

# DATASHEET

## Contactors



### Main Features

Reference	: CWB
Product code	: 12945216
Rated current Ie AC-3 (Ue ≤ 440 V)	: 12 A
Main contacts (power)	: 3 NO
Auxiliary contacts	: 1 NO + 1 NC
Control voltage	: 120V 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)	: 12 A

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- AC-4 (Ue ≤ 440 V)	: 5,8 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)	: 0,4 W
<b>Utilization category AC-3</b>	
Rated current Ie (θ ≤ 55 °C)	
- Ue ≤ 440V	: 12 A
- Ue ≤ 500V	: 12 A
- Ue ≤ 690V	: 9 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	3 kW	4 HP
380 / 400 V	5,5 kW	7,5 HP
415 / 440 V	6,5 kW	8,7 HP
500 V	7,5 kW	10 HP
660 / 690 V	7,5 kW	10 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	2	3
480 V	Not available	7.5
600 V	Not available	10

### Utilization category AC-4

Rated current Ie (θ ≤ 55 °C)	
- Ue ≤ 440V	: 5,8 A
- Ue ≤ 500V	: 5,1 A
- Ue ≤ 690V	: 3,7 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	3,7 kW	5 HP
415 / 440 V	3 kW	4 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
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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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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 $\Omega$

### 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 <sup>2</sup>	1 x
	2 x 1...6 mm <sup>2</sup>	2 x
Flexible cable without terminal	1 x 1...6 mm <sup>2</sup>	1 x
	2 x 1...6 mm <sup>2</sup>	2 x
Flexible cable with terminal	1 x 1...6 mm <sup>2</sup>	1 x
	2 x 1...4 mm <sup>2</sup>	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 <sup>2</sup>	1 x
	2 x 1...4 mm <sup>2</sup>	2 x
Flexible cable without terminal	1 x 1...4 mm <sup>2</sup>	1 x
	2 x 1...4 mm <sup>2</sup>	2 x
Flexible cable with terminal	1 x 1...4 mm <sup>2</sup>	1 x
	2 x 1...2,5 mm <sup>2</sup>	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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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 : 86,9 mm (3.42 in)  
 Weight : 372 g

### Standards

IEC 60947-1  
 UL 508

### Certifications

CE, UL, UL-NOM 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).