



Product designation

Power contactor

Product type designation

BF09

**Contact characteristics**

|                                                                                |                                                    |        |
|--------------------------------------------------------------------------------|----------------------------------------------------|--------|
| Number of poles                                                                | Nr.                                                | 4      |
| 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-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   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 4 poles in series | $\leq 24\text{V}$                                  | A 20   |
|                                                                                | 48V                                                | A 20   |
|                                                                                | 75V                                                | A 20   |
|                                                                                | 110V                                               | A 16   |
|                                                                                | 220V                                               | A 12   |

|                                                                      |          |                 |      |
|----------------------------------------------------------------------|----------|-----------------|------|
| IEC max current Ie 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        | –               |      |
| IEC max current Ie 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               |      |
| IEC max current Ie 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               |      |
| IEC max current Ie 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               |      |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |          | A               | 150  |
| Protection fuse                                                      |          |                 |      |
|                                                                      | gG (IEC) | A               | 25   |
|                                                                      | aM (IEC) | A               | 10   |
| Making capacity (RMS value)                                          |          | A               | 90   |
| Breaking capacity at voltage                                         |          |                 |      |
|                                                                      | 440V     | A               | 72   |
|                                                                      | 500V     | A               | 72   |
|                                                                      | 690V     | A               | 71   |
| Resistance per pole (average value)                                  |          | mΩ              | 2.5  |
| Power dissipation per pole (average value)                           |          |                 |      |
|                                                                      | Ith      | W               | 1.6  |
|                                                                      | AC-3     | W               | 0.2  |
| Tightening torque for terminals                                      |          |                 |      |
|                                                                      | min      | Nm              | 1.5  |
|                                                                      | max      | Nm              | 1.8  |
|                                                                      | min      | Ibin            | 1.1  |
|                                                                      | max      | Ibin            | 1.5  |
| Tightening torque for coil terminal                                  |          |                 |      |
|                                                                      | min      | Nm              | 0.8  |
|                                                                      | max      | Nm              | 1    |
|                                                                      | min      | Ibin            | 0.8  |
|                                                                      | max      | Ibin            | 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 |
| <b>Mechanical features</b>                          |                            |                 |                          |
| Operating position                                  | normal allowable           |                 | Vertical plan ±30°       |
| Fixing                                              |                            |                 | Screw / DIN rail 35mm    |
| Weight                                              |                            | g               | 368                      |
| <b>Operations</b>                                   |                            |                 |                          |
| Mechanical life                                     |                            | cycles          | 20000000                 |
| Electrical life                                     |                            | cycles          | 2000000                  |
| <b>Safety related data</b>                          |                            |                 |                          |
| Performance level B10d according to EN/ISO 13489-1  | rated load mechanical load | cycles          | 2000000                  |
|                                                     |                            | cycles          | 20000000                 |
| EMC compatibility                                   |                            |                 | yes                      |
| <b>AC coil operating</b>                            |                            |                 |                          |
| Rated AC voltage at 50/60Hz                         |                            | V               | 48                       |
| 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 holding            | VA              | 75                       |
|                                                     |                            | VA              | 9                        |
| of 50/60Hz coil powered at 60Hz                     | in-rush holding            | VA              | 70                       |
|                                                     |                            | VA              | 6.5                      |
| of 60Hz coil powered at 60Hz                        | in-rush holding            | VA              | 75                       |
|                                                     |                            | VA              | 9                        |
| Dissipation at holding ≤20°C 50Hz                   |                            | W               | 2.5                      |
| <b>Max cycles frequency</b>                         |                            |                 |                          |
| 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

Rated operational voltage AC (UL)

|   |     |
|---|-----|
| V | 600 |
|---|-----|

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

|         |   |     |
|---------|---|-----|
| at 480V | A | 7.6 |
| at 600V | A | 9   |

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

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 |

## Ambient conditions

Temperature

Operating temperature

|     |    |     |
|-----|----|-----|
| min | °C | -50 |
| max | °C | 70  |

Storage temperature

|     |    |     |
|-----|----|-----|
| min | °C | -60 |
| max | °C | 80  |

Max altitude

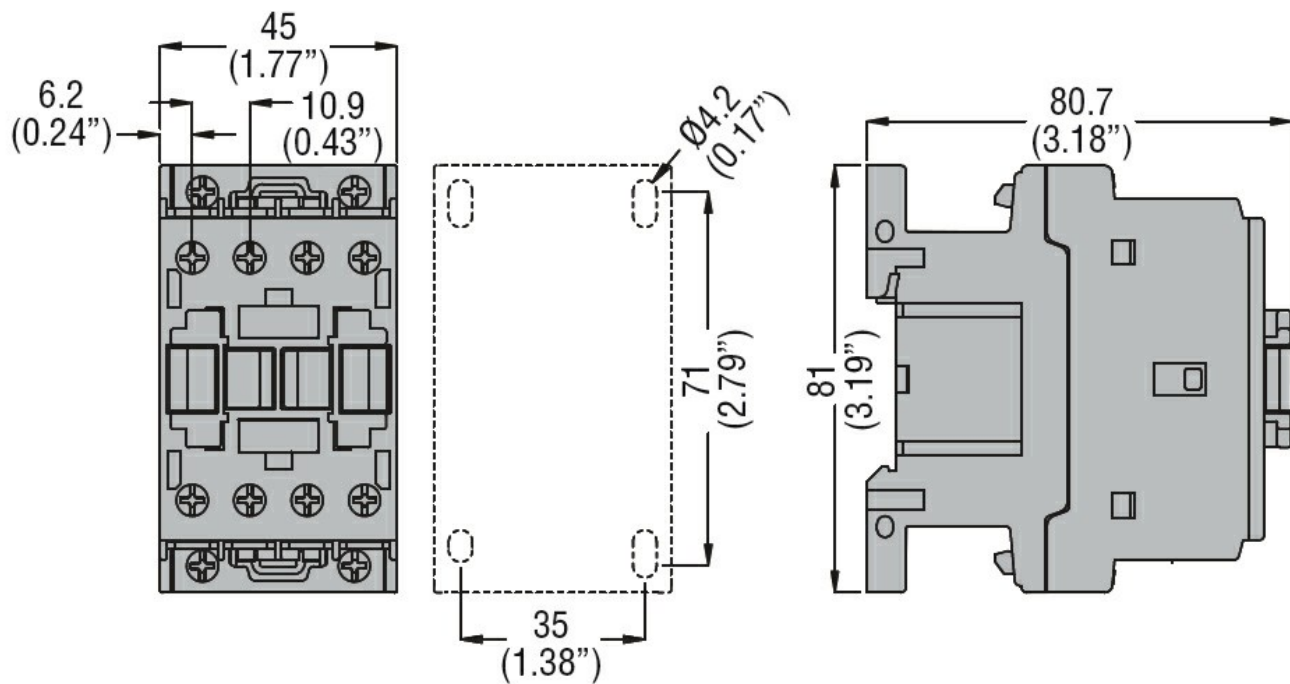
|   |      |
|---|------|
| m | 3000 |
|---|------|

## Resistance & Protection

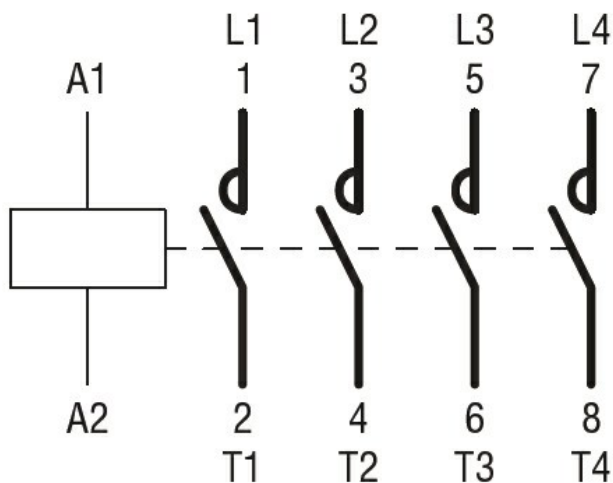
Pollution degree

3

## Dimensions



#### Wiring diagrams



#### Certifications and compliance

##### Compliance

CSA C22.2 n° 60947-1  
CSA C22.2 n° 60947-4-1  
IEC/EN/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