Automation

Contactors - CWB Line

Contactors CWB Line

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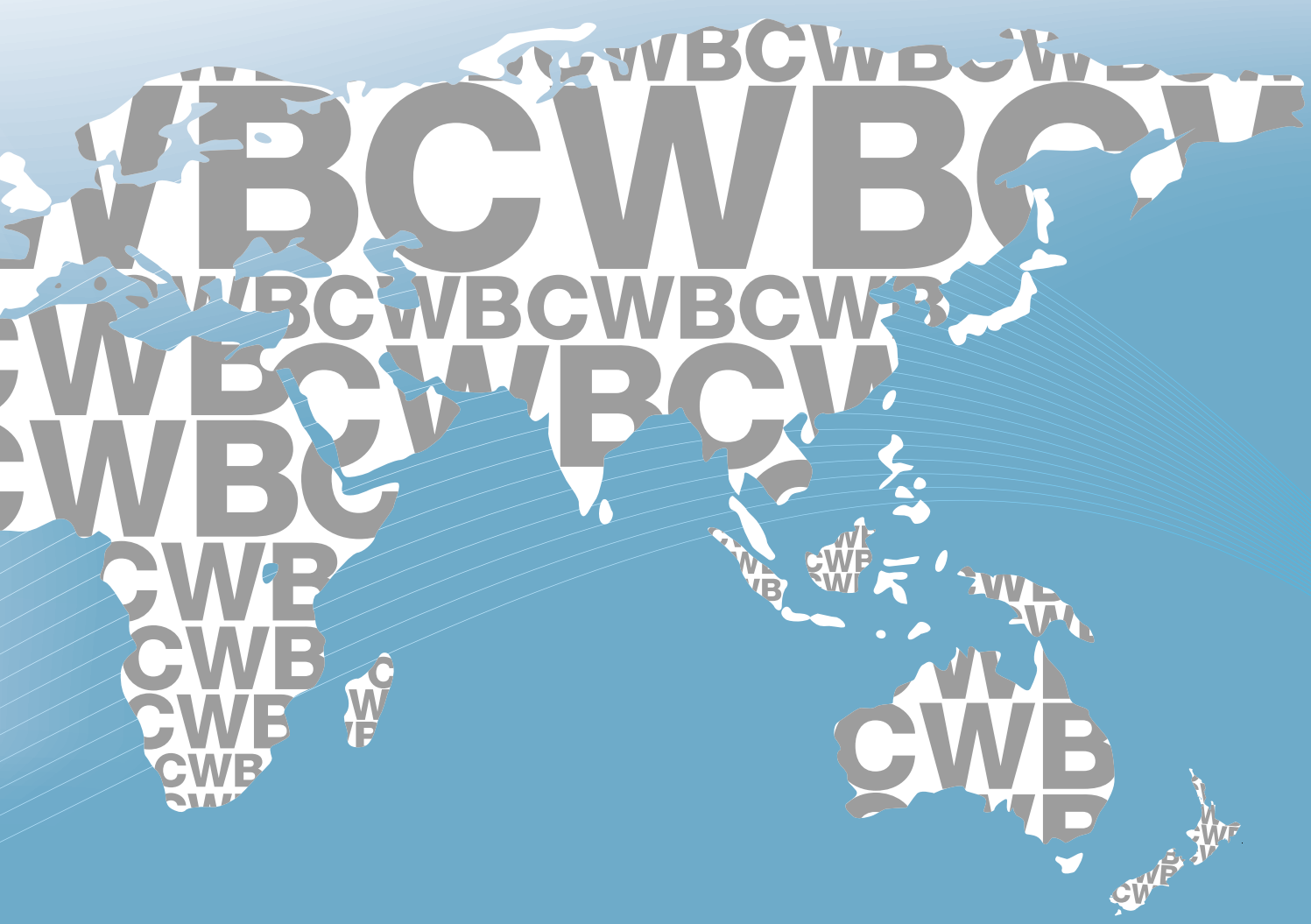
New WEG **CWB** Contactors

Developed according to IEC 60947 and UL 508 international standards, the new WEG CWB line of contactors meets the requirements of a wide range of industrial applications worldwide.

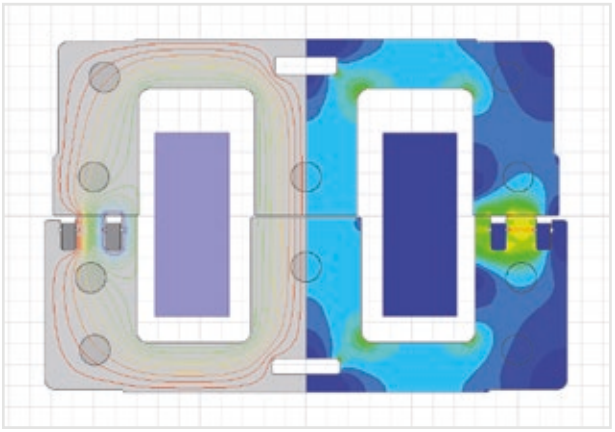


WEG CWB Contactors are modular and compact but at the same time **robust and highly reliable**. Easy installation and energy savings meet the expectations of users who want to perform automation in a more simple and practical way.
The CWBs are designed with the visual pattern and identity of WEG, a brand recognized worldwide for its quality.

