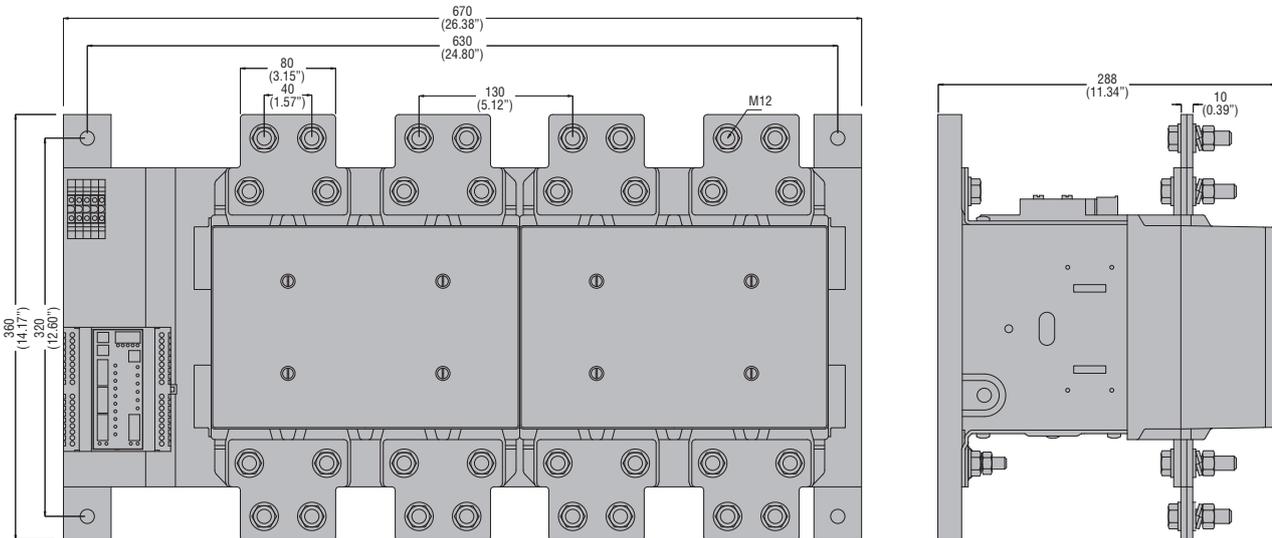
B6301004 four poles



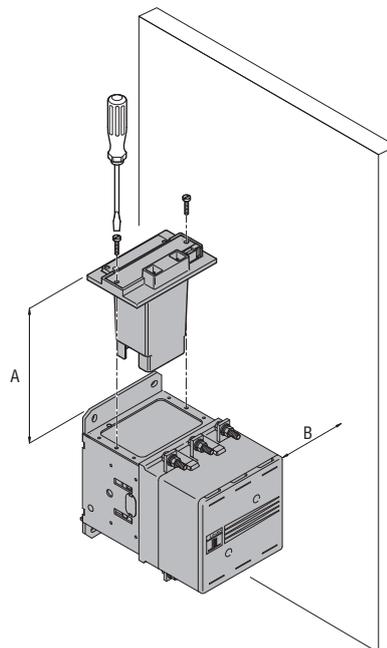
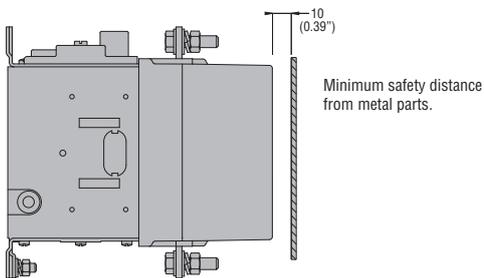
B1250 - B1600 three poles



B12504 - B1600 four poles



B250 - B310 - B400 - B500 - B630 - B6301000 - B1250 - B1600



Minimum space needed to replace the coil.

| | B250-B310-B400 | B500-B630 1000 |
|---|----------------|----------------|
| A | 145 (5.71") | 170 (6.69") |
| B | 110 (4.33") | 160 (6.30") |

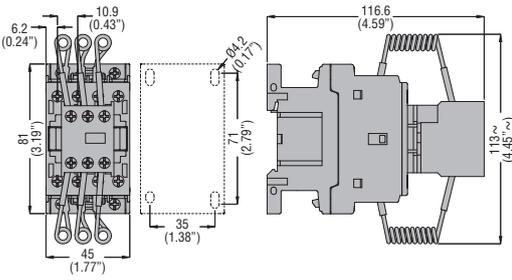
If dimension B is respected, coil replacement is possible without removing power wiring.

2 Contactors

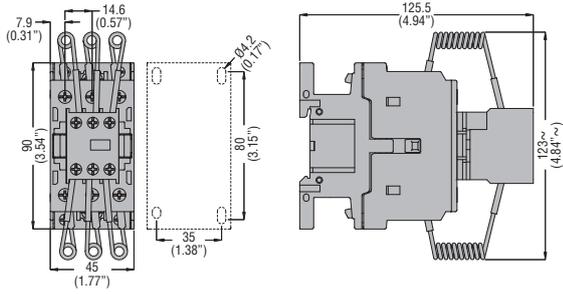
Dimensions [mm (in)]

CONTACTORS FOR POWER FACTOR CORRECTION

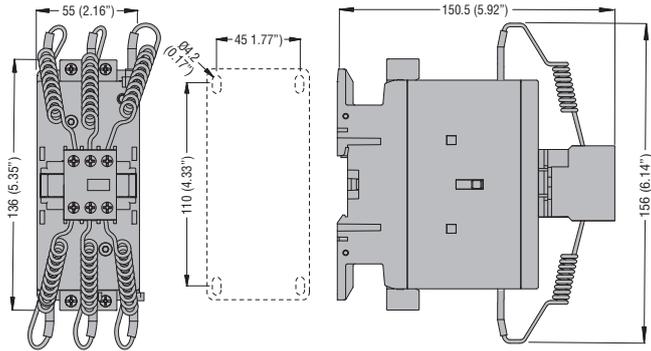
BFK0910A - BFK1210A - BFK1810A



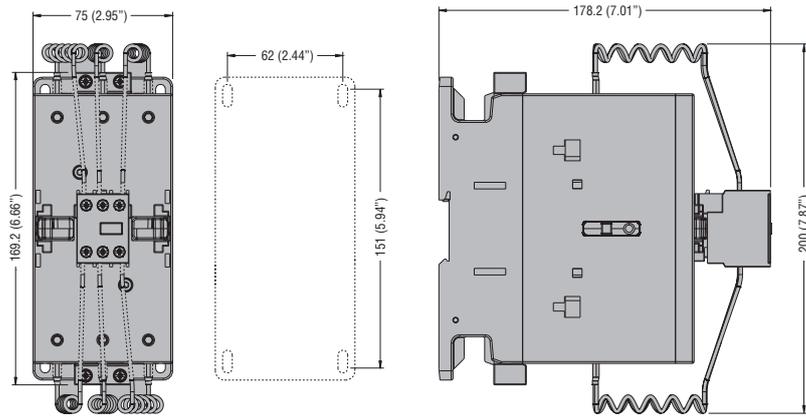
BFK2600A - BFK3200A - BFK3800A



BFK50 - BFK65 - BFK80 - BFK94

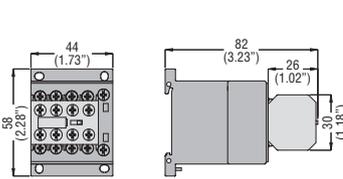


BFK95 - BFK115 - BFK150



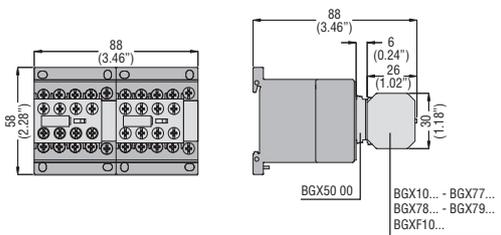
ADD-ON BLOCKS WITH BG MINI-CONTACTORS

BGX10... - BGF10... auxiliary contacts

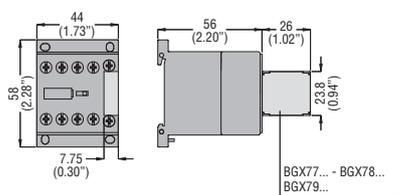


Valid for BGX11... contacts as well when mounted on left-hand contactor of BGT or BGC assembly (p. 4-5).

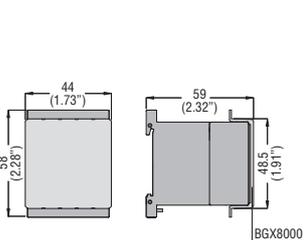
BGX5000 interlock with BGF10... contacts and BGX77... or BGX78... or BGX79... suppressor



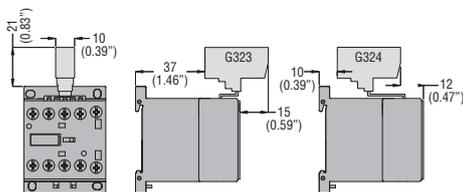
BGX77..., BGX78... or BGX79... suppressor only



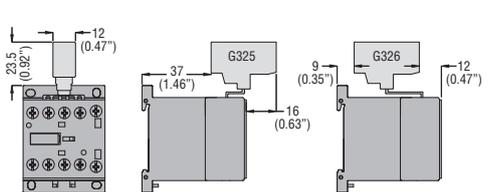
BGX8000 shroud



Paralleling links G323, G324



G325, G326

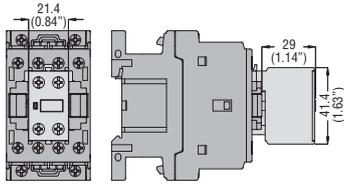


2 Contactors

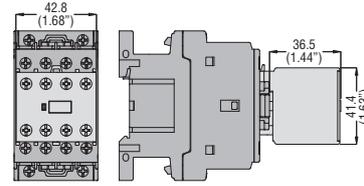
Dimensions [mm (in)]

ADD-ON BLOCKS WITH BF CONTACTORS

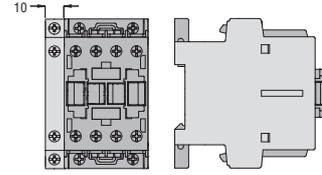
Auxiliary contacts **BFX10...**
w/2 contacts



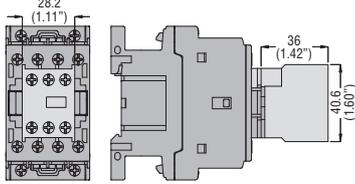
BFX10... w/4 contacts



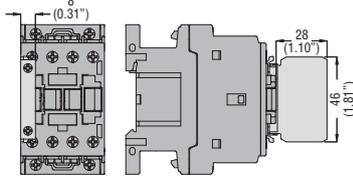
BFX12...



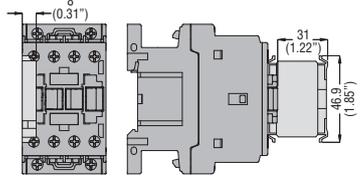
G484...



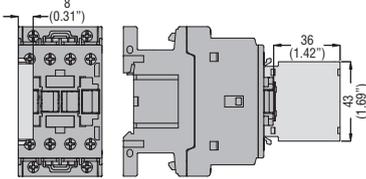
G418...



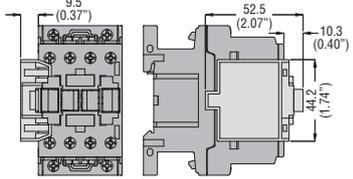
G218



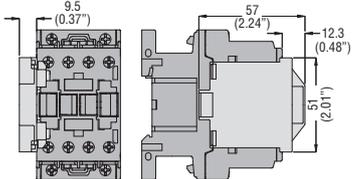
G481..., G482



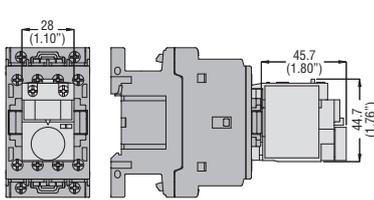
G280 with G218



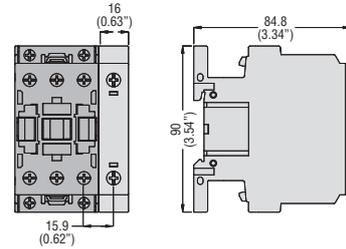
G419, with G418..., G428..., G483 with G481... or G482



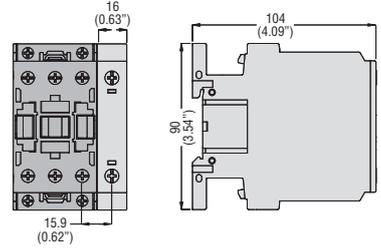
G485..., G486..., G487 delayed contacts



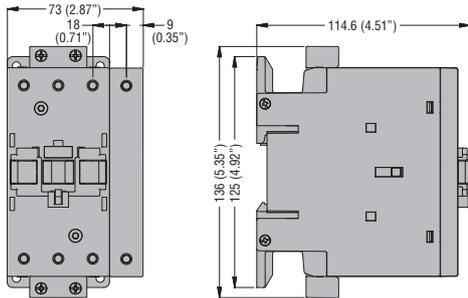
Fourth pole
BFX42



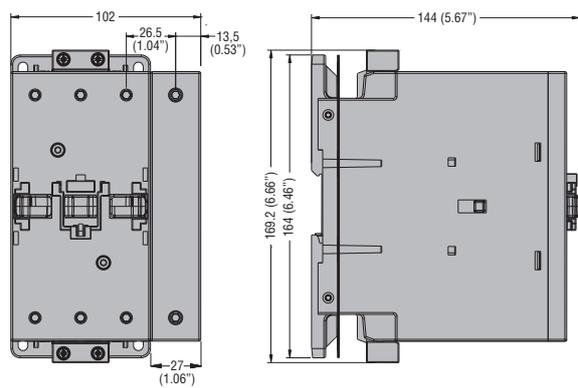
BFXD42



BFX43

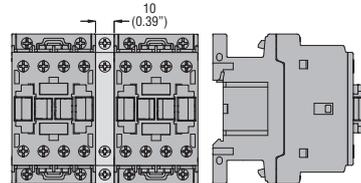


BFX44

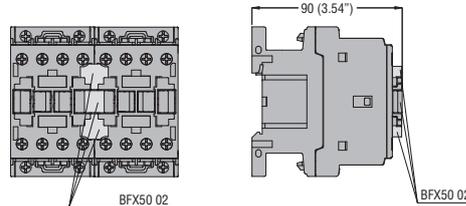


Mechanical interlocks

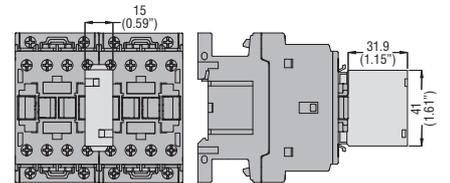
BFX5000, BFX5001, BFX5300, BFX5301, BFX5400, BFX5401



BFX5002



BFX5003, BFX5303, BFX5403

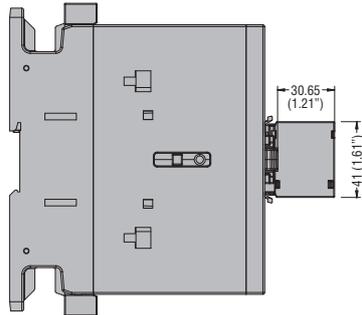
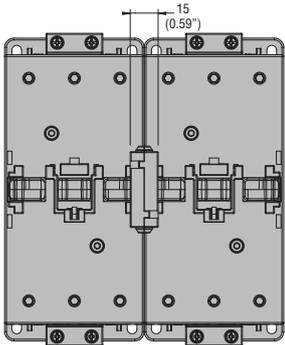


2 Contactors

Dimensions [mm (in)]

Mechanical interlocks

BFX5303 - BFX5403

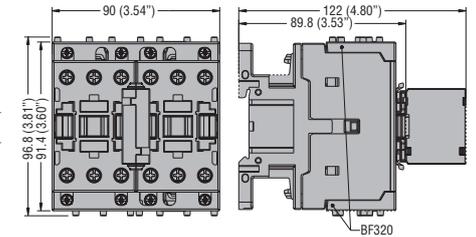
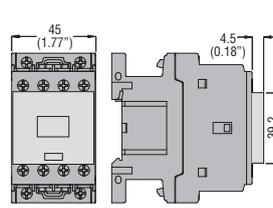
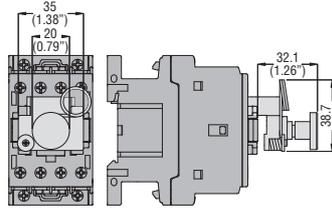
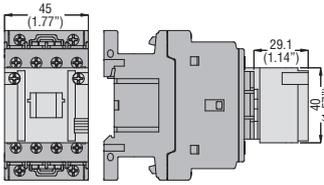


G222, G272, BFX641 mechanical latch

G454, G455, BF642 manual closing

BFX80 sealing cover

Rigid connecting kit
90mm (3.54") with **BFX5000** and **BFX5001**
100mm (3.94") with **BFX5002** and **BFX5003**

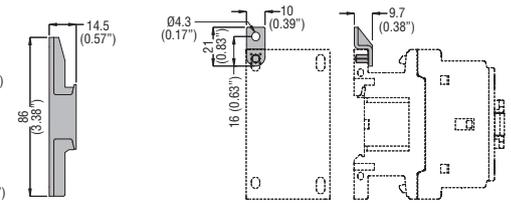
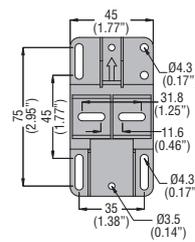
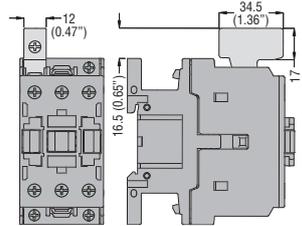
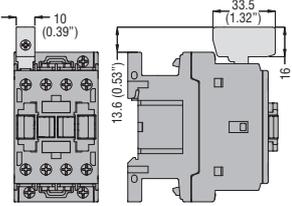


G231 terminal
1-pole

G232 terminal
1-pole

BFX8901 fixing base

BFX8902 fixing brackets

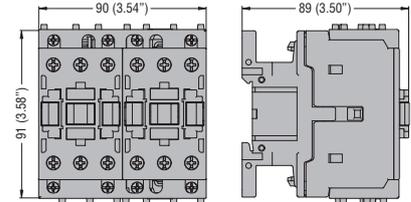
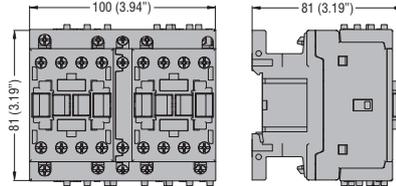
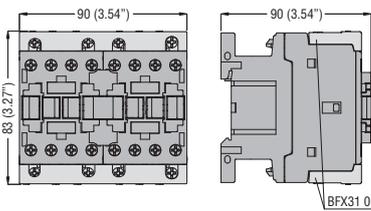


Rigid connecting kit

BFX3101

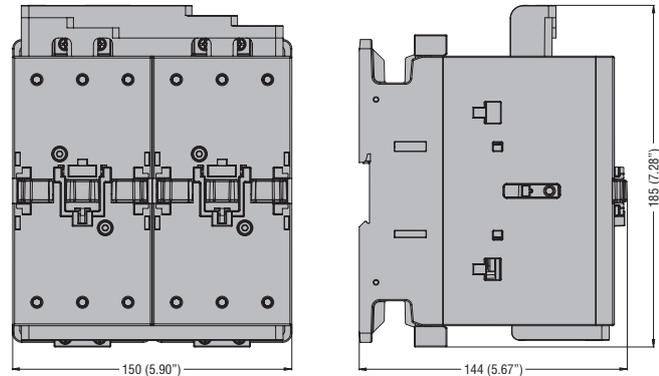
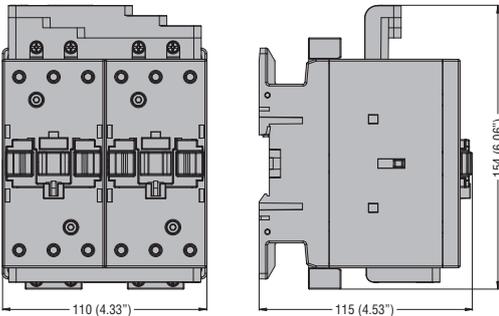
BFX3102

BFX3201



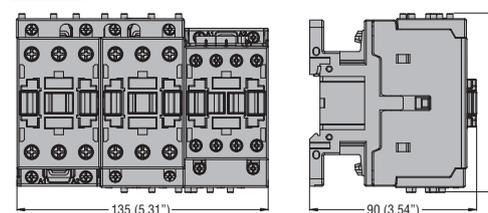
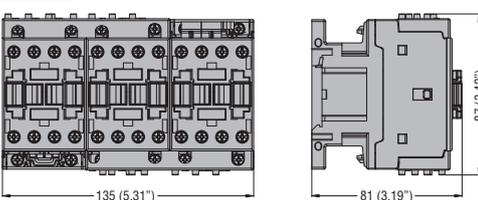
BFX3301

BFX3401



BFX3131

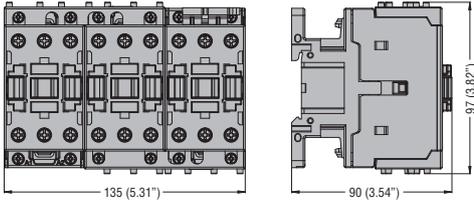
BFX3232



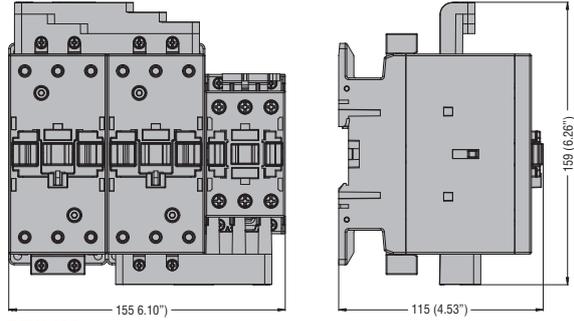
2 Contactors

Dimensions [mm (in)]

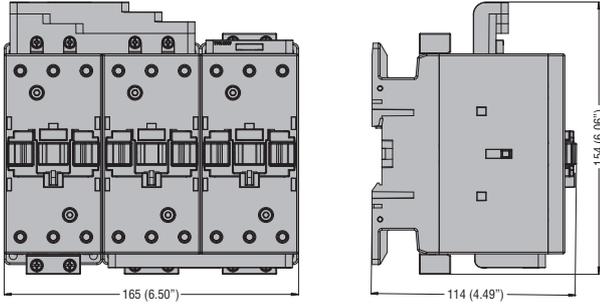
BFX3231



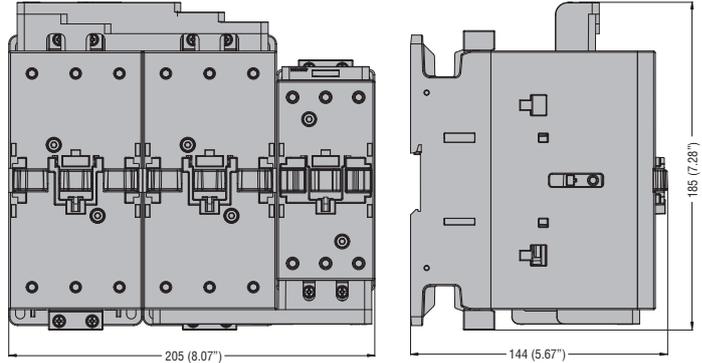
BFX3332



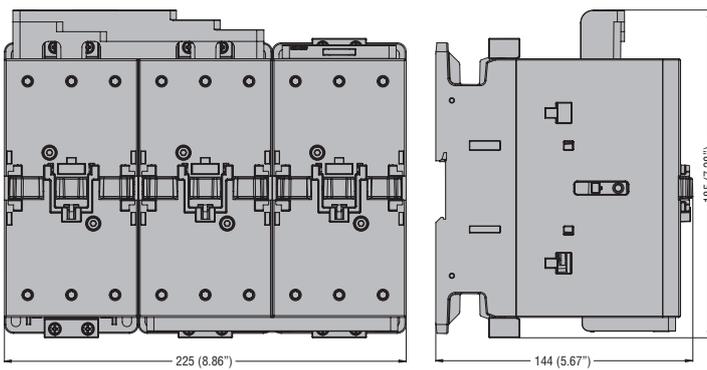
BFX3331



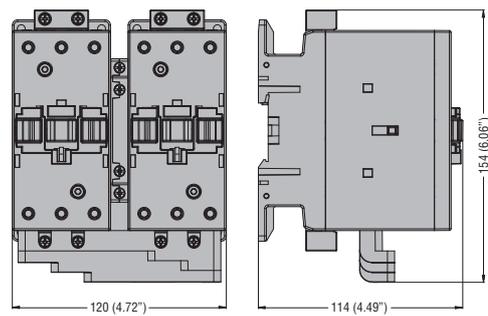
BFX3432



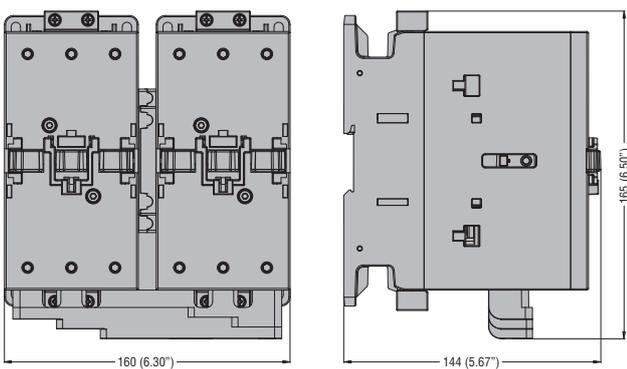
BFX3431



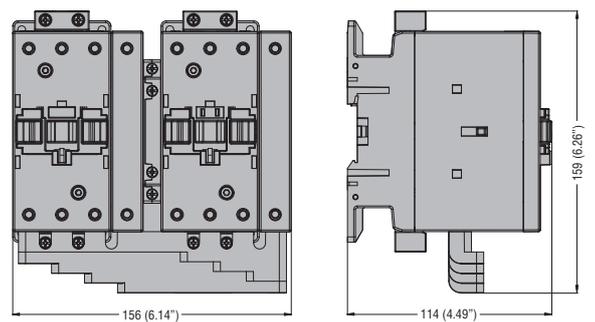
BFX3361



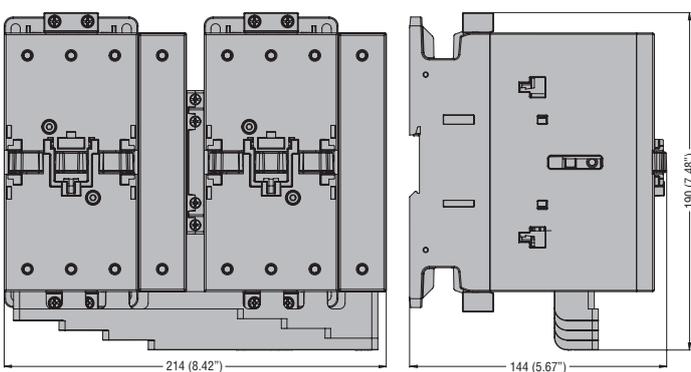
BFX3461



BFX3371



BFX3471



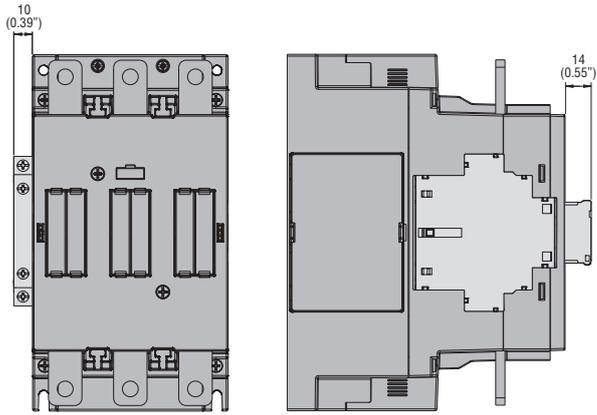
2 Contactors

Dimensions [mm (in)]

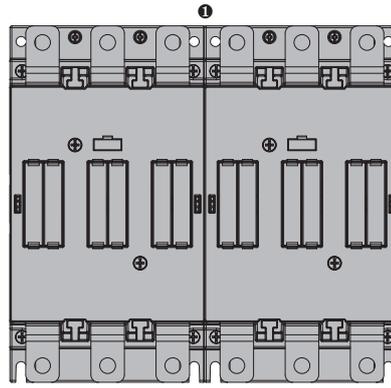
INDEX

ADD-ON BLOCKS WITH BF160...BF230 CONTACTORS

BFX10C..., **BFX12C...** auxiliary contacts

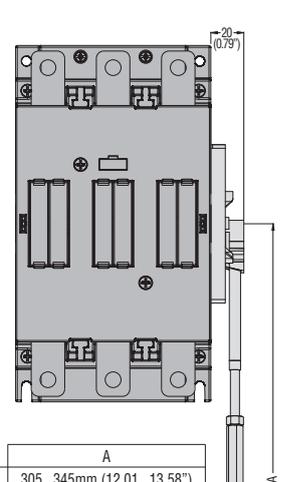


BFX5500 interlock



❶ The BFX5500 interlock is mounted inside the 2 contactors without dimensions increasing.

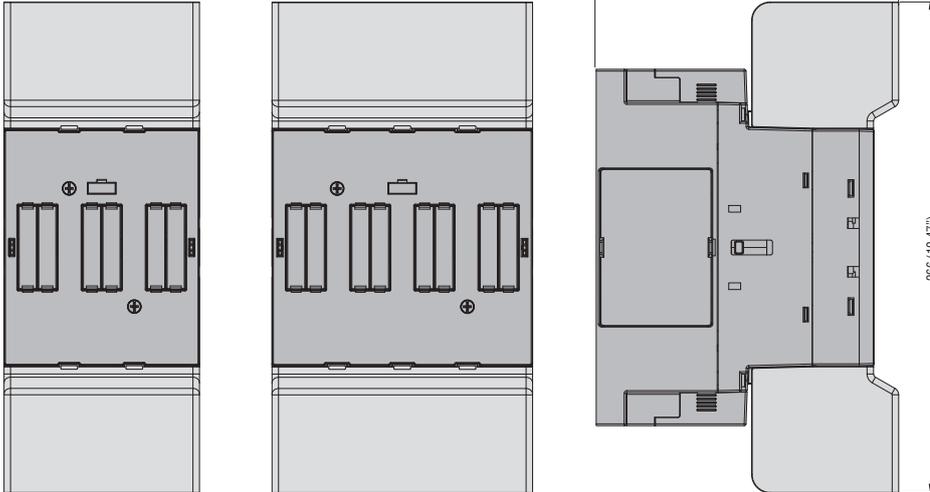
BFX5503, **BFX5504** interlocks



| | A |
|---------|------------------------------|
| BFX5503 | 305...345mm (12.01...13.58") |
| BFX5504 | 345...385mm (13.58...15.16") |

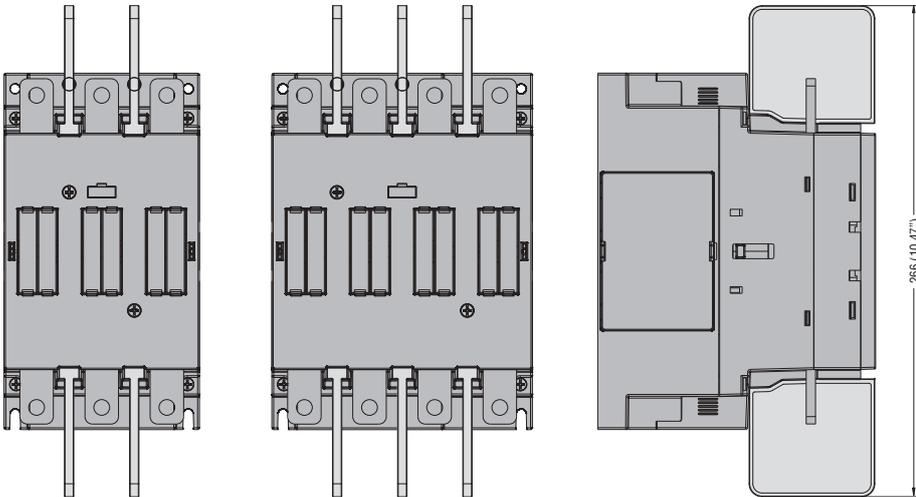
Terminal protection

BFX835 - BFX845



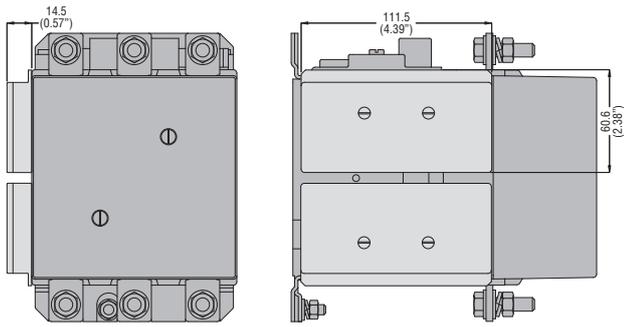
Phase barrier

BFX805

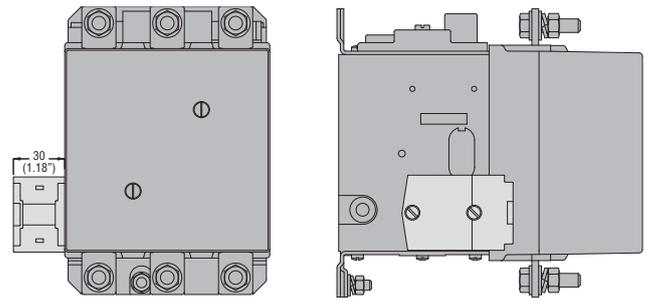


ADD-ON BLOCKS WITH B CONTACTORS

Auxiliary contacts **G350, G354**

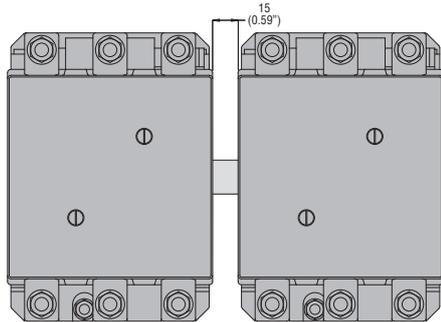


G358 adapter

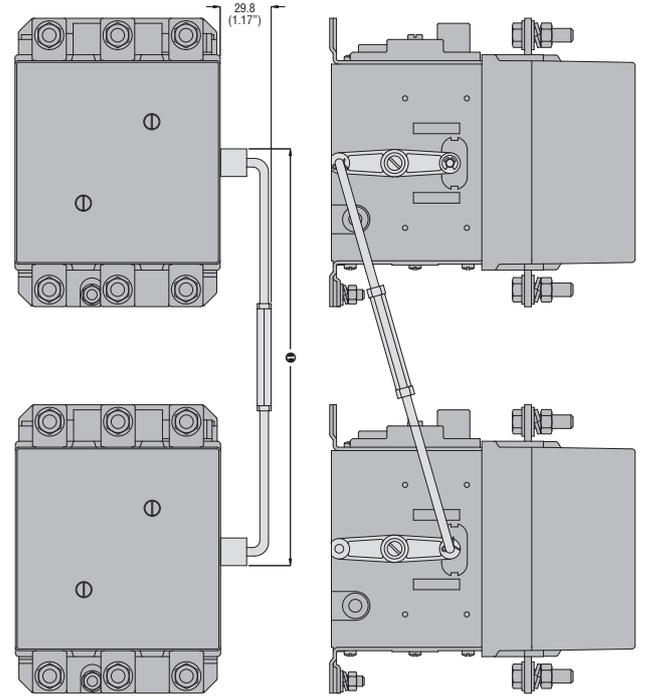


2

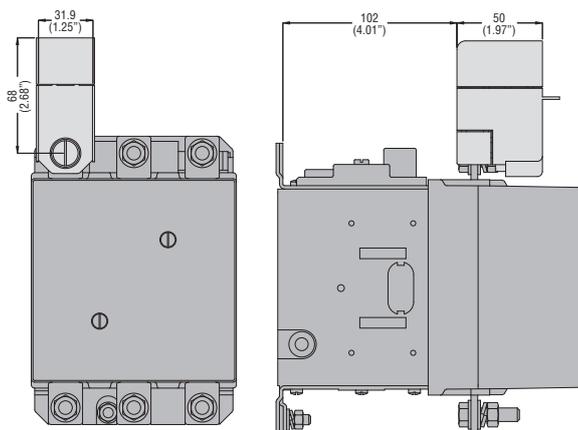
G355 interlocks



G356...



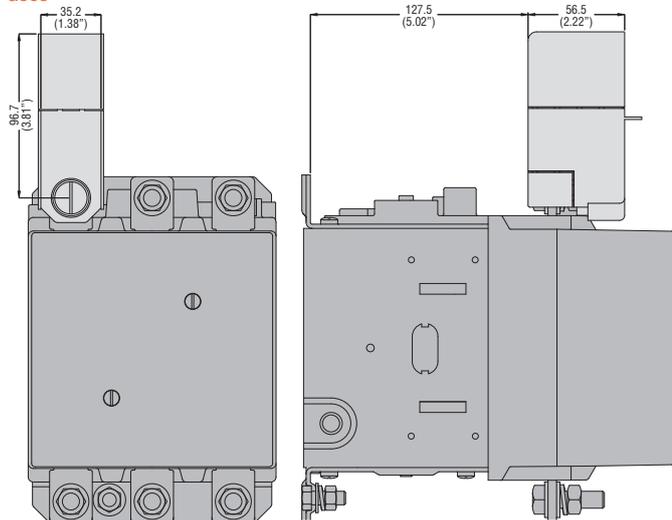
Terminal protection **G361**



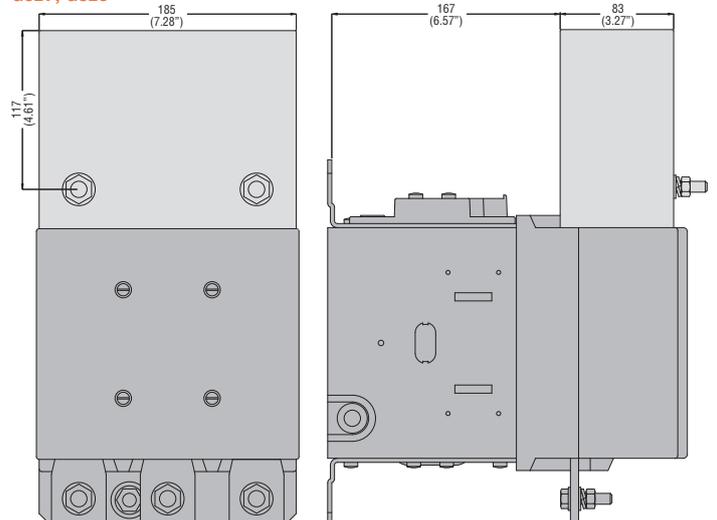
❶ For dimensions, refer to page 2-68 to 2-76.

Terminal protection

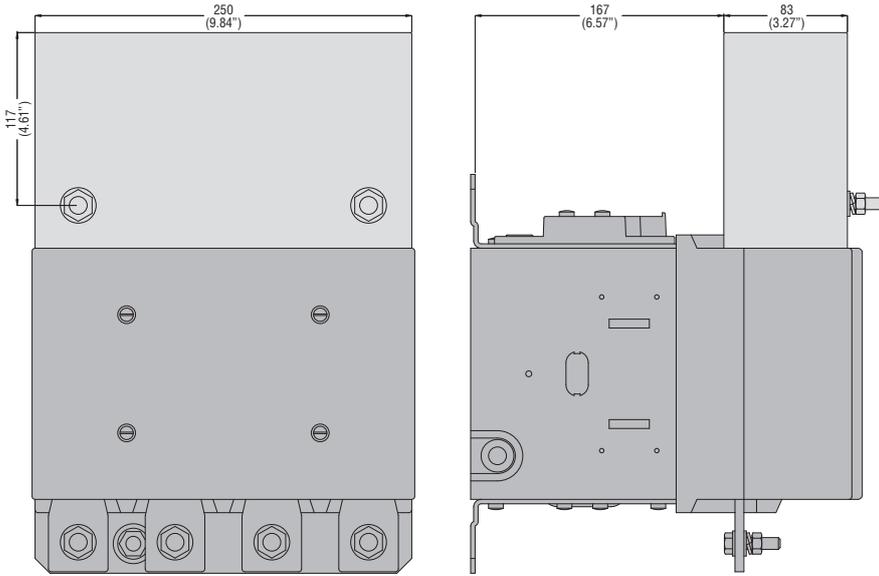
G363



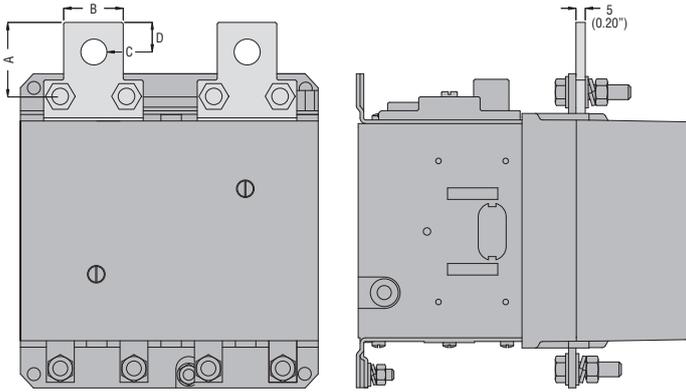
G527, G529



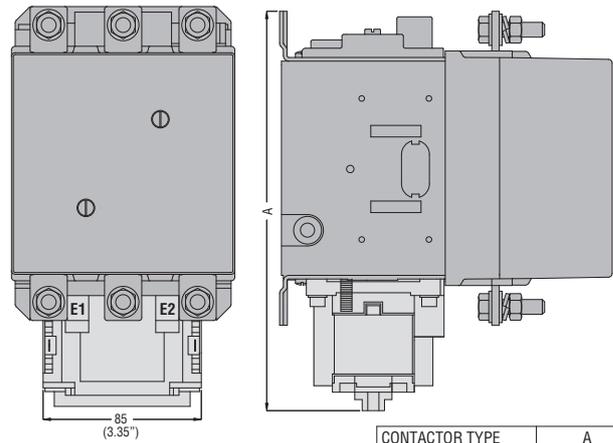
G528, G530



BA1594, BA1720 parallel 2-pole bar



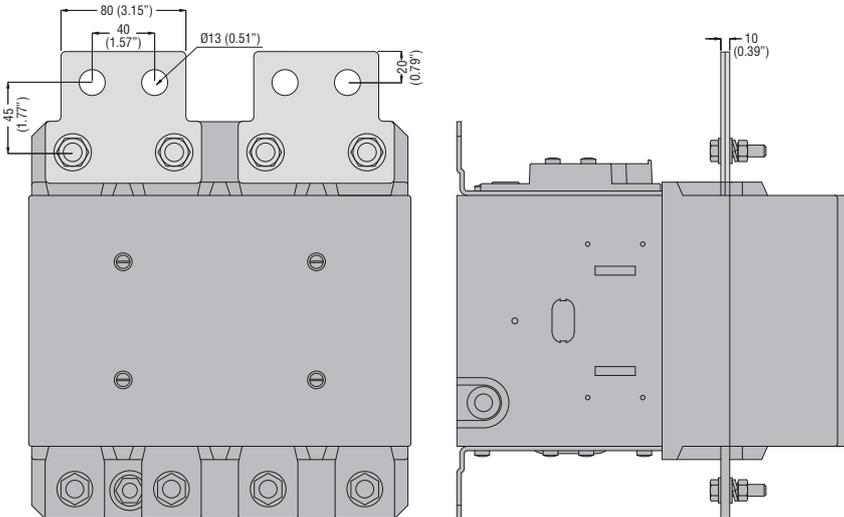
G495 mechanical latch



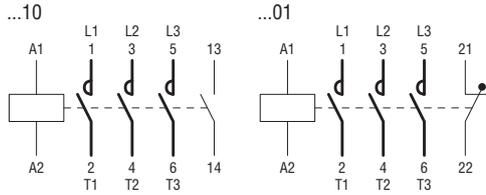
| PARALLEL POLE BAR | A | B | C | D |
|-------------------|------------|------------|-------------|------------|
| BA1594 | 45 (1.77") | 32 (1.26") | Ø14 (0.55") | 16 (0.63") |
| BA1720 | 53 (2.09") | 50 (1.97") | Ø18 (0.71") | 20 (0.79") |

| CONTACTOR TYPE | A |
|----------------|--------------|
| B250 - B400 | 255 (8.86") |
| B500 - B630 | 300 (11.81") |

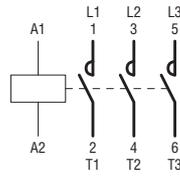
BA1845



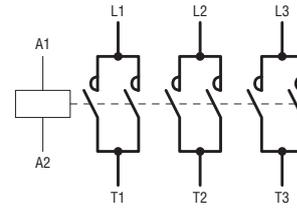
THREE-POLE CONTACTORS IN AC
BG06A - BG09A - BGF09A - BGP09A - BG12A
BF09A - BF12A - BF18A - BF25A



BF26A - BF32A - BF38A
BF40A - BF50A - BF65A - BF80A
BF94A - BF95A - BF115A - BF150A
B250...B630



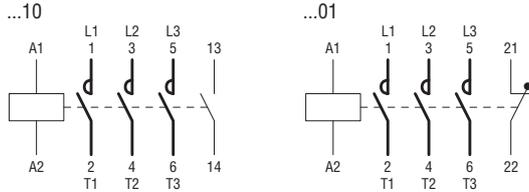
B125024 - B160024... ①



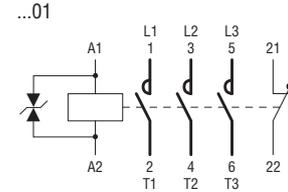
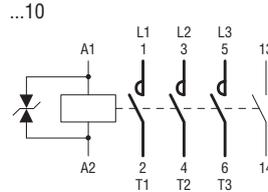
① The input electronic circuit of the contactor coil is designed and tested according to IEEEC 62.41 standards and can withstand a 10kV impulse voltage (1.2/50µs) with 50 Joule energy. The use of an auxiliary reduced voltage transformer is recommended for higher values.

THREE-POLE CONTACTORS IN DC (AC/DC for BF40E...BF230E)

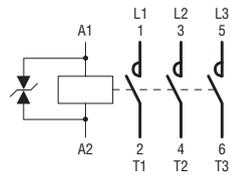
BG06D - BG09D - BGF09D - BGP09D - BG12D
BG06L - BG09L - BGF09L - BGP09L - BG12L



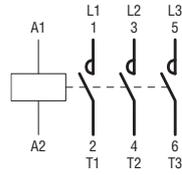
BF09D - BF12D - BF18D - BF25D
BF09L - BF12L - BF18L - BF25L



BF26D - BF32D - BF38D
BF26L - BF32L - BF38L

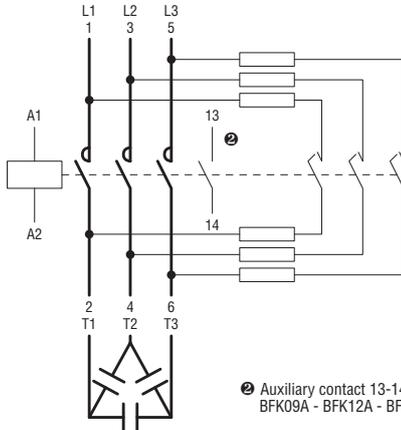


BF40E - BF50E - BF65E - BF80E - BF94E
BF95E - BF115E - BF150E - BF160E - BF195E - BF230E



CONTACTORS FOR POWER FACTOR CORRECTION

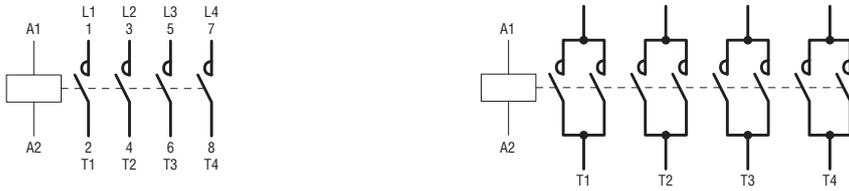
BFK09A - BFK12A - BFK18A
BFK26A - BFK32A - BFK38A - BFK50A - BFK65A - BFK80A - BFK94A - BFK95A - BFK115A - BFK150A



② Auxiliary contact 13-14 is found on BFK09A - BFK12A - BFK18A types only.

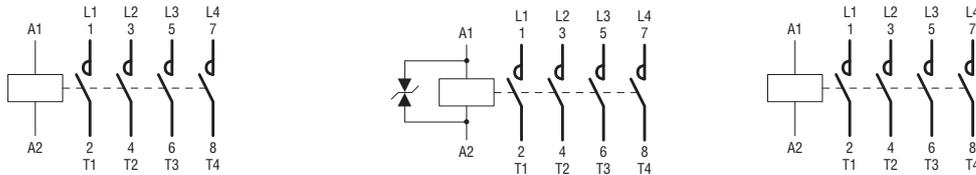
FOUR-POLE CONTACTORS IN AC
BG09T4A - BGF09T4A - BGP09T4A
BF09T4A - BF38T4A
BF50T4A - BF65T4A - BF80T4A
BF95T4A - BF115T4A - BF150T4A
BFD80T4A
B250...B6304

B12504 - B16004



FOUR-POLE CONTACTORS IN DC (AC/DC for BF65T4E...BF150T4E)
BG09T4D - BGF09T4D - BGP09T4D
BF09T4D - BF38T4D
BF09T4L - BF38T4L

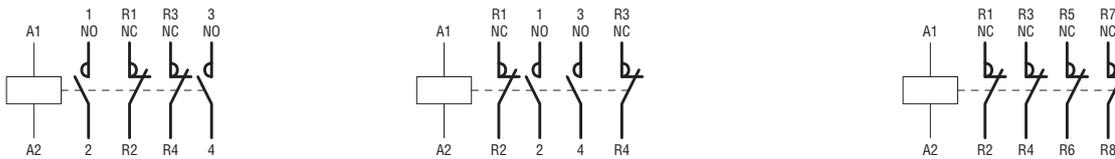
BF65T4E - BF80T4E - BF95T4E - BF150T4E - BFD150T4E
BF160T4E - BF195T4E - BF230T4E



FOUR-POLE CONTACTORS IN AC WITH 2NO AND 2NC POLES
BG09T2A

BF09T2A - BF18T2A - BF26T2A - BF38T2A
BF80T2A

WITH NC FOUR-POLES
BF18T0A - BF26T0A



FOUR-POLE CONTACTORS IN DC (AC/DC for BF80T2E) WITH 2NO AND 2NC POLES
BG09T2D

BF18T2D - BF26T2D - BF38T2D
BF18T2L - BF26T2L - BF38T2L

BF80T2E

WITH NC FOUR-POLES
BF18T0D - BF26T0D
BF18T0L

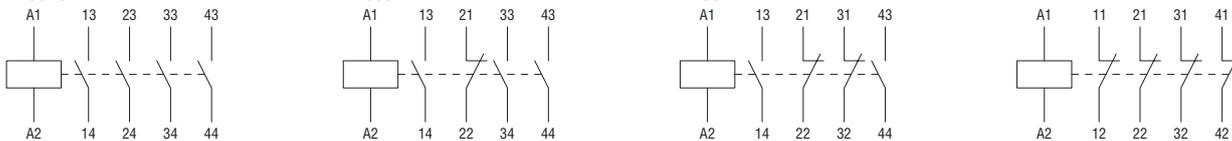


CONTROL RELAY IN AC
BG0040A - BGF0040A
BF0040A

BG0031A - BGF0031A
BF0031A

BG0022A - BGF0022A
BF0022A

BF0004A

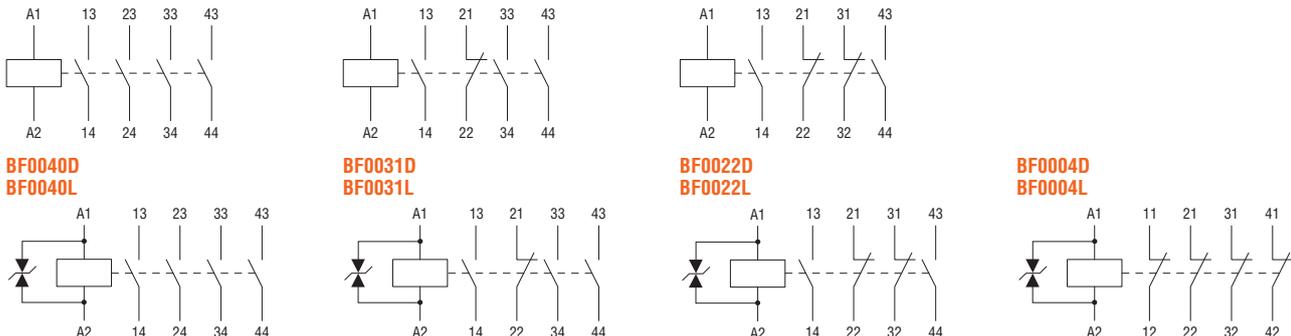


CONTROL RELAY IN DC
BG0040D - BGF0040D
BG0040L - BGF0040L

BG0031D - BGF0031D
BG0031L - BGF0031L

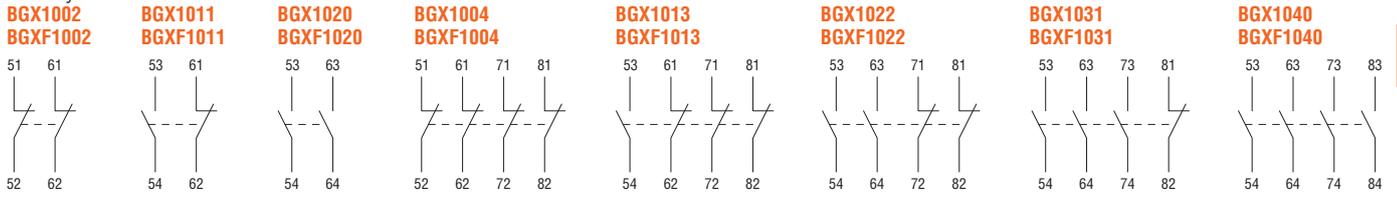
BG0022D - BGF0022D
BG0022L - BGF0022L

BF0004D
BF0004L

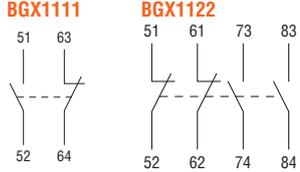


ADD-ON BLOCKS FOR BG MINI-CONTACTORS

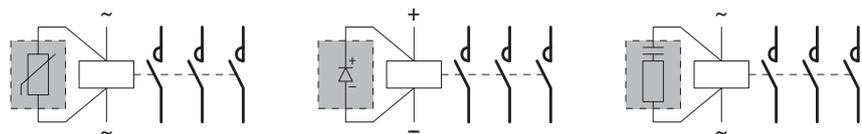
Auxiliary contacts



Special auxiliary contacts

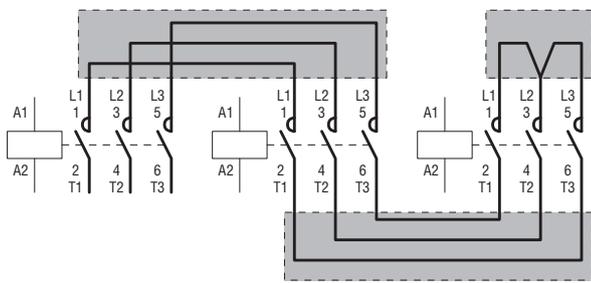


Surge suppressor

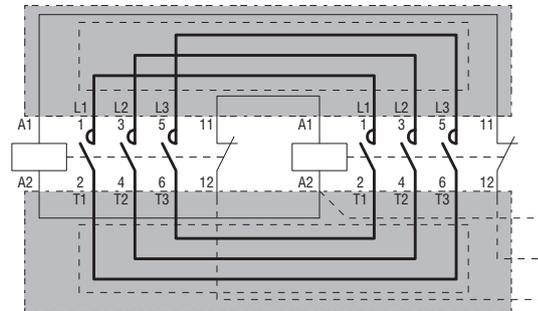


Rigid connections

SMX9021

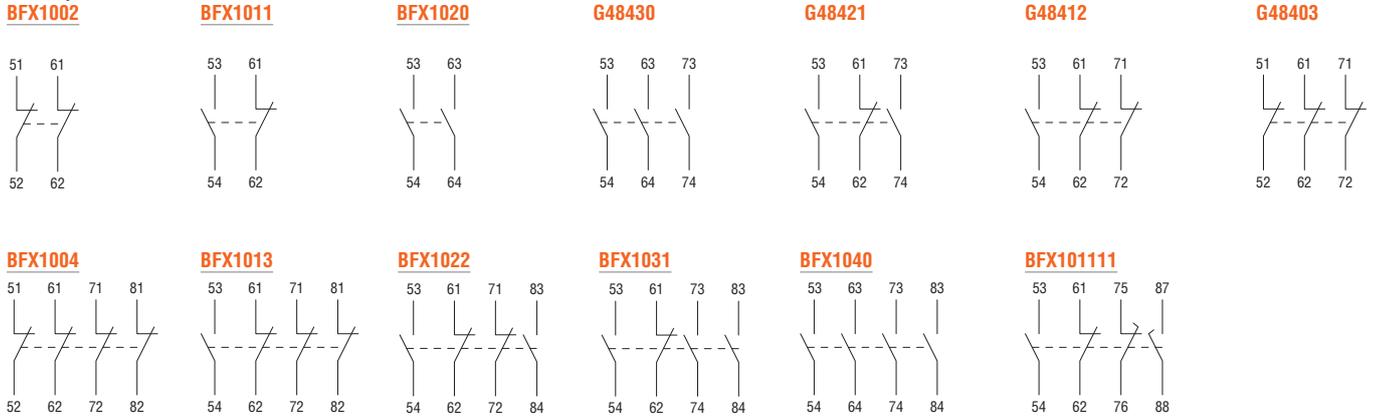


SMX9022



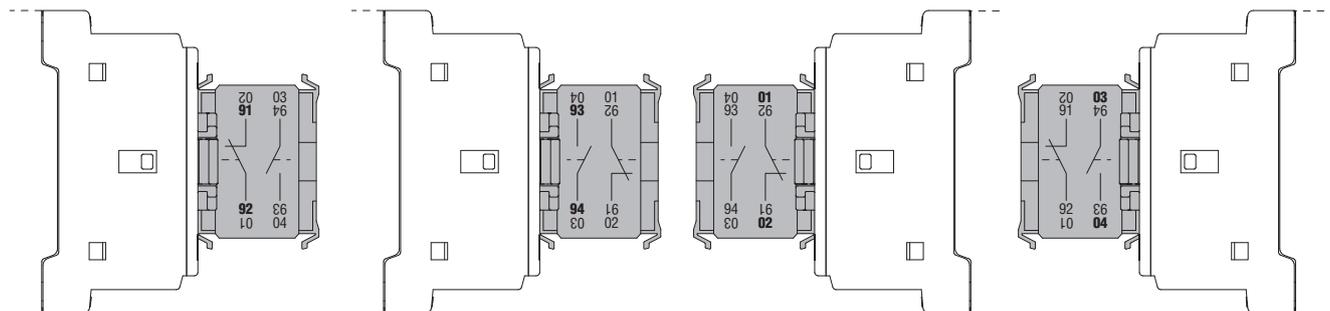
ADD-ON BLOCKS FOR BF CONTACTORS

Auxiliary contacts



Auxiliary contact

G218



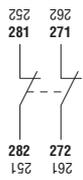
The termination of the G218 auxiliary contact has more than one numbering due to the fact that the block can assume various mounting positions. See the numbering in boldface for a correct interpretation.

2 Contactors

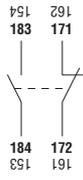
Wiring diagrams

Auxiliary contacts

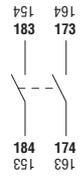
BFX1202
BFX12C02



BFX1211
BFX12C11



BFX1220
BFX12C20



BFX10C10



BFX10C01



G41810
G42810



G41810A
G42810A



G41801
G42801



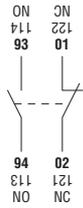
G41801D
G42801D



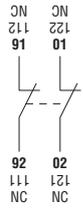
G48120



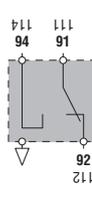
G48111



G48102

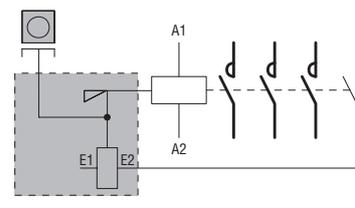


G482



Mechanical latch

G222... - G272... - BFX641...



The termination of the BFX12... / G418... / G481... / G482 auxiliary contacts has more than one numbering due to the fact that the block can assume various mounting positions. See the numbering in boldface when the block is mounted on the left side of the contactor.

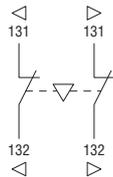
4th pole

BFX42 - BFX43 - BFX44
BFXD42



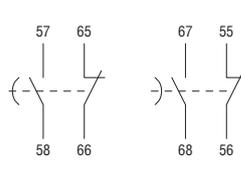
Interlock

BFX5001 - BFX5301
BFX5401



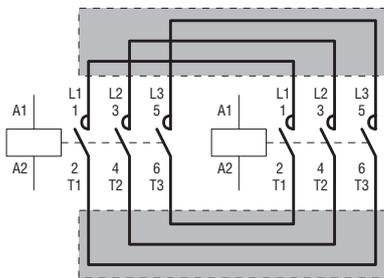
Delayed auxiliary contacts

G485... G486... - G487

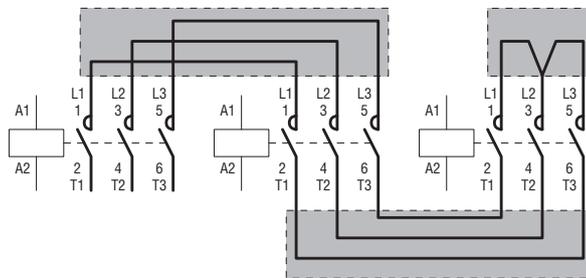


Rigid connecting kits

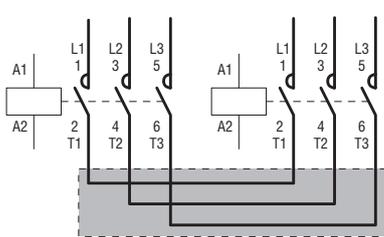
BFX3101 - BFX3102 - BFX3201
BFX3301 - BFX3401



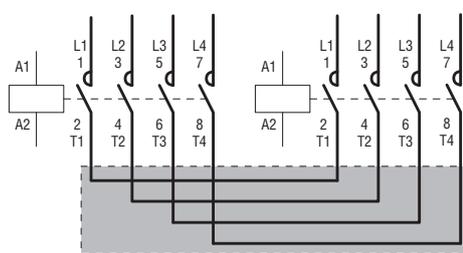
BFX3131 - BFX3231 - BFX3232 - BFX3331 - BFX3332 - BFX3431 - BFX3432



BFX3361 - BFX3461

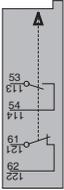


BFX3371 - BFX3471

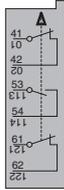


ADD-ON BLOCKS FOR B CONTACTORS
Auxiliary contacts
G350 - G354

G354



G350



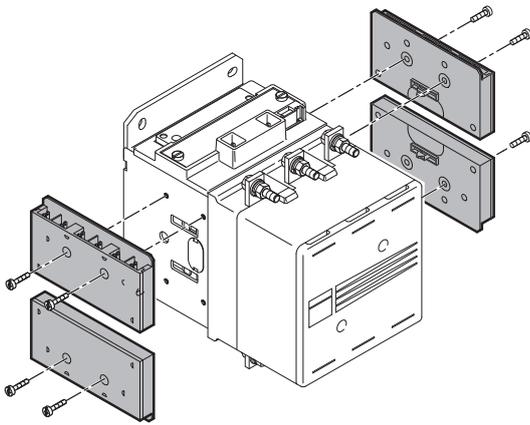
or

or

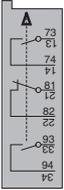
G354



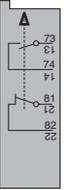
G350



G350



G354



or

or

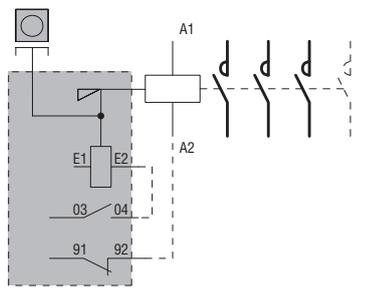
G350



G354



Mechanical latch
G495



MOUNTING POSITION OF CONTACTORS

ON VERTICAL PLANE

The performances given in this catalogue have been established with contactors mounted on a vertical plane with line terminals facing upwards and load terminals facing downwards.

All contactors can be mounted with a $\pm 30^\circ$ inclination to the vertical axis of the contactor without any derating.

For BF series contactors, this inclination can reach $\pm 90^\circ$, that is when the terminals are facing towards left and right.

For BG mini-contactors:

- Position A, with coil terminals A1-A2 facing downwards, is not recommended.
- The position with coil terminals A1-A2 facing upwards is not recommended for mini-contactors with NC contacts.

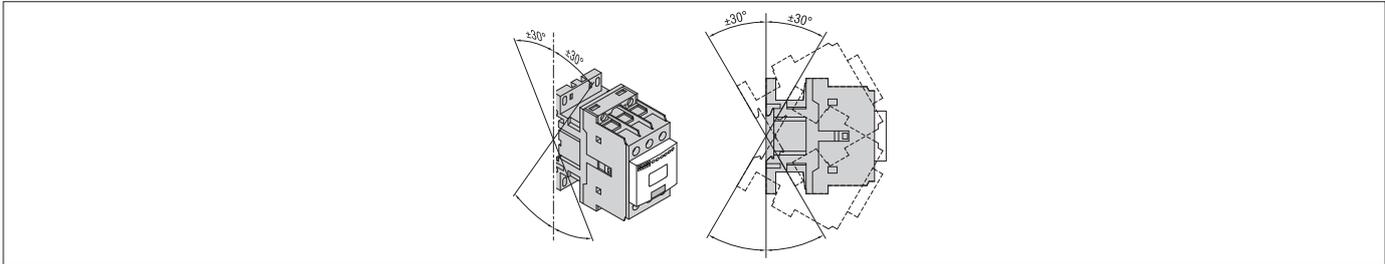


ON VERTICAL PLANE WITH 30° INCLINATION

All contactors can be mounted on a plane which varies in respect to the vertical up to $\pm 30^\circ$ angle.

