



|  |   |     |     |
|--|---|-----|-----|
| Product designation  | Power contactor                                   |     |     |
| Product type designation   | BF09  |     |     |
| <b>Contact characteristics</b>   |   |     |     |
| 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   | 25  |     |
| Operational current $I_e$  | AC-1 ( $\leq 40^\circ\text{C}$ )                  | A   | 25  |
|  | AC-1 ( $\leq 55^\circ\text{C}$ )                  | A   | 20  |
|  | AC-1 ( $\leq 70^\circ\text{C}$ )                  | A   | 18  |
|  | AC-3 ( $\leq 440\text{V} \leq 55^\circ\text{C}$ ) | A   | 9   |
|  | AC-4 (400V)                                       | A   | 4.9 |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V  | kW  | 2.2 |
|  | 400V  | kW  | 4.2 |
|  | 415V  | kW  | 4.5 |
|  | 440V  | kW  | 4.8 |
|  | 500V  | kW  | 5.5 |
|  | 690V  | kW  | 7.5 |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V  | kW  | 9.5 |
|  | 400V  | kW  | 16  |
|  | 500V  | kW  | 21  |
|  | 690V  | kW  | 27  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                 | A   | 15  |
|  | 48V   | A   | 13  |
|  | 75V   | A   | 12  |
|  | 110V  | A   | 6   |
|  | 220V  | A   | –   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 2 poles in series | $\leq 24\text{V}$                                 | A   | 18  |
|  | 48V   | A   | 18  |
|  | 75V   | A   | 17  |
|  | 110V  | A   | 12  |
|  | 220V  | A   | 1   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                 | A   | 20  |
|  | 48V   | A   | 20  |
|  | 75V   | A   | 20  |
|  | 110V  | A   | 15  |

|  |                 |                  |     |
|--|-----------------|------------------|-----|
|  | 220V            | A                | 10  |
| <hr/>  |                 |                  |     |
| IEC max current I <sub>e</sub> in DC1 with L/R ≤ 1ms with 4 poles in series      | ≤24V            | A                | 20  |
|  | 48V             | A                | 20  |
|  | 75V             | A                | 20  |
|  | 110V            | A                | 16  |
|  | 220V            | A                | 12  |
| <hr/>  |                 |                  |     |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | ≤24V            | A                | 10  |
|  | 48V             | A                | 9   |
|  | 75V             | A                | 8   |
|  | 110V            | A                | 2   |
|  | 220V            | A                | –   |
| <hr/>  |                 |                  |     |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | ≤24V            | A                | 13  |
|  | 48V             | A                | 11  |
|  | 75V             | A                | 10  |
|  | 110V            | A                | 7   |
|  | 220V            | A                | 2   |
| <hr/>  |                 |                  |     |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | ≤24V            | A                | 15  |
|  | 48V             | A                | 15  |
|  | 75V             | A                | 13  |
|  | 110V            | A                | 11  |
|  | 220V            | A                | 6   |
| <hr/>  |                 |                  |     |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | ≤24V            | A                | 15  |
|  | 48V             | A                | 15  |
|  | 75V             | A                | 15  |
|  | 110V            | A                | 12  |
|  | 220V            | A                | 7   |
| <hr/>  |                 |                  |     |
| Short-time allowable current for 10s (IEC/EN60947-1)                             |                 | A                | 150 |
| <hr/>  |                 |                  |     |
| Protection fuse  | gG (IEC)        | A                | 25  |
|  | aM (IEC)        | A                | 10  |
| <hr/>  |                 |                  |     |
| Making capacity (RMS value)  |                 | A                | 90  |
| <hr/>  |                 |                  |     |
| Breaking capacity at voltage   | 440V            | A                | 72  |
|  | 500V            | A                | 72  |
|  | 690V            | A                | 71  |
| <hr/>  |                 |                  |     |
| Resistance per pole (average value)  |                 | mΩ               | 2.5 |
| <hr/>  |                 |                  |     |
| Power dissipation per pole (average value)                                       | I <sub>th</sub> | W                | 1.6 |
|  | AC-3            | W                | 0.2 |
| <hr/>  |                 |                  |     |
| Tightening torque for terminals  | min             | Nm               | 1.5 |
|  | max             | Nm               | 1.8 |
|  | min             | I <sub>bin</sub> | 1.1 |
|  | max             | I <sub>bin</sub> | 1.5 |
| <hr/>  |                 |                  |     |
| Tightening torque for coil terminal  | min             | Nm               | 0.8 |
|  | max             | Nm               | 1   |
|  | min             | I <sub>bin</sub> | 0.8 |

|   |           |     |                  |                          |
|---|-----------|-----|------------------|--------------------------|
|   |           | max | I <sub>bin</sub> | 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 properly wired |

**Mechanical features**

|                    |                             |                  |   |                       |
|--------------------|-----------------------------|------------------|---|-----------------------|
| Operating position |                             | normal allowable |   | Vertical plan ±30°    |
| Fixing             |                             |                  |   | Screw / DIN rail 35mm |
| Weight             |                             |                  | g | 500                   |
| Conductor section  | AWG/kcmil conductor section | max              |   | 10                    |

**Auxiliary contact characteristics**

|                                 |  |      |   |             |
|---------------------------------|--|------|---|-------------|
| 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         |

**Operations**

|                 |  |        |  |          |
|-----------------|--|--------|--|----------|
| Mechanical life |  | cycles |  | 20000000 |
| Electrical life |  | cycles |  | 2000000  |

**Safety related data**

|  |  |                 |        |          |
|--|--|-----------------|--------|----------|
| Performance level B10d according to EN/ISO 13489-1 |  | rated load      | cycles | 2000000  |
|  |  | mechanical load | cycles | 20000000 |
| Mirror contacts according to IEC/EN 60947-4-1      |  |                 |        | yes      |
| EMC compatibility                                  |  |                 |        | yes      |

**DC coil operating**

|  |          |     |         |
|--|----------|-----|---------|
| DC rated control voltage                           |          | V   | 220     |
| DC operating voltage                               |          |     |         |
|  | pick-up  | min | %Us 70  |
|  |          | max | %Us 125 |
|  | drop-out | min | %Us 10  |
|  |          | max | %Us 40  |
| Average coil consumption $\leq 20^{\circ}\text{C}$ |          |     |         |
|  | in-rush  | W   | 5.4     |
|  | holding  | W   | 5.4     |

**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 |
|                             | in DC      |     |       |
|                             | Closing NO | min | ms 54 |
|                             |            | max | ms 66 |
|                             | Opening NO | min | ms 14 |
|                             |            | max | ms 17 |
|                             | Closing NC | min | ms 24 |
|                             |            | max | ms 30 |
|                             | Opening NC | min | ms 47 |
|                             |            | max | ms 57 |

**UL technical data**

|  |         |   |       |
|--|---------|---|-------|
| Full-load current (FLA) for three-phase AC motor |         |   |       |
|  | at 480V | A | 7.6   |
|  | at 600V | A | 0.375 |

|                                |                           |          |         |
|--------------------------------|---------------------------|----------|---------|
| Yielded mechanical performance |                           |          |         |
|                                | for single-phase AC motor |          |         |
|                                |                           | 110/120V | HP 0.75 |
|                                |                           | 230V     | HP 2    |
|                                | for three-phase AC motor  |          |         |
|                                |                           | 200/208V | HP 3    |
|                                |                           | 220/230V | HP 3    |
|                                |                           | 460/480V | HP 5    |
|                                |                           | 575/600V | HP 7.5  |

General USE

|                    |            |   |     |
|--------------------|------------|---|-----|
| Contactor          | AC current | A | 25  |
| 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  | 30  |
|                | Fuse class            |    | J   |
| Standard fault | Short circuit current | kA | 5   |
|                | Fuse rating           | A  | 60  |

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

Impact resistance

""

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/BS 60947-1
- IEC/EN/BS 60947-4-1
- UL 60947-1
- UL 60947-4-1

Certificates

CCC

cULus

EAC

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching