

CWL, RWL AND MWL MOTOR STARTER AND PROTECTION

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competitiveness
to **results**

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Driving efficiency and sustainability



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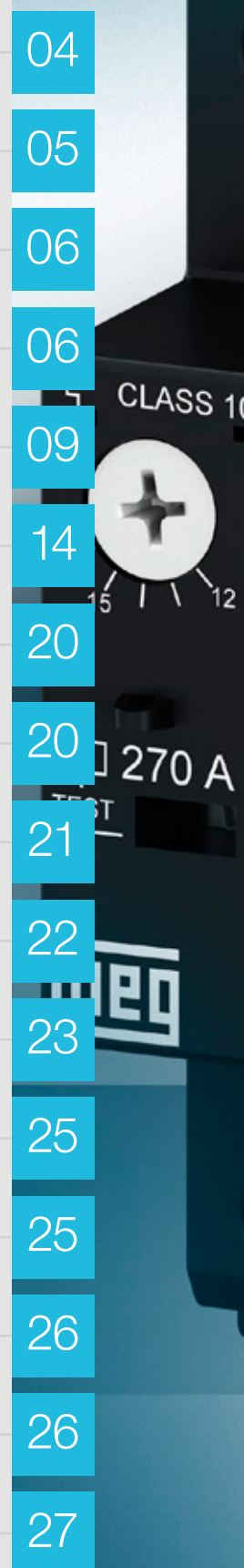
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MWL 18

A4DDDD

weidmüller

CWL 25

10E

13 NO

CWL 25

2 T1

4 T2

6 T3

4 NO

weidmüller RWL-27

XXA

V#X

AUTO
R
HAND

1 L1

3 L2

5 L3

1 L1

3 L2

5 L3

4-

2-

3-

4-

5-

2-

3-

4-

5-

2 T1

4 T2

6 T3

96 NC

98 NO

97 NO

95 NC

*Your efficient and
effective application
at the lowest cost.*



Connecting competitiveness to results

The line of contactors, motor protective circuit breakers and thermal overload relays of the L family combines the recognized quality of the WEG brand with the competitiveness that your business needs.

Designed to perform the essential functions in motor start and protection, the components of the line provide the exact performance you need with excellent cost-effectiveness.

Developed to execute the essential functions for motor start and protection in **light applications** with **efficiency and quality**, the components of this line offer the necessary performance, high quality and excellent cost-effectiveness your daily needs.



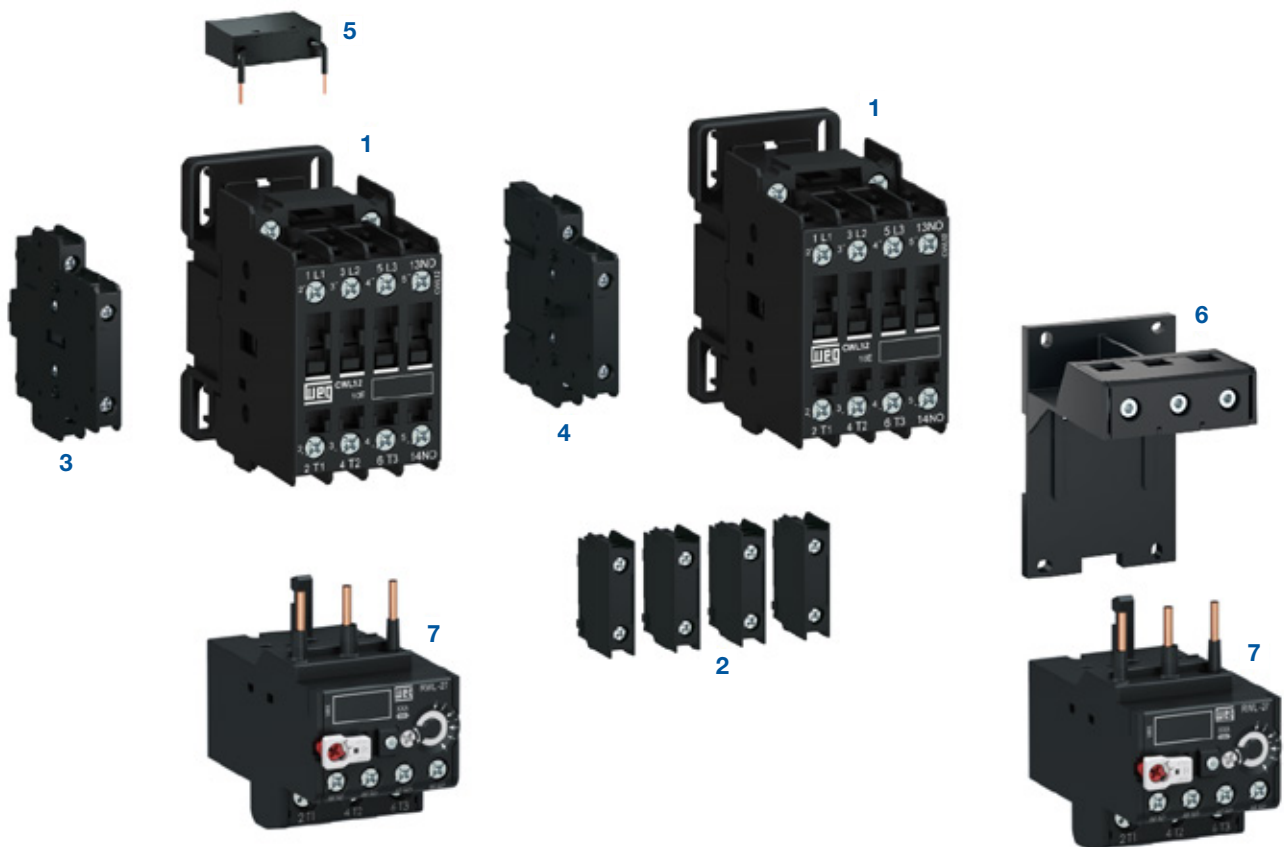
Applications



CWL contactors and RWL thermal overload relays

Overview

CWL9...45 contactors and RWL27-1D thermal overload relays

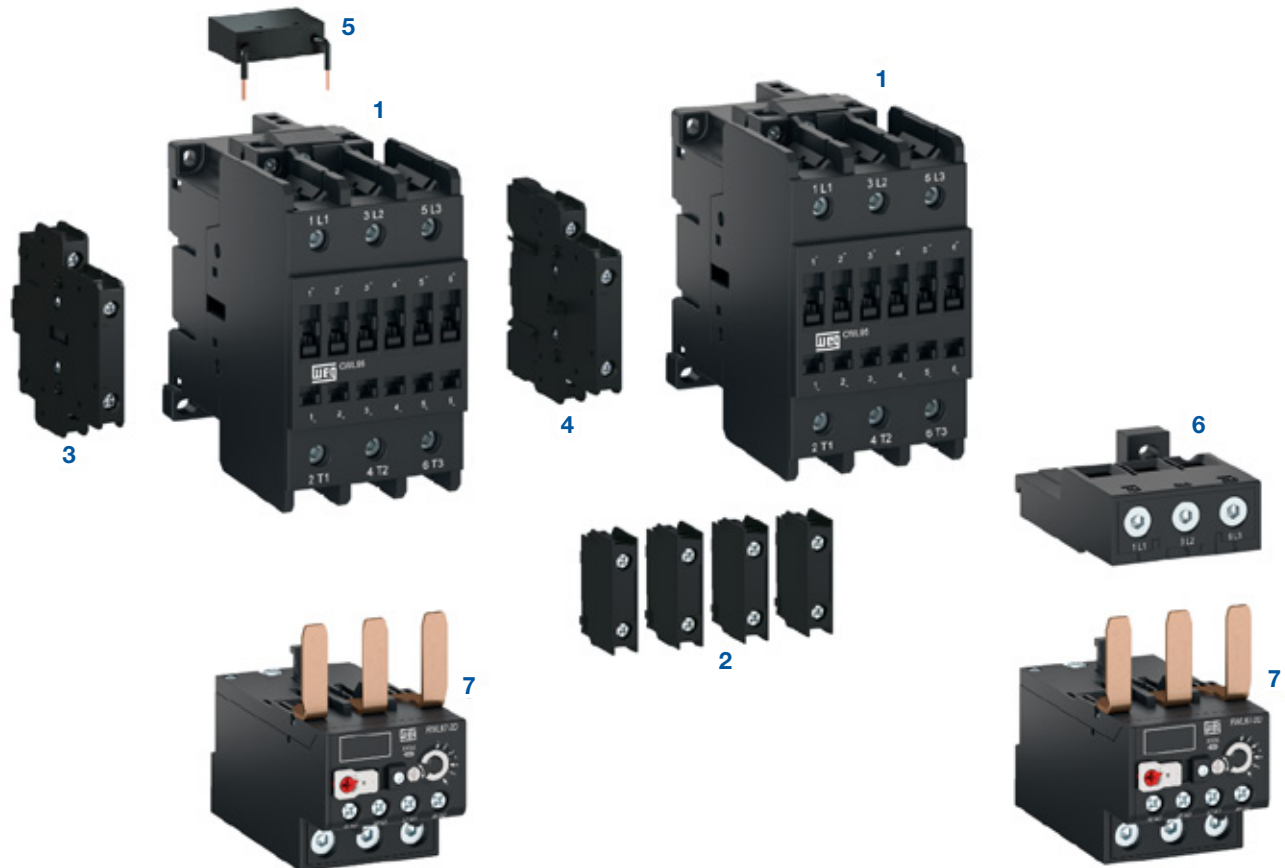


- 1 - CWL9...45 contactors
- 2 - BCFL front mounting auxiliary contact blocks
- 3 - BCLL side mounting auxiliary contact block
- 4 - BLIML mechanical interlock blocks

- 5 - BAM surge suppressor blocks
- 6 - BFL27-1D individual screw or DIN rail 35 mm mounting base
- 7 - RWL27-1D overload relays

Overview

CWL50...95 contactors and RWL67-2D thermal overload relays

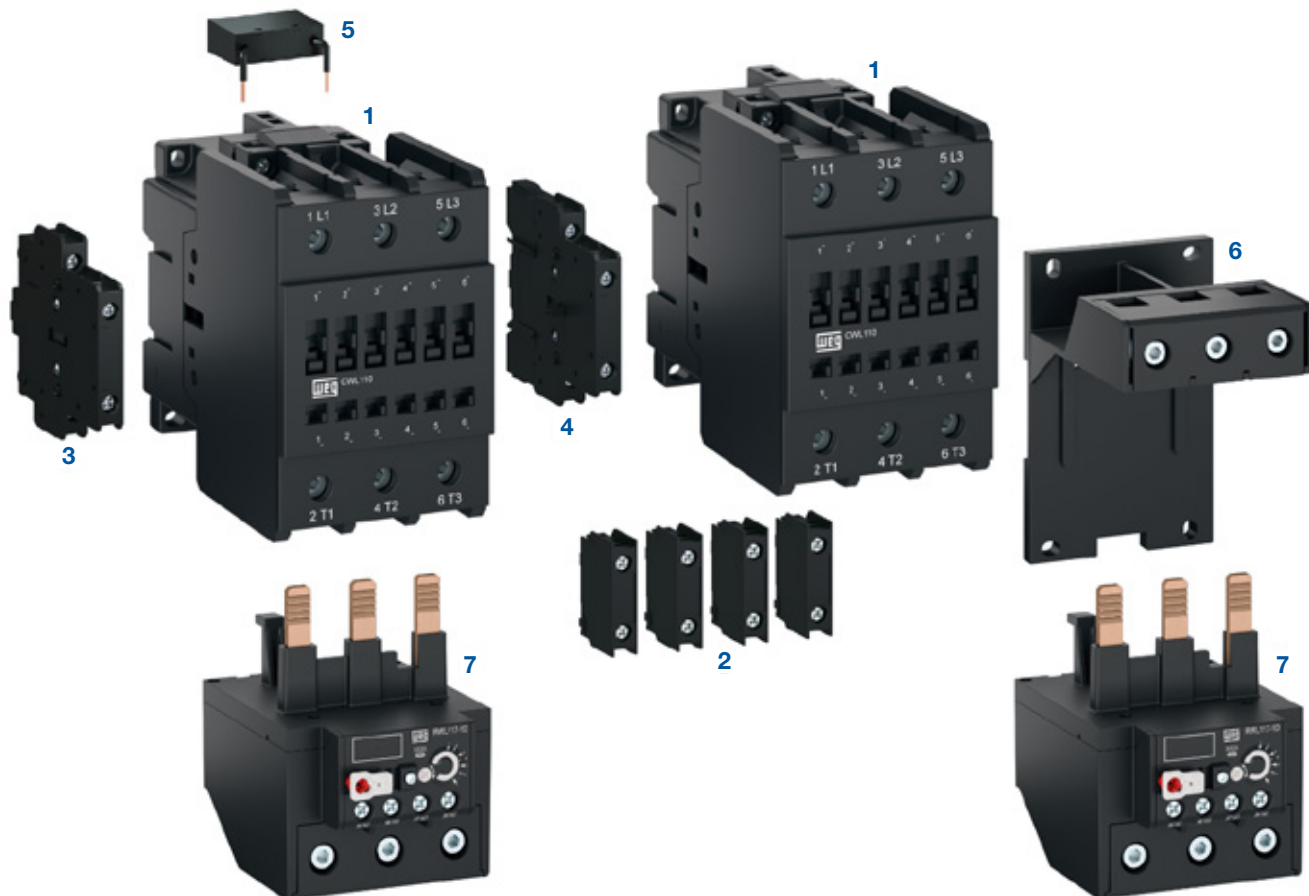


- 1** - CWL50...95 contactors
- 2** - BCFL front mounting auxiliary contact blocks
- 3** - BCLL side mounting auxiliary contact block
- 4** - BLIML mechanical interlock blocks

- 5** - BAM surge suppressor blocks
- 6** - BFL67-2D individual screw or DIN rail 35 mm mounting base
- 7** - RWL67-2D overload relays

Overview

CWL110 contactor and RWL117-1D thermal overload relays



- 1 - CWL110 contactors
- 2 - BCFL front mounting auxiliary contact blocks
- 3 - BCCL side mounting auxiliary contact block
- 4 - BLIML mechanical interlock blocks

- 5 - BAM surge suppressor blocks
- 6 - BFL117-1D individual screw or DIN rail 35 mm mounting base
- 7 - RWL117-1D overload relays

CWL contactors

Selection table



I _e AC-3 440 V (A)	I _{th} AC-1 440 V (A)	Power ¹⁾ AC-3 (kW / cv)			Integrated auxiliary contacts	Auxiliary contacts supplied separately	Reference to fill the control voltage in	Weight (kg)
		220 V 230 V	380 V 400 V	415 V 440 V				
9	25	2.2 / 3	4 / 5.4	4.5 / 6	1NO	-	CWL9-10-30♦	0.360
					1NC	-	CWL9-01-30♦	0.360
12	25	3 / 4	5.5 / 7.5	6.5 / 8.7	1NO	-	CWL12-10-30♦	0.360
					1NC	-	CWL12-01-30♦	0.360
18	25	4.5 / 6	7.5 / 10	9.2 / 12.5	1NO	-	CWL18-10-30♦	0.360
					1NC	-	CWL18-01-30♦	0.360
25	32	6.5 / 8.7	12 / 16.8	12 / 16.8	1NO	-	CWL25-10-30♦	0.360
					1NC	-	CWL25-01-30♦	0.360
32	45	9.2 / 12.5	15 / 20	15 / 20	-	-	CWL32-00-30♦	0.330
					-	1NO + 1NC	CWL32-11-30♦	0.360
40	50	11 / 15	18.5 / 25	22 / 30	-	-	CWL40-00-30♦	0.620
					-	1NO + 1NC	CWL40-11-30♦	0.650
45	50	11 / 15	22 / 30	22 / 30	-	-	CWL45-00-30♦	0.620
					-	1NO + 1NC	CWL45-11-30♦	0.650
50	90	15 / 20	25 / 34	30 / 40	-	-	CWL50-00-30♦	1.020
					-	1NO + 1NC	CWL50-11-30♦	1.050
65	110	18.5 / 25	30 / 40	37 / 50	-	-	CWL65-00-30♦	1.030
					-	1NO + 1NC	CWL65-11-30♦	1.060
80	110	22 / 30	40 / 54	45 / 60	-	-	CWL80-00-30♦	1.030
					-	1NO + 1NC	CWL80-11-30♦	1.060
95	110	25 / 34	45 / 60	55 / 75	-	-	CWL95-00-30♦	1.030
					-	1NO + 1NC	CWL95-11-30♦	1.060
110	140	30 / 40	55 / 75	59 / 79	-	-	CWL110-00-30♦	1.320
					-	1NO + 1NC	CWL110-11-30♦	1.350

Replace "♦" by the control voltage code.

Alternating current

Code	D02	D07	D13	D17	D23	D24	D25	D27	D33	D34	D36	D39
V (50/60 Hz)	24	48	110	127	220	230	240	255	380	400	440	480

IEC/EN 60947



Note: 1) Orientative values considering three-phase motor - IV pole - 60 Hz - 1,800 rpm.



CWL contactors

Accessories

Auxiliary contact blocks

Illustrative picture	For use with	Mounting	Maximum number of auxiliary contacts per contactor	Auxiliary contacts	Reference	Code	Weight (kg)
	CWL9...110	Front	CWL9...32 = 4 contacts CWL40...110 = 6 contacts	1NO	BCFL10	14246177	0.016
		Front		1NC	BCFL01	14246268	
	CWL9...110	Side		2NO	BCLL20	14247665	0.055
		Side		1NO + 1NC	BCLL11	14247666	

Mechanical interlock

Illustrative picture	For use with	Mounting	Functionality	Auxiliary contacts	Reference	Code	Weight (kg)
	CWL9...110	Side	Prevents simultaneous activation	N/D	BLIML	14247667	0.055
			Prevents simultaneous activation and allows electrical interlock	1NC + 1NC	BLIML.02	14247738	

Surge suppressor

Illustrative picture	For use with	Type	Diagram	Voltage	Reference	Code	Weight (kg)
	CWL9...45	RC (Resistor + Capacitor)		24...48 V 50/60 Hz	BAMRC4 D53	10045301	0.015
				50...127 V 50/60 Hz	BAMRC5 D55	10045302	
				130...250 V 50/60 Hz	BAMRC6 D63	10409766	
	CWL50...110			24...48 V 50/60 Hz	BAMRC7 D53	10045303	
				50...127 V 50/60 Hz	BAMRC8 D55	10045304	
				130...250 V 50/60 Hz	BAMRC9 D63	10409767	
	CWL9...110	Varistor		270...380 V 50/60 Hz	BAMV1 D68	10664749	
				400...510 V 50/60 Hz	BAMV2 D73	10046382	

Spare parts

Contact sets		For use with	AC coil	
Reference	Item		Reference to fill the control voltage in	Item
JC CWL9-3P	14843544	CWL9	BRL-32 ♦	On request
JC CWL12-3P	14843546	CWL12		
JC CWL18-3P	14843547	CWL18		
JC CWL25-3P	14843628	CWL25		
JC CWL32-3P	14843629	CWL32		
JC CWL40-3P	14247663	CWL40	BRL-45 ♦	On request
JC CWL45-3P	14247664	CWL45		
JC CWL50-3P	15190004	CWL50	BRL-110 ♦	On request
JC CWL65-3P	15190006	CWL65		
JC CWL80-3P	15190007	CWL80		
JC CWL95-3P	15190138	CWL95		
JC CWL110-3P	15190139	CWL110		

CWL contactors

Technical data

Basic data

Models			CWL9	CWL12	CWL18	CWL25	CWL32	CWL40	CWL45	CWL50	CWL65	CWL80	CWL95	CWL110
Compliance with the standards			IEC/EN 60947-1, IEC/EN 60947-4											
Rated insulation voltage U _i		IEC/EN 60947-4-1, VDE 0660	(V)		690						1,000			
Rated impulse withstand voltage U _{imp}		(IEC/EN 60947-1)	(kV)		6						8			
Mechanical life		AC coil	(millions of operations)		8				5					
Electrical life		I _e AC-3	(millions of operations)		1		0.8		0.9		0.8			
Maximum number of cycles			1,200 operations/h											
Degree of protection (IEC/EM 60529)		Main terminals	IP20				IP10							
		Coil and auxiliary contacts	IP20											
Mounting			Screws or DIN rail 35 mm (EN 50022)											
Coil connection points			4						3					
Resistance to vibrations		Open contactor	(g)		3		4.5		7		4.5		5	
(IEC/EN 60068-2-6)		Closed contactor	(g)		6		5		9		9		7	
Resistance to mechanical shocks		Open contactor	(g)		8				7		6		6	
(½ senoid = 11ms - IEC/EN 60068-2-27)		Closed contactor	(g)		12						10		10	
Ambient temperature		Operation	-25 °C...+55 °C											
		Storage	-55 °C...+80 °C											
Maximum operation altitude without modification in the rated values ¹⁾			3,000 m											

Note: 1) For altitudes 3,000...4,000 m ($0.90 \times I_e$ and $0.80 \times U_i$) and 4,000...5,000 m ($0.80 \times I_e$ and $0.75 \times U_i$).

Control circuit - alternate current (AC)

Models	CWL9...CWL32	CWL40...CWL45	CWL50...CWL110
Rated insulation voltage U_i (V)	690		1,000
Standard voltages at 50/60 Hz (V)	24...480		
Control voltage limits	0.85...1.1		
Coil operation limits (xUs)	0.85...1.1		
Average consumption	1.0 x Us and cold coil		
Coil 50/60 Hz	Closed magnetic circuit (VA)	7.2 / 6.2 (50 / 60 Hz)	11.7 / 10 (50 / 60 Hz)
	Closing of the magnetic circuit (VA)	72 / 62 (50 / 60 Hz)	117 / 100 (50 / 60 Hz)
Operation average time	Closing of the NO contacts (ms)	8...20	10...19
	Opening of the NO contacts (ms)	6...13	5...25

Main contacts

Models			CWL9	CWL12	CWL18	CWL25	CWL32	CWL40	CWL45	CWL50	CWL65	CWL80	CWL95	CWL110
Rated operational current I _e	AC-3 (U _e ≤440 V)	(A)	9	12	18	25	32	40	45	50	65	80	95	110
	AC-4 (U _e ≤440 V)	(A)	3.5	4.5	8	9	15.6	18.5	20	23	30	37	44	50
	AC-1 (θ ≤55 °C, U _e ≤690 V)	(A)	25	25	25	32	45	50	50	90	110	110	110	140
Short circuit protection of the main contacts Fuse (gL/gG)	Coordination type 1	(A)	50	50	63	63	100	125	125	200	200	200	200	250
	Coordination type 2	(A)	25	35	35	50	63	80	80	100	125	125	125	200
Average impedance per pole		(mΩ)	2.4	2.4	2.4	1.7	1.3	1.0	1.0	0.9	0.9	0.9	0.9	0.8
Average power dissipation per pole	AC-1	(W)	1.5	1.5	2.5	3.3	4.6	4.6	4.6	6.7	10.4	10.4	10.4	14.9
	AC-3	(W)	0.2	0.3	0.8	1.0	1.3	1.5	1.5	2.1	3.6	5.5	5.5	8.4

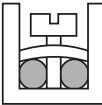
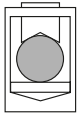
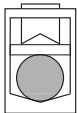
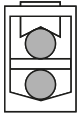
Auxiliary contact block

Model			BCFL / BCLL
Conventional thermal current I_{th} ($\theta \leq 55$ °C)			10
Rated operational current I_e			
AC-15 (IEC/EN 60947-5-1)	110/120 V	(A)	10
	220/230 V	(A)	10
	380/400 V	(A)	4
	660/690 V	(A)	1.5
DC-13 (IEC/EN 60947-5-1)	24 V	(A)	4
	48 V	(A)	2
	110 V	(A)	0.7
	220 V	(A)	0.3
Electrical life (millions of operations)			1
Mechanical life (millions of operations)			8

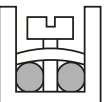
CWL contactors

Technical data

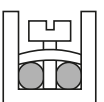
Terminal capacity and tightening torque - power circuit

Models		CWL9...25	CWL32	CWL40...45	CWL50...95	CWL110
Mounting system screw type		M3.5 Slot / Phillips	M4 Slot / Phillips	M4 Slot / Phillips	Hexagonal 4 mm	Hexagonal 4 mm
Conductor cross-section						
Flexible conductor without terminal	(mm²)		1x 1...6 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	-	-
Flexible conductor with terminal	(mm²)		1x 0.5...4 2x 0.5...2.5	1x 1...6.0 2x 1...2.5 2x 2.5...4	-	-
Solid wire	(mm²)		1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...10	-	-
Torque	(Nm)		1...1.5	1.6...2.5	-	-
Connection of the conductors on top - bottom not used						
Flexible conductor without terminal	(mm²)		-	-	1...10	1.5...35
Flexible conductor with terminal	(mm²)		-	-	0.75...10	1...35
Solid wire	(mm²)		-	-	0.75...10	1...35
Torque	(Nm)		-	-	2...2.5	4...6
Connection of the conductors on bottom - top not used						
Flexible conductor without terminal	(mm²)		-	-	1.5...10	6...35
Flexible conductor with terminal	(mm²)		-	-	1...10	2.5...35
Solid wire	(mm²)		-	-	1...10	2.5...35
Torque	(Nm)		-	-	2...2.5	4...6
2-conductor connection						
First conductor/top						
Flexible conductor without terminal	(mm²)		-	-	1...10	1.5...35
Flexible conductor with terminal	(mm²)		-	-	0.75...10	1...25
Solid wire	(mm²)		-	-	0.75...10	1...35
Second conductor/bottom						
Flexible conductor without terminal	(mm²)		-	-	1.5...10	6...35
Flexible conductor with terminal	(mm²)		-	-	1...10	2.5...25
Solid wire	(mm²)		-	-	1...10	2.5...35
Torque	(Nm)		-	-	2...2.5	4...6

Terminal capacity and tightening torque - control circuit

Models		CWL9...110
Mounting system screw type		Slot / Phillips #2
Conductor cross-section		
Flexible conductor without terminal	(mm ²)	
Flexible conductor with terminal / solid wire	(mm ²)	
Torque	(Nm)	
		1x 1...4 or 2x 1...2.5
		1x 0.5...4 or 2x 0.5...1.5 or 2x 1...2.5
		0.8...1.1

Terminal capacity and tightening torques - auxiliary contact blocks

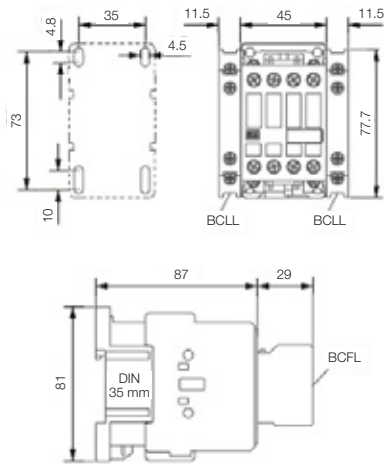
Models		BCFL / BCLL
Mounting system screw type		Slot / Phillips #2
Conductor cross-section		
Flexible conductor without terminal	(mm ²)	
Flexible conductor with terminal / solid wire	(mm ²)	
Torque	(Nm)	
		1x 0.75...2.5 or 2x 0.75...2.5
		1x 0.5...4 or 2x 0.5...2.5
		0.8...1.1

Note: 1) For altitudes 3,000...4,000 m (0.90xI_g and 0.80xU) and 4,000...5,000 m (0.80xI_g 0.75xU).

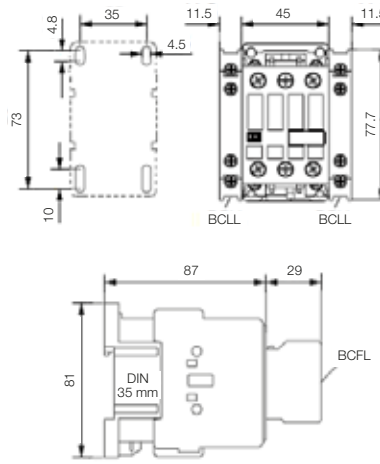
CWL contactors

Dimensions (mm)

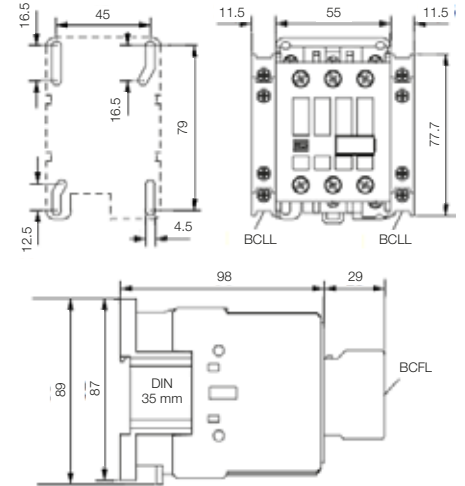
CWL9...25



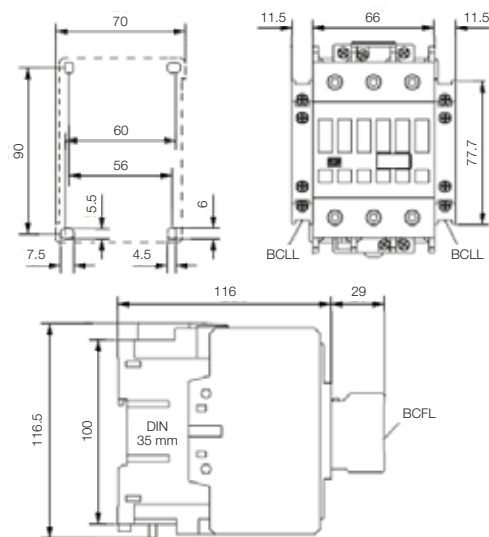
CWL32



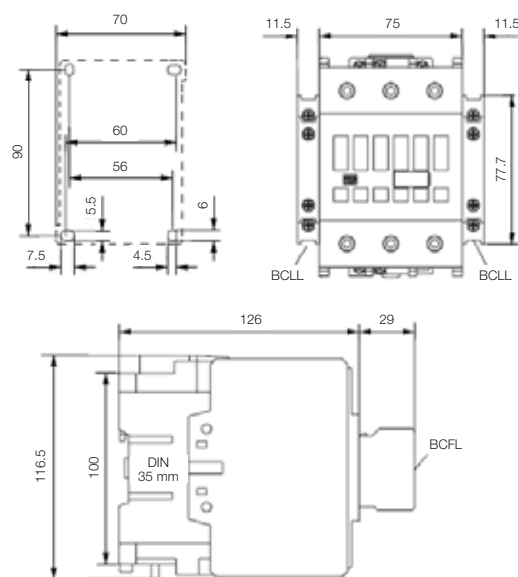
CWL40/45



CWL50...95



CWL110



RWL thermal overload relays

Reset + multifunction key

The relay has a *Reset* button and on the same key four functions, as follows:

A - automatic reset function only. The *Stop/test* function is not allowed;

AUTO - automatic *Reset* function and *Stop/test* function;

HAND - manual *Reset* function and *Stop/test* function;

H - manual *Reset* function only. The *Stop/test* function is not allowed.



Functions	H	HAND	AUTO	A
Relay reset	Manual ¹⁾	Manual ¹⁾	Automatic	Automatic
Auxiliary contact opening test 95-96 (NC)	Function is locked	Allows test/stop	Allows test/stop	Function is locked
Auxiliary contact opening test 97-98 (NO)	Function is locked	Allows test/stop	Allows test/stop	Function is locked

Note: 1) Allow cooling for a short time before resetting the relay.

Short-circuit protection

Fuses or circuit breakers must be used for short circuit protection.

Sensitivity against phase loss

According to IEC/EN 60947-4-1, when two poles of the relay have overloads of 15%, and one of the poles have zero current, the overload relay must trip/open in less than 2 hours.

For effective protection against phase loss, specific products must be considered for this function, providing detection in a few seconds from a phase failure.

Characteristic tripping curve

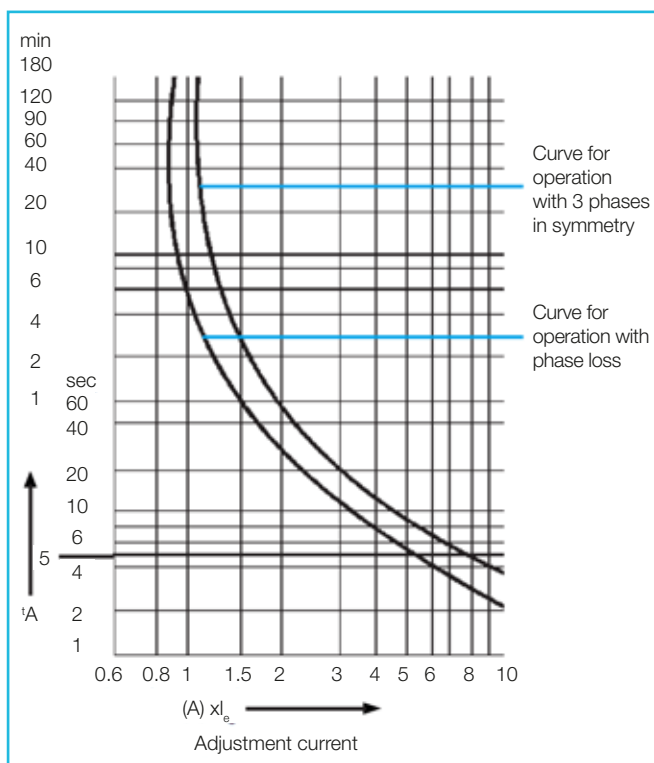
The characteristic tripping curve is the ratio between time and tripping current, in the form of multiples of the adjustment current for symmetrical three-phase loads operating from the cold state. The tripping current limits on the RWL bimetallic overload relays for symmetrical three-phase loads are between 105% and 120% of the adjustment current. The characteristic tripping curve of an RWL overload relay is valid when all the three phases are under the same current strength.

In cases of phase loss, the tripping time tends to be longer or a higher current value will be needed to trigger the mechanism. This required higher current value may result in damage to the load if it remains for a long time.

To avoid that, the RWL overload protection relays have been developed with technology that makes them sensitive to phase loss, accelerating the action of the two active phases on the tripping mechanism, thus maintaining the characteristics of the appropriate tripping curve.

The following graph shows the characteristic tripping curves with the average values of the tolerance range, considering an ambient temperature of 20 °C and starting from the cold state.

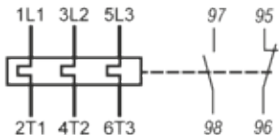
These curves show the tripping time in relation to the rated current in operating conditions with three and two phases. For a different operating temperature, the thermal relay tripping time is reduced to approximately 25% of that shown.



RWL thermal overload relays

Selection table



Direct mounting	Adjustment (A)	Diagram	Reference	Code	Weight (kg)
CWL9-45	0.28...0.4		RWL27-1D3-D004	14148854	0.165
CWL9-45	0.4...0.63		RWL27-1D3-C063	14148944	
CWL9-45	0.56...0.8		RWL27-1D3-D008	14148857	
CWL9-45	0.8...1.2		RWL27-1D3-D012	14148938	
CWL9-45	1.2...1.8		RWL27-1D3-D018	14148939	
CWL9-45	1.8...2.8		RWL27-1D3-D028	14148941	
CWL9-45	2.8...4		RWL27-1D3-U004	14148943	
CWL9-45	4...6.3		RWL27-1D3-D063	14148855	
CWL9-45	5.6...8		RWL27-1D3-U008	14148946	
CWL9-45	7...10		RWL27-1D3-U010	14148958	
CWL9-45	8...12.5		RWL27-1D3-D125	14148959	
CWL9-45	10...15		RWL27-1D3-U015	14148960	
CWL9-45	11...17		RWL27-1D3-U017	14148961	
CWL9-45	15...23		RWL27-1D3-U023	14116402	
CWL9-45	22...32		RWL27-1D3-U032	14119838	
CWL9-45	32...40		RWL27-1D3-U040	14149034	
CWL9-45	36...45		RWL27-1D3-U045	14149244	
CWL50-95	32...50		RWL67-2D3-U050	14539197	0.320
CWL50-95	40...57		RWL67-2D3-U057	14539250	
CWL50-95	50...63		RWL67-2D3-U063	14442605	
CWL50-95	57...70		RWL67-2D3-U070	14539252	
CWL50-95	63...80		RWL67-2D3-U080	14327533	
CWL50-95	80...100		RWL67-2D3-U100	14518950	0.490
CWL110	75...97		RWL117-1D3-U097	14539254	
CWL110	90...112		RWL117-1D3-U112	14539288	

Accessory

Individual mounting base - BFD

Illustrative picture	Function	Use with relays	Reference	Code	Weight (kg)
	Relay mounting with screws or on a 35 mm DIN rail	RWL27-1D	BFL27-1D	14217710	0.050
		RWL67-2D	BFL67-2D	14820511	0.095
		RWL117-1D	BFL117-1D	14820512	0.210

RWL thermal overload relays

Technical data

Basic data

Model		RWL27	RWL67	RWL117
Compliance with the standards		IEC/EN 60947-1		
Frequency limits (Hz)		25...400		
Use in direct current		Yes		
Maximum frequency of operation cycles (operation./h)		15		
Degree of protection (IEC/EN 60529)	Main terminals	IP10		
	Auxiliary contacts	IP10		
	Other regions	IP20		
Resistance to mechanical shocks (IEC/EN 60068-2-27 - 1/2 sine wave) (g/ms)		10/11		
Ambient temperature	Transport and storage	-50 °C...+80 °C		
	Operation	-20 °C...+70 °C		
	Temperature compensation	-20 °C...+60 °C		
Maximum operation altitude without modification in the rated values		2,000 m		

Main contacts

Models	RWL27	RWL67	RWL117
Rated insulation voltage U_i (pollution degree 3) IEC/EN 60947-4-1 (V)	690		
Rated impulse withstand voltage U_{imp} (IEC/EN 60947-1) (kV)	6		
Current settings/maximum fuse (gL/gG) (A)	0.28...0.4 / 2 0.4...0.63 / 2 0.56...0.8 / 2 0.8...1.2 / 4 1.2...1.8 / 6 1.8...2.8 / 6 2.8...4 / 10 4...6.3 / 16 5.6...8 / 20 7...10 / 25 8...12.5 / 25 10...15 / 35 11...17 / 40 15...23 / 50 22...32 / 63 32...40 / 90 36...45 / 100	32...50 / 100 40...57 / 100 50...63 / 100 57...70 / 125 63...80 / 125 80...100 / 225	75...97 / 225 90...112 / 250
Average power dissipation per pole (W)	≤4	≤8	≤12

Weather conditions

For temperatures above +60 °C to +80 °C, a ratio-corrector factor should be used, according to the table below.