On the average, a 5% increase of the minimum pick-up voltage in -30° position can be noted.

This inclination is greater than the one prescribed by main naval registers.



ON HORIZONTAL PLANE (FOR BF SERIES CONTACTORS)

Considerable performance variations can be noted.

It is necessary to check the two possible mounting positions:

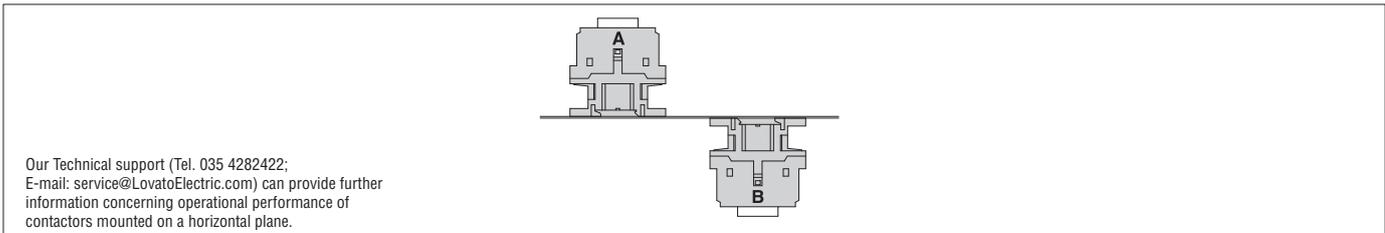
- when the contactor is energised, the movable equipment moves upwards.
- when the contactor is energised, the movable equipment moves downwards.

In the first case, it is difficult to close the contactor while in the second, to open it.

The variables which could influence the contactor performance, in addition to the two mounting positions, are:

- type of contactor
- type of control
- contact configuration
- number and type of add-on blocks
- permissible tolerance of auxiliary voltage variation
- ambient temperature.

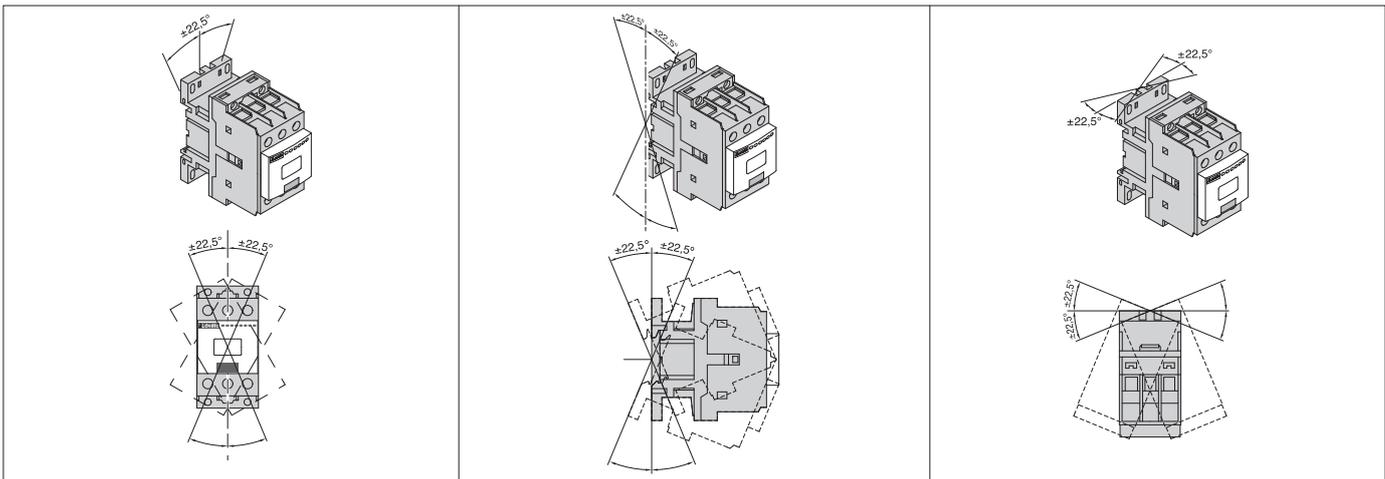
NOTE: Position B is not recommendable.



Our Technical support (Tel. 035 4282422; E-mail: service@LovatoElectric.com) can provide further information concerning operational performance of contactors mounted on a horizontal plane.

DYNAMIC TYPE TESTS

Our contactors have sustained dynamic testing, with contactor mounting position rotated $\pm 22.5^\circ$ in respect to the three orthogonal axes.



IEC UTILISATION CATEGORY AC3

POLE CHARACTERISTICS

Squirrel-cage induction motors; breaking at rated motor current.

MAXIMUM IEC OPERATIONAL POWER at ambient temperature $\leq 55^{\circ}\text{C}$.

| Contactor type | IEC operational current (U _e \leq 440V) [A] | IEC operational power | | | | | | | Maximum horsepower ratings (60Hz) | | | |
|----------------|--|-----------------------|---------------|-----------|-----------|-----------|---------------|------------|-----------------------------------|-----------|-----------|-----------|
| | | 220/230V [kW] | 380/400V [kW] | 415V [kW] | 440V [kW] | 500V [kW] | 660/690V [kW] | 1000V [kW] | Three phase 200-208V [HP] | 240V [HP] | 480V [HP] | 600V [HP] |
| BG06 | 6 | 1.5 | 2.2 | 2.4 | 2.5 | 3 | 3 | - | 1½ | 2 | 3 | 3 |
| BG09 | 9 | 2.2 | 4.0 | 4.3 | 4.5 | 5 | 5 | - | 2 | 3 | 5 | 5 |
| BG12 | 12 | 3.2 | 5.7 | 6.2 | 5.5 | 5 | 5 | - | 3 | 3 | 7½ | 10 |
| BF09 | 9 | 2.2 | 4.2 | 4.5 | 4.8 | 5.5 | 7.5 | - | 3 | 3 | 5 | 7 ½ |
| BF12 | 12 | 3.2 | 5.7 | 6.2 | 6.2 | 7.5 | 10 | - | 5 | 5 | 7½ | 10 |
| BF18 | 18 | 4 | 7.5 | 9 | 9 | 10 | 10 | - | 5 | 5 | 10 | 15 |
| BF25 | 25 | 7.0 | 12.5 | 13.4 | 13.4 | 15 | 18 | - | 7½ | 7½ | 15 | 15 |
| BF26 | 26 | 7.3 | 13 | 14 | 14 | 15.6 | 18.5 | - | 7½ | 7½ | 15 | 20 |
| BF32 | 32 | 8.8 | 16 | 17 | 17 | 20 | 22 | - | 10 | 10 | 20 | 25 |
| BF38 | 38 | 11 | 18.5 | 18.5 | 18.5 | 20 | 22 | - | 10 | 15 | 30 | 30 |
| BF40 | 40 | 11 | 18.5 | 22 | 22 | 22 | 30 | 18 | 10 | 15 | 30 | 30 |
| BF50 | 50 | 15 | 22 | 30 | 30 | 30 | 37 | 22 | 15 | 20 | 40 | 40 |
| BF65 | 65 | 18.5 | 30 | 37 | 37 | 37 | 45 | 30 | 20 | 25 | 50 | 60 |
| BF80 | 80 | 22 | 45 | 45 | 45 | 55 | 55 | 37 | 25 | 30 | 60 | 75 |
| BF94 | 95 | 30 | 55 | 55 | 55 | 55 | 55 | 37 | 25 | 30 | 60 | 75 |
| BF95 | 95 | 30 | 55 | 55 | 55 | 75 | 90 | 45 | 30 | 30 | 60 | 75 |
| BF115 | 115 | 37 | 55 | 55 | 55 | 75 | 110 | 55 | 40 | 40 | 75 | 100 |
| BF150 | 150 | 45 | 75 | 75 | 75 | 90 | 110 | 55 | 50 | 50 | 100 | 125 |
| BF160 | 160 | 45 | 75 | 90 | 90 | 110 | 132 | 75 | 50 | 50 | 100 | 125 |
| BF195 | 195 | 55 | 90 | 110 | 110 | 132 | 160 | 90 | 60 | 75 | 150 | 150 |
| BF230 | 230 | 55 | 110 | 110 | 132 | 132 | 160 | 110 | 75 | 75 | 150 | 200 |
| B250 | 265 | 83 | 140 | 155 | 164 | 176 | 212 | 156 | 75 | 100 | 200 | 250 |
| B310 | 320 | 100 | 170 | 188 | 200 | 213 | 256 | 180 | 100 | 125 | 250 | 300 |
| B400 | 420 | 130 | 225 | 247 | 263 | 271 | 352 | 208 | 125 | 150 | 350 | 400 |
| B500 | 520 | 156 | 290 | 306 | 328 | 367 | 416 | 312 | 150 ❶ | 200 ❶ | 400 ❶ | 450 ❶ |
| B630 | 630 | 198 | 335 | 368 | 368 | 368 | 440 | 368 | 200 ❶ | 250 ❶ | 500 ❶ | 500 ❶ |

❶ No UL/CSA ratings; data given for indication and reference purposes only.

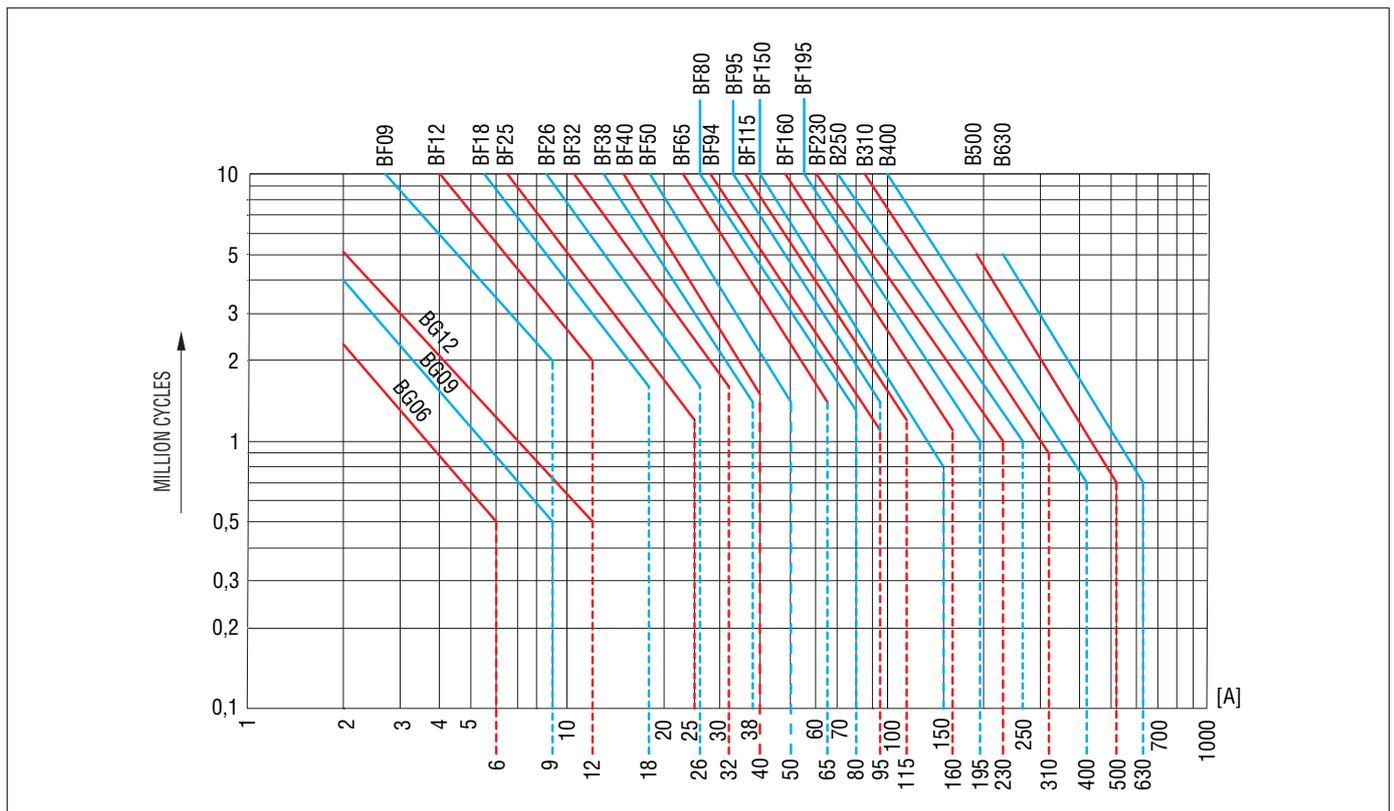
UL/CSA DUTY FOR AC MOTOR SWITCHING

Three-phase AC induction motors; breaking at rated motor current.

UL/CSA RATINGS at ambient temperature $\leq 55^{\circ}\text{C}$

ELECTRICAL IEC LIFE FOR MOTOR CONTROL AC3 $\leq 440\text{V}$

Electrical life of contactors



IEC DC UTILISATION CATEGORY
POLE CHARACTERISTICS
MAXIMUM OPERATIONAL CURRENT

| IEC Voltage U _e | Contactor Type | IEC Maximum current I _e [A] in categories: DC1 with L/R ≤ 1ms and poles in series | | | | DC3 - DC5 with L/R ≤ 15ms and poles in series | | | |
|-------------------------------|-------------------|--|-----|-----|-----|--|-----|-----|----|
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| ≤ 24V | BG06 | 9 | 12 | 14 | – | 6 | 7 | 9 | – |
| | BG09 | 12 | 15 | 16 | 16 | 7 | 8 | 10 | 10 |
| | BG12 | 12 | 15 | 16 | – | 7 | 8 | 10 | – |
| | BF09 | 15 | 18 | 20 | 20 | 10 | 13 | 15 | 15 |
| | BF12 | 17 | 20 | 22 | 20 | 12 | 15 | 18 | 15 |
| | BF18 | 17 | 20 | 22 | 22 | 12 | 15 | 18 | 18 |
| | BF25 | 20 | 23 | 23 | – | 15 | 18 | 22 | – |
| | BF26 | 25 | 28 | 28 | 28 | 18 | 20 | 25 | 30 |
| | BF32 | 30 | 32 | 32 | – | 20 | 25 | 30 | – |
| | BF38 | 35 | 36 | 36 | 36 | 24 | 28 | 32 | 32 |
| | BF40 | 40 | 48 | 48 | – | 27 | 32 | 40 | – |
| | BF50 | 45 | 60 | 60 | 60 | 30 | 35 | 50 | 55 |
| | BF65 | 50 | 70 | 70 | 70 | 35 | 45 | 55 | 60 |
| | BF80 | 70 | 100 | 100 | 100 | 40 | 60 | 80 | 90 |
| | BF94 | 77 | 110 | 110 | 115 | 45 | 65 | 86 | 96 |
| BF95 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | |
| BF115 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | 160 | |
| BF150 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | 165 | |
| 48V | BG06 | 8 | 11 | 14 | – | 5 | 7 | 9 | – |
| | BG09 | 10 | 14 | 16 | 16 | 6 | 8 | 10 | 10 |
| | BG12 | 10 | 14 | 16 | – | 6 | 8 | 10 | – |
| | BF09 | 13 | 18 | 20 | 20 | 9 | 11 | 15 | 15 |
| | BF12 | 15 | 20 | 22 | 20 | 11 | 13 | 18 | 15 |
| | BF18 | 15 | 20 | 22 | 22 | 11 | 13 | 18 | 18 |
| | BF25 | 18 | 23 | 23 | – | 13 | 18 | 22 | – |
| | BF26 | 21 | 28 | 28 | 28 | 15 | 20 | 25 | 30 |
| | BF32 | 26 | 32 | 32 | – | 17 | 22 | 28 | – |
| | BF38 | 30 | 34 | 34 | 34 | 20 | 25 | 28 | 28 |
| | BF40 | 35 | 48 | 48 | – | 23 | 30 | 40 | – |
| | BF50 | 40 | 60 | 60 | 60 | 25 | 35 | 50 | 55 |
| | BF65 | 50 | 70 | 70 | 70 | 25 | 40 | 50 | 60 |
| | BF80 | 60 | 100 | 100 | 100 | 30 | 50 | 70 | 90 |
| | BF94 | 66 | 110 | 110 | 115 | 33 | 55 | 75 | 95 |
| BF95 | 140 | 140 | 140 | 140 | 44 | 63 | 115 | 110 | |
| BF115 | 160 | 160 | 160 | 160 | 50 | 72 | 150 | 120 | |
| BF150 | 165 | 165 | 165 | 165 | 60 | 82 | 195 | 130 | |
| 75V | BG06 | 4 | 7 | 8 | – | 2 | 4 | 5 | – |
| | BG09 | 4 | 9 | 10 | 10 | 2 | 5 | 6 | 6 |
| | BG12 | 4 | 9 | 10 | – | 2 | 5 | 6 | – |
| | BF09 | 12 | 17 | 20 | 20 | 8 | 10 | 13 | 15 |
| | BF12 | 13 | 18 | 20 | 20 | 10 | 12 | 15 | 15 |
| | BF18 | 15 | 20 | 20 | 20 | 11 | 13 | 16 | 16 |
| | BF25 | 18 | 23 | 23 | – | 13 | 16 | 18 | – |
| | BF26 | 18 | 25 | 25 | 25 | 13 | 18 | 20 | 25 |
| | BF32 | 22 | 28 | 32 | – | 15 | 20 | 28 | – |
| | BF38 | 23 | 29 | 33 | 33 | 17 | 22 | 28 | 28 |
| | BF40 | 30 | 45 | 48 | – | 19 | 27 | 38 | – |
| | BF50 | 40 | 60 | 60 | 60 | 22 | 30 | 45 | 55 |
| | BF65 | 50 | 70 | 70 | 70 | 25 | 40 | 50 | 60 |
| | BF80 | 60 | 100 | 100 | 100 | 30 | 50 | 70 | 90 |
| | BF94 | 66 | 110 | 110 | 115 | 33 | 55 | 75 | 95 |
| BF95 | 100 | 140 | 155 | 155 | 36 | 60 | 90 | 110 | |
| BF115 | 120 | 160 | 160 | 160 | 40 | 65 | 100 | 120 | |
| BF150 | 150 | 165 | 165 | 165 | 44 | 70 | 110 | 130 | |

POLE CHARACTERISTICS

MAXIMUM OPERATIONAL CURRENT

| IEC Voltage U _e | Contactor Type | IEC Maximum current I _e [A] in categories: DC1 with L/R ≤ 1ms and poles in series | | | | DC3 - DC5 with L/R ≤ 15ms and poles in series | | | |
|-------------------------------|-------------------|--|-----|-----|-----|--|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 110V | BG06 | 3 | 6 | 8 | – | 1 | 3 | 4 | – |
| | BG09 | 3 | 8 | 10 | 10 | 1 | 4 | 5 | 5 |
| | BG12 | 3 | 8 | 10 | – | 1 | 4 | 5 | – |
| | BF09 | 6 | 12 | 15 | 16 | 2 | 7 | 11 | 12 |
| | BF12 | 6 | 13 | 16 | 16 | 2 | 8 | 12 | 16 |
| | BF18 | 6 | 13 | 16 | 18 | 2 | 8 | 12 | 13 |
| | BF25 | 6 | 16 | 18 | – | 2 | 10 | 15 | – |
| | BF26 | 6 | 22 | 24 | 24 | 2 | 13 | 18 | 20 |
| | BF32 | 8 | 25 | 27 | – | 2,5 | 15 | 20 | – |
| | BF38 | 8 | 32 | 34 | 34 | 2,5 | 18 | 23 | 23 |
| | BF40 | 8 | 42 | 44 | – | 3 | 22 | 27 | – |
| | BF50 | 8 | 50 | 55 | 60 | 3 | 25 | 30 | 45 |
| | BF65 | 8 | 60 | 60 | 70 | 3 | 30 | 35 | 50 |
| | BF80 | 8 | 80 | 85 | 100 | 3 | 40 | 60 | 75 |
| | BF94 | 8 | 90 | 93 | 110 | 3 | 43 | 64 | 80 |
| | BF95 | 10 | 110 | 120 | 140 | 6 | 55 | 85 | 105 |
| | BF115 | 10 | 130 | 140 | 160 | 6 | 65 | 100 | 125 |
| BF150 | 10 | 150 | 160 | 165 | 6 | 80 | 120 | 150 | |
| 220V | BG06 | – | – | 1 | – | – | – | 0,5 | – |
| | BG09 | – | – | 2 | 2 | – | – | 0,8 | 0,8 |
| | BG12 | – | – | 2 | – | – | – | 0,8 | – |
| | BF09 | – | 1 | 10 | 12 | – | 2 | 6 | 7 |
| | BF12 | – | 1 | 11 | 12 | – | 2 | 6 | 7 |
| | BF18 | – | 1 | 11 | 13 | – | 2 | 6 | 8 |
| | BF25 | – | 1 | 12 | – | – | 2 | 8 | – |
| | BF26 | – | 2 | 20 | 26 | – | 3 | 19 | 15 |
| | BF32 | – | 3 | 23 | – | – | 3 | 23 | – |
| | BF38 | – | 4 | 30 | 38 | – | 3 | 25 | 15 |
| | BF40 | – | 5 | 56 | 70 | – | 5 | 32 | 40 |
| | BF50 | – | 7 | 75 | 90 | – | 5 | 40 | 50 |
| | BF65 | – | 9 | 90 | 110 | – | 5 | 52 | 65 |
| | BF80 | – | 9 | 95 | 115 | – | 5 | 64 | 80 |
| | BF94 | – | 9 | 95 | 115 | – | 5 | 64 | 80 |
| | BF95 | – | 12 | 125 | 140 | – | 7 | 76 | 95 |
| | BF115 | – | 14 | 145 | 160 | – | 7 | 92 | 115 |
| BF150 | – | 14 | 150 | 165 | – | 7 | 120 | 150 | |

IEC DC UTILISATION CATEGORY
POLE CHARACTERISTICS
MAXIMUM OPERATIONAL CURRENT

| IEC Voltage U _e | Contactor Type | IEC Maximum current I _e [A] in categories: DC1 with L/R ≤ 1ms and poles in series | | | | DC3 - DC5 with L/R ≤ 15ms and poles in series | | | |
|-------------------------------|-------------------|--|-----|-----|-----|--|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 75V | BF160 | 250 | 250 | 250 | 250 | 160 | 160 | 160 | 160 |
| | BF195 | 275 | 275 | 275 | 275 | 180 | 180 | 180 | 180 |
| | BF230 | 350 | 350 | 350 | 350 | 250 | 250 | 250 | 250 |
| | B250 | 350 | 350 | 350 | 350 | 280 | 280 | 280 | 280 |
| | B310 | 375 | 375 | 375 | 375 | 310 | 310 | 310 | 310 |
| | B400 | 400 | 400 | 400 | 400 | 350 | 350 | 350 | 350 |
| | B500 | 650 | 650 | 650 | 650 | 550 | 550 | 550 | 550 |
| | B630 | 800 | 800 | 800 | 800 | 800 | 800 | 800 | 800 |
| 110V | BF160 | 110 | 150 | 160 | 250 | 80 | 120 | 140 | 140 |
| | BF195 | 120 | 170 | 170 | 275 | 90 | 140 | 160 | 160 |
| | BF230 | 145 | 270 | 270 | 350 | 135 | 225 | 250 | 250 |
| | B250 | 160 | 300 | 300 | 300 | 150 | 250 | 280 | 280 |
| | B310 | 195 | 350 | 350 | 350 | 170 | 290 | 310 | 310 |
| | B400 | 250 | 400 | 400 | 400 | 200 | 350 | 350 | 350 |
| | B500 | 320 | 550 | 600 | 600 | 320 | 550 | 550 | 550 |
| | B630 | 460 | 800 | 800 | 800 | 460 | 800 | 800 | 800 |
| 220V | BF160 | - | 130 | 150 | 250 | - | 90 | 120 | 140 |
| | BF195 | - | 150 | 170 | 275 | - | 100 | 140 | 160 |
| | BF230 | - | 225 | 270 | 350 | - | 180 | 225 | 225 |
| | B250 | - | 250 | 300 | 300 | - | 200 | 250 | 280 |
| | B310 | - | 300 | 350 | 350 | - | 230 | 290 | 310 |
| | B400 | - | 350 | 400 | 400 | - | 280 | 350 | 350 |
| | B500 | - | 450 | 600 | 600 | - | 450 | 550 | 550 |
| | B630 | - | 700 | 800 | 800 | - | 700 | 800 | 800 |
| 330V | BF160 | - | - | 130 | 150 | - | - | 90 | 140 |
| | BF195 | - | - | 150 | 170 | - | - | 100 | 160 |
| | BF230 | - | - | 225 | 270 | - | - | 180 | 210 |
| | B250 | - | - | 250 | 300 | - | - | 200 | 280 |
| | B310 | - | - | 300 | 350 | - | - | 230 | 310 |
| | B400 | - | - | 350 | 400 | - | - | 280 | 350 |
| | B500 | - | - | 450 | 600 | - | - | 450 | 550 |
| | B630 | - | - | 700 | 750 | - | - | 650 | 700 |
| 460V | BF160 | - | - | - | 130 | - | - | - | 90 |
| | BF195 | - | - | - | 150 | - | - | - | 100 |
| | BF230 | - | - | - | 225 | - | - | - | 180 |
| | B250 | - | - | - | 250 | - | - | - | 200 |
| | B310 | - | - | - | 300 | - | - | - | 230 |
| | B400 | - | - | - | 350 | - | - | - | 280 |
| | B500 | - | - | - | 450 | - | - | - | 450 |
| | B630 | - | - | - | 700 | - | - | - | 700 |

IEC UTILISATION CATEGORIES DC1, DC3 AND DC5.

POLE CHARACTERISTICS

CHOICE CRITERIA

The elements to be considered for the contactor choice are:

- Rated operational current Ie
- Rated operational voltage Ue
- Utilisation category and L/R time constant
- Eventual verification of electrical life.

OPERATING CONDITIONS

Indicated current is valid for:

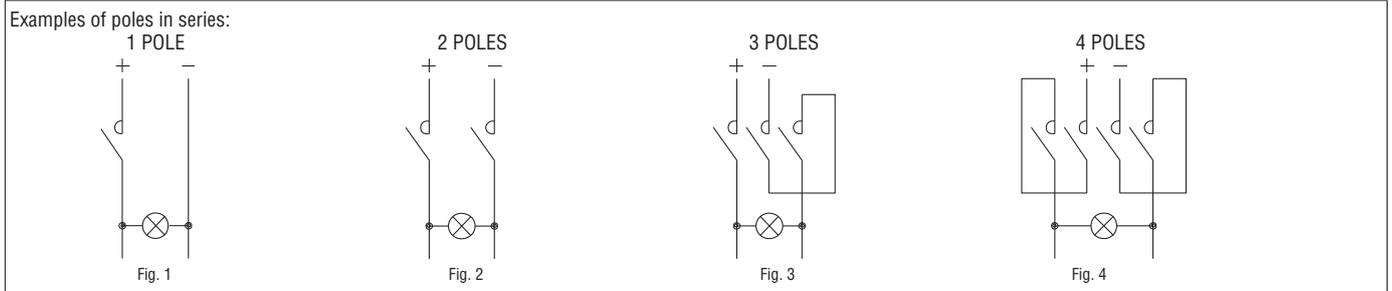
- Ambient temperature $\leq 55^{\circ}\text{C}$
- Operating cycles: up to 120 cy/h with 60% on-load factor
up to 250 cy/h with 30% on-load factor.

POLES IN SERIES

It is important to use contactors with the indicated number of poles in series depending on operating voltage.

The poles in series can be connected to one single polarity or divided between the two polarities of the circuit indifferently.

NOTE. For voltages lower than 30V, the diagrams given in figures 3 and 4 are not recommendable since voltage drops can take place. In these cases, it is better to use poles in parallel considering the notes given in the following section.



POLES IN PARALLEL

It is possible to increase the electrical life by placing poles in series when using voltages which require 1 or 2 poles in parallel.

Poles in parallel do not increase the maximum operational current given in the previous pages; that is, if one pole has a maximum operational current in DC5 of 8A, two poles in parallel, it will always be 8A.

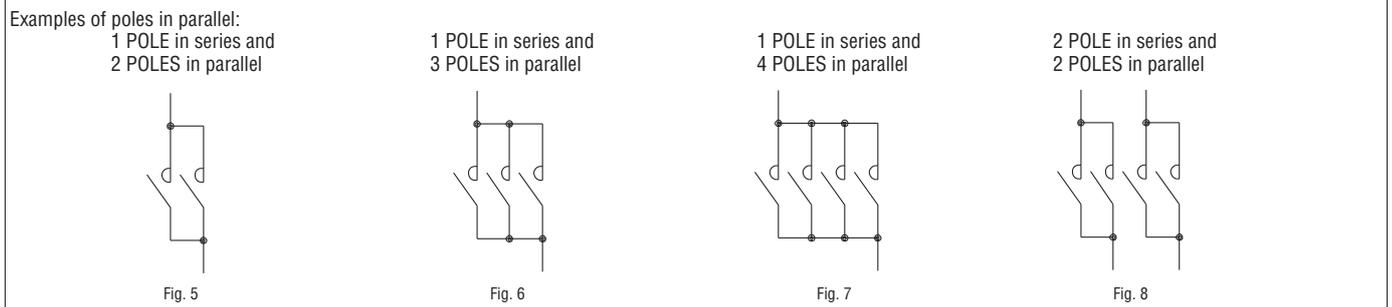
With poles in parallel, it is possible to increase the rated contact capacity (Ith) only if the contactor opens and closes in no-load conditions or when used as resistance shunts.

In this case, the contact capacity can be increased.

The value can be obtained by multiplying the rated current of one pole by the K factor given below; e.g.: if one pole carries 10A, three poles in parallel can carry $10 \times 2.2 = 22\text{A}$.

Therefore, the operating current is the one indicated in the tables, multiplied by the K factor given below which takes into consideration the unequal current division on the various poles.

- 2 POLES in parallel K = 1.6
- 3 POLES in parallel K = 2.2
- 4 POLES in parallel K = 2.8



MAXIMUM OPERATIONAL CURRENT

See tables on pages 2-57 to 2-59.

OTHER CONDITIONS

For different operating conditions or voltage not included among those indicated in the tables, on pages 2-57 to 2-59, consult Technical support (Tel. 035 4282422; E-mail: service@LovatoElectric.com).

IEC SELECTION GUIDE FOR LIGHTING CIRCUIT SWITCHING

GENERAL INFORMATION

The elements which are to be considered for the contactor choice are:

- Type of lamp
- Power factor (cosφ)
- With or without power factor correction
- Value of current when switching on and in running conditions.

Depending on the number and type of lamps, it is also important to bear in mind the main discriminating characteristics given below for the contactor choice:

- Incandescent lamps → contactor making capacity
- Lamps not corrected → rated contactor current in AC1
- Lamps corrected → rated contactor current in AC3

The table below summarises the major characteristics depending on the more commonly used type of lamps:

| Type of lamps | Switching on | | Switching off | |
|------------------------------|-----------------------------|------------|-----------------------------|--|
| | Multiple of In ^① | cosφ | Multiple of In ^① | cosφ |
| Incandescent | 15 | 1 | 1 | 1 |
| Mixed light | 1.3 | 1 | 1 | 1 |
| Fluorescent | 1.15 - 1.3 | 0.2 | 1 | 0.3 - 0.5 (not corrected) 1 (corrected) |
| High-pressure mercury vapour | 1.5 - 1.75 | 0.2 | 1 | 0.45 - 0.7 (not corrected) |
| High-pressure sodium vapour | 1.3 - 1.5 | 0.2 | 1 | 0.3 - 0.5 (not corrected) |
| Low-pressure sodium vapour | 1 | 0.2 - 0.5 | 1 | 0.2 - 0.5 (not corrected) |
| Metal halide | 1.7 - 2.1 | 0.2 | 1 | 0.4 - 0.5 (not corrected) |
| LED | 20...40 ^② | 0.6...0.95 | 1 | 0.6...0.95 |

| Lamp features | Lamp power [W] | Rated current [A] | Capacitor capacity [μF] | Maximum number [n] of lamps for each contactor pole ^② | | | | | | | | | | | |
|--|----------------------------------|-------------------|-------------------------|--|----------------------|--------------|--------------|--------------|----------------------|------|----------------|-------|----------------|------|------|
| | | | | BG06 BG09 BG12 | BF09 BF12 BF18 | BF26 BF25 | BF32 BF38 | BF40 BF50 | BF65 BF80 BF94 | BF95 | BF115 BF150 | BF160 | BF195 BF230 | | |
| LED 220...240V 50/60Hz | See note ^③ | | | Each pole can carry 67% of the rated current AC3 ^④ | | | | | | | | | | | |
| INCANDESCENT 220...240V | 50/60Hz | 60 | 0.27 | - | 30 | 48 | 92 | 118 | 129 | 203 | 240 | 296 | 370 | 425 | 462 |
| | | 100 | 0.45 | - | 18 | 28 | 55 | 71 | 77 | 122 | 144 | 177 | 222 | 255 | 277 |
| | | 200 | 0.91 | - | 8 | 14 | 27 | 35 | 38 | 60 | 71 | 87 | 109 | 126 | 137 |
| | | 300 | 1.4 | - | 5 | 9 | 17 | 22 | 25 | 39 | 46 | 57 | 71 | 82 | 89 |
| | | 500 | 2.3 | - | 3 | 5 | 10 | 13 | 15 | 23 | 28 | 34 | 43 | 50 | 54 |
| | 1000 | 4.6 | - | 1 | 2 | 5 | 6 | 7 | 11 | 14 | 17 | 21 | 25 | 27 | |
| MIXED LIGHT 220...240V | 50/60Hz | 100 | 0.45 | - | 20 | 33 | 57 | 77 | 88 | 122 | 144 | 177 | 244 | 311 | 377 |
| | | 160 | 0.72 | - | 12 | 20 | 36 | 48 | 55 | 76 | 90 | 111 | 152 | 194 | 236 |
| | | 250 | 1.13 | - | 8 | 13 | 23 | 30 | 35 | 48 | 57 | 70 | 97 | 123 | 150 |
| | | 500 | 2.3 | - | 4 | 6 | 11 | 15 | 17 | 23 | 28 | 34 | 47 | 60 | 73 |
| | | 1000 | 4.6 | - | 1 | 3 | 5 | 7 | 8 | 11 | 14 | 17 | 23 | 30 | 36 |
| ELECTRONIC BALLAST FLUORESCENT 220...240V 50/60Hz (EVG) | Single mounting | 16 / 18 | 0.1 | (6.8) ^⑤ | 48 | 80 | 160 | 220 | 220 | 400 | 450 | 500 | 750 | 1050 | 1200 |
| | | 32 / 36 | 0.18 | (6.8) ^⑤ | 27 | 44 | 88 | 122 | 122 | 222 | 250 | 277 | 416 | 583 | 666 |
| | 50 / 58 | 0.27 | (10) ^⑤ | 17 | 29 | 59 | 82 | 82 | 148 | 166 | 185 | 277 | 388 | 444 | |
| | Dual mounting | 2x16 / 18 | 0.18 | (10) ^⑤ | 26 | 44 | 88 | 122 | 122 | 222 | 250 | 277 | 416 | 583 | 666 |
| | | 2x32 / 36 | 0.35 | (10) ^⑤ | 13 | 22 | 45 | 62 | 62 | 114 | 128 | 142 | 214 | 300 | 342 |
| 2x50 / 58 | | 0.52 | (22) ^⑤ | 9 | 15 | 30 | 42 | 42 | 76 | 86 | 96 | 144 | 201 | 230 | |
| STANDARD FLUORESCENT 220...240V 50/60Hz | Not corrected Single mounting | 15 | 0.35 | - | 25 | 42 | 74 | 100 | 114 | 157 | 185 | 228 | 314 | 400 | 485 |
| | | 20 | 0.37 | - | 24 | 40 | 70 | 94 | 108 | 148 | 175 | 216 | 297 | 378 | 459 |
| | | 40 | 0.44 | - | 20 | 34 | 59 | 79 | 90 | 125 | 147 | 181 | 250 | 318 | 386 |
| | | 65 | 0.7 | - | 12 | 21 | 37 | 50 | 57 | 78 | 92 | 114 | 157 | 200 | 242 |
| | | 115 | 1.5 | - | 6 | 10 | 17 | 23 | 26 | 36 | 43 | 53 | 73 | 93 | 113 |
| | | 140 | 1.5 | - | 6 | 10 | 17 | 23 | 26 | 36 | 43 | 53 | 73 | 93 | 113 |
| | Corrected Single mounting | 15 | 0.11 | 4.5 | 24 | 40 | 62 | 94 | 94 | 200 | 200 | 200 | 533 | 533 | 533 |
| | | 20 | 0.16 | 4.5 | 24 | 40 | 62 | 94 | 94 | 200 | 200 | 200 | 533 | 533 | 533 |
| | | 40 | 0.24 | 4.5 | 24 | 40 | 62 | 94 | 94 | 200 | 200 | 200 | 458 | 500 | 520 |
| | | 65 | 0.4 | 7 | 15 | 25 | 40 | 50 | 57 | 125 | 128 | 128 | 275 | 300 | 312 |
| | | 115 | 0.7 | 18 | 6 | 10 | 15 | 23 | 23 | 50 | 50 | 50 | 133 | 133 | 133 |
| | | 140 | 0.7 | 18 | 6 | 10 | 15 | 23 | 23 | 50 | 50 | 50 | 133 | 133 | 133 |
| | DUO circuit | 2 x 20 | 0.26 ^⑥ | - | 54 | 57 | 100 | 153 | 153 | 211 | 250 | 307 | 423 | 538 | 653 |
| | | 2 x 40 | 0.46 ^⑥ | - | 19 | 32 | 56 | 86 | 86 | 119 | 141 | 173 | 239 | 304 | 369 |
| | | 2 x 65 | 0.7 ^⑥ | - | 12 | 21 | 37 | 57 | 57 | 78 | 92 | 114 | 157 | 200 | 242 |
| 2 x 115 | | 1.3 ^⑥ | - | 6 | 11 | 20 | 30 | 30 | 42 | 50 | 61 | 84 | 107 | 130 | |
| 2 x 140 | | 1.5 ^⑥ | - | 6 | 10 | 17 | 26 | 26 | 36 | 43 | 53 | 73 | 93 | 113 | |

① In = Rated lamp current.

② For 220/240V circuits, either single-phase (between phase and neutral) or 2-wire (between phase and phase), the maximum number of lamps is as per the table.

③ For three-phase circuits with neutral 380/415V or 220/240V, the maximum number of lamps controlled by the same contactor is n * 3.

④ For three-phase 380/415V circuits without neutral, the maximum number of lamps controlled by the same contactor is n * √3.

⑤ Electrical life is 100,000 cycles up to 55°C.

⑥ Incorporated capacitor.

⑦ Total.

⑧ With reference to the AC side of the power supplies.

⑨ Usually, each light has its own power supply. If a power supply controls several lights, the number of power supplies must be factored into the calculation. The sum of the rated currents of the power supplies connected to each pole of the contact must not exceed 67% of the rated current AC-3 of the contactor indicated on page 2-6.

e.g. BF18 has a rated current AC-3 of 18A; it can control 18x0.67=12.06A per pole at most.

| Lamp features | | Lamp power [W] | Rated current [A] | Capacitor capacity [µF] | Maximum number [n] of lamps for each contactor pole ^① | | | | | | | | | | | | |
|--|---------------|-------------------|----------------------|----------------------------|--|------|------|------|------|------|------|------|------|-------|-------|-------|--|
| | | | | | BG06 | BF09 | BF26 | | | BF40 | | BF65 | | BF115 | | BF195 | |
| | | | | | BG09 | BF12 | BF18 | BF25 | BF32 | BF38 | BF50 | BF94 | BF95 | BF150 | BF160 | BF230 | |
| HIGH-PRESSURE MERCURY VAPOUR 220/240V 50/60Hz | Not corrected | 50 | 0.61 | - | 10 | 16 | 26 | 36 | 44 | 65 | 73 | 82 | 122 | 172 | 196 | | |
| | | 80 | 0.8 | - | 7 | 12 | 20 | 27 | 33 | 50 | 56 | 62 | 93 | 131 | 150 | | |
| | | 125 | 1.2 | - | 5 | 8 | 13 | 18 | 22 | 33 | 37 | 41 | 62 | 87 | 100 | | |
| | | 250 | 2.2 | - | 3 | 4 | 7 | 10 | 12 | 18 | 20 | 22 | 34 | 47 | 54 | | |
| | | 400 | 3.4 | - | 2 | 3 | 5 | 6 | 7 | 11 | 13 | 14 | 22 | 30 | 35 | | |
| | | 700 | 5.5 | - | | 1 | 3 | 4 | 4 | 7 | 8 | 9 | 13 | 19 | 21 | | |
| | | 1000 | 8 | - | | 1 | 2 | 2 | 3 | 5 | 5 | 6 | 9 | 13 | 15 | | |
| | Corrected | 50 | 0.29 | 7 | 15 | 25 | 40 | 60 | 60 | 128 | 128 | 128 | 258 | 342 | 342 | | |
| | | 80 | 0.42 | 8 | 13 | 22 | 35 | 52 | 53 | 95 | 107 | 112 | 178 | 250 | 285 | | |
| | | 125 | 0.7 | 10 | 8 | 14 | 22 | 31 | 35 | 57 | 64 | 71 | 107 | 150 | 171 | | |
| | | 250 | 1.3 | 18 | 4 | 7 | 12 | 16 | 19 | 30 | 34 | 38 | 57 | 80 | 92 | | |
| | | 400 | 2.1 | 25 | 2 | 4 | 7 | 10 | 11 | 19 | 21 | 23 | 35 | 50 | 57 | | |
| | | 700 | 3.6 | 40 | - | 2 | 4 | 6 | 6 | 11 | 12 | 13 | 20 | 29 | 33 | | |
| | | 1000 | 5.3 | 60 | - | 1 | 3 | 4 | 4 | 7 | 8 | 9 | 14 | 19 | 22 | | |
| 380/415V 50/60Hz | Not corrected | 2000 | 8 | - | - | - | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 8 | 9 | | |
| | Corrected | 2000 | 5.5 | 35 | - | - | 1 | 2 | 2 | 4 | 5 | 5 | 8 | 11 | 13 | | |
| HIGH-PRESSURE SODIUM VAPOUR 220/240V 50/60Hz | Not corrected | 150 | 1.8 | - | 3 | 5 | 8 | 12 | 15 | 22 | 25 | 27 | 41 | 58 | 66 | | |
| | | 250 | 3 | - | 2 | 3 | 5 | 7 | 9 | 13 | 15 | 16 | 25 | 35 | 40 | | |
| | | 400 | 4.7 | - | 1 | 2 | 3 | 4 | 5 | 8 | 9 | 10 | 15 | 22 | 25 | | |
| | | 600 | 7.1 | - | - | 1 | 2 | 3 | 3 | 5 | 6 | 6 | 10 | 15 | 16 | | |
| | | 1000 | 10.4 | - | - | - | 1 | 2 | 2 | 3 | 4 | 4 | 7 | 10 | 11 | | |
| | Corrected | 150 | 0.83 | 20 | - | 9 | 14 | 19 | 21 | 45 | 45 | 45 | 90 | 120 | 120 | | |
| | | 250 | 1.5 | 36 | - | 5 | 7 | 10 | 11 | 25 | 25 | 25 | 50 | 66 | 66 | | |
| | | 400 | 2.4 | 48 | - | 3 | 5 | 6 | 7 | 16 | 18 | 18 | 31 | 43 | 50 | | |
| | | 600 | 3.5 | 68 | - | 2 | 3 | 4 | 4 | 10 | 12 | 12 | 20 | 28 | 34 | | |
| | | 1000 | 6.3 | 120 | - | 1 | 1 | 2 | 2 | 6 | 7 | 7 | 11 | 16 | 19 | | |
| LOW-PRESSURE SODIUM VAPOUR 220/240V 50/60Hz | Not corrected | 35 | 1.5 | - | 4 | 6 | 10 | 14 | 18 | 26 | 30 | 33 | 50 | 70 | 80 | | |
| | | 55 | 1.5 | - | 4 | 6 | 10 | 14 | 18 | 26 | 30 | 33 | 50 | 70 | 80 | | |
| | | 90 | 2.4 | - | 3 | 4 | 6 | 9 | 11 | 16 | 18 | 20 | 31 | 43 | 50 | | |
| | | 135 | 3.1 | - | 2 | 3 | 5 | 7 | 8 | 12 | 14 | 16 | 24 | 33 | 38 | | |
| | | 150 | 3.2 | - | 2 | 3 | 5 | 6 | 8 | 12 | 14 | 15 | 23 | 32 | 37 | | |
| | Corrected | 35 | 0.31 | 20 | - | 6 | 10 | 14 | 18 | 45 | 45 | 45 | 120 | 120 | 120 | | |
| | | 55 | 0.42 | 20 | - | 6 | 10 | 14 | 18 | 45 | 45 | 45 | 120 | 120 | 120 | | |
| | | 90 | 0.63 | 30 | - | 4 | 6 | 9 | 11 | 30 | 30 | 30 | 80 | 80 | 80 | | |
| | | 135 | 0.94 | 40 | - | 3 | 5 | 7 | 8 | 22 | 22 | 22 | 60 | 60 | 60 | | |
| | | 150 | 1 | 40 | - | 3 | 5 | 6 | 8 | 22 | 22 | 22 | 60 | 60 | 60 | | |
| METAL HALIDE 220/240V 50/60Hz | Not corrected | 35 | 0.3 | - | - | 28 | 50 | 66 | 80 | 100 | 150 | 167 | 250 | 330 | 400 | | |
| | | 70 | 0.5 | - | - | 16 | 28 | 40 | 50 | 60 | 90 | 100 | 150 | 200 | 240 | | |
| | | 150 | 1 | - | - | 8 | 14 | 20 | 25 | 30 | 45 | 50 | 75 | 100 | 120 | | |
| | | 250 | 3 | - | - | 3 | 5 | 7 | 9 | 13 | 15 | 16 | 25 | 35 | 40 | | |
| | | 400 | 3.5 | - | - | 2 | 4 | 6 | 7 | 11 | 12 | 14 | 21 | 30 | 34 | | |
| | Corrected | 35 | 0.17 | 6 | - | 33 | 60 | 65 | 65 | 200 | 240 | 260 | 400 | 420 | 440 | | |
| | | 70 | 0.28 | 12 | - | 20 | 36 | 40 | 40 | 120 | 145 | 155 | 240 | 255 | 265 | | |
| | | 150 | 0.6 | 20 | - | 9 | 17 | 18 | 18 | 56 | 68 | 74 | 112 | 118 | 120 | | |
| | | 250 | 1.5 | 32 | - | 5 | 7 | 8 | 10 | 26 | 28 | 28 | 46 | 50 | 53 | | |
| | | 400 | 2 | 35 | - | 4 | 5 | 6 | 7 | 20 | 22 | 25 | 35 | 37 | 40 | | |
| 380/415V 50/60Hz | Not corrected | 1000 | 5.8 | 95 | - | 1 | 1 | 2 | 2 | 6 | 7 | 8 | 12 | 12 | 13 | | |
| | | 2000 | 11.5 | 148 | - | - | - | 1 | 1 | 3 | 3 | 4 | 6 | 6 | 6 | | |
| | | 3500 | 18 | - | - | - | - | - | - | 1 | 1 | 1 | 2 | 3 | 4 | | |
| | Corrected | 2000 | 6.6 | 60 | - | - | 1 | 1 | 1 | 3 | 3 | 4 | 6 | 7 | 7 | | |
| | | 3500 | 11.6 | 100 | - | - | - | - | - | 2 | 2 | 2 | 3 | 3 | 4 | | |

① For 220/240V circuits, either single-phase (between phase and neutral) or 2-wire (between phase and phase), the maximum number of lamps is as per the table.
 For three-phase circuits with neutral 380/415V or 220/240V, the maximum number of lamps controlled by the same contactor is $n \cdot 3$.
 For three-phase 380/415V circuits without neutral, the maximum number of lamps controlled by the same contactor is $n \cdot \sqrt{3}$.
 Electrical life is 100,000 cycles up to 55°C.

POWER FACTOR CORRECTION CAPACITORS

CHOICE CRITERIA

The contactor during the closing transition is influenced by electrical currents having high frequencies and high amplitudes. The frequencies of these currents range between 1 and 10kHz; the amplitudes must have values lower than the maximum permissible current peak of the contactor to be used.

AMBIENT OPERATING CONDITIONS

Ambient temperature: $\leq 50^\circ\text{C}$.
 For temperatures higher than 50°C up to 70°C , stated maximum operational power ratings are to be reduced by a percentage equal to the difference between the ambient temperature and 50°C .
 Operating cycle: ≤ 120 cy/h
 Electrical life: $\geq 100,000$ cycles.

| Contactor | IEC rated current $\leq 400\text{V}$ | Maximum permissible peak current | IEC maximum operational voltage | Fuse gG | IEC maximum operational power (AC-6b) | | | |
|---------------|--------------------------------------|----------------------------------|---------------------------------|---------|---------------------------------------|--------------|--------------|------------------|
| | | | | | 220V 230V 240V | 380V 400V | 415V 440V | 500V 660/690V |
| Type | [A] | [A] | [V] | [A] | [kvar] | [kvar] | [kvar] | [kvar] |
| BF09A | 12 | 500 | 690 | 16 | 4.5 | 7.5 | 9 | 10 |
| BF12A | 18 | 550 | 690 | 25 | 7 | 12.5 | 12 | 14 |
| BF18A | 23 | 1000 | 690 | 32 | 9 | 15 | 16 | 18 |
| BF25A | 23 | 1000 | 690 | 32 | 9 | 15 | 16 | 18 |
| BF26A | 30 | 1400 | 690 | 40 | 11 | 20 | 22 | 22 |
| BF32A | 36 | 1700 | 690 | 50 | 14 | 25 | 27 | 30 |
| BF38A | 43 | 1900 | 690 | 63 | 17 | 30 | 30 | 34 |
| BF40A | 50 | 2500 | 1000 | 100 | 20 | 35 | 40 | 45 |
| BF50A | 58 | 2500 | 1000 | 80 | 22 | 40 | 41 | 45 |
| BF65A | 65 | 2500 | 1000 | 100 | 26 | 45 | 50 | 52 |
| BF80A | 75 | 2500 | 1000 | 125 | 30 | 50 | 56 | 70 |
| BF94A | 75 | 2500 | 1000 | 125 | 30 | 50 | 56 | 70 |
| BF95A | 90 | 3000 | 1000 | 125 | 34 | 60 | 75 | 80 |
| BF115A | 115 | 3000 | 1000 | 160 | 45 | 75 | 85 | 135 |
| BF150A | 144 | 3000 | 1000 | 160 | 50 | 100 | 115 | 150 |
| BF160 | 150 | 3400 | 1000 | 200 | 57 | 100 | 108 | 130 |
| BF195 | 170 | 3600 | 1000 | 250 | 65 | 112 | 122 | 150 |
| BF230 | 215 | 4500 | 1000 | 315 | 85 | 140 | 150 | 190 |
| B250 | 240 | 5100 | 1000 | 315 | 91 | 158 | 172 | 210 |
| B310 | 265 | 5900 | 1000 | 315 | 105 | 184 | 200 | 245 |
| B400 | 320 | 7500 | 1000 | 400 | 122 | 211 | 230 | 280 |
| B500 | 500 | 9000 | 1000 | 630 | 190 | 330 | 360 | 430 |
| B630 | 610 | 11000 | 1000 | 800 | 230 | 400 | 432 | 520 |

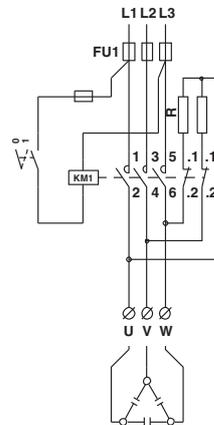
The use of contactors with the above operational powers is allowable only when the peak current, in the installation point of the power factor correction board, is lower than the values stated in the table. If this condition is not verified, it is necessary to use limiting inductances or specific contactors stated on page 2-16. Consult Technical support (see contact details on inside front cover) to obtain detailed information on the correct use of contactors without limiting inductances.

LIMITING INDUCTANCES

The use of limiting inductances is imperative when the system inductances (line transformer and cables), upstream of the power factor correction panel, are not able to maintain the maximum connecting current within the limit value of the contactor used.

FAST DISCHARGE RESISTANCES OF CAPACITORS

The use of the contactor, according to the wiring diagram given, allows the fast discharge of the capacitors as well as the instantaneous disconnection of the capacitors from the mains when the coil is de-energised. The resistances, indicated in the following table, guarantee the discharge within a maximum time of 2 seconds.



| Capacitor power [kvar] | Voltage 220...230V | | Voltage 380...500V | |
|------------------------|--------------------|-----|--------------------|-----|
| | [Ω] | [W] | [Ω] | [W] |
| 2.5-5 | 3900 | 12 | 8200 | 12 |
| 10-15 | 1800 | 25 | 4300 | 25 |
| 20-50 | 1000 | 50 | 2200 | 50 |

SPECIAL CONTACTORS FOR POWER FACTOR CORRECTION CAPACITORS

GENERAL CHARACTERISTICS

These contactors are equipped with early-make contacts. This special type of contact has the purpose of connecting for a very brief interval, 2-3ms, during the contactor closing, resistors which limit the connecting current of the capacitors. These resistors are then excluded when the closing operation is complete and the current capacity is conveyed to the main contacts. With this type of circuit, it is possible to obtain minor wear of all the components of the system especially fuses and capacitors ensuring a longer life and better reliability. The contactors are particularly suitable for use in automatic power factor correction panels since there is no need of limiting inductances and a source of heat has been eliminated. In this way, these modular electric switchboards can be more compact.

The BFK version, figure 1, is designed for three-phase switching. The peculiarity of this type is in the contacts, suitable to connect limiting resistors, which close only for the time needed to limit any in-rush current peak and then reopen to avoid eventual flow of residual currents through the resistors.

AMBIENT OPERATING CONDITIONS

Ambient temperature: $\leq 50^\circ\text{C}$

For ambient temperature higher than 50°C up to 70°C , maximum operational power ratings, indicated in the table, are to be reduced by a percentage equal to the difference between the ambient temperature and 50°C .

Operating cycles: ≤ 120 cy/h.

Electrical life: $\geq 400,000$ cycles.

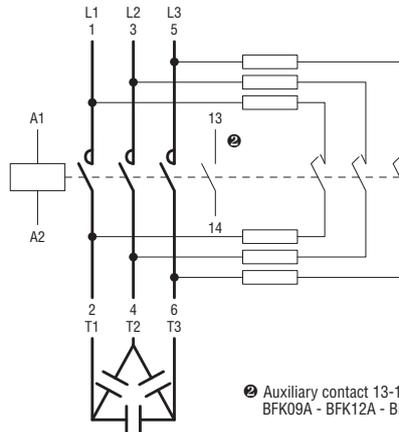


Fig. 1

Ⓜ Auxiliary contact 13-14 is found on BFK09A - BFK12A - BFK18A types only.

| Contactor | Built-in auxiliary contacts NO | IEC rated operational current $\leq 440\text{V}$ | IEC fuse gG | Maximum IEC power at $\leq 50^\circ\text{C}$ (AC6b) ① | | | |
|-----------------|--------------------------------|--|-------------|---|--------------|--------------|--------------|
| | | | | 220V 230V 240V | 380V 400V | 415V 440V | 500V 690V |
| Type | n° | [A] | [A] | [kvar] | [kvar] | [kvar] | [kvar] |
| BFK09A | 1 | 12 | 16 | 4.5 | 7.5 | 9 | 10 |
| BFK12A | 1 | 18 | 25 | 7 | 12.5 | 14 | 16 |
| BFK18A | 1 | 23 | 40 | 9 | 15 | 17 | 20 |
| BFK26A | — | 30 | 40 | 11 | 20 | 22 | 25 |
| BFK32A | — | 36 | 63 | 14 | 25 | 27.5 | 30 |
| BFK38A | — | 43 | 63 | 17 | 30 | 33 | 36 |
| BFK50A | — | 58 | 80 | 22 | 40 | 41 | 46 |
| BFK65A | — | 65 | 100 | 26 | 45 | 50 | 56 |
| BFK80A | — | 75 | 125 | 30 | 50 | 56 | 65 |
| BFK94A Ⓜ | — | 90 | 125 | 34 | 60 | 75 | 80 |
| BFK95A | — | 90 | 125 | 34 | 60 | 75 | 80 |
| BFK115A | — | 115 | 160 | 45 | 75 | 85 | 135 |
| BFK150A | — | 144 | 160 | 50 | 100 | 115 | 150 |

NOTE: See page 2-16 for order codes.

① Consult Technical support (Tel. 035 4282422; E-mail: service@LovatoElectric.com) for the use of contactors to switch within delta connection.

Ⓜ Note: The maximum thermal current of the BFK94 contactor is 115A.

CHOICE OF CONTACTORS TYPE BFK ACCORDING TO cULus LISTING

| Contactor | Built-in auxiliary contacts NO (SPST) | UL/CSA rated current $\leq 440\text{V}$ | UL/CSA protection fuse SC/gG | Maximum UL/CSA operational power at voltage: | | |
|----------------|---------------------------------------|---|------------------------------|--|--------|--------|
| | | | | 240V | 480V | 600V |
| Type | n° | [A] | [A] | [kvar] | [kvar] | [kvar] |
| BFK09A | 1 | 12 | 16 | 4.5 | 9 | 10 |
| BFK12A | 1 | 18 | 25 | 7 | 14 | 16 |
| BFK18A | 1 | 23 | 40 | 9 | 17 | 20 |
| BFK26A | — | 30 | 40 | 11 | 22 | 27.5 |
| BFK32A | — | 36 | 63 | 14 | 27.5 | 32 |
| BFK38A | — | 43 | 63 | 17 | 33 | 36 |
| BFK50A | — | 58 | 80 | 22 | 41 | 46 |
| BFK65A | — | 70 | 100 | 26 | 50 | 56 |
| BFK80A | — | 75 | 125 | 30 | 60 | 75 |
| BFK95A | — | 100 | 125 | 40 | 80 | 100 |
| BFK115A | — | 115 | 160 | 45 | 90 | 120 |
| BFK150A | — | 121 | 160 | 50 | 100 | 125 |

NOTE: See page 2-16 for order codes.

IEC OPERATIONAL CHARACTERISTICS BG00 AND BF00

| TYPE | BG00 | | BF00A | | BF00D | | BF00L | | |
|---|--------------------------------|-----------------|----------------|--|-------|--|-------|---------------------------|---------|
| POLE CONTACT CHARACTERISTICS | | | | | | | | | |
| Poles ^① | n° | | | | | | | 4 | |
| Conventional free air thermal current I _{th} (≤40°C) | A | | | | | | | 10 | |
| Rated insulation voltage U _i | V | | | | | | | 690 | |
| Frequency limit | Hz | | | | | | | 25...400 ^② | |
| UL/CSA and IEC/EN/BS 60947-5-1 auxiliary contact designation | AC | | | | | | | A600 | |
| | DC | Q600 | | | | | | P600 | |
| Terminals | A | 7.5 | | | | | | 8.3 | |
| | B | 4 | | | | | | 3.5 | |
| | Screw | M3 | | | | | | M3.5 | |
| | Phillips | 2 | | | | | | 2 | |
| | Faston | 1x6.35 - 2x2.8 | | | | | | — | |
| Tightening torque for contact terminals min-max | Nm | 9 | | | | | | 13...16 | |
| | lb.in | 0.59-0...74 | | | | | | 1.03...1.33 | |
| Tightening torque for coil terminals min-max | Nm | | | | | | | 0.8...1 | |
| | lb.in | | | | | | | 7...9 | |
| | Phillips | | | | | | | 2 | |
| Conductor section connectable with 1 or 2 wires min ... max | AWG stranded | n° | 18...12 | | | | | | 16...10 |
| | Flexible w/o lug | mm ² | 0.75...2.5 | | | | | | 1...6 |
| | Flexible c/w boot-lace ferrule | mm ² | 2x1.5 or 1x2.5 | | | | | | 1...4 |
| | Flexible c/w spade lug | mm ² | 2x1.5 or 1x2.5 | | | | | | 1...4 |
| Terminal protection according to IEC/EN/BS 60529 | | | | | | | | IP20 ^③ | |
| AMBIENT CONDITIONS | | | | | | | | | |
| Operating temperature | °C | | | | | | | -50...+70 | |
| Storage temperature | °C | | | | | | | -60...+80 | |
| Maximum altitude | m | | | | | | | 3000 | |
| Operation position | Normal | | | | | | | On vertical plane | |
| | Allowable | | | | | | | ±30° | |
| Fixing | | | | | | | | Screw or on 35mm DIN rail | |

- ① The built-in auxiliary contacts are high-conductivity
- ② Derating for use at 61-400 Hz. Consult Technical support for information (Tel. 035 4282422; E-mail: service@LovatoElectric.com).
- ③ IP20 protection warranted by wired equipment; minimum 0.75mm² conductor section for BG00 or 1mm² for BF00.

ELECTRICAL RATINGS BASED ON IEC/EN/BS 60947-5-1 UTILIZATION CATEGORIES AND UL508/CSA C22.2 n°14

| IEC/EN/BS designation | IEC/EN/BS utilization category | Conventional enclosed thermal current I _{the} | Rated operational current I _e [A] at rated operational voltage U _e | | | | | | | | | | VA rating | |
|-----------------------|--------------------------------|--|--|------|--------|---|--------|-----|--------|-----|--------|-----|------------|-------|
| UL designation | — | Thermal continuous test current | Maximum Amperes (AC) 60Hz | | | | | | | | | | Maximum VA | |
| Alternating current | | [A] | 120VAC | | 240VAC | | 380VAC | | 480VAC | | 600VAC | | Make | Break |
| A600 | AC-15 | 10 | 60 | 6 | 30 | 3 | 19 | 1.9 | 15 | 1.5 | 12 | 1.2 | 7200 | 720 |
| Direct current | | | Maximum Amperes (DC) Make or Break | | | | | | | | | | | |
| | | | 125VDC | | 250VDC | | 301VDC | | 400VDC | | 500VDC | | 600VDC | |
| P600 | DC-13 | 5 | 1.1 | 0.55 | 0.2 | ④ | 0.31 | ④ | 0.27 | ④ | 0.2 | 138 | 138 | |
| Q600 | DC-13 | 2.5 | 0.55 | 0.27 | 0.1 | ④ | 0.15 | ④ | 0.13 | ④ | 0.1 | 69 | 69 | |

- ④ Value at 301V is valid for UL/CSA up to 600VDC; the others are valid for IEC/EN/BS.
- ⑤ Voltage valid for UL/CSA only.

| TYPE | | | | BG00 | BF00A | BF00D | BF00L | |
|--|------|------------|------------|------------|----------|----------|----------|----------|
| AC CONTROL | | | | | | | | |
| Rated control voltage at 50/60Hz or 60Hz | | V | | 12...575 | 12...600 | — | — | |
| Operating voltage limits | | | | | | | | |
| 50/60Hz coil powered at | 50Hz | pick-up | % Us | 75...115 | 80...110 | — | — | |
| | | drop-out | % Us | 20...55 | 20...55 | — | — | |
| | 60Hz | pick-up | % Us | 80...115 | 80...110 | — | — | |
| | | drop-out | % Us | 20...55 | 20...55 | — | — | |
| 60Hz coil powered at | 60Hz | pick-up | % Us | 75...115 | 80...110 | — | — | |
| | | drop-out | % Us | 20...55 | 20...55 | — | — | |
| Average coil consumption at ≤20°C | | | | | | | | |
| 50/60Hz coil powered at | 50Hz | in-rush | VA | 30 | 75 | — | — | |
| | | holding | VA | 4 | 9 | — | — | |
| | 60Hz | in-rush | VA | 25 | 70 | — | — | |
| | | holding | VA | 3 | 6.5 | — | — | |
| 60Hz coil powered at | 60Hz | in-rush | VA | 30 | 75 | — | — | |
| | | holding | VA | 4 | 9 | — | — | |
| Dissipation at holding ≤20°C | | 50Hz | W | 0.95 | 2.5 | — | — | |
| DC CONTROL | | | | | | | | |
| Rated control voltage | | V | | 6...250 | — | 6...415 | 6...415 | |
| Operating voltage limits | | pick-up | % Us | 75...115 | — | 70...125 | 80...110 | |
| | | drop-out | % Us | 10...20 | — | 10...40 | 10...40 | |
| Average consumption at ≤20°C (in-rush/holding) | | W | | 3.2① | — | 5.4 | 2.4 | |
| OPERATING TIMES | | | | | | | | |
| Average time for Us control in | | AC | closing NO | ms | 12...21 | 8...24 | — | — |
| | | | opening NO | ms | 9...18 | 10...20 | — | — |
| | | | closing NC | ms | 17...26 | 17...30 | — | — |
| | | | opening NC | ms | 7...17 | 7...18 | — | — |
| | | DC | closing NO | ms | 18...25 | — | 54...66 | 75...91 |
| | | | opening NO | ms | 2...3 | — | 14...17 | 15...19 |
| | | | closing NC | ms | 3...5 | — | 24...30② | 24...30③ |
| | | | opening NC | ms | 11...17 | — | 47...57② | 67...81③ |
| LIFE | | | | | | | | |
| Mechanical | | AC control | cycles | 20 million | | | | |
| | | DC control | cycles | 20 million | | | | |
| MAXIMUM OPERATING RATE | | | | | | | | |
| Mechanical operations | | | cycles/h | 3600 | | | | |

① 2.3W for low-consumption BG00...L version.
 ② NC closing time for BF0004D is 23...29ms while NC opening time is 40...49ms.
 ③ NC closing time for BF0004L is 25...31ms while NC opening time is 56...68ms.

IEC OPERATIONAL CHARACTERISTICS BG06..., BG09... AND BG12...

| TYPE | | BG06 | BG09 | BG12 |
|---|---|-------------------------------------|----------------|----------------|
| POLE CHARACTERISTICS | | | | |
| Power poles | n° | 3 | 3-4 | 3 |
| Rated insulation voltage U_i | V | 690 | 690 ❶ | 690 |
| Rated impulse withstand voltage U_{imp} | kV | 6 | 6 | 6 |
| Operational frequency | Hz | 25...400 ❷ | 25...400 ❷ | 25...400 ❷ |
| Operational current | Conventional free air thermal I_{th} ($\leq 40^\circ\text{C}$) | A | 16 | 20 |
| | AC3 ($\leq 440\text{V}$ $\leq 55^\circ\text{C}$) | A | 6 | 9 |
| | AC4 (400V) ❸ | A | 3.3 | 4.0 |
| Short-time allowable current for 10s (IEC/EN/BS 60947-1) | A | 96 | 96 | 96 |
| Maximum fuse size coordination Type 2 - 400V - 50kA | gG | A | 16 | 20 |
| | aM | A | 6 | 10 |
| Making capacity (RMS value) | A | 92 | 92 | 120 |
| Breaking capacity at voltage | $\leq 440\text{V}$ | A | 72 | 96 |
| | 500V | A | 72 | 72 |
| | 690V | A | 72 | 72 |
| Consumption per pole and resistance (average values) | | m Ω | 10 | 10 |
| | I_{th} | W | 2.6 | 4 |
| | AC3 | W | 0.36 | 0.81 |
| Terminals |  | A [mm] | 7.5 | 7.5 |
| | | B [mm] | 4 | 4 |
| | | screw | M3 | M3 |
| | | Phillips | 2 | 2 |
| | Quick-connect | Faston | — | 1x6.35 - 2x2.8 |
| | Solder | — | — | PIN for PCB ❹ |
| Tightening torque for pole and coil terminals min-max | Nm | 0.8...1 | 0.8...1 | 0.8...1 |
| | lb.in | 9 | 9 | 9 |
| | Phillips | 2 | 2 | 2 |
| Conductor section connectable with 1 or 2 wires min...max | AWG stranded | N° | 18...12 | |
| | Flexible w/o lug | mm ² | 0.75...2.5 | |
| | Flexible c/w boot-lace ferrule | mm ² | 2x1.5 or 1x2.5 | |
| | Flexible c/w spade lug | mm ² | 2x1.5 or 1x2.5 | |
| Terminal protection to IEC/EN/BS 60529 | | | IP20 ❺ | |
| AUXILIARY CONTACT CHARACTERISTICS | | | | |
| Type of contact | n° | 1-NO or NC based on configuration ❻ | | |
| Thermal current I_{th} | A | 10 | | |
| IEC/EN/BS 60947-5-1 designation | AC | A600 | | |
| | DC | Q600 | | |
| AMBIENT CONDITIONS | | | | |
| Operating temperature | °C | -50...+70 | | |
| Storage temperature | °C | -60...+80 | | |
| Maximum altitude | m | 3000 | | |
| Operating position | Normal | On vertical plane | | |
| | Allowable | $\pm 30^\circ$ | | |
| Fixing | | Screw or on 35mm DIN rail | | |

❶ Rated voltage U_i for BGP... types is 500V.

❷ Derating for use at 61-400Hz. Consult Technical support for information (Tel. 035 4282422; E-mail: service@LovatoElectric.com).

❸ Current values guarantee an electrical life of about 50,000 cycles.

❹ Dimensions and drilling distances are given on page 2-36.

❺ IP20 protection warranted by wired equipment; minimum 0.75mm² conductor section.

❻ NO or NC auxiliary is highly conductive.

Other characteristics are the same as the mechanical characteristics of the poles.

| TYPE | | | | BG06 | BG09 | BG12 |
|--|---------|----------|------|----------|------|------|
| AC CONTROL | | | | | | |
| Rated voltage at 50/60Hz, 60Hz | | V | | 12...575 | | |
| Operating voltage limits | | | | | | |
| 50/60Hz coil powered at | 50Hz | pick-up | % Us | 75...115 | | |
| | | drop-out | % Us | 20...55 | | |
| | 60Hz | pick-up | % Us | 80...115 | | |
| | | drop-out | % Us | 20...55 | | |
| 60Hz coil powered at | 60Hz | pick-up | % Us | 75...115 | | |
| | | drop-out | % Us | 20...55 | | |
| Average coil consumption at ≤20°C | | | | | | |
| 50/60Hz coil powered at | 50Hz | in-rush | VA | 30 | | |
| | | holding | VA | 4 | | |
| | 60Hz | in-rush | VA | 25 | | |
| | | holding | VA | 3 | | |
| 60Hz coil powered at | 60Hz | in-rush | VA | 30 | | |
| | | holding | VA | 4 | | |
| Dissipation at ≤20°C | at 50Hz | | W | 0.95 | | |

| | | | | | | |
|--|----------|---|------|----------|------------------|-----|
| DC CONTROL | | | | | | |
| Rated control voltage | | V | | 6...250 | | |
| Operating voltage limits | pick-up | | % Us | 75...115 | | |
| | drop-out | | % Us | 10...25 | | |
| Average consumption at ≤20°C (in rush-holding) | | W | | 3.2 | 3.2 ^① | 3.2 |

| | | | | | | |
|--------------------------------|----|------------|----|---------|---------|---------|
| OPERATING TIMES | | | | | | |
| Average time for Us control in | AC | closing NO | ms | 12...21 | 12...21 | 12...21 |
| | | opening NO | ms | 9...18 | 9...18 | 9...18 |
| | | closing NC | ms | 17...26 | 17...26 | 17...26 |
| | | opening NC | ms | 7...17 | 7...17 | 7...17 |
| | DC | closing NO | ms | 18...25 | 18...25 | 18...25 |
| | | opening NO | ms | 2...3 | 2...3 | 2...3 |
| | | closing NC | ms | 3...5 | 3...5 | 3...5 |
| | | opening NC | ms | 11...17 | 11...17 | 11...17 |

| | | | | | | |
|-----------------------------|------------|--------|------------|--|--|--|
| LIFE | | | | | | |
| Mechanical | AC control | cycles | 20 million | | | |
| | DC control | cycles | 20 million | | | |
| Electrical (Ie at 400V AC3) | cycles | | 500,000 | | | |

| | | | | | | |
|-------------------------------|------|--|------|--|--|--|
| MAXIMUM OPERATING RATE | | | | | | |
| Mechanical operations | cy/h | | 3600 | | | |

① 2.3W for low-consumption type BG09...L.

ELECTRICAL RATINGS BASED ON IEC/EN/BS 60947-5-1 UTILIZATION CATEGORIES AND UL508/CSA C22.2 n°14

| IEC/EN/BS designation | IEC/EN/BS utilization category | Conventional enclosed thermal current Ithe | Rated operational current Ie [A] at rated operational voltage Ue | | | | | | | | | | VA rating | |
|-----------------------|--------------------------------|--|--|--------|------------------|-------------------|-------------------|--------|---------------------------|-------|--------|-------|------------|-------|
| UL designation | — | Thermal continuous test current | Maximum Amperes (AC) 60Hz | | | | | | | | | | Maximum VA | |
| | | | 120VAC | | 240VAC | | 380VAC | | 480VAC | | 600VAC | | | |
| Alternating current | | [A] | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break |
| A600 | AC-15 | 10 | 60 | 6 | 30 | 3 | 19 | 1.9 | 15 | 1.5 | 12 | 1.2 | 7200 | 720 |
| Direct current | | | Maximum Amperes (DC) Make or Break | | | | | | | | | | | |
| | | | 125VDC | 250VDC | 301VDC | 400VDC | 500VDC | 600VDC | | | | | | |
| Q600 | DC-13 | 2.5 | 0.55 | 0.27 | 0.1 ^② | 0.15 ^② | 0.13 ^② | 0.1 | 300V or less ^③ | | | | | |
| | | | | | | | | | 69 | 69 | | | | |

② Value at 301V is valid for UL/CSA up to 600VDC; the others are valid for IEC/EN/BS.

③ Voltage valid for UL/CSA only.

IEC OPERATIONAL CHARACTERISTICS BF09-BF38

| TYPE | | BF09 | BF12 | BF18 | BF25 | BF26 | BF32 | BF38 | |
|---|---|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----------------------|
| POLE CHARACTERISTICS | | | | | | | | | |
| Power poles | n° | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3 | 3-4 | |
| Rated insulation voltage Ui | V | 690 | | | | | | | |
| Rated impulse withstand voltage Uimp | kV | 6 | | | | | | | |
| Operational frequency | Hz | 25...400 ^① | | | | | | | |
| Operational current | Conventional free air thermal Ith (≤40°C) | A | 25 | 28 | 32 | 32 | 45 | 56 | 56(60 ^②) |
| | AC3 (≤440V ≤55°C) | A | 9 | 12 | 18 | 25 | 26 | 32 | 38 |
| | AC4 (400V) ^③ | A | 4.9 | 7.9 | 8.5 | 10 | 11.5 | 13.5 | 15.5 |
| Short-time allowable current for 10s (IEC/EN/BS 60947-1) | A | 150 | 150 | 200 | 200 | 210 | 320 | 320 | |
| Max fuse size coordination Type 2 - 400V - 50kA | gG | A | 25 | 32 | 32 | 50 | 50 | 63 | 63 |
| | aM | A | 10 | 12 | 20 | 25 | 32 | 32 | 40 |
| Making capacity (RMS value) | A | 90 | 120 | 180 | 250 | 260 | 320 | 380 | |
| Breaking capacity at voltage | ≤440V | A | 72 | 96 | 144 | 200 | 208 | 256 | 304 |
| | 500V | A | 72 | 96 | 120 | 184 | 184 | 240 | 240 |
| | 690V | A | 71 | 94 | 94 | 102 | 168 | 192 | 192 |
| Consumption and resistance per pole (average values) | | mΩ | 2.5 | 2.5 | 2.5 | 2.5 | 2.0 | 2.0 | 2.0 |
| | Ith | W | 1.6 | 2.0 | 2.6 | 2.6 | 4.0 | 6.0 | 6.0 |
| | AC3 | W | 0.2 | 0.4 | 0.8 | 1.6 | 1.4 | 2.0 | 2.9 |
| Terminals | Type | Clamp-screw | | | | | | | |
| | A | 9.5 | 9.5 | 9.5 | 9.5 | 13 | 13 | 13 | |
| | B | 4.5 | 4.5 | 4.5 | 4.5 | 5.5 | 5.5 | 5.5 | |
| | Screw | M3.5 | M3.5 | M3.5 | M3.5 | M4 | M4 | M4 | |
| | Phillips | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Tightening torque for pole terminal min-max | Nm | 1.5...1.8 | 1,5...1.8 | 1.5...1.8 | 1.5...1.8 | 2.5...3 | 2.5...3 | 2.5...3 | |
| | lb.in | 13...16 | 13...16 | 13...16 | 13...16 | 22...27 | 22...27 | 22...27 | |
| Tightening torque for coil terminals min-max | Nm | 0.8...1 | 0.8...1 | 0.8...1 | 0.8...1 | 0.8...1 | 0.8...1 | 0.8...1 | |
| | lb.in | 7.1...8.8 | 7.1...8.8 | 7.1...8.8 | 7.1...8.8 | 7.1...8.8 | 7.1...8.8 | 7.1...8.8 | |
| | Phillips | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| Conductor section connectable with 1 or 2 wires min...max | AWG stranded | n° | 16...8 | 16...8 | 16...8 | 16...8 | 14...6 | 14...6 | 14...6 |
| | Flexible w/o lug | mm² | 1...6 | 1...6 | 1...6 | 1...6 | 2.5...16 | 2.5...16 | 2.5...16 |
| | Flexible c/w insulated boot-lace ferrule | mm² | 1...4 | 1...4 | 1...4 | 1...4 | 1...10 | 1...10 | 1...10 |
| | Flexible c/w insulated spade lug | mm² | 1...4 | 1...4 | 1...4 | 1...4 | 1...10 | 1...10 | 1...10 |
| Power terminal protection according to IEC/EN/BS 60529 | | IP20 ^④ | IP20 ^⑤ | IP20 ^⑥ | IP20 ^⑥ | IP20 ^④ | IP20 ^④ | IP20 ^④ | |



AUXILIARY CONTACT CHARACTERISTICS

| | | | | | | | |
|---------------------------------|----|--|--|--|--|--|---|
| Type of contact | n° | 1-NO or NC based on configuration ^⑦ | | | | | — |
| Thermal current Ith | A | 10 | | | | | — |
| IEC/EN/BS 60947-5-1 designation | AC | A600 | | | | | — |
| | DC | P600 | | | | | — |

AMBIENT CONDITIONS

| | | | | | | | | |
|-----------------------|-----------|---------------------------|--|--|--|--|--|--|
| Operating temperature | °C | -50...+70 | | | | | | |
| Storage temperature | °C | -60...+80 | | | | | | |
| Maximum altitude | m | 3000 | | | | | | |
| Operating position | Normal | On vertical plane | | | | | | |
| | Allowable | ± 30° | | | | | | |
| Fixing | | Screw or on 35mm DIN rail | | | | | | |

Products certified by UL / CSA as Elevator Equipment.

| Type | Maximum horsepower ratings | | | | | |
|--------------------|----------------------------|-------|-------------|-------|-------|-------|
| | Single phase | | Three phase | | | |
| | 120V | 240V | 200-208V | 240V | 480V | 600V |
| | [HP] | [HP] | [HP] | [HP] | [HP] | [HP] |
| BF12 ^⑦ | 1/2 | 1 1/2 | 3 | 3 | 7 1/2 | 7 1/2 |
| BF25 ^⑦ | 1 1/2 | 3 | 5 | 7 1/2 | 15 | 15 |
| BF38 ^⑦ | 3 | 5 | 10 | 10 | 20 | 20 |
| BF65 ^⑧ | 3 | 10 | 15 | 15 | 40 | 50 |
| BF95 ^⑧ | 7.5 | 15 | 25 | 30 | 60 | 75 |
| BF115 ^⑧ | — | — | 30 | 40 | 75 | 100 |
| BF150 ^⑧ | — | — | 30 | 40 | 75 | 100 |

- ① Derating for use at 61-400Hz. Consult Technical support for information; see contact details on inside front cover.
- ② Current values guarantee an electrical life of about 200,000 cycles.
- ③ IP20 protection warranted by wired equipment; minimum 1mm² conductor section.
- ④ IP20 protection on front.
- ⑤ For this other current value, use 16mm² wire with spade cable terminal.
- ⑥ NO or NC auxiliary is highly conductive. Other characteristics are the same as the mechanical characteristics of the poles.
- ⑦ Elevator equipment by CSA (file LR54332-23) 500,000 operations.
- ⑧ Elevator equipment by cULus (file E93602) 500,000 operations.

2 Contactors

Technical characteristics

| TYPE | BF09 | BF12 | BF18 | BF25 | BF26 | BF32 | BF38 |
|--|------|----------|------|----------|------|------|------|
| AC CONTROL | | | | | | | |
| Rated voltage at 50/60Hz, 60Hz | V | | | 12...600 | | | |
| Operating voltage limits | | | | | | | |
| 50/60Hz coil powered at | 50Hz | pick-up | % Us | 80...110 | | | |
| | | drop-out | % Us | 20...55 | | | |
| | 60Hz | pick-up | % Us | 85...110 | | | |
| | | drop-out | % Us | 20...55 | | | |
| 60Hz coil powered at | 60Hz | pick-up | % Us | 80...110 | | | |
| | | drop-out | % Us | 20...55 | | | |
| Average coil consumption at ≤20°C | | | | | | | |
| 50/60Hz coil powered at | 50Hz | in-rush | VA | 75 | | | |
| | | holding | VA | 9 | | | |
| | 60Hz | in-rush | VA | 70 | | | |
| | | holding | VA | 6.5 | | | |
| 60Hz coil powered at 60Hz | 60Hz | in-rush | VA | 75 | | | |
| | | holding | VA | 9 | | | |
| Dissipation at holding ≤20°C | 50Hz | W | 2.5 | | | | |

| | | | | | | | | |
|--|----------------------------|------|------|---------|--|-----|--|--|
| DC CONTROL - normal and low consumption | | | | | | | | |
| Rated control voltage | V | | | 6...415 | | | | |
| Operating limits | | | | | | | | |
| pick-up | three-pole BF...D | from | % Us | 70 | | | | |
| | | to | % Us | 125 | | | | |
| | four-pole BF...D | from | %Us | 70 | | 80 | | |
| | | to | %Us | 125 | | 125 | | |
| | three and four pole BF...L | from | % Us | 80 | | | | |
| | | to | % Us | 110 | | | | |
| drop-out for all versions | from | %Us | 10 | | | | | |
| | to | %Us | 40 | | | | | |
| Average coil consumption ≤20°C (in rush-holding) | BF...D | W | 5.4 | | | | | |
| | BF...L | W | 2.4 | | | | | |

| | | | | | | | | | |
|-----------------------------------|-----------------|------------|--------|----------|--|--|--|--------|---------|
| OPERATING TIMES | | | | | | | | | |
| Average time for AC Us control in | closing NO | ms | 8...24 | | | | | 8...24 | |
| | | opening NO | ms | 10...20 | | | | | 5...15 |
| | | closing NC | ms | 14...28① | | | | | 9...20② |
| | | opening NC | ms | 7...18① | | | | | 9...17② |
| | DC BF...D types | closing NO | ms | 54...66 | | | | | 53...65 |
| | | opening NO | ms | 14...17 | | | | | 14...18 |
| | | closing NC | ms | 24...30③ | | | | | 23...28 |
| | | opening NC | ms | 47...57③ | | | | | 46...56 |
| | DC BF...L types | closing NO | ms | 75...91 | | | | | 76...92 |
| | | opening NO | ms | 15...19 | | | | | 16...20 |
| | | closing NC | ms | 24...30④ | | | | | 25...31 |
| | | opening NC | ms | 67...81④ | | | | | 63...77 |

| | | | | | | | | | |
|--------------------------------------|------------|--------|-----|-----|-----|-----|-----|-----|-----|
| LIFE | | | | | | | | | |
| Mechanical (million) | AC control | cycles | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| | DC control | cycles | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Electrical (1e at 400VAC3) (million) | | cycles | 2.0 | 2.0 | 1.6 | 1.2 | 1.6 | 1.6 | 1.4 |

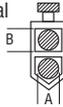
| | | | | | | | | | |
|-------------------------------|------|--|------|--|--|--|--|--|--|
| MAXIMUM OPERATING RATE | | | | | | | | | |
| Mechanical operations | cy/h | | 3600 | | | | | | |

- ① NC closing time for BF...TOA types is 9...25ms while NC opening time is 9...15ms.
- ② NC closing time for BF...TOA types is 11...29ms while NC opening time is 6...14ms.
- ③ NC closing time for BF...TOD types is 23...29ms while NC opening time is 40...49ms.
- ④ NC closing time for BF...TOL types is 25...31ms while NC opening time is 56...68ms.

ELECTRICAL RATINGS BASED ON IEC/EN/BS 60947-5-1 UTILIZATION CATEGORIES AND UL508/CSA C22.2 n°14

| IEC/EN/BS designation | IEC/EN/BS utilization category | Conventional enclosed thermal current Ithe | Rated operational current Ie [A] at rated operational voltage Ue | | | | | | | | | | VA rating | |
|-----------------------|--------------------------------|--|--|--------|--------|--------|--------|--------|---------|-------|--------|-------|--------------|-------|
| UL designation | — | Thermal continuous test current | Maximum Amperes (AC) 60Hz | | | | | | | | | | Maximum VA | |
| | | | 120VAC | | 240VAC | | 380VAC | | 480VAC | | 600VAC | | | |
| | | | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break | Make | Break |
| Alternating current | | [A] | 60 | 6 | 30 | 3 | 19 | 1.9 | 15 | 1.5 | 12 | 1.2 | 7200 | 720 |
| A600 | AC-15 | 10 | | | | | | | | | | | | |
| | | | Maximum Amperes (DC) Make or Break | | | | | | | | | | 300V or less | |
| | | | 125VDC | 250VDC | 301VDC | 400VDC | 500VDC | 600VDC | | | | | | |
| P600 | DC-13 | 5 | 1.1 | 0.55 | 0.2 | 0.31 | 0.27 | 0.2 | 138 138 | | | | | |

IEC OPERATIONAL CHARACTERISTICS BF40...BF150...

| TYPE | | BF40 | BF50 | BF65 | BF80 | BF94 | BF95 | BF115 | BF150 | |
|---|--|--|----------|------|------|------|--|-------|-------|------|
| POLE CHARACTERISTICS | | | | | | | | | | |
| Power poles | N° | 3-4 | 3-4 | 3-4 | 3-4 | 3 | 3-4 | 3-4 | 3-4 | |
| Rated insulation voltage U_i | V | 1000 | | | | | | | | |
| Rated impulse withstand voltage U_{imp} | kV | 8 | | | | | | | | |
| Operational frequency | Hz | 25 ... 400 ^① | | | | | | | | |
| Operational current | Conventional free air thermal I_{th} ($\leq 40^\circ\text{C}$) | A | 70 | 90 | 100 | 115 | 115 | 140 | 160 | 165 |
| | AC3 ($\leq 440\text{V}$ $\leq 55^\circ\text{C}$) | A | 40 | 50 | 65 | 80 | 95 | 95 | 115 | 150 |
| | AC4 (400V) ^② | A | 24 | 28 | 31 | 38 | 45 | 45 | 54 | 70 |
| Short-time allowable current for (IEC/EN/BS 60947-1) | 10s | A | 400 | 400 | 640 | 640 | 640 | 760 | 920 | 1200 |
| Maximum fuse size coordination Type 2 - 400V - 50kA | gG | A | 100 | 100 | 125 | 125 | 125 | 160 | 200 | 250 |
| | aM | A | 50 | 50 | 80 | 80 | 100 | 100 | 125 | 160 |
| Making capacity (RMS value) | A | 400 | 500 | 650 | 800 | 950 | 1200 | 1500 | 1500 | |
| Breaking capacity at voltage | $\leq 440\text{V}$ | A | 320 | 400 | 520 | 640 | 760 | 1100 | 1200 | 1200 |
| | 500V | A | 265 | 352 | 425 | 625 | 660 | 775 | 850 | 1025 |
| | 690V | A | 256 | 312 | 376 | 456 | 475 | 745 | 905 | 905 |
| Consumption and resistance per pole (average values) | m Ω | | 0.8 | 0.8 | 0.8 | 0.6 | 0.6 | 0.45 | 0.45 | 0.45 |
| | I_{th} | W | 3.9 | 6.5 | 8.0 | 7.9 | 7.9 | 8.8 | 11.5 | 12 |
| | AC3 | W | 1.3 | 2.0 | 3.4 | 3.8 | 5.4 | 4.1 | 6.0 | 10.1 |
| Terminals | Type | Double lug clamp terminal  | | | | | | | | |
| | A [mm] | 9.5 | | | | | | | 15 | |
| | B [mm] | 11 | | | | | | | 14.5 | |
| | Screw | M6 | | | | | | | M8 | |
| | Metric Allen | 4 | | | | | | | 4 | |
| | Tightening torque for pole terminal min-max | Nm | 4...5 | | | | | 6...7 | | |
| lb.in | | 35.4...44.3 | | | | | 53.1...61.9 | | | |
| Tightening torque for coil terminals min-max | Nm | 0.8...1 | | | | | | | | |
| | lb.in | 7.1...8.8 | | | | | | | | |
| | Phillips | 2 | | | | | | | | |
| Conductor section connectable with 1 or 2 wires min...max | AWG | N° | 14...2 | | | | 14...2/0 | | | |
| | Flexible w/o lug | mm ² | 1.5...35 | | | | 1.5...70 | | | |
| | Flexible c/w lug | mm ² | 1.5...35 | | | | 1.5...70 | | | |
| Power terminal protection according to IEC/EN/BS 60529 | | IP20 front | | | | | | | | |
| AMBIENT CONDITIONS | | | | | | | | | | |
| Operating temperature | °C | -50...+70 ^③ | | | | | | | | |
| Storage temperature | °C | -60...+80 ^④ | | | | | | | | |
| Maximum altitude | m | 3000 | | | | | | | | |
| Operating position | Normal | On vertical plane | | | | | | | | |
| | Allowable | $\pm 30^\circ$ | | | | | | | | |
| Fixing | | Screw or on 35mm DIN rail | | | | | Screw or on 35mm DIN rail ^⑤ | | | |

- ① Derating for use at 61-400 Hz. Consult Technical support for information; see contact details on inside front cover.
- ② Current values guarantee an electrical life of about 200,000 cycles.
- ③ -40...+70 for BF40...150E.
- ④ -50...+80 for BF40...150E.
- ⑤ Din rail height 15mm (TH35-15)

Products certified by UL / CSA as Elevator Equipment.
See table on page 2-70.

2 Contactors

Technical characteristics

| TYPE | | | | BF40 | BF50 | BF65 | BF80 | BF94 | BF95 | BF115 | BF150 |
|---|------------|------------|---|--|-------------|------|------|--|------|-------|-------|
| AC CONTROL | | | | | | | | | | | |
| Rated voltage at 50/60Hz, 60Hz | | V | | 12...600 (20...250 electronically controlled AC/DC coil) | | | | | | | |
| Operating voltage limits | | | | | | | | | | | |
| 50/60Hz coil powered at | 50Hz | pick-up | % Us | 80...110 ① | | | | | | | |
| | | drop-out | % Us | 20...55 (≤70% electronically controlled AC/DC coil) | | | | | | | |
| 60Hz coil powered at | 60Hz | pick-up | % Us | 85...110 ① | | | | | | | |
| | | drop-out | % Us | 40...55 (≤70% electronically controlled AC/DC coil) | | | | | | | |
| Average coil consumption at ≤20°C | | | | | | | | | | | |
| 50/60Hz coil powered at | 50Hz | in-rush | VA | 210 (35...120 electronically controlled AC/DC coil) | | | | 300 (70...175 electronically controlled AC/DC coil) | | | |
| | | holding | VA | 15 (1.5...3.7 electronically controlled AC/DC coil) | | | | 20 (1.7...3.5 electronically controlled AC/DC coil) | | | |
| | 60Hz | in-rush | VA | 195 (35...120 electronically controlled AC/DC coil) | | | | 275 (70...175 electronically controlled AC/DC coil) | | | |
| | | holding | VA | 13 (1.5...3.7 electronically controlled AC/DC coil) | | | | 17 (1.7...3.5 electronically controlled AC/DC coil) | | | |
| 60Hz coil powered at | 60Hz | in-rush | VA | 210 | | | | 300 | | | |
| | | holding | VA | 15 | | | | 20 | | | |
| Dissipation at ≤20°C | | 50Hz | W | 5 (1...2.5 electronically controlled AC/DC coil) | | | | 6.5 (1.5...3 electronically controlled AC/DC coil) | | | |
| DC CONTROL | | | | | | | | | | | |
| Rated voltage | | V | | 20...250 | | | | | | | |
| Operating voltage limits | pick-up | % Us | | 80...110 ① | | | | | | | |
| | | drop-up | % Us | | ≤75% Us min | | | | | | |
| Average consumption ≤20°C (in rush-holding) | | | W | 23...68 / 1.2...1.9 | | | | 70...80 / 1.3...1.5 | | | |
| OPERATING TIMES | | | | | | | | | | | |
| Average time for Us control in | AC | closing NO | ms | 12...28 (40...85 electronically controlled AC/DC coil) | | | | 16...32 (45...90 electronically controlled AC/DC coil) | | | |
| | | opening NO | ms | 8...22 (20...55 electronically controlled AC/DC coil) | | | | 9...24 (24...60 electronically controlled AC/DC coil) | | | |
| | DC | closing NO | ms | 40...85 (electronically controlled AC/DC coil) | | | | 45...90 (electronically controlled AC/DC coil) | | | |
| | | opening NO | ms | 20...55 (electronically controlled AC/DC coil) | | | | 24...60 (electronically controlled AC/DC coil) | | | |
| LIFE | | | | | | | | | | | |
| Mechanical (million) | AC control | cycles | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| | DC control | cycles | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| Electrical (Ie at 400V in AC3) (million) | | cycles | 1.5 | 1.4 | 1.4 | 1.3 | 1.1 | 1.4 | 1.2 | 0.8 | |
| MAXIMUM OPERATING RATE | | | | | | | | | | | |
| Mechanical operations | | cy/h | 1500 (2000 for BF40...E...BF150...E...) | | | | | | | | |

① For electronically controlled AC/DC coils 80% of Us min. and 110% of Us max; for 20...48V 85% of Us min when powered in AC; 77% of Us min for 100...250V coils.

② Electromagnetic compatibility: BF40...94E contactors with electronic coil 20...48VAC/DC are in compliance with IEC/EN/BS 60947-1 and IEC/EN/BS 60947-1 standards for Environment B (domestic). The other devices are in compliance for Environment A (industrial) and can be upgraded to Environment B connecting proper filters; consult Technical support for information - see contact details on inside front cover.

IEC OPERATIONAL CHARACTERISTICS BF160...BF230 and B250...B1600

| TYPE | | BF160 | BF195 | BF230 | B250 | B310 | B400 | B500 | B630 | B630 1000 | B1250 | B1600 | |
|--|---|---------------------|-------|-------|------------------------|-----------|------|----------|------|--------------|-------|-------|-------|
| POLE CHARACTERISTICS | | | | | | | | | | | | | |
| Power poles | n° | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | 3-4 | |
| Rated insulation voltage Ui | V | 1000 | | | | | | | | | | | |
| Rated impulse withstand voltage Uimp | kV | 8 | | | | | | | | | | | |
| Operational frequency | Hz | 25-400 ^① | | | | | | | | | | | |
| Operational current | Conventional free air thermal Ith (≤40°C) | A | 250 | 275 | 350 | 350 | 450 | 550 | 700 | 800 | 1000 | 1250 | 1600 |
| | AC3 (≤440V ≤55°C) | A | 160 | 195 | 230 | 265 | 320 | 420 | 520 | 630 | – | – | – |
| | AC4 (400V) ^② | A | 75 | 95 | 110 | 115 | 150 | 200 | 240 | 260 | – | – | – |
| Short-time allowable current for 10s (IEC/EN/BS 60947-1) | A | 1280 | 1560 | 1840 | 2200 | 2900 | 3600 | 4050 | 5040 | 5600 | 6500 | 8300 | |
| Maximum fuse size coordination Type 2 - 400V - 50kA | gG | A | 315 | 315 | 400 | 400 | 500 | 630 | 800 | 1000 | 1000 | 1250 | 1600 |
| | aM | A | 200 | 250 | 250 | 250 | 400 | 400 | 500 | 630 | – | – | – |
| Making capacity (RMS value) | A | 1360 | 1658 | 1955 | 2750 | 3150 | 4200 | 5000 | 6300 | 6300 | 6300 | 6300 | |
| Breaking capacity at voltage | ≤440V | A | 1360 | 1658 | 1955 | 2500 | 3000 | 4000 | 5000 | 6300 | 6300 | 6300 | 6300 |
| | 500V | A | 1326 | 1326 | 1564 | 2250 | 2700 | 3400 | 4500 | 5600 | 5600 | 5600 | 5600 |
| | 690V | A | 1139 | 1377 | 1377 | 2200 | 2520 | 3360 | 4000 | 5000 | 5000 | 5000 | 5000 |
| | 1000V | A | 468 | 553 | 638 | 1500 | 1700 | 2300 | 2700 | 3400 | 3400 | 3400 | 3400 |
| Consumption and resistance per pole (average values) | mΩ | 0.18 | 0.18 | 0.18 | 0.20 | 0.20 | 0.20 | 0.14 | 0.14 | 0.14 | 0.07 | 0.07 | |
| | Ith | W | 11 | 13 | 21 | 24.5 | 40.5 | 52.0 | 68.6 | 90 | 140 | 110 | 180 |
| | AC3 | W | 4.5 | 6.7 | 9.3 | 12.5 | 20 | 32 | 35.0 | 56 | – | – | – |
| Terminals | | A mm | 18 | 18 | 18 | 25 | 25 | 25 | 35 | 40 | 60 | 80 | 80 |
| | | B mm | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 10 | 10 |
| | | Screw + hex nut | M8 | M8 | M8 | M10 | M10 | M10 | M10 | M12 | 2xM12 | 2xM12 | 2xM12 |
| | | Key mm | 13 | 13 | 13 | 17 | 17 | 17 | 17 | 19 | 19 | 19 | 19 |
| Coil terminals | Type | Screw | | | Faston 1x6.35 o 2x2.8 | | | | | | | | |
| Pole tightening torque | Nm | 18 | 18 | 18 | 35 | 35 | 35 | 35 | 55 | 55 | 55 | 55 | |
| | lb.in | 159 | 159 | 159 | 310 | 310 | 310 | 310 | 486 | 486 | 486 | 486 | |
| Tightening torque for coil terminals min-max | Nm | 0.8...1 | | | 0.8...1 ^③ | | | | | | | | |
| | lb.in | 7.1...8.8 | | | 7.1...8.8 ^③ | | | | | | | | |
| | Phillips | 2 | | | 2 ^③ | | | | | | | | |
| Maximum conductor section | mm | 25x5 | 25x5 | 25x5 | 30x4 | 30x5 | 30x5 | 50x5 | 60x5 | 60x5 | 100x5 | 100x5 | |
| | N° 1 wire with lug | mm ² | 185 | | | 240 | – | – | – | – | – | – | – |
| | N° 2 wire with lug | mm ² | 185 | | | – | 150 | 150 | 240 | 240 | – | – | – |
| AMBIENT CONDITIONS | | | | | | | | | | | | | |
| Operating temperature | °C | -40...+70 | | | | -50...+70 | | | | -20...+60 | | | |
| Storage temperature | °C | -50...+80 | | | | -60...+80 | | | | -30...+80 | | | |
| Maximum altitude | m | 3000 | | | | | | | | | | | |
| Operating position | Normal | | | | | | | Vertical | | | | | |
| | Allowable | | | | | | | ± 30° | | | | | |
| Fixing | | Screw | | | | | | | | | | | |

① Derating for use at 61-400 Hz. Consult Technical support for information (Tel. 035 4282422; E-mail: service@LovatoElectric.com).

② Current values guarantee an electrical life of about 200,000 cycles.

③ G371: Adapter to transform coil faston terminals into screw type.

| TYPE | | BF160 | BF195 | BF230 | B250 | B310 | B400 | B500 | B630 | B630 1000 | B1250 | B1600 | |
|--|----------|-------------------------------------|-------------|-------|----------|-----------------|----------|-----------|-----------|--------------|-----------|-----------|----------|
| AC CONTROL | | | | | | | | | | | | | |
| Supply voltage | | 50/60Hz, DC | | | | Either in AC/DC | | | | | Only AC | | |
| Rated control voltage | V | 20...500 | | | 24...480 | 24...480 | 24...480 | 48...480 | 48...480 | 48...480 | 110/240 | 110/240 | |
| Operating voltage limits | pick-up | % Us | 80...110 | | | 80...110 | 80...110 | 80...110 | 80...110 | 80...110 | 80...110 | 80...110 | 80...110 |
| | drop-out | % Us | ≤70% Us min | | | 20...60 | 20...60 | 20...60 | 20...60 | 20...60 | 20...60 | 20...60 | 20...60 |
| Consumption at ≤20°C | in-rush | VA/W | 160...230 | | | 300 | 300 | 300 | 400 | 400 | 400 | 800 | 800 |
| | holding | VA/W | 1.5...3.0 | | | 10 | 10 | 10 | 18 | 18 | 18 | 45 | 45 |
| Dissipation at ≤20°C | W | 1.5...3.0 | | | 10 | 10 | 10 | 18 | 18 | 18 | 40 | 40 | |
| OPERATING TIMES | | | | | | | | | | | | | |
| Making | ms | 50...100 | | | 80...120 | 80...120 | 80...120 | 110...180 | 110...180 | 110...180 | 120...210 | 300...450 | |
| Breaking | ms | 30...75 | | | 30...75 | 30...75 | 30...75 | 60...100 | 60...100 | 60...110 | 70...130 | 70...130 | |
| LIFE | | | | | | | | | | | | | |
| Mechanical (million) | AC/DC | cycles | 10 | 10 | 10 | 10 | 10 | 10 | 5 | 5 | 5 | 5 | |
| Electrical (million) (I _e at 400V in AC3) | | cycles | 1 | 1 | 1 | 1 | 0.9 | 0.7 | 0.7 | 0.7 | – | – | |
| MAXIMUM OPERATING RATE | | | | | | | | | | | | | |
| Mechanical operations | cy/h | 1000 | | | 2400 | | | 1200 | | | | | |
| PARTICULAR CHARACTERISTICS | | | | | | | | | | | | | |
| Indicator | | For contactor open or closed status | | | | | | | | | | | |

● 80% of Us min and 110% of Us max.

CONTROL CIRCUIT UTILISATION

The input electronic circuit of the contactor coil B250-B1600 is designed and tested according to IEEEC 62.41 and can withstand a 10 kV impulse voltage (1.2/50µs) with 50 Joule energy. For higher values, the use of an auxiliary step-down voltage transformer is recommended.

CONTACTORS WITH MECHANICAL LATCH

Contactors B250-B630 type, can have mechanical latch included or can be predisposed, to be completed with mechanical latch, see pages 2-6 and 2-8 (3-pole version) or 2-10 and 2-12 (4-pole version). Technical data of mechanical latch G495 type is stated on page 2-30.

MECHANICAL INTERLOCK BETWEEN CONTACTORS ONE ON TOP OF THE OTHER

B250...B1600... (Fig. 1, 2 and 3)

It is G356... type, which is provided in six types to allow different fixing interaxis of contactors.

Contactors of the same size can be interlocked as well as different sizes.

INTERAXIS A [mm] - For contactors with terminal protection (Fig. 1)

| KM1 | B250-B310-B400 | | B500-B630 | |
|-------|----------------------|--------------|----------------------|--------------|
| | B250 B310 B400 | B500 B630 | B250 B310 B400 | B500 B630 |
| G3562 | — | — | — | — |
| G3563 | — | — | — | — |
| G3564 | 372...385 | — | — | — |
| G3565 | 390...425 | 420...425 | 420...425 | — |
| G3566 | 470...500 | 470...500 | 470...500 | 470...500 |

To interlock two contactors B6301000, use type G3566 only.

To interlock two contactors B1250 or B1600, it is imperative to use two pieces of type G3566 (fig. 3), one fixed on the left side and the other on the right.

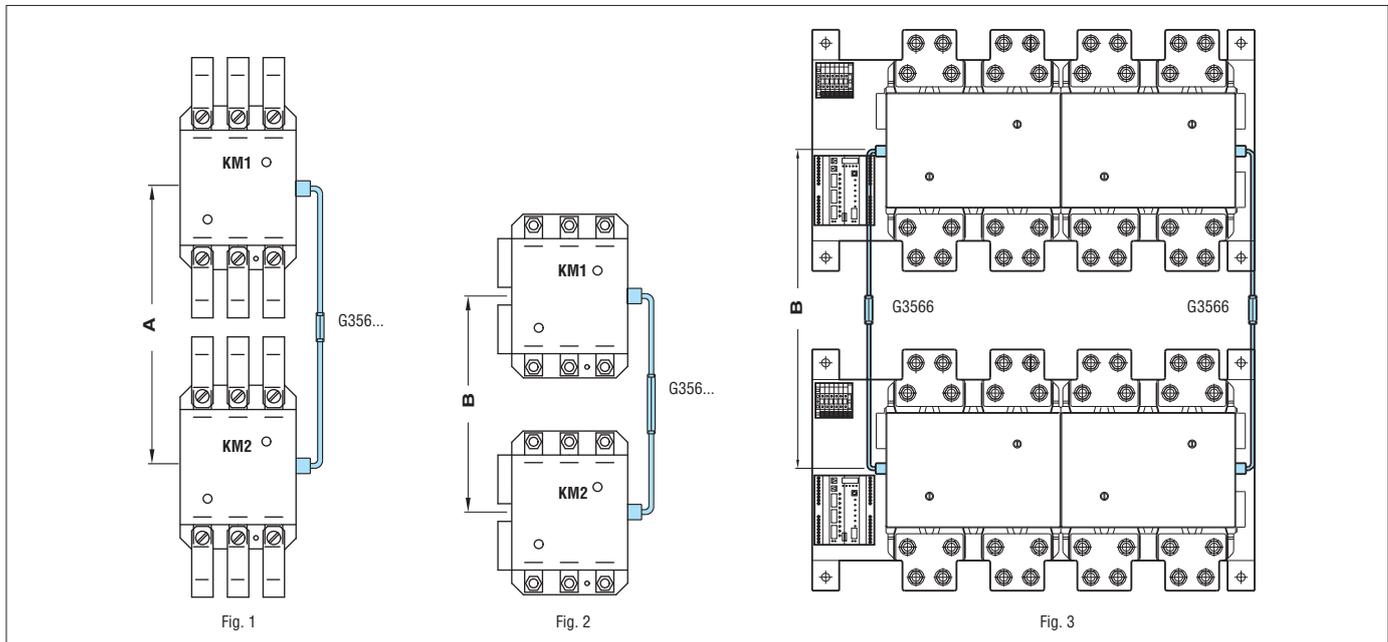
The tables below indicate the interaxis which can be obtained with the various interlock types; with terminal protections (INTERAXIS A) and without terminal protection (INTERAXIS B).

INTERAXIS B [mm] - For contactors without terminal protection (Fig. 2)

| KM1 | B250-B310-B400 | | B500-B630 | |
|-------|----------------------|--------------|----------------------|--------------|
| | B250 B310 B400 | B500 B630 | B250 B310 B400 | B500 B630 |
| G3562 | 265...305 | — | — | — |
| G3563 | 305...345 | 305...345 | 305...345 | — |
| G3564 | 345...385 | 345...385 | 345...385 | 345...385 |
| G3565 | 390...425 | 390...425 | 390...425 | 390...425 |
| G3566 | 470...500 | 470...500 | 470...500 | 470...500 |

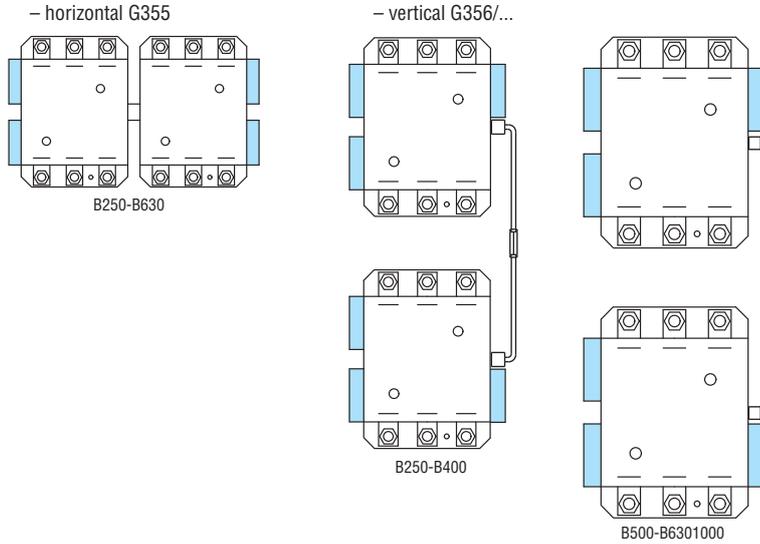
Interaxis B is 470-500mm for B630 1000, B1250 or B1600.

The B1250 or B1600 cannot be interlocked with the other types of the B series.

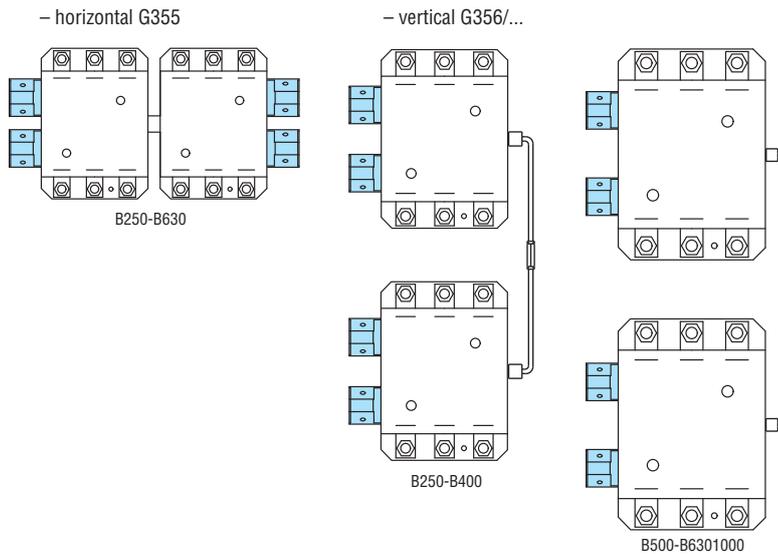


Horizontal and vertical interlock between contactors B250...B630. It is G355 type and can interlock both contactors of equal size and contactors of different sizes (e.g. B250 can be interlocked with B630). For contactor B630 1000 (three-pole), contact our Technical support office. This interlock cannot be applied to contactors B1250-B1600.

Admissible mounting positions for 11G350 and 11G354 auxiliary contacts on contactors equipped with mechanical interlock:



Admissible mounting positions for 11G358 adapter on contactors equipped with mechanical interlock:



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