



Product designation

Power contactor

Product type designation

BF18

**Contact characteristics**

|                                                                    |                    |        |
|--------------------------------------------------------------------|--------------------|--------|
| Number of poles                                                    | Nr.                | 3      |
| Rated insulation voltage $U_i$ IEC/EN                              | V                  | 690    |
| Rated impulse withstand voltage $U_{imp}$                          | kV                 | 6      |
| Operational frequency                                              | min                | Hz 25  |
|                                                                    | max                | Hz 400 |
| IEC Conventional free air thermal current $I_{th}$                 | A                  | 32     |
| Operational current $I_e$                                          | AC-1 (=40°C)       | A 32   |
|                                                                    | AC-1 (=55°C)       | A 26   |
|                                                                    | AC-1 (=70°C)       | A 23   |
|                                                                    | AC-3 (=440V =55°C) | A 18   |
|                                                                    | AC-4 (400V)        | A 8.5  |
| Rated operational power AC-3 (T=55°C)                              | 230V               | kW 4   |
|                                                                    | 400V               | kW 7.5 |
|                                                                    | 415V               | kW 9   |
|                                                                    | 440V               | kW 9   |
|                                                                    | 500V               | kW 10  |
|                                                                    | 690V               | kW 10  |
| Rated operational power AC-1 (T=40°C)                              | 230V               | kW 12  |
|                                                                    | 400V               | kW 21  |
|                                                                    | 500V               | kW 26  |
|                                                                    | 690V               | kW 36  |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 1 poles in series | =24V               | A 17   |
|                                                                    | 48V                | A 15   |
|                                                                    | 75V                | A 15   |
|                                                                    | 110V               | A 6    |
|                                                                    | 220V               | A –    |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 2 poles in series | =24V               | A 20   |
|                                                                    | 48V                | A 20   |
|                                                                    | 75V                | A 20   |
|                                                                    | 110V               | A 13   |
|                                                                    | 220V               | A 1    |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 3 poles in series | =24V               | A 22   |
|                                                                    | 48V                | A 22   |
|                                                                    | 75V                | A 20   |
|                                                                    | 110V               | A 16   |

|                                                                                  |                 |      |     |
|----------------------------------------------------------------------------------|-----------------|------|-----|
|                                                                                  | 220V            | A    | 11  |
| IEC max current I <sub>e</sub> in DC1 with L/R = 1ms with 4 poles in series      |                 |      |     |
|                                                                                  | =24V            | A    | 22  |
|                                                                                  | 48V             | A    | 22  |
|                                                                                  | 75V             | A    | 20  |
|                                                                                  | 110V            | A    | 18  |
|                                                                                  | 220V            | A    | 13  |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R = 15ms with 1 poles in series |                 |      |     |
|                                                                                  | =24V            | A    | 12  |
|                                                                                  | 48V             | A    | 11  |
|                                                                                  | 75V             | A    | 11  |
|                                                                                  | 110V            | A    | 2   |
|                                                                                  | 220V            | A    | –   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R = 15ms with 2 poles in series |                 |      |     |
|                                                                                  | =24V            | A    | 15  |
|                                                                                  | 48V             | A    | 13  |
|                                                                                  | 75V             | A    | 13  |
|                                                                                  | 110V            | A    | 8   |
|                                                                                  | 220V            | A    | 2   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R = 15ms with 3 poles in series |                 |      |     |
|                                                                                  | =24V            | A    | 18  |
|                                                                                  | 48V             | A    | 18  |
|                                                                                  | 75V             | A    | 16  |
|                                                                                  | 110V            | A    | 12  |
|                                                                                  | 220V            | A    | 6   |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R = 15ms with 4 poles in series |                 |      |     |
|                                                                                  | =24V            | A    | 18  |
|                                                                                  | 48V             | A    | 18  |
|                                                                                  | 75V             | A    | 16  |
|                                                                                  | 110V            | A    | 13  |
|                                                                                  | 220V            | A    | 8   |
| Short-time allowable current for 10s (IEC/EN60947-1)                             |                 | A    | 200 |
| Protection fuse                                                                  |                 |      |     |
|                                                                                  | gG (IEC)        | A    | 32  |
|                                                                                  | aM (IEC)        | A    | 20  |
| Making capacity (RMS value)                                                      |                 | A    | 180 |
| Breaking capacity at voltage                                                     |                 |      |     |
|                                                                                  | 440V            | A    | 144 |
|                                                                                  | 500V            | A    | 120 |
|                                                                                  | 690V            | A    | 94  |
| Resistance per pole (average value)                                              |                 | mΩ   | 2.5 |
| Power dissipation per pole (average value)                                       |                 |      |     |
|                                                                                  | I <sub>th</sub> | W    | 2.6 |
|                                                                                  | AC3             | W    | 0.8 |
| Tightening torque for terminals                                                  |                 |      |     |
|                                                                                  | min             | Nm   | 1.5 |
|                                                                                  | max             | Nm   | 1.8 |
|                                                                                  | min             | lbin | 1.1 |
|                                                                                  | max             | lbin | 1.5 |
| Tightening torque for coil terminal                                              |                 |      |     |
|                                                                                  | min             | Nm   | 0.8 |
|                                                                                  | max             | Nm   | 1   |
|                                                                                  | min             | lbin | 0.8 |

|                                                     |                  |                 |                       |
|-----------------------------------------------------|------------------|-----------------|-----------------------|
|                                                     | max              | lbin            | 0.74                  |
| Max number of wires simultaneously connectable      |                  | Nr.             | 2                     |
| Conductor section                                   |                  |                 |                       |
| AWG/Kcmil                                           | max              |                 | 10                    |
| Flexible w/o lug conductor section                  | min              | mm <sup>2</sup> | 1                     |
|                                                     | max              | mm <sup>2</sup> | 6                     |
| Flexible c/w lug conductor section                  | min              | mm <sup>2</sup> | 1                     |
|                                                     | max              | mm <sup>2</sup> | 4                     |
| Flexible with insulated spade lug conductor section | min              | mm <sup>2</sup> | 1                     |
|                                                     | max              | mm <sup>2</sup> | 4                     |
| Power terminal protection according to IEC/EN 60529 |                  |                 | IP20 when wired       |
| <b>Mechanical features</b>                          |                  |                 |                       |
| Operating position                                  | normal allowable |                 | Vertical plan ±30°    |
| Fixing                                              |                  |                 | Screw / DIN rail 35mm |
| Weight                                              |                  | g               | 368                   |
| Conductor section                                   |                  |                 |                       |
| AWG/kcmil conductor section                         | max              |                 | 10                    |
| <b>Auxiliary contact characteristics</b>            |                  |                 |                       |
| Thermal current I <sub>th</sub>                     |                  | A               | 10                    |
| IEC/EN 60947-5-1 designation                        |                  |                 | A600 - P600           |
| Operating current AC15                              | 230V             | A               | 3                     |
|                                                     | 400V             | A               | 1.9                   |
|                                                     | 500V             | A               | 1.4                   |
| Operating current DC12                              | 110V             | A               | 5.7                   |
| Operating current DC13                              | 24V              | A               | 5.7                   |
|                                                     | 48V              | A               | 2.9                   |
|                                                     | 60V              | A               | 2.3                   |
|                                                     | 110V             | A               | 1.25                  |
|                                                     | 125V             | A               | 1.1                   |
|                                                     | 220V             | A               | 0.55                  |
|                                                     | 600V             | A               | 0.2                   |
| <b>Operations</b>                                   |                  |                 |                       |
| Mechanical life                                     |                  | cycles          | 20000000              |
| Electrical life                                     |                  | cycles          | 1600000               |
| <b>Safety related data</b>                          |                  |                 |                       |
| Performance level B10d according to EN/ISO 13489-1  | rated load       | cycles          | 1600000               |
|                                                     | mechanical load  | cycles          | 20000000              |
| Mirror contacts according to IEC/EN 60947-4-1       |                  |                 | yes                   |
| EMC compatibility                                   |                  |                 | yes                   |
| <b>AC coil operating</b>                            |                  |                 |                       |
| Rated AC voltage at 50/60Hz                         |                  | V               | 400                   |

### AC operating voltage

of 50/60Hz coil powered at 50Hz  
pick-up

|     |     |     |
|-----|-----|-----|
| min | %Us | 80  |
| max | %Us | 110 |

drop-out

|     |     |    |
|-----|-----|----|
| min | %Us | 20 |
| max | %Us | 55 |

of 50/60Hz coil powered at 60Hz  
pick-up

|     |     |     |
|-----|-----|-----|
| min | %Us | 85  |
| max | %Us | 110 |

drop-out

|     |     |    |
|-----|-----|----|
| min | %Us | 20 |
| max | %Us | 55 |

### AC average coil consumption at 20°C

of 50/60Hz coil powered at 50Hz

|         |    |    |
|---------|----|----|
| in-rush | VA | 75 |
| holding | VA | 9  |

of 50/60Hz coil powered at 60Hz

|         |    |     |
|---------|----|-----|
| in-rush | VA | 70  |
| holding | VA | 6.5 |

of 60Hz coil powered at 60Hz

|         |    |    |
|---------|----|----|
| in-rush | VA | 75 |
| holding | VA | 9  |

Dissipation at holding =20°C 50Hz

|   |     |
|---|-----|
| W | 2.5 |
|---|-----|

### Max cycles frequency

Mechanical operation

cycles/h 3600

### Operating times

Average time for Us control

in AC

Closing NO

|     |    |    |
|-----|----|----|
| min | ms | 8  |
| max | ms | 24 |

Opening NO

|     |    |    |
|-----|----|----|
| min | ms | 10 |
| max | ms | 20 |

Closing NC

|     |    |    |
|-----|----|----|
| min | ms | 14 |
| max | ms | 28 |

Opening NC

|     |    |    |
|-----|----|----|
| min | ms | 7  |
| max | ms | 18 |

### UL technical data

Full-load current (FLA) for three-phase AC motor

|         |   |    |
|---------|---|----|
| at 480V | A | 14 |
| at 600V | A | 17 |