Ambient temperature	Current correction factor
65 °C	0.94
70 °C	0.87

Altitude

Up to an altitude of 2,000 m, the relays do not undergo any changes in their specified performance.

As the altitude increases, the atmospheric properties vary in terms of dielectric withstand, cooling capacity and pressure.

Altitude/m	Current correction factor I_u/A	Voltage correction factor U_u/V
2,000	1 x I_n	690
3,000	0.96 x I_n	550
4,000	0.93 x I_n	480
5,000	0.9 x I_n	420

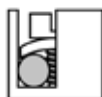
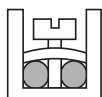
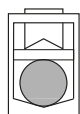
RWL thermal overload relays

Technical data

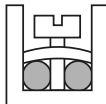
Auxiliary circuit

Models			RWL27, RWL67, RWL117
Compliance with the standards			IEC/EN 60947-4-1
Rated insulation voltage U_i (pollution degree 3)	IEC	(V)	690
Rated operational voltage U_e	IEC	(V)	690
Conventional thermal current I_{th} ($\theta \leq 55^\circ\text{C}$)		(A)	6
Rated operational current I_e			
AC-14/AC-15 (IEC/EN 60947-5-1)	24 V	(A)	4
	60 V	(A)	3.5
	125 V	(A)	3
	230 V	(A)	2
	400 V	(A)	1.5
	500 V	(A)	0.5
	690 V	(A)	0.3
DC-13/DC-14 (IEC/EN 60947-5-1)	24 V	(A)	1
	60 V	(A)	0.5
	110 V	(A)	0.25
	220 V	(A)	0.1
Short circuit protection with fuse (gL/gG)			6
Minimum voltage/missible current (IEC/EN 60947-5-4)			17 V / 5 mA

Terminal capacity and tightening torque - power circuit

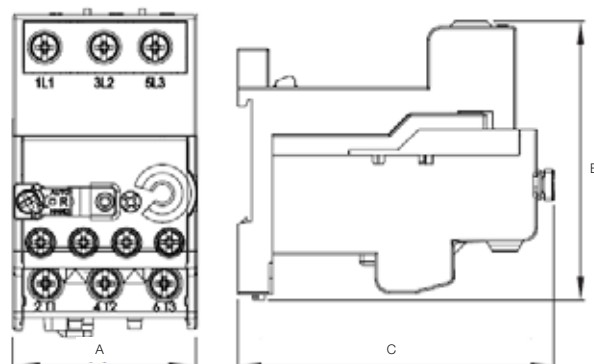
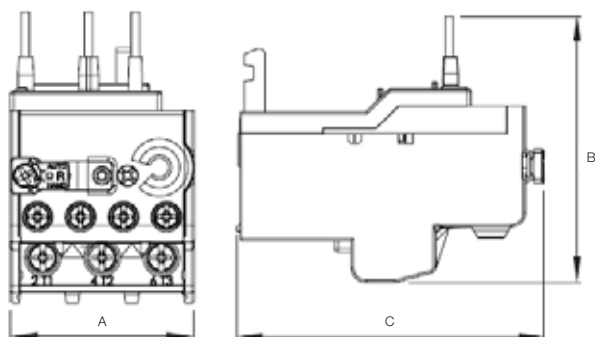
Models			RWL27	BFL27D	RWL67	BFL67	RWL117	BFL117
Mounting system screw type			M4 Slot / Phillips	M4 Slot / Phillips	M6 Slot / Phillips	M6 Slot / Phillips	M10 Socket screw	M10 Socket screw
Conductor cross-section								
Flexible conductor	(mm²)		-	1.5...10	-	-	-	-
Conductor with terminal/solid wire	(mm²)		-	1.5...6.0	-	-	-	-
Wire / cable AWG			-	16...8	-	-	-	-
Torque	(Nm)		-	2.3	-	-	-	-
Flexible conductor	(mm²)		1.5...10	-	-	-	-	-
Conductor with terminal/solid wire	(mm²)		1.5...6.0	-	-	-	-	-
Wire / cable AWG			16...8	-	-	-	-	-
Torque	(Nm)		2.3	-	-	-	-	-
Conductor connection on bottom								
Flexible conductor	(mm²)		-	-	6...35	6...35	25...35	25...35
Conductor with terminal/solid wire	(mm²)		-	-	6...35	6...35	25...35	25...35
Flexible conductor	(mm²)		-	-	6...35	6...35	25...35	25...35
Wire / cable AWG			-	-				
Torque	(Nm)		-	-	4	4	6	6

Terminal capacity and tightening torque - auxiliary contacts

Models		RWL27, RWL67, RWL117
Mounting system screw type		M3.5 Slot / Phillips
Conductor cross-section		
Wire / cable with or without terminal	(mm ²)	
Torque	(Nm)	
		2x 1...2.5
		1.5

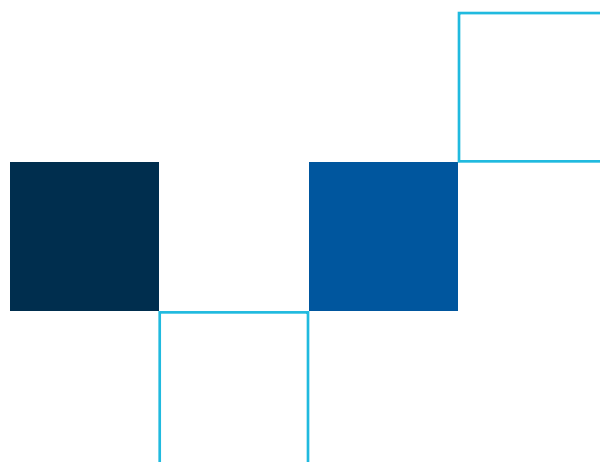
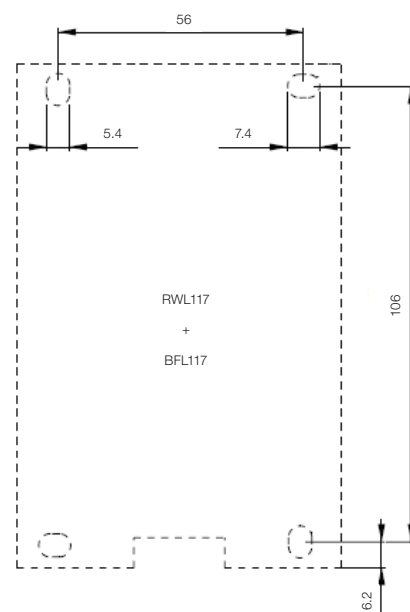
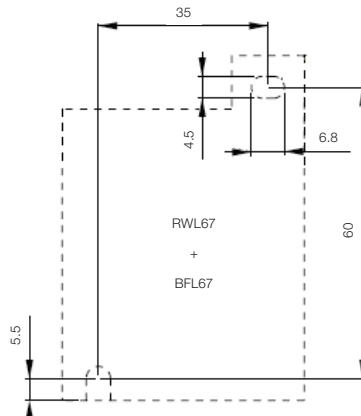
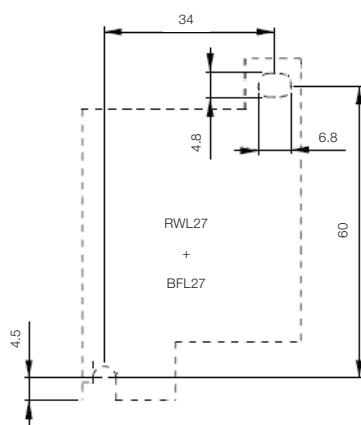
RWL thermal overload relays

Dimensions (mm)



	RWL27-1D	RWL67-2D	RWL117-1D
A	45.0	50.0	75.0
B	71.5	81.5	99.5
C	83.5	106.5	98.8

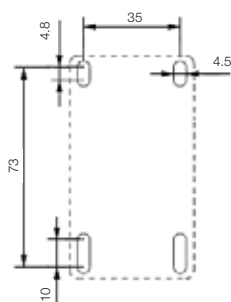
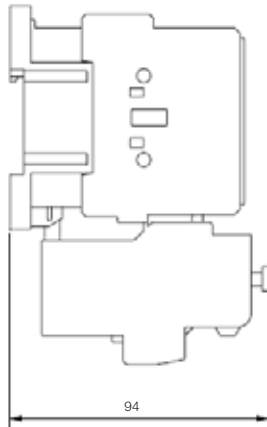
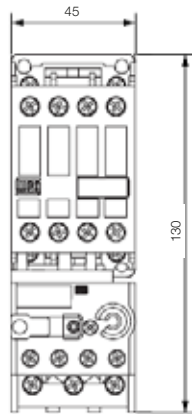
	RWL27-1D + BFL27-1D	RWL67-2D + BFL67-2D	RWL117-1D + BFL117-1D
A	45.0	50.0	75.0
B	80.0	81.5	116.4
C	92.5	106.5	106.2



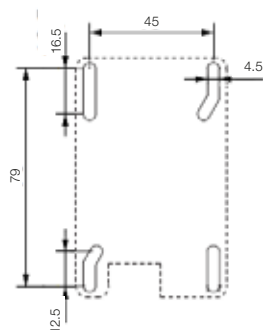
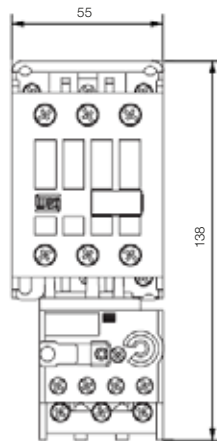
RWL thermal overload relays

Dimensions (mm)

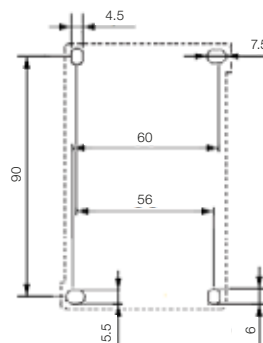
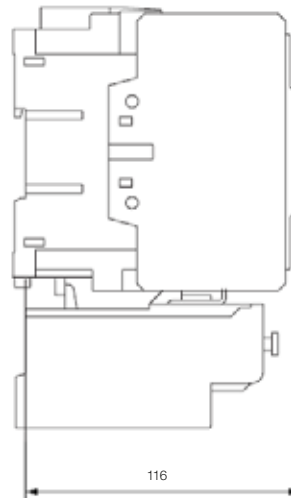
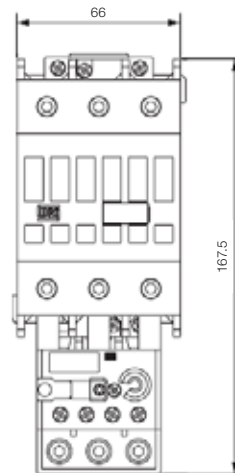
**CWL9...32
+
RWL27-1D**



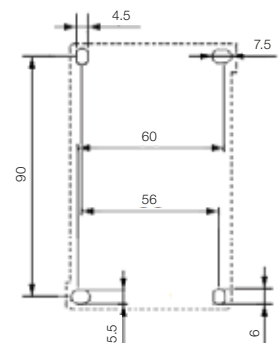
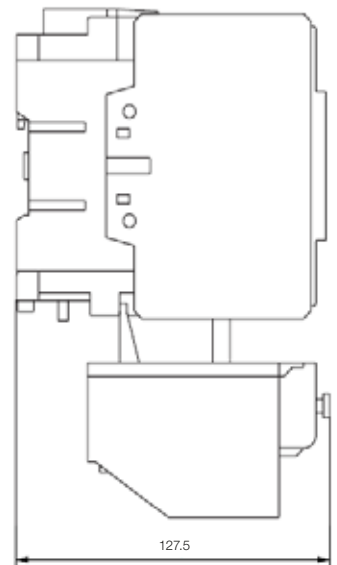
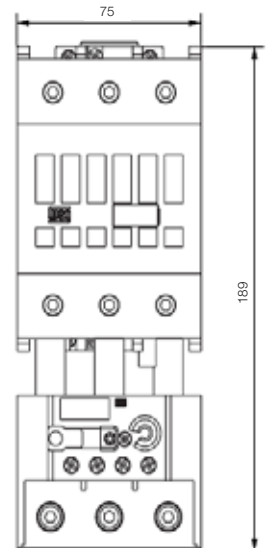
**CWL40...45
+
RWL27-1D**



**CWL50...95
+
RWL67-2D**

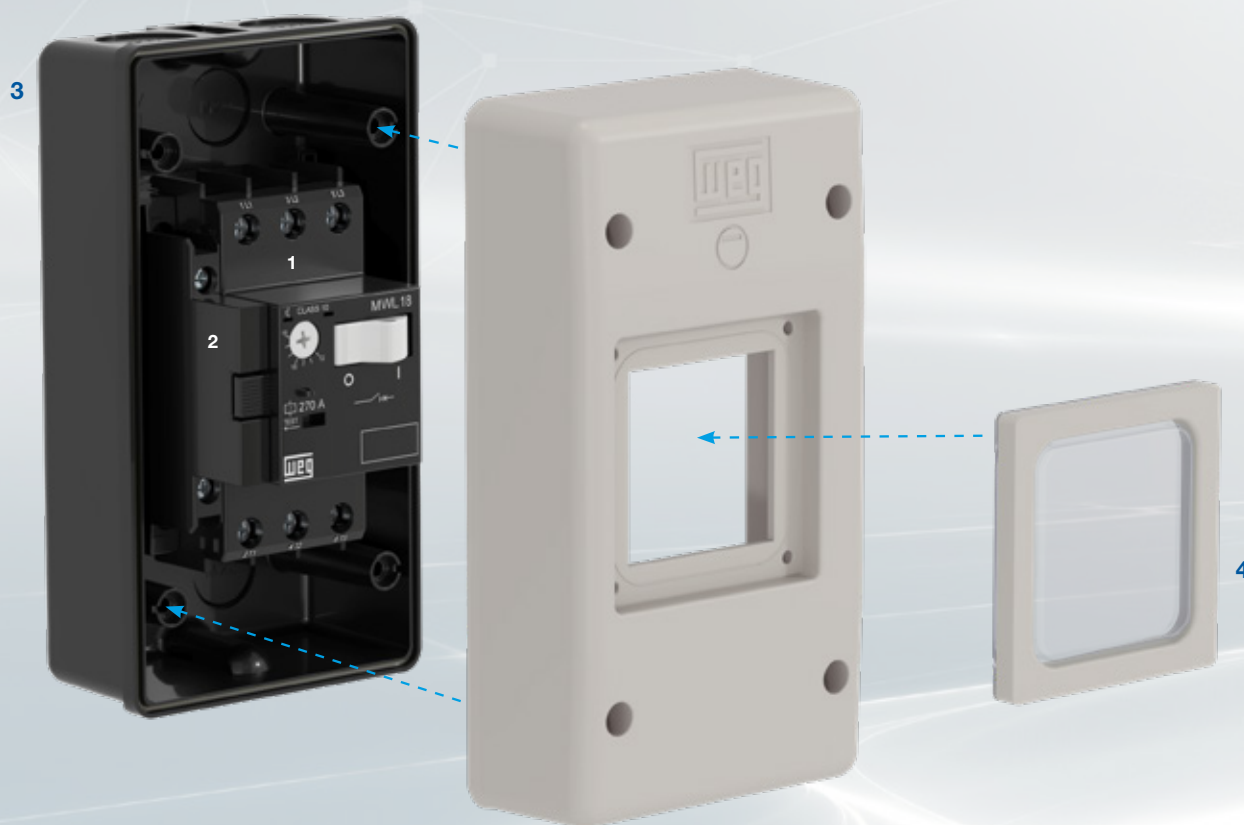


**CWL110
+
RWL117-1D**



Motor protective circuit breakers RWL

Overview



- 1** - MWL18 motor protective circuit breaker (screw terminal)
- 2** - Side mounting auxiliary contact block ACBSL (screw terminal)

- 3** - Insulated enclosure
- 4** - Cover for insulated enclosure PE66

Selection table



MWL thermomagnetic motor protective circuit breaker - overload and short-circuit protection

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles ¹⁾			Rated current In (A)	Overload release setting In (A)	Instantaneous magnetic trip 15x In Im (A)	Screw terminal		Weight kg
220-240 V cv / kW	380-415 V cv / kW	440-480 V cv / kW				Reference	Code	
-	-	-	0.16	0.1...0.16	2.4	MWL18-3-C016	14158005	0.28
-	-	-	0.25	0.16...0.25	3.75	MWL18-3-C025	14158317	
-	-	0.16 / 0.12	0.4	0.25...0.4	6	MWL18-3-D004	14158680	
-	0.16 / 0.12	0.25 / 0.18	0.63	0.4...0.63	9.45	MWL18-3-C063	14159045	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	0.63...1	15	MWL18-3-U001	14159085	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	1...1.6	24	MWL18-3-D016	14159086	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	1.6...2.5	37.5	MWL18-3-D025	14159087	
1 / 0.75	2 / 1.5	2 / 1.5	4	2.5...4	60	MWL18-3-U004	14159180	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	4...6.3	94.5	MWL18-3-D063	14159182	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	6.3...10	150	MWL18-3-U010	14159188	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	10...16	240	MWL18-3-U016	14159193	
6 / 4.5	10 / 7.5	12.5 / 9.2	18	12...18	270	MWL18-3-U018	14159194	

MWLi magnetic motor protective circuit breaker - short circuit protection²⁾

Reference values for selecting protection of three-phase electric motors 60 Hz - 4 poles ¹⁾			Rated current In (A)	Instantaneous magnetic trip 15x In Im (A)	Screw terminal		Weight kg
220-240 V cv / kW	380-415 V cv / kW	440-480 V cv / kW			Reference	Code	
-	-	-	0.16	2.4	MWL18i-3-C016	14159584	0.28
-	-	-	0.25	3.75	MWL18i-3-C025	14159585	
-	-	0.16 / 0.12	0.4	6	MWL18i-3-D004	14159587	
-	0.16 / 0.12	0.25 / 0.18	0.63	9.45	MWL18i-3-C063	14159638	
0.16 / 0.12	0.33 / 0.25	0.33 / 0.25	1	15	MWL18i-3-U001	14159639	
0.33 / 0.25	0.5 / 0.37	1 / 0.75	1.6	24	MWL18i-3-D016	14159641	
0.5 / 0.37	1 / 0.75	1.5 / 1.1	2.5	37.5	MWL18i-3-D025	14159642	
1 / 0.75	2 / 1.5	2 / 1.5	4	60	MWL18i-3-U004	14159643	
1.5 / 1.1	3 / 2.2	4 / 3	6.3	94.5	MWL18i-3-D063	14159645	
3 / 2.2	6 / 4.5	7.5 / 5.5	10	150	MWL18i-3-U010	14159647	
5 / 3.7	10 / 7.5	12.5 / 9.2	16	240	MWL18i-3-U016	14159669	
6 / 4.5	10 / 7.5	12.5 / 9.2	18	270	MWL18i-3-U018	14159670	

Notes: 1) The values are only valid for WEG W22 motors at S1 duty and service factor equal to 1.

2) For overload protection, use the overload relays.

Accessories

Side mounting auxiliary contact block - ACBSL

For use with	Illustrative picture	Auxiliary contacts		Reference	Code	Weight kg
		NO	NC			
MWL18		1	1	ACBSL-11	14250128	0.045
		-	2	ACBSL-02	14250007	
		2	-	ACBSL-20	14250129	

Insulated enclosures - PE

For use with	Illustrative picture	Description	Terminals	Handle color	Reference	Code	Weight kg
MWL18		- Empty plastic enclosure - Degree of protection IP41 - 2 inputs/outputs PG16 for cable glands on top/bottom, and 2 inputs/outputs ØM20 in the back - Allows installing: MWL + ACBSL/ Lamps PL - Color: cover (gray RAL 7035) and base (black RAL 7021)	-	-	PE41	10831536	0.41
			Ground	-	PE41G	10831606	0.41
			Ground and neutral	-	PE41GN	10831607	0.41
		- Empty plastic enclosure - Degree of protection IP66 - 2 inputs/outputs PG16 for cable glands on top/bottom, and 2 inputs/outputs ØM20 in the back - Allows installing: MWL + ACBSL/ Lamp PL - Color: cover (gray RAL 7035) and base (black RAL 7021)	-	-	PE66	10831535	0.41
			Ground	-	PE66G	10831643	0.41
			Ground and neutral	-	PE66GN	10831700	0.41
		- Allows raising the degree of protection of the insulated enclosure PE41 (IP41) to IP66	-	-	KIT66PE	10853867	0.016

Push-in-lugs - PLMP

For use with	Illustrative picture	Description	Reference	Code	Weight kg
MWL18		For direct assembly of motor protective circuit breaker into a surface with screws	PLMP	10185925	0.005

Technical data

Models		MWL18	MWL18i
Maximum rated current I_{nmax} (I_p)		18 A	18 A
Number of poles		3	
Short-circuit release		15 x I_p máx.	
Rated operational voltage U_e		690 V ¹⁾	
Rated frequency		50/60 Hz	
Rated insulation voltage U_i		690 V	
Rated impulse withstand voltage U_{imp}		6 kV	
Use category	IEC/EN 60947-2 (circuit breaker)	A	
	IEC/EN 60947-4-1 (motor starter)	AC-3	
Tripping test		Yes	
Overload protection		Yes	No
Phase failure sensitivity (IEC/EN 60947-4-1)		Yes	No
Tripping indication		No	
Tripping class (IEC/EN 60947-4-1)		10	-
Maximum operation per hour	Operations/hour	15	
Altitude (m)		2,000	
Degree of protection (IEC/EN 60529)		IP20	
Mechanical life	Number of operations	100,000	
Electrical life	Number of operations	100,000	
Permissible ambient temperature			
Transport and storage		-50...+80 °C	
Operation ²⁾		-20...+70 °C	
Temperature compensation (IEC/EN 60947-4-1)		-20...+60 °C	-
Power dissipation per circuit breaker			
Maximum rated currents I_n	≤4 A	7 W	
	≤10 A	8 W	
	≤12 A ³⁾	10 W	
	≤16 A	14 W	
	≤18 A	12 W	
Resistance to impact (IEC/EN 60068-2-27)		15 g	
Standards			
IEC/EN 60947-1		Yes	
IEC/EN 60947-2		Yes	
IEC/EN 60947-4-1		Yes	
Connection			
Terminal type		Screws Phillips (Nº 2)	
Tightening torque	N.m	1.2...1.7	
	lb.in	11...16	
Dimensions			
Width (mm)		45	
Height (mm)		97	
Depth (mm)		77	

Technical data

Altitudes - correction factors

Up to an altitude of 2,000 m above sea level, the MWL motor protective circuit breakers do not undergo any changes in their performance.

As the altitude increases, the atmospheric properties vary in terms of dielectric withstand and pressure.

Therefore, for altitudes above 2,000 m, current and voltage correction factors must be applied according to the table on the right:

Altitude (above sea level) - h	Rated operational voltage U_e	Current correction factor L_u
$h \leq 2,000$ m	690 V	$1 \times I_n$
$2,000 < h \leq 3,000$ m	550 V	$0.96 \times I_n$
$3,000 < h \leq 4,000$ m	480 V	$0.93 \times I_n$
$4,000 < h \leq 5,000$ m	420 V	$0.90 \times I_n$

Notes: 1) 500 V with plastic enclosures.

2) Reduce current for temperatures exceeding +60 °C (87% for 70 °C).

3) Only available with spring terminal.

Main terminal capacity

Models	Type	Number of conductors	Cross-section
MWL18	Rigid or flexible cable	 1 or 2	$1 \dots 4 \text{ mm}^2$ 18...12 AWG

Auxiliary contact block

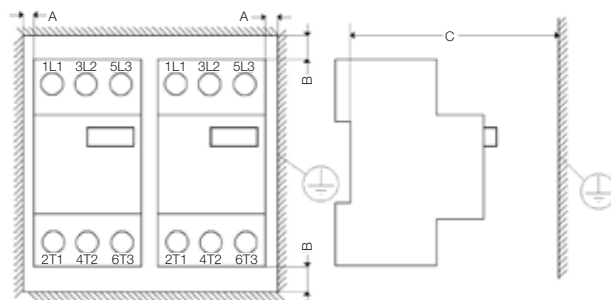
References	ACBSL			
For use with	MWL18, MWL18i			
Rated insulation voltage U_i	690 V			
Utilization category	24 V _{AC}	230 V _{AC}	400 V _{AC}	690 V _{AC}
AC-15	6 A	6 A	3 A	1 A
AC-12	10 A	10 A	10 A	10 A
DC-13	24 V _{DC}	110 V _{DC}	220 V _{DC}	V _{DC}
	2 A	0.5 A	0.25 A	0.1 A
Terminal type	Flat			
Screw type	Phillips (N° 2)			
Tightening torque	1 N.m (8.8 lb.in)			
Solid conductor	1 or 2 x (0.5...1.5 mm ²) 1 or 2 x (0.75...2.5 mm ²) 1 or 2 x (18...14 AWG)			
Flexible conductor				
Cable without terminal ¹⁾				
Backup fuses gL/gG	10 A			

Note: 1) Mandatory use.

Mounting configurations

Live or grounded parts distance to the circuit breaker				
Model	U _e	Minimum distance between the circuit breaker and live or grounded parts (mm)		
		B	C	A
MWL18	Up to 690 V	20	75	9

The motor protective circuit breaker can be mounted in any position, but according to IEC/EN 60447 standard, the "On - I" indicator must be to the right or up.



Breaking capacity (IEC/EN 60947-2)

MWL18

Models	Maximum current (A)	220-230 V _{AC}			380-415 V _{AC}		
		I _{cu}	I _{cs}	Max. fuse (gL/gG) ¹⁾	I _{cu}	I _{cs}	Max. fuse (gL/gG)
		kA	kA	A	kA	kA	A
MWL18	0.16	80	80	-	65	65	- ¹⁾
	0.25	80	80	-	65	65	- ¹⁾
	0.4	80	80	-	65	65	- ¹⁾
	0.63	80	80	-	65	65	- ¹⁾
	1	80	80	-	65	65	- ¹⁾
	1.6	80	80	-	65	65	- ¹⁾
	2.5	80	80	-	65	65	- ¹⁾
	4	80	80	-	65	65	- ¹⁾
	6.3	80	80	-	65	65	- ¹⁾
	10	80	80	-	10	5	80
	16	80	80	-	10	5	80
	18	80	80	-	10	5	80

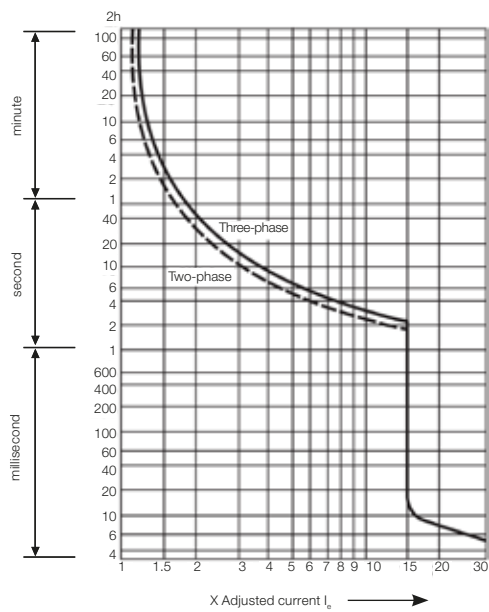
Note: 1) In cases where prospective short-circuit current > I_{cu} backup fuses are required.

Curves

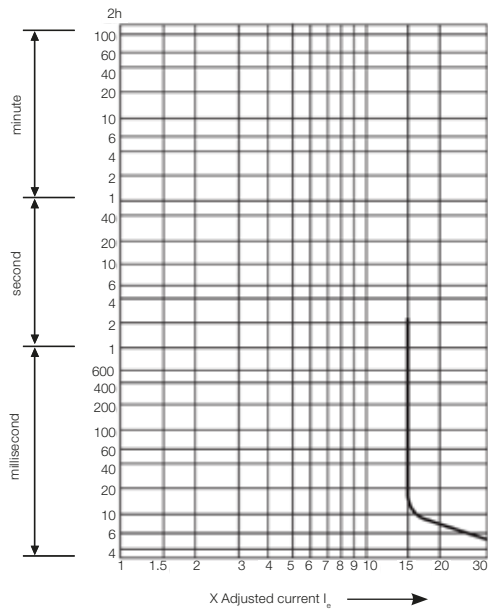
The characteristic tripping curve shows the tripping time of the motor protective circuit breaker in relation to the rated current, and averages for ambient temperature of 20 °C, starting from the cold state.

The thermal tripping time when running at the operating temperature is reduced by around 25% of the indicated values. Under normal operating conditions, all 3 circuit breaker phases must be conducting.

MWL18

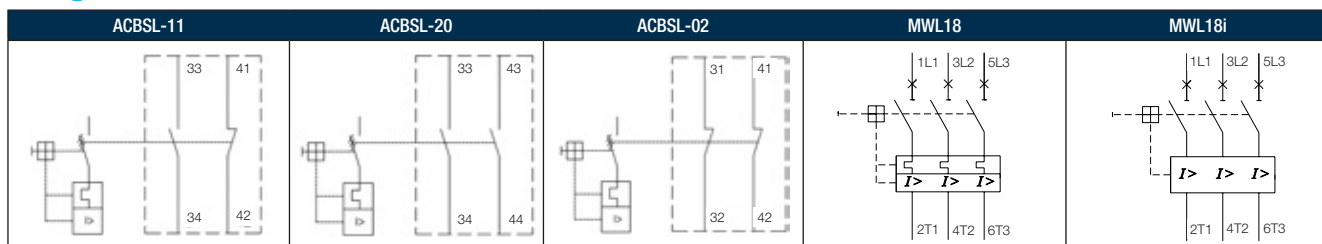


MWL18i

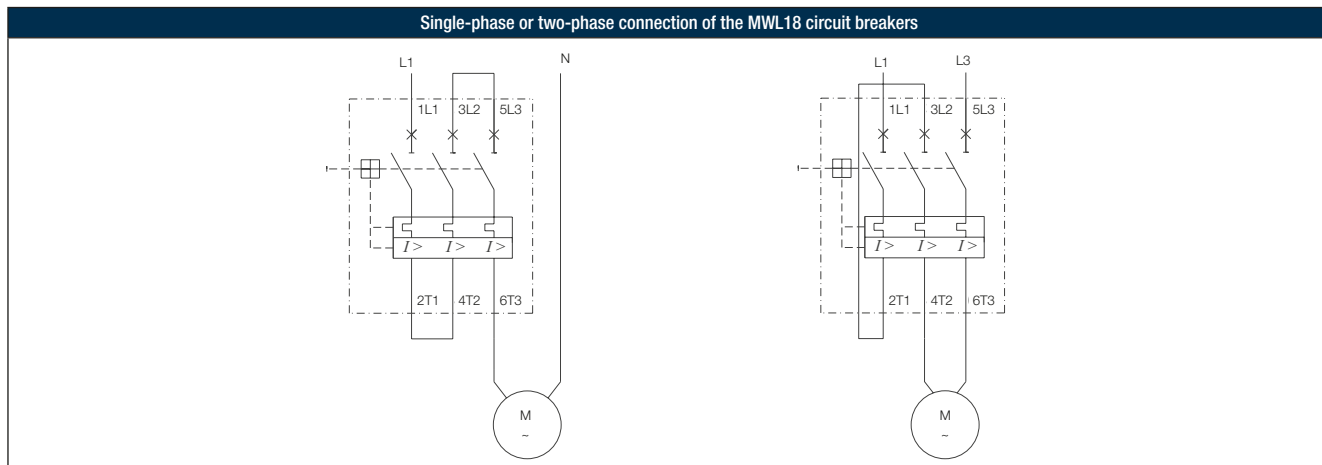


Diagrams and typical circuits

Diagrams

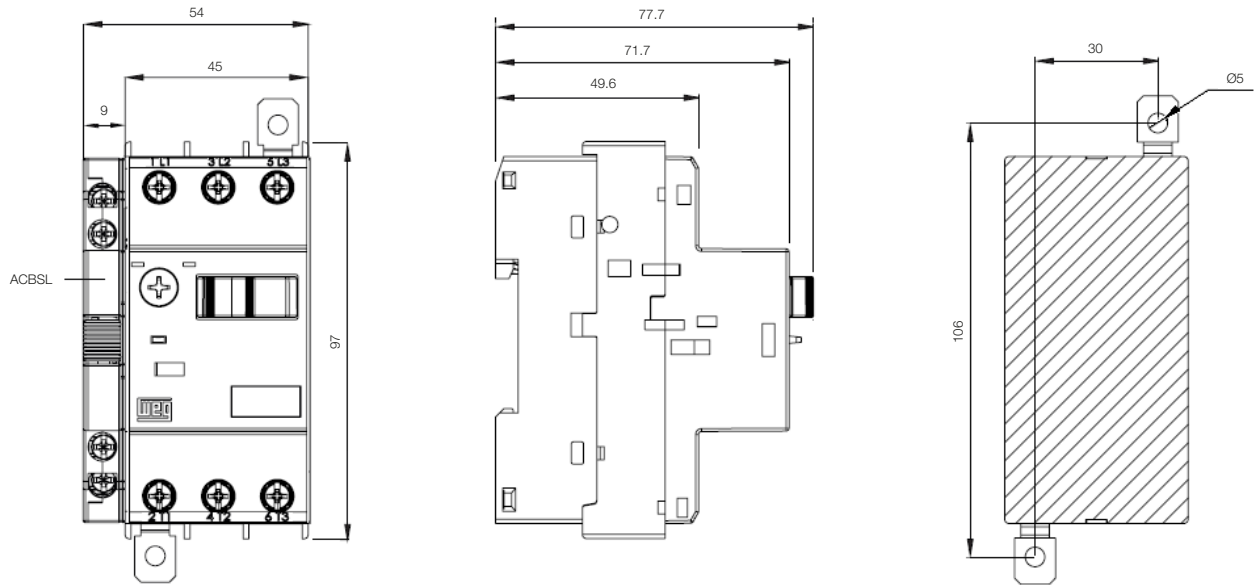


Wiring diagram

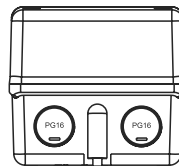
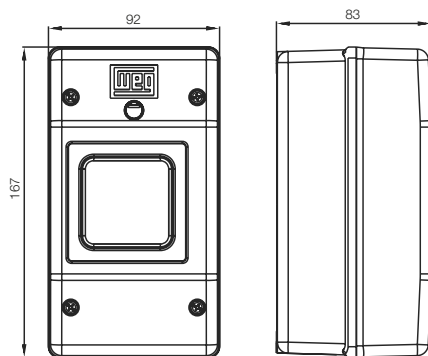


Dimensions (mm)

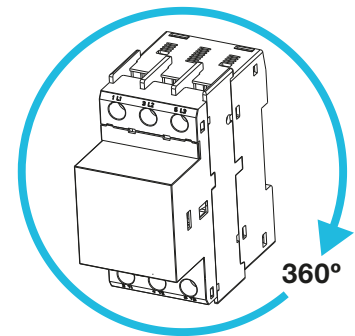
MWL + accessories



Insulated enclosures PE41/66



Mounting position



[illegible]

[illegible]

Global presence

is essential, as much
as understanding
your needs.



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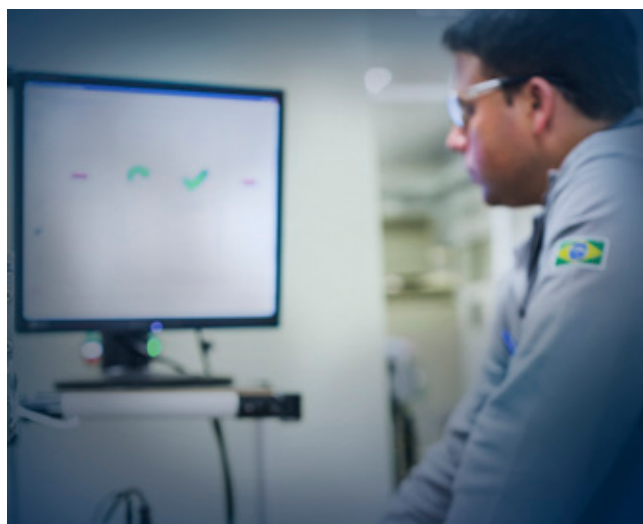
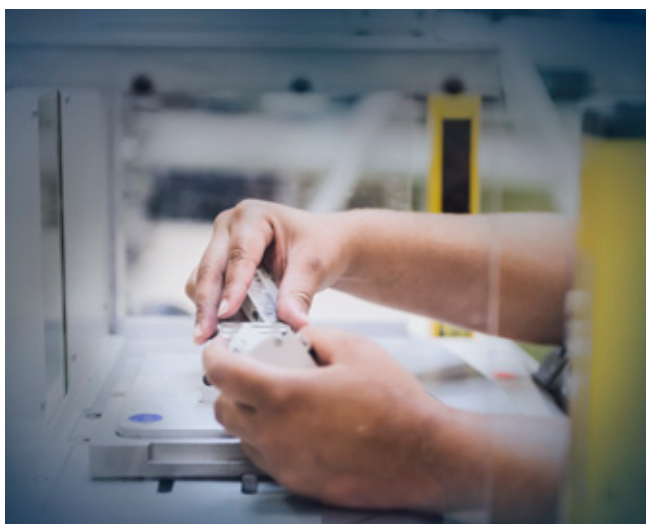
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Partnership is to create solutions that suits your needs



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The values shown are subject to change without prior notice.
The information contained is reference values.