

DATASHEET

Contactors



Main Features



Reference	: CWM
Product code	: 10409928
Rated current Ie AC-3 (Ue ≤ 440 V)	: 9 A
Main contacts (power)	: 3 NO
Auxiliary contacts	: 1 NC
Control voltage	: 20V 50Hz/24V 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 : 1000 V / 600 V

Rated impulse withstand voltage Uimp

- Frequency limits [1] : 6 kV

- Mechanical lifespan

AC-operated contactor : 10 million

DC-operated contactor : 12 million

Electrical lifespan - Ie AC3 : 1,5 million

Number of coil terminals (AC Coil)

AC coil contactors : 4

- DC coil contactors : 4

Resistance to vibration (IEC 60068-2-6)

opened contactor : 3 g

closed contactor : 3 g

Resistance to mechanical shock (½ sinusoid = 11ms)

opened contactor : 8 g

closed contactor : 12 g

Installation

Degree of protection (IEC 60529) : Not available

Main circuit

: IP20

Control circuit

: IP20

Alternating current - control circuit

Isolation voltage Ui (pollution degree 3) : 1000 V / 600 V

- IEC / UL

Standard voltages for 50/60 Hz : 12...660 V

Command circuit operation limits

- control circuit 60 Hz : 0,4...0,76xUs

- pick up : 0,25...0,65xUs

- drop out : 0,4...0,76xUs

- control circuit 50 Hz : 0,25...0,65xUs

- pick up : 5,5...9,3 VA

- drop out : 0,28

- Average coil consumption : 2,6 W

- operating at 60 Hz : 70 VA

- operating at 50 Hz : 5,5...9,3 A

- pick up : 0,28

- power factor (cos φ) : 2,6 W

- Thermal power dissipated : 70 VA

- closing the magnetic circuit : Average time of operation

- opening the NO contacts : 8...20 ms

- closing the NO contacts : 6...13 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 :

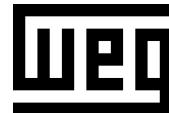
Main contacts (power)

Rated utilization current Ie

- AC-3 (Ue ≤ 440 V) : 9 A

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- AC-4 (Ue ≤ 440 V)	: 5 A
- AC-1 ($\theta \leq 55^\circ\text{C}$, Ue ≤ 690 V)	: 25 A
Rated utilization voltage Ue	: 690 V / 600 V
- IEC / UL	: 3 NO
Number of main contacts	: 300 A
Establishment capacity (IEC 60947)	: 250 A
Breaking capacity (IEC/EN 60947)	: 250 A
- Ue≤400V	: 130 A
- Ue=500V	
- Ue=690V	
Temporary permissible current (without previously current conduction during 15 min at $\theta \leq 40^\circ\text{C}$)	
- 1 sec	: 455 A
- 10 sec	: 144 A
- 10 sec	: 144 A
- 1 min	:
- 10 min	: Not available
Protection against short circuit of the contacts main fuse (gL/gG)	
- @600V - UL/CSA	: 5 kA
- type 1 coordination	: 50 A
- type 2 coordination	: 25 A
Average power dissipated per pole	
AC-1 ($\theta \leq 55^\circ\text{C}$, Ue ≤ 690 V)	: 1.5 W
AC-3 (Ue ≤ 440 V)	: 0.2 W
Utilization category AC-3	
Rated current Ie ($\theta \leq 55^\circ\text{C}$)	
- Ue ≤ 440V	: 9 A
- Ue ≤ 500V	: 7,5 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	5,4 HP
415 / 440 V	4,5 kW	6 HP
500 V	4,5 kW	6 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 ($\theta \leq 55^\circ\text{C}$)

- Ue ≤ 440V	: 5 A
- Ue ≤ 500V	: Not available
- Ue ≤ 690V	: 5 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	1,1 kW	1,5 HP
380 / 400 V	2,2 kW	3 HP
415 / 440 V	2,2 kW	3 HP
500 V	3 kW	4 HP
660 / 690 V	3 kW	4 HP

Utilization category AC-1 (3 P/NA)

Maximum percentage (600 ops./h)

: 1

Maximum power operation $\theta \leq 55^\circ\text{C}$ (three resistors)	
Voltage	Power
220 / 240 V	9,5 kW
380 / 400 V	16,5 kW
415 / 440 V	18 kW
500 V	21,5 kW
660 / 690 V	28,5 kW

Auxiliary contacts

Standards compliance

: IEC 600947-5-1

Insulation voltage Ui

: 1000 V / 600 V

- IEC / UL

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Rated utilization voltage Ue

- IEC / UL : 690 V / 600 V

Conventional thermal current Ith ($\theta \leq 55^\circ\text{C}$) : 20 A

Rated current le - IEC 60947-5-1/AC-15

- 220 / 240 V : 10 A

- 380 / 440 V : 5 A

- 500 V : 4 A

- 660 / 690 V : 2 A

Rated current le - IEC 60947-5-1/DC-13

- 24 V : 6 A

- 48 V : 4 A

- 110 V : 2 A

- 220 V : 0,7 A

- 440 V : 0,35 A

Establishment capacity - (AC-15 and Ue $\leq 690\text{V}$ 50/60Hz) : 10 x le

Interruption capacity - (AC-15 and Ue $\leq 400\text{V}$ 50/60Hz) : 10 x le

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 : 1.28 m Ω

Connection

Main contacts

Type of the screw : M3,5 Flat/Phillips

Section of the conductors

Type of the conductor	Section (IEC)	Section (UL)
Rigid cable	1 x 0,5...6 mm ²	1 x
	2 x 0,5...6 mm ²	2 x
Flexible cable without terminal	1 x 1...6 mm ²	1 x
	2 x 2,5...6 mm ²	2 x
Flexible cable with terminal	1 x 0,5...4 mm ²	1 x
	2 x 0,5...2,5 mm ²	2 x

Tightening torque (IEC/UL) : 1...1.5 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 0,5...4 mm ²	1 x
	2 x 0,5...2,5 mm ²	2 x
Flexible cable without terminal	1 x 1...4 mm ²	1 x
	2 x 1...2,5 mm ²	2 x
Flexible cable with terminal	1 x 0,5...4 mm ²	1 x
	2 x 0,5...2,5 mm ²	2 x

Tightening torque (IEC/UL) : 0,8...1,1 Nm / 10 lb.in

Direct current application

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

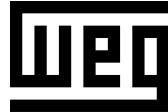
Voltage	Rated utilization current (le)			
	Pole(s) in series			
1	2	3	4	
Ue $\leq 24\text{V}$	18 A	25 A	25 A	25 A
Ue $\leq 48\text{V}$	15 A	25 A	25 A	25 A
Ue $\leq 60\text{V}$	12 A	25 A	25 A	25 A
Ue $\leq 125\text{V}$	6 A	18 A	25 A	25 A
Ue $\leq 220\text{V}$	0,8 A	7,5 A	25 A	25 A
Ue $\leq 440\text{V}$	0,4 A	0,8 A	8 A	15 A
Ue $\leq 600\text{V}$	Not available	0,4 A	4 A	8 A

Utilization category DC-3 (L/R $\leq 2,5\text{ ms}$)

Voltage	Rated utilization current (le)			
	Pole(s) in series			
1	2	3	4	
Ue $\leq 24\text{V}$	12 A	18 A	18 A	Not available
Ue $\leq 48\text{V}$	9 A	18 A	18 A	Not available
Ue $\leq 60\text{V}$	7,5 A	18 A	18 A	Not available
Ue $\leq 125\text{V}$	2 A	10 A	15 A	Not available
Ue $\leq 220\text{V}$	0,6 A	2 A	12 A	Not available
Ue $\leq 440\text{V}$	Not available	0,3 A	1,5 A	Not available
Ue $\leq 600\text{V}$	Not available	Not available	0,8 A	Not available

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Operation category DC-5 (L/R ≤ 15ms)

Voltage	Rated utilization current (Ie)			
	Pole(s) in series			
	1	2	3	4
Ue ≤ 24V	12 A	18 A	18 A	18 A
Ue ≤ 48V	9 A	18 A	18 A	18 A
Ue ≤ 60V	7.5 A	18 A	18 A	18 A
Ue ≤ 125V	0.8 A	5 A	15 A	15 A
Ue ≤ 220V	Not available	0.8 A	3 A	10 A
Ue ≤ 440V	Not available	Not available	0.4 A	1.5 A
Ue ≤ 600V	Not available	Not available	Not available	0.5 A

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	: 81 mm (3.19 in)
Width	: 45 mm (1.77 in)
Depth	: 87 mm (3.43 in)
Weight	: 300 g

Standards

IEC 60947-1

UL 508

Certifications

CE, UL, UL-NOM, IRAM, BUREAU VERITAS and EAC

Notes

1) Values above 60 Hz should have current reduction;

2) For altitudes of 3000 to 4000 m ($0.90 \times 0.80 \times Ie$ and Ui) and from 4000 to 5000 m ($0.80 \times 0.75 \times Ie$ and Ui).