### Yielded mechanical performance

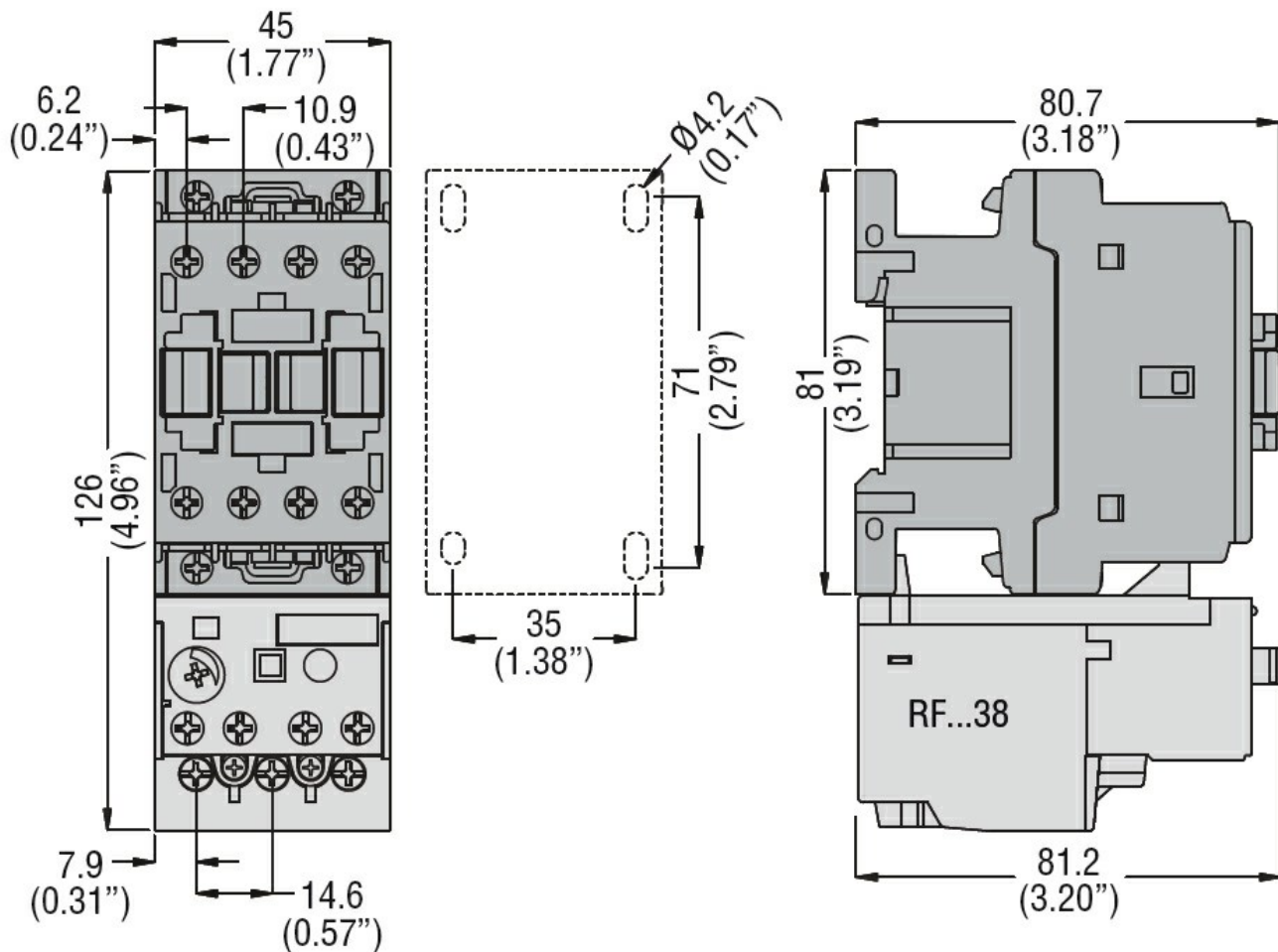
for single-phase AC motor

|          |    |   |
|----------|----|---|
| 110/120V | HP | 1 |
| 230V     | HP | 3 |

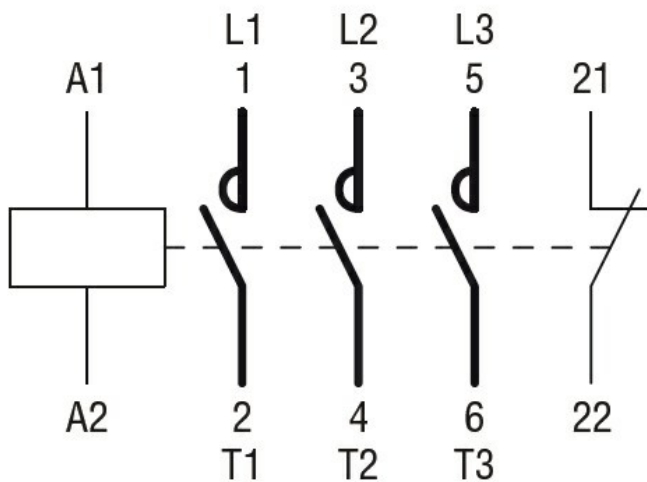
for three-phase AC motor

|          |    |   |
|----------|----|---|
| 200/208V | HP | 5 |
| 220/230V | HP | 5 |

|                                                      |  |                       |    |             |
|------------------------------------------------------|--|-----------------------|----|-------------|
|                                                      |  | 460/480V              | HP | 10          |
|                                                      |  | 575/600V              | HP | 15          |
| General USE                                          |  |                       |    |             |
| Contactor                                            |  | AC current            | A  | 32          |
| Auxiliary contacts                                   |  | AC voltage            | V  | 600         |
|                                                      |  | AC current            | A  | 10          |
|                                                      |  | DC voltage            | V  | 250         |
|                                                      |  | DC current            | A  | 1           |
| Short-circuit protection fuse, 600V                  |  |                       |    |             |
| High fault                                           |  | Short circuit current | kA | 100         |
|                                                      |  | Fuse rating           | A  | 60          |
|                                                      |  | Fuse class            |    | J           |
| Standard fault                                       |  | Short circuit current | kA | 5           |
|                                                      |  | Fuse rating           | A  | 80          |
| Contact rating of auxiliary contacts according to UL |  |                       |    | A600 - P600 |
| Ambient conditions                                   |  |                       |    |             |
| Temperature                                          |  |                       |    |             |
| Operating temperature                                |  | min                   | °C | -50         |
|                                                      |  | max                   | °C | 70          |
| Storage temperature                                  |  | min                   | °C | -60         |
|                                                      |  | max                   | °C | 80          |
| Max altitude                                         |  |                       | m  | 3000        |
| Resistance & Protection                              |  |                       |    |             |
| Pollution degree                                     |  |                       |    | 3           |
| Dimensions                                           |  |                       |    |             |



### Wiring diagrams



### Certifications and compliance

#### Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN 60947-1

IEC/EN 60947-4-1

UL 60947-1

UL 60947-4-1

#### Certificates

CCC

cULus

EAC

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching