

Main Features



| | |
|------------------------------------|---------------|
| Reference | : CWBS |
| Product code | : 14128705 |
| Rated current Ie AC-3 (Ue ≤ 440 V) | : 9 A |
| Main contacts (power) | : 3 NO |
| Auxiliary contacts | : 3 NO + 3 NC |
| Control voltage | : 24V 50/60Hz |
| Type of terminal | : Screw |

Basic data

| | |
|--|------------------------|
| Rated utilization voltage Ue | |
| - IEC / UL | : 690 V / 600 V |
| Isolation voltage Ui (pollution degree 3) | |
| - IEC / UL | : 690 V / 600 V |
| Rated impulse withstand voltage Uimp | : 6 kV |
| - Frequency limits [1] | : 25 Hz ... 400 Hz |
| - Mechanical lifespan | |
| AC-operated contactor | : 10 million |
| DC-operated contactor | : 10 million |
| Electrical lifespan - Ie AC3 | : 2 million |
| Number of coil terminals (AC Coil) | |
| AC coil contactors | : 2 |
| - DC coil contactors | : 2 |
| Resistance to vibration (IEC 60068-2-6) | |
| opened contactor | : 4 g |
| closed contactor | : 4 g |
| Resistance to mechanical shock (½ sinusoid = 11ms) | |
| opened contactor | : 10 g |
| closed contactor | : 15 g |
| Installation | : DIN 35 mm (EN 50022) |
| Degree of protection (IEC 60529) | |
| Main circuit | : IP10 |
| Control circuit | : IP20 |

Alternating current - control circuit

| | |
|---|-----------------|
| Isolation voltage Ui (pollution degree 3) | |
| - IEC / UL | : 690 V / 600 V |
| Standard voltages for 50/60 Hz | : 12...550 V |
| Command circuit operation limits | |
| - control circuit 60 Hz | |
| - pick up | : 0,5...0,8xUs |
| - drop out | : 0,2...0,6xUs |
| - control circuit 50 Hz | |
| - pick up | : 0,5...0,8xUs |
| - drop out | : 0,2...0,6xUs |
| - Average coil consumption | |
| - operating at 60 Hz | |
| - closed magnetic circuit | : 6...9 VA |
| - power factor (cos φ) | : 0.27 |
| - Thermal power dissipated | : 1,5...2,5 W |
| - closing the magnetic circuit | : 60...90 VA |
| - operating at 50 Hz | |
| - closed magnetic circuit | : 7,2...10,8 VA |
| - power factor (cos φ) | : 0.24 |
| - Thermal power dissipated | : 1.5...2.5 W |
| - closing the magnetic circuit | : 72...108 VA |
| Average time of operation | |
| - closing the NO contacts | : 15...25 ms |
| - opening the NO contacts | : 8...12 ms |

Direct current - command circuit

| | |
|----------------------------------|---|
| - IEC / UL | |
| Standard voltages | : |
| Command circuit operation limits | |
| - pick up | : |
| - drop out | : |
| Average consumption | |
| - closed magnetic circuit | : |
| - closing the magnetic circuit | : |
| Thermal power dissipated | : |
| Average time of operation | |
| - closing the NO contacts | : |
| - opening the NO contacts | : |

Main contacts (power)

| | |
|------------------------------|-------|
| Rated utilization current Ie | |
| - AC-3 (Ue ≤ 440 V) | : 9 A |

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Contactors



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|--|-----------------|
| - AC-4 (Ue ≤ 440 V) | : 4,4 A |
| - AC-1 (θ ≤ 55 °C, Ue ≤ 690 V) | : 25 A |
| Rated utilization voltage Ue | |
| - IEC / UL | : 690 V / 600 V |
| Number of main contacts | : 3 NO |
| Establishment capacity (IEC 60947) | : 250 A |
| Breaking capacity (IEC/EN 60947) | |
| - Ue≤400V | : 250 A |
| - Ue=500V | : 220 A |
| - Ue=690V | : 150 A |
| Temporary permissible current (without previously current conduction during 15 min at θ ≤ 40 °C) | |
| - 1 sec | : 210 A |
| - 1 sec | : 105 A |
| - 1 sec | : 105 A |
| - 1 min | : |
| - 10 min | : 30 A |
| Protection against short circuit of the contacts main fuse (gL/gG) | |
| - @600V - UL/CSA | : 5 kA |
| - type 1 coordination | : 25 A |
| - type 2 coordination | : Not available |
| Average power dissipated per pole | |
| AC-1 (θ ≤ 55 °C, Ue ≤ 690 V) | : 1,5 W |
| AC-3 (Ue ≤ 440 V) | : 0,2 W |
| Utilization category AC-3 | |
| Rated current Ie (θ ≤ 55 °C) | |
| - Ue ≤ 440V | : 9 A |
| - Ue ≤ 500V | : 9 A |
| - Ue ≤ 690V | : 7 A |
| Maximum percentage (600 ops./h) | : 100 % |

| Orientative values of power (IEC)-three-phase induction motors (50/60 Hz)-IV poles-1800 rpm | | |
|---|--------|----------|
| Voltage | kW | cv or HP |
| 220 / 240 V | 2,2 kW | 3 HP |
| 380 / 400 V | 4 kW | 5,5 HP |
| 415 / 440 V | 4,5 kW | 6 HP |
| 500 V | 5,5 kW | 7,5 HP |
| 660 / 690 V | 5,5 kW | 7,5 HP |

| Orientative values of power (UL) | | |
|----------------------------------|----------------|---------------|
| Voltage | 1 Phase | 3 Phase |
| 120 V | 0.75 | Not available |
| 200 V | Not applicable | 3 |
| 208 V | Not available | Not available |
| 240 V | 1.5 | 3 |
| 480 V | Not available | 5 |
| 600 V | Not available | 7.5 |

Utilization category AC-4

| | |
|------------------------------|---------|
| Rated current Ie (θ ≤ 55 °C) | |
| - Ue ≤ 440V | : 4,4 A |
| - Ue ≤ 500V | : 3,9 A |
| - Ue ≤ 690V | : 2,8 A |

| Orientative values of power (IEC)-three-phase induction motors (50/60 Hz)-IV poles-1800 rpm | | |
|---|--------|----------|
| Voltage | kW | cv or HP |
| 220 / 240 V | 1,5 kW | 2 HP |
| 380 / 400 V | 2,2 kW | 2,9 HP |
| 415 / 440 V | 2,2 kW | 2,9 HP |
| 500 V | 2,2 kW | 2,9 HP |
| 660 / 690 V | 2,2 kW | 2,9 HP |

Utilization category AC-1 (3 P/NA)

| | |
|---------------------------------|-----|
| Maximum percentage (600 ops./h) | : 1 |
|---------------------------------|-----|

| Maximum power operation θ ≤ 55°C (three resistors) | |
|--|---------|
| Voltage | Power |
| 220 / 240 V | 9,5 kW |
| 380 / 400 V | 16,5 kW |
| 415 / 440 V | 19 kW |
| 500 V | 21,5 kW |
| 660 / 690 V | 28,5 kW |

Auxiliary contacts

| | |
|-----------------------|------------------|
| Standards compliance | : IEC 600947-5-1 |
| Insulation voltage Ui | |
| - IEC / UL | : 1000 V / 600 V |

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Contactors



Rated utilization voltage U_e
 - IEC / UL : 690 V / 690 V
 Conventional thermal current I_{th} ($\theta \leq 55^\circ\text{C}$) : 10 A
 Rated current I_e - IEC 60947-5-1/AC-15
 - 220 / 240 V : 10 A
 - 380 / 440 V : 4 A
 - 500 V : 2,5 A
 - 660 / 690 V : 1,5 A
 Rated current I_e - IEC 60947-5-1/DC-13
 - 24 V : 4 A
 - 48 V : 2 A
 - 110 V : 0,7 A
 - 220 V : 0,3 A
 - 440 V : 0,15 A
 Establishment capacity - (AC-15 and $U_e \leq 690\text{V}$ 50/60Hz) : 10 x I_e
 Interruption capacity - (AC-15 and $U_e \leq 400\text{V}$ 50/60Hz) : 1 x I_e
 Protection against short circuit of the contacts main fuse (gL/gG) : 10 A
 Control circuit reliability : 17/5 V/mA
 Electrical lifespan : 1 Million
 Mechanical lifespan : 10 million
 Non-overlapping time between NO and NC contacts : 1,5 ms
 Impedance per pole : 2,5 m Ω

Connection

Main contacts
 Type of the screw : M4 Flat/Phillips
 Section of the conductors

| Type of the conductor | Section (IEC) | Section (UL) |
|---------------------------------|---------------------------|--------------|
| Rigid cable | 1 x 1...6 mm ² | 1 x |
| | 2 x 1...6 mm ² | 2 x |
| Flexible cable without terminal | 1 x 1...6 mm ² | 1 x |
| | 2 x 1...6 mm ² | 2 x |
| Flexible cable with terminal | 1 x 1...6 mm ² | 1 x |
| | 2 x 1...4 mm ² | 2 x |

Tightening torque (IEC/UL) : 1.7 Nm / 15 lb.in
 Control circuit
 Type of the screw : M3,5 Flat/Phillips
 Section of the conductors

| Type of the conductor | Section (IEC) | Section (UL) |
|---------------------------------|-----------------------------|--------------|
| Rigid cable | 1 x 1...4 mm ² | 1 x |
| | 2 x 1...4 mm ² | 2 x |
| Flexible cable without terminal | 1 x 1...4 mm ² | 1 x |
| | 2 x 1...4 mm ² | 2 x |
| Flexible cable with terminal | 1 x 1...4 mm ² | 1 x |
| | 2 x 1...2,5 mm ² | 2 x |

Tightening torque (IEC/UL) : 1 Nm / 8.8 lb.in

Direct current application

Utilization category DC-1 ($L/R \leq 1$ ms)

| Voltage | Rated utilization current (I_e) | | | |
|------------------------|-------------------------------------|-------|------|---------------|
| | Pole(s) in series | | | |
| | 1 | 2 | 3 | 4 |
| $U_e \leq 24\text{V}$ | 20 A | 20 A | 20 A | Not available |
| $U_e \leq 48\text{V}$ | 20 A | 20 A | 20 A | Not available |
| $U_e \leq 60\text{V}$ | 20 A | 20 A | 20 A | Not available |
| $U_e \leq 125\text{V}$ | 4 A | 20 A | 20 A | Not available |
| $U_e \leq 220\text{V}$ | 1 A | 4 A | 20 A | Not available |
| $U_e \leq 440\text{V}$ | 0,4 A | 1 A | 4 A | Not available |
| $U_e \leq 600\text{V}$ | Not available | 0,4 A | 1 A | Not available |

Utilization category DC-3 ($L/R \leq 2.5$ ms)

| Voltage | Rated utilization current (I_e) | | | |
|------------------------|-------------------------------------|---------------|-------|---------------|
| | Pole(s) in series | | | |
| | 1 | 2 | 3 | 4 |
| $U_e \leq 24\text{V}$ | 18 A | 18 A | 18 A | Not available |
| $U_e \leq 48\text{V}$ | 18 A | 18 A | 18 A | Not available |
| $U_e \leq 60\text{V}$ | 18 A | 18 A | 18 A | Not available |
| $U_e \leq 125\text{V}$ | 2 A | 18 A | 18 A | Not available |
| $U_e \leq 220\text{V}$ | 0,5 A | 2 A | 18 A | Not available |
| $U_e \leq 440\text{V}$ | Not available | 0,3 A | 1,5 A | Not available |
| $U_e \leq 600\text{V}$ | Not available | Not available | 0,8 A | Not available |

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Contactors



Operation category DC-5 (L/R ≤ 15ms)

| Voltage | Rated utilization current (Ie) | | | |
|-----------|--------------------------------|---------------|---------------|---------------|
| | Pole(s) in series | | | |
| | 1 | 2 | 3 | 4 |
| Ue ≤ 24V | 18 A | 18 A | 18 A | Not available |
| Ue ≤ 48V | 18 A | 18 A | 18 A | Not available |
| Ue ≤ 60V | 18 A | 18 A | 18 A | Not available |
| Ue ≤ 125V | 2 A | 18 A | 18 A | Not available |
| Ue ≤ 220V | Not available | 2 A | 18 A | Not available |
| Ue ≤ 440V | Not available | Not available | 1,5 A | Not available |
| Ue ≤ 600V | Not available | Not available | Not available | Not available |

Ambient temperature

Operation : -25 °C ... +55 °C
 Storage : -55 °C ... +80 °C
 Maximum altitude with no change of rated values [2] : 3000 m

Dimensions

Height : 78,4 mm (3.09 in)
 Width : 45 mm (1.77 in)
 Depth : 125.8 mm (4.95 in)
 Weight : 0.433 kg

Standards

IEC 60947-1
 UL 508

Certifications

CE, UL and EAC

Notes

- 1) Values above 60 Hz should have current reduction;
- 2) For altitudes of 3000 to 4000 m (0.90 x 0.80 x Ie and Ui) and from 4000 to 5000 m (0.80 x 0.75 x Ie and Ui).