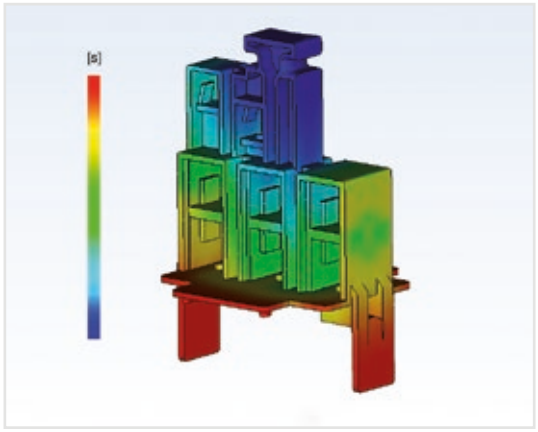
The **Technology** Within

The use of finite-element analysis and state-of-the-art modeling softwares for simulation of electromagnetic and electromechanical systems provide WEG CWB contactors with an improved project with reduced contact bouncing. The outcome reached by WEG's R&D team ensures a product with long mechanical and electrical lifespan in a reduced size and with lower energy consumption.

The electric contacts of CWB contactors are manufactured with special silver alloys which ensure excellent electric conductibility and high contact reliability. During operation, the double-break contacts and arc chutes ensure fast arc quenching and provide high resistance against the wear effects of the electric arc and, consequently, a long electrical lifespan.



Analysis of CWB electromagnetic system.



Simulation of plastic injection molding of CWB contact carrier.

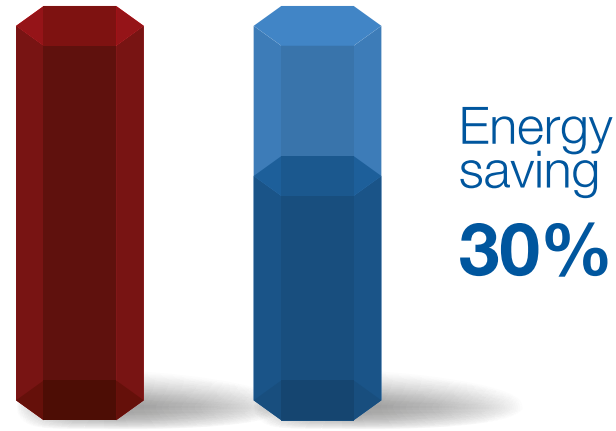
CWB contactors are manufactured with the best raw materials from top international suppliers and with WEG high quality components, using high precision plastic injection molds and stamping tools, ensuring very reliable products with the best cost-benefit in the market.

Energy **Savings**

Low Consumption Coils

The low-consumption coils of new WEG contactors of up to 38 A allow safe operation with minimum energy consumption of up to 6 W in DC and up to 7.5 VA in AC. Besides energy savings, the low consumption of the coils of CWB contactors allows reducing the power supply of control transformers. When well dimensioned and properly applied, the traditional starting methods of electric motors, such as DOL (reversing or non-reversing) and star-delta using contactors, are the safest and best cost-benefit means to start and protect electric motors in low voltage. Up to at least 55 kW, DOL and star-delta starters using contactors are still the best and most widely used starting methods in all kinds of industries worldwide. Even when electronic methods are used for the start and control of motors, such as VSDs and soft-Starters, the contactors continue to be necessary in combination with the electronic devices. Therefore, one can only imagine the huge number of contactors installed and in operation all over the world.
Thus, CWB contactors are designed to operate in a safe and reliable way with the lowest energy consumption.

Coil Consumption
DC Operated Contactor



DC Coils with no Inrush Pick-Up Current

Besides low energy consumption, DC coils allow direct control of CWB contactors via PLC or digital outputs of devices such as VSDs or Soft-Starters without the need of interface relays.

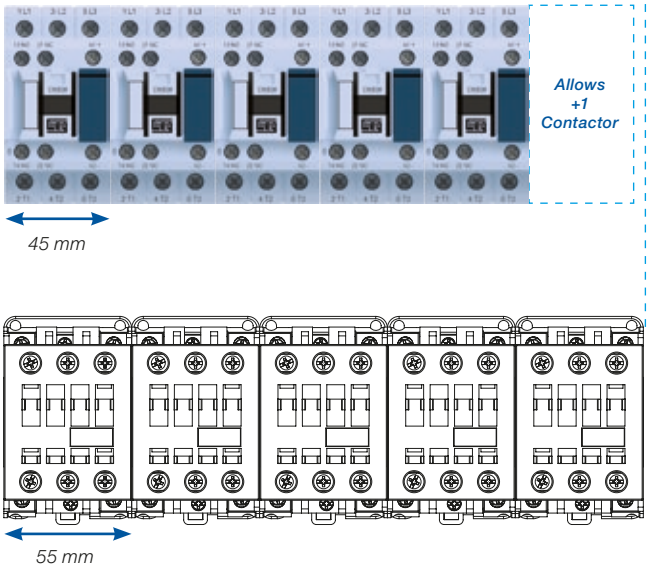
Eco-**Friendly**

The CWB line uses only nontoxic and eco-friendly materials that are safe and sustainable.

Easy Panel **Optimization**

Compact Solution

Because they are compact, 45 mm wide and available in up to 38 A (18.5 kW @ 380 / 415 V AC-3 and 25 HP @ 480 V UL 3-ph), CWB contactors lead to an overall reduction in size of electric panels if compared to traditional solutions of contactors with the same ratings.



Built-In Auxiliary Contacts 1NO + 1NC

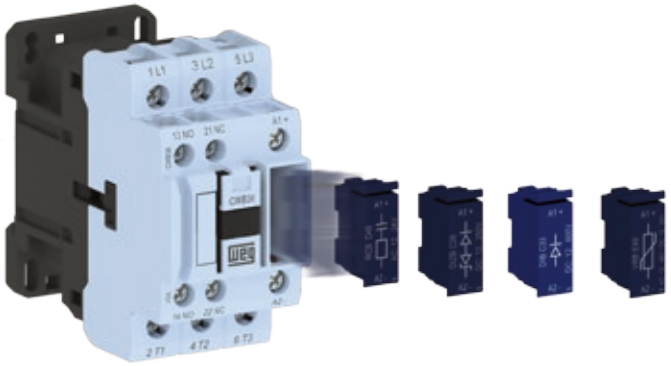
The configuration of two built-in auxiliary contacts (1NO + 1NC) makes the application of CWB contactors more flexible in most automation systems, contributing to the optimization of internal space of electrical panels.

"Zero-Width" Mechanical Interlock

For applications which require mechanical interlock between contactors, WEG has developed a new mechanical system that ensures compact and easy mounting without the need of any tools. WEG's new mechanical interlock system allows the mechanical interlock between two contactors of the CWB line with "zero" additional side space and it is possible to assemble 90 mm wide reversing starters of up to 38 A.

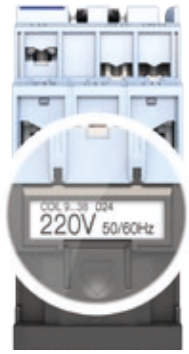
Simple and Compact Mounting of Surge Suppressor Blocks

The coils of CWB contactors operate smoothly with a low level of disturbance in the control circuits. However, in order to reduce voltage surges due to the coil switching even further, WEG has developed surge suppressor blocks especially for the CWB line of contactors, which ensure limitation or even completely eliminate the undesired interferences that may be caused on opening the contactor coil. Surge suppressor blocks are easily mounted on CWB contactors without the need of any kind of tools and also without increasing volume.



Contactor Coil Operated on AC or DC

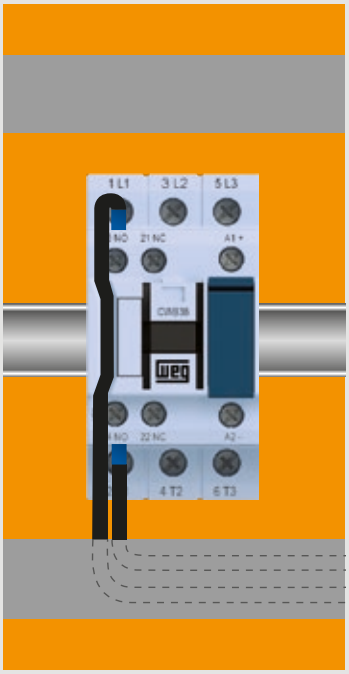
Wide range of voltages available in only two coil versions (one for AC and another for DC) to fit the whole range of contactors from 9 to 38 A.
Easy AC coil replacement and visual coil voltage indication.



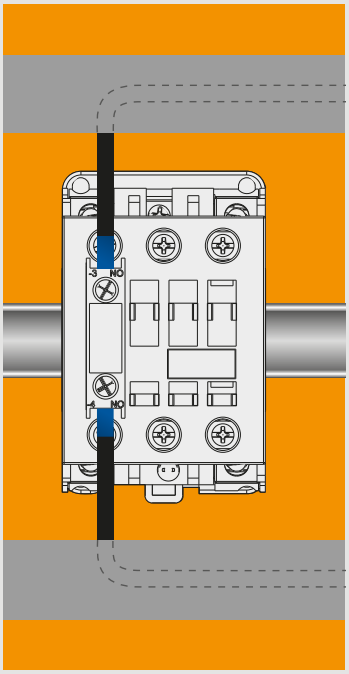
Contactor with AC coil

Contactor with DC coil

CWB Line



Standard Contactors



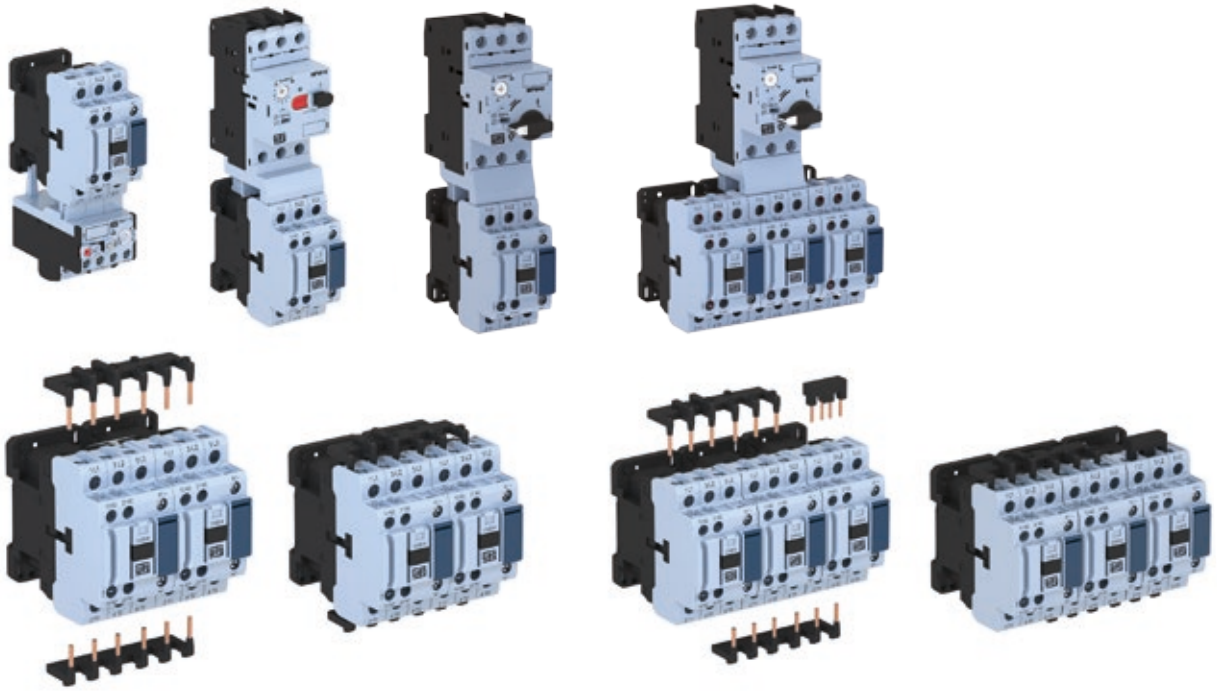
More Simple and Organized Control Circuits

In order to optimize space in electric panels even more, the WEG CWB contactor line has a front channel for the passage of control cables.
This could reduce or eliminate the need of control cable passage through the side or front part of contactors providing a “cleaner” and more organized assembly of the control circuit.

Flexibility and **Modularity** in Assembly of Electric Panels

Easy-Connection Busbars and Connectors

The harmonious integration between the WEG CWB line of contactors and overload relays and motor protective circuit breakers allows fast and easy assembly of compact starters and protection sets of LV electric motors with excellent cost-benefit.
The modularity and flexibility of easy-connection busbars and connectors reduce assembly time, besides preventing errors.
Available for CWB contactors up to 38 A, easy-connection allows the combined assembly with WEG motor protective circuit breakers and thermal overload relays forming compact and robust DOL starters (reversing and non-reversing) and star-delta starters.



Easy Access Power and Control Terminals

All power terminals, auxiliary contacts and coils provide users with fast front access, facilitating installation, measurements and interventions for preventive and corrective maintenance of starters.

Additional Contact Blocks

Besides the 1NO + 1NC built-in auxiliary contacts, in order to meet the most complex control needs, WEG has also developed auxiliary high performance contact blocks which can be easily mounted on the front or side of CWB contactors, allowing the combination of up to six auxiliary contacts per contactor up to 38 A.
An important characteristic of the side auxiliary contact blocks of the CWB line is the small dimension (only 9 mm wide) which meets the requirements of modularity, allowing more compact combinations of motor starters with motor protective circuit breakers when easy-connection busbars are used.

Panel Assembly Flexibility

CWB contactors can be easily assembled on panels using 35 mm DIN rails or screws because their oblong holes are compatible with the old and traditional lines of contactors on the market.

Safety

Safety Against Accidental Contact

All power and control terminals of CWB contactors have IP20 degree of protection, ensuring total safety against accidental frontal contact.

Safety-Related Applications

In automation systems of machines and equipment, it is common to use special contactors in combination with specific safety relays. The new WEG CWB contactors allow this combination due to the arrangement of the contacts which meets IEC 60947-4-1 Annex F (Mirror Contact) and IEC 60947-5-1 Annex L (Mechanically Linked Contact) requirements.

IEC 60947-5-1
Mechanically linked contacts

IEC 60947-4-1
Mirror contacts

CWB Contactors from 9 to 38 A (AC-3) Selection Table

Three-Pole CWB Contactors from 9 up to 38 A (AC-3)

Ie máx. (Ue ≤440 V)	Ie = Ith (Ue ≤690 V) θ ≤55 °C	Orientative rated operational power of three-phase motors 50/60 Hz					Built-in auxiliary contacts per contactor		Reference code	Weight kg	
AC-3 A	AC-1 A	220 V 240 V kW / HP	380 V 400 V kW / HP	415 V 440 V kW / HP	500 V kW / HP	660 V 690 V kW / HP	3 4 NO	1 2 NC		AC coil	DC coil
9	25	2.2 / 3	3.7 / 5	4.5 / 6	5.5 / 7.5	5.5 / 7.5	1	1	CWB9-11-30♦	0.404	0.525
12	25	3 / 4	5.5 / 7.5	5.5 / 7.5	7.5 / 10	7.5 / 10	1	1	CWB12-11-30♦	0.404	0.525
18	32	4.5 / 6	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	1	1	CWB18-11-30♦	0.404	0.525
25	40	5.5 / 7.5	11 / 15	11 / 15	15 / 20	15 / 20	1	1	CWB25-11-30♦	0.408	0.529
32	50	7.5 / 10	15 / 20	15 / 20	18.5 / 25	18.5 / 25	1	1	CWB32-11-30♦	0.408	0.529
38	50	9.2 / 12.5	18.5 / 25	18.5 / 25	18.5 / 25	18.5 /25	1	1	CWB38-11-30♦	0.408	0.529

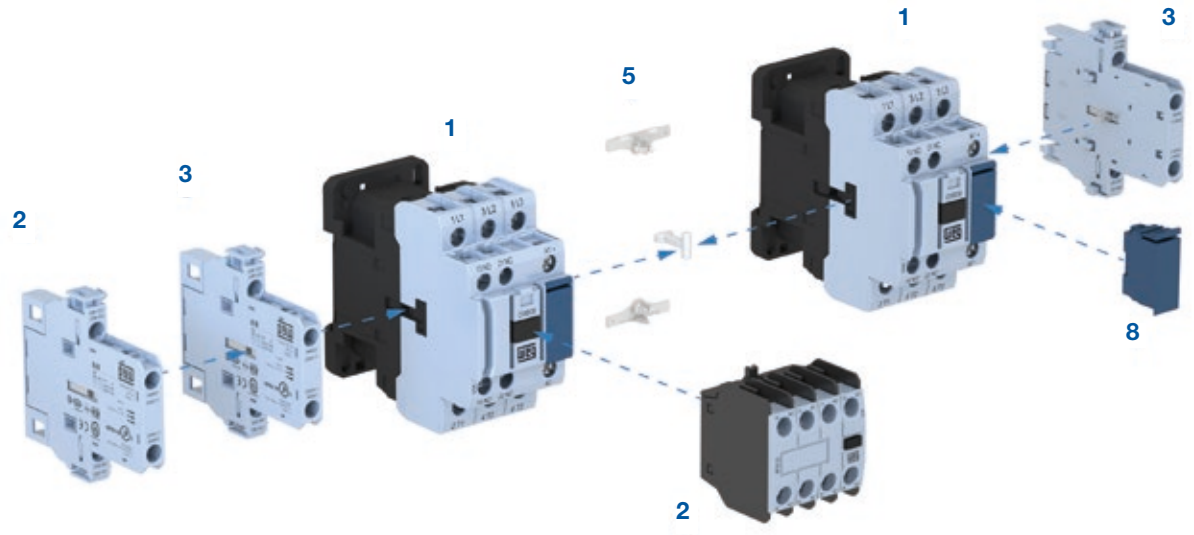
Note: to complete the reference code, replace "♦" by the appropriate coil voltage code.

Coil voltage code	D02	D06	D07	D13	D14	D15	D17	D77	D23	D24	D25	D27	D33	D34	D35	D36	D39	D43	D45
V (50/60 Hz)	24	42	48	110	115	120	127	208	220	230	240	255	380	400	415	440	480	550	600

Coil voltage code	C02	C03	C05	C07	C09	C12	C13	C15	C17
V dc	12	24	36	48	60	110	125	220	250

Note: other coil voltages available upon request.

CWB Contactors - Accessories Overview



1 - Contactors CWB9...38
2 - Front mounted auxiliary contact blocks BFB
3 - Side mounted auxiliary contact blocks BLB
4 - Side mounted auxiliary contact blocks BLRB
5 - Mechanical interlock kit IM1
6 - Easy connection for reversing starters EC-R1
7 - Easy connection for star-delta starters EC-SD1
8 - Surge suppressor blocks RCB, VRB, DIB and DIZB

CWB Contactors - Accessories

Front Mounted Auxiliary Contact Blocks[4)]

Illustrative picture	For use with	Max. nº of additional contacts / contactor	Auxiliary contacts		Reference	Weight kg
			NO	NC		
	CWB9...38	4 / CWB9...38	1	1	BFB-11[1)]	0.063
			2	0	BFB-20	
			0	2	BFB-02[1)]	
			2	2	BFB-22[1)]	
			2	2	BFB-22 EL[3)]	
			4	0	BFB-40	
			0	4	BFB-04[1)]	
			3	1	BFB-31[1)]	
			1	3	BFB-13[1)]	
			Auxiliary contact blocks according to EN 50012			
			1	1	BFB-11 EN[1)]	0.063
			2	0	BFB-20 EN	
			0	2	BFB-02 EN[1)]	
			2	2	BFB-22 EN[1)]	
			4	0	BFB-40 EN	
			0	4	BFB-04 EN[1)]	
			3	1	BFB-31 EN[1)]	
			1	3	BFB-13 EN[1)]	

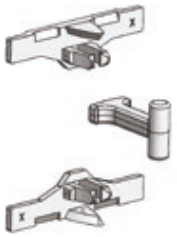
Side Mounted Auxiliary Contact Block[4)]

Illustrative picture	For use with	Max. nº of additional contacts / contactor	Auxiliary contacts		Reference	Weight kg
			NO	NC		
	CWB9...38	4 / CWB9...38	1	1	BLB-11[1)]	0.034
			2	0	BLB-20	
			0	2	BLB-02[1)]	
			1	1	BLRB-11[1)2)]	
			2	0	BLRB-20[2)]	
			0	2	BLRB-02[1)2)]	
			Auxiliary contact blocks according to EN 50012[5)6)]			
			1	1	BLB-11 EN[1)]	0.034
			2	0	BLB-20 EN	
			0	2	BLB-02 EN[1)]	

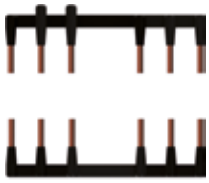
Notes: 1) The arrangement of the contacts meets IEC 60947-4-1 Annex F (Mirror Contact) and IEC 60947-5-1 Annex L (Mechanically Linked Contact) requirements.
2) For combination of 2 side-mounted auxiliary contact blocks at the same side of the contactor.
3) BFB-22-EL: besides the regular contacts NO and NC, there are two special contacts: early make and late break.
4) The maximum number of auxiliary contacts assembled on the contactor is 4.
5) In order to comply with terminal markings of EN 50012, side mounted blocks should not be used simultaneously with front mounted blocks.
6) Possible contact configurations for side mounted blocks to comply with terminal markings of EN 50012:
With 1 block to be assembled on the left of contactor (mandatory):
.20 = (1 contact block 2 NO)
.02 = (1 contact block 2 NC)
.11 = (1 contact block 1 NO+1 NC)
With 2 blocks to be assembled, one on the left and another one on the right of the contactor (mandatory):
.40 = (2 contact blocks 2 NO)
.04 = (2 contact blocks 2 NC)
.22 = (1 contact block 2 NO and 1 contact block 2 NC)
Contact configurations not possible to be assembled:
.31
.13

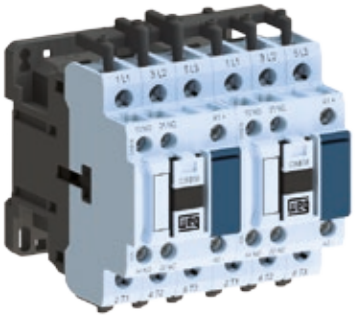
CWB Contactors - Accessories

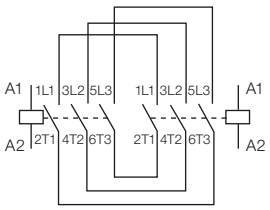
Mechanical Interlock Kit

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWB9...38	Kit for mechanical interlock between two contactors of the CWB line with no additional side space. Contains: 1 interlock unit + 2 fixing clips. *Note: it is not possible to interlock one contactor with AC coil with another with DC coil.*	IM1	0.004

Easy Connection Busbars for Reversing Starters

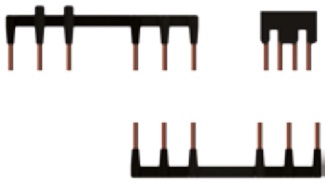
Illustrative picture	For use with	Maximum rated operational power (AC-3) 3-phase motors - IV-poles - 50/60 Hz - 1800 rpm			Reference code	Weight kg
	K1 = K2	220 / 240 V kW / HP	380 / 400 V kW / HP	415 / 440 V kW / HP		
	CWB9	2.2 / 3	3.7 / 5	4.5 / 6	EC-R1	0.042
	CWB12	3 / 4	5.5 / 7.5	5.5 / 7.5		
	CWB18	4.5 / 6	7.5 / 10	9.2 / 12.5		
	CWB25	5.5 / 7.5	11 / 15	11 / 15		
	CWB32	7.5 / 10	15 / 20	15 / 20		
	CWB38	9.2 / 12.5	18.5 / 25	18.5 / 25		

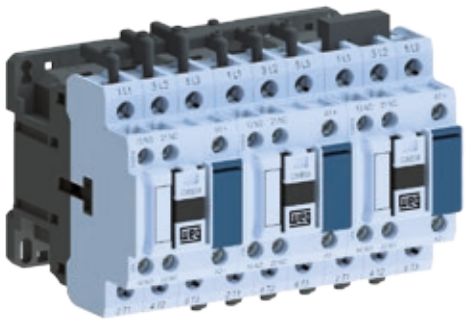


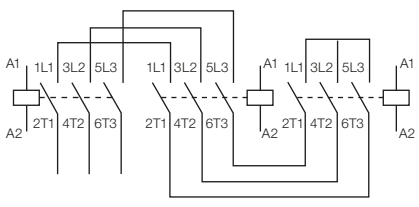


Circuit diagram

Easy Connection Busbars for Star-Delta Starters

Illustrative picture	For use with		Maximum rated operational power (AC-3) 3-phase motors - IV-poles - 50/60 Hz - 1800 rpm			Reference code	Weight kg
	K1 = K2	K3	220 / 240 V kW / HP	380 / 400 V kW / HP	415 / 440 V kW / HP		
	CWB9	CWB9	3.7 / 5	7.5 / 10	7.5 / 10	EC-SD1	0.046
	CWB12	CWB9	5.5 / 7.5	9.2 / 12.5	11 / 15		
	CWB18	CWB9	7.5 / 10	11 / 15	11 / 15		
	CWB18	CWB12	9.2 / 12.5	15 / 20	15 / 20		
	CWB25	CWB18	11 / 15	22 / 30	22 / 30		
	CWB32	CWB18	15 / 20	22 / 30	30 / 40		
	CWB38	CWB25	18.5 / 25	30 / 40	37 / 50		





Circuit diagram

CWB Contactors - Accessories

Individual Spare Coil for Contactors[1)]

Illustrative picture	For use with	Control	Reference code	Weight kg
	CWB9...38	AC 50/60 Hz	BRB-38♦	0.077

Note: 1) Spare DC coils not available.

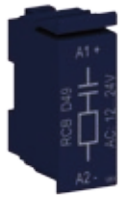
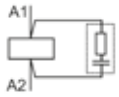
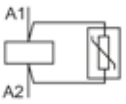
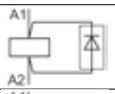
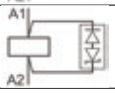
To complete the reference code, replace "♦" by the appropriate coil voltage code.

Alternating Current

Coil voltage code	D02	D06	D07	D13	D14	D15	D17	D77	D23	D24	D25	D27	D33	D34	D35	D36	D39	D43	D45
V (50/60 Hz)	24	42	48	110	115	120	127	208	220	230	240	255	380	400	415	440	480	550	600

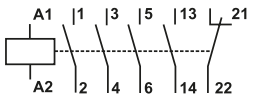
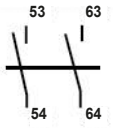
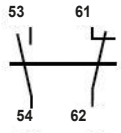
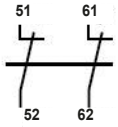
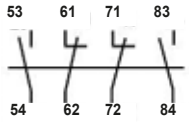
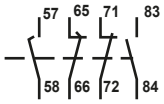
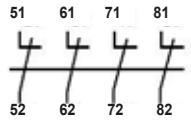
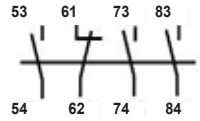
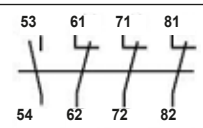
Note: other coil voltages available upon request.

Plug-In Surge Suppressors

Illustrative picture	For use with	Voltage	Diagram	Reference	Weight kg
	CWB9...38	24...48 V 50/60 Hz		RCB-D53	0.008
		50...127 V 50/60 Hz		RCB-D55	
		130...250 V 50/60 Hz		RCB-D63	
		12...48 V 50/60 Hz / 12...60 V dc		VRB-E49	
		50...127 V 50/60 Hz / 60...180 V dc		VRB-E34	
		130...250 V 50/60 Hz / 180...300 V dc		VRB-E50	
		277...380 V 50/60 Hz / 300...510 V dc		VRB-E41	
		400...510 V 50/60 Hz		VRB-D73	
		12...600 V dc		DIB-C33	
		12...250 V dc		DIZB-C26	

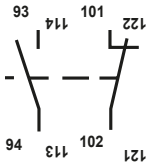
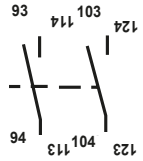
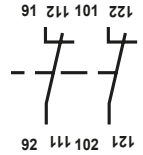
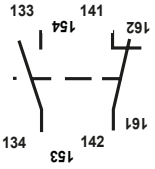
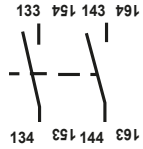
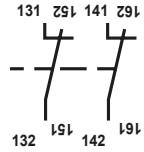
CWB Contactors - Technical Data

Terminal Markings According to IEC 60947

Diagram	Configuration	NO	NC	Reference code
3-poles contactors with built-in auxiliary contacts				
	11	1	1	CWB9-11-30♦ CWB12-11-30♦ CWB18-11-30♦ CWB25-11-30♦ CWB32-11-30♦ CWB38-11-30♦
Front mounted auxiliary contact blocks				
	20	2	0	BFB-20
	11	1	1	BFB-11
	02	0	2	BFB-02
	40	4	0	BFB-40
	22	2	2	BFB-22
	22	2	2	BFB-22-EL
	04	0	4	BFB-04
	31	3	1	BFB-31
	13	1	3	BFB-13

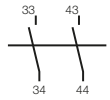
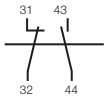
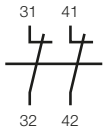
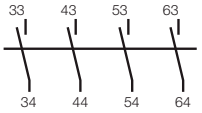
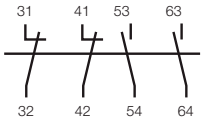
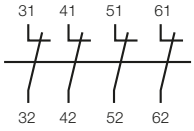
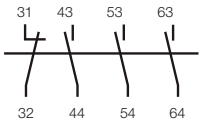
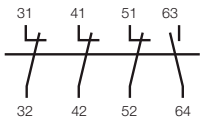
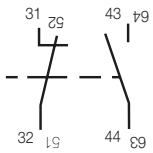
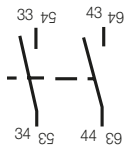
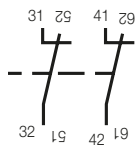
CWB Contactors - Technical Data

Terminal Markings According to IEC 60947

Diagram	Configuration	NO	NC	Reference code
Side mounted auxiliary contact blocks				
	11	1	1	BLB-11
	20	2	0	BLB-20
	02	2	0	BLB-02
	11	1	1	BLRB-11
	20	2	0	BLRB-20
	02	2	0	BLRB-02

CWB Contactors - Technical Data

Terminal Markings According to EN 50012

Diagram	Configuration	NO	NC	Reference code
Front mounting auxiliary contact blocks				
	20	2	0	BFB-20 EN
	11	1	1	BFB-11 EN
	02	0	2	BFB-02 EN
	40	4	0	BFB-40 EN
	22	2	2	BFB-22 EN
	04	0	4	BFB-04 EN
	31	3	1	BFB-31EN
	13	1	3	BFB-13 EN
Side mounting auxiliary contact blocks				
	11	1	1	BLB-11 EN
	20	2	0	BLB-20 EN
	02	2	0	BLB-02 EN

CWB Contactors - Technical Data

General Data

Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Standards			IEC 60947-1, IEC 60947-4-1, IEC 60947-5-1, UL 508					
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	690 V					
	UL, CSA	(V)	600 V					
Rated impulse withstand voltage Uimp	IEC 60947-1	(kV)	6 kV					
Rated operational frequency		(Hz)	25...400					
Mechanical lifespan	AC coil	(million cycles)	10					
	DC coil	(million cycles)	10					
Electrical lifespan	Ie AC-3	(million cycles)	2.0	2.0	1.6	1.2	1.2	1.2
Degree of protection (IEC 60529)	Main circuit		IP20 (front)					
	Control circuit and auxiliary contacts		IP20 (front)					
Dimensions W x H x D		(mm)	45 x 78,4 x 89,5 (AC) / 95,7 (DC)			45 x 85 x 93 (AC) / 102 (DC)		
Mounting			By screws or DIN 35 mm rail (EN 50022)					
Number of coil terminals	AC operated contactors		2					
	DC operated contactors		2					
Vibration resistance (IEC 60068-2-6)	Open contactor	(g)	4					
	Closed contactor at Uc	(g)	4					
Shock resistance (½ sine wave =11ms - IEC 60068-2-27)	Open contactor	(g)	10			10		
	Closed contactor at Uc	(g)	15			15		
Ambient temperature	Operating		-25 °C...+55 °C					
	Storage		-55 °C...+80 °C					
Altitude - rated values up to[1)]			3,000 m					

Control Circuit - Alternating Current (AC)

Reference code			CWB9...38	
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	1,000	
	UL, CSA	(V)	600	
Standard coil voltages 50/60 Hz		(V)	12...600	
Coil operating limits		(xUs)	0.8...1.1	
Coil 50/60 Hz	Pick up	(xUs)	Up to 0.8 for 50 Hz / up to 0.85 for 60 Hz	
	Drop out	(xUs)	0.3...0.6	
Power consumption			60 Hz operation	50 Hz operation
Coil 50/60 Hz	Sealing	(VA)	7.5	9
	Power factor	(cos φ)	0.75	0.75
	Pick up	(VA)	75	90
Operation time	(Normally open) contact closing	(ms)	15...25	
	(Normally open) contact opening	(ms)	8...12	
Thermal power dissipation 50/60 Hz		(W)	5...7	

Control Circuit - Direct Current (DC)

Reference code			CWB9...38
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	1,000
	UL, CSA	(V)	600
Standard coil voltages 50/60 Hz		(V)	12...500
Coil operationg limits		(xUs)	0.8...1.1
	Pick up	(xUs)	Up to 0.8
	Drop out	(xUs)	0.2...0.6
Power consumption			For 1.0 x Us and cold coil
	Sealing	(W)	5.8
	Pick up	(W)	5.8
Operation time	(Normally open) contact closing	(ms)	35...45
	(Normally open) contact opening	(ms)	8...12
Average thermal power dissipation		(W)	5.8

Note: 1) For site altitudes of 3,000 to 4,000 m, the adjustment factors are (0.90 x Ie and 0.80 x Ui) and for site altitudes of 4,000 to 5,000 m, the adjustment factors are (0.80 x Ie and 0.75 x Ui).

CWB Contactors - Technical Data

Main Contacts

Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Rated operational current Ie	AC-3 (Ue ≤440 V)	(A)	9	12	18	25	32	38
	AC-4 (Ue ≤440 V)	(A)	4.4	5.8	8.5	10.4	13.7	13.7
	AC-1 (θ ≤55 °C, Ue ≤690 V)	(A)	25	25	32	40	50	50
Rated operational voltage Ue	IEC 60947-4-1	(V)	690					
	UL, CSA	(V)	600					
Rated thermal current Ith (θ ≤55 °C)		(A)	25	25	32	40	50	50
Making capacity - IEC 60947		(A)	250	250	300	450	550	550
Breaking capacity IEC 60947	Ue ≤440 V	(A)	250	250	300	450	550	550
	Ue = 500 V	(A)	220	220	250	350	450	450
	Ue = 690 V	(A)	150	150	180	250	350	350
Short-time current (no current flowing during recovery time of 15min and θ ≤40 °C)	1s	(A)	210	210	240	380	400	430
	10s	(A)	105	105	145	240	260	310
	1min	(A)	61	61	84	120	138	150
	10min	(A)	30	30	40	50	60	60
Protection against short-circuits with fuses (gL/gG)	@600 V - UL/CSA	(kA)	5					
	Coordination type 1	(A)	20	25	35	40	63	63
Impedance per pole		(mΩ)	2.5	2.5	2.5	2	2	2
Power dissipation per pole	AC-1	(W)	1.5	1.5	2.5	3.2	5	5
	AC-3	(W)	0.2	0.4	0.8	1.2	2	3
Utilization category AC-3								
Rated operational current Ie AC-3	Ue ≤440 V	(A)	9	12	18	25	32	38
	Ue ≤500 V	(A)	7.9	11	15.8	23	28.5	28.5
	Ue ≤690 V	(A)	7	9	12	16.5	21	21
Orientative rated operational power of three-phase motors 50/60 Hz IV poles - 1,800 rpm	220 / 240 V	(kW)	2.2	3	4.5	5.5	7.5	9.2
		(HP)	3	4	6	7.5	10	12.5
	380 / 400 V	(kW)	3.7	5.5	7.5	11	15	18.5
		(HP)	5	7.5	10	15	20	25
	415 / 440 V	(kW)	4.5	5.5	9.2	11	15	18.5
		(HP)	6	7.5	12.5	15	20	25
	500 V	(kW)	5.5	7.5	9.2	15	18.5	18.5
		(HP)	7.5	10	12.5	20	25	25
	660 / 690 V	(kW)	5.5	7.5	11	15	18.5	18.5
		(HP)	7.5	10	15	20	25	25
Utilization category AC-4								
Rated operational current Ie AC-4	Ue ≤440 V	(A)	4.4	5.8	8.5	10.4	13.7	13.7
	Ue ≤500 V	(A)	3.9	5.1	7.5	12	13.9	13.9
	Ue ≤690 V	(A)	2.8	3.7	5.4	12	12.8	12.8
Orientative rated operational power of three-phase motors 50/60 Hz IV poles - 1,800 rpm (200,000 cycles)	220 / 240 V	(kW)	1.5	1.5	2.2	3	3.7	3.7
		(HP)	2	2	3	4	5	5
	380 / 400 V	(kW)	2.2	3.7	3.7	5.5	7.5	7.5
		(HP)	3	5	5	7.5	10	10
	415 / 440 V	(kW)	2.2	3	3.7	5.5	7.5	7.5
		(HP)	3	4	5	7.5	10	10
	500 V	(kW)	2.2	3	5.5	7.5	9.2	9.2
		(HP)	3	4	7.5	10	12.5	12.5
	660 / 690 V	(kW)	2.2	3	5.5	9.2	11	11
		(HP)	3	4	7.5	12.5	15	15

CWB Contactors - Technical Data

Main Contacts

Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
			Utilization category AC-1					
			3P (NO)					
Conventional thermal current Ith (θ ≤55 ºC)		(A)	25	25	32	40	50	50
Rated operational current	θ ≤60 ºC (Ue ≤690 V)	(A)	25	25	32	40	50	50
Max. operational power θ ≤55 ºC (three-phase resistors)	220 / 240 V	(kW)	9.5	9.5	12	15	19	19
	380 / 400 V	(kW)	16.5	16.5	21	26	33	33
	415 / 440 V	(kW)	19	19	24.5	30.5	38	38
	500 V	(kW)	21.5	21.5	27.5	34.5	43	43
	660 / 690 V	(kW)	28.5	28.5	36.5	45.5	57	57
Current values for connection of	2 poles in parallel		Ie x 1.7					
	3 poles in parallel		Ie x 2.4					
	4 poles in parallel		Ie x 3.2					
Percentage of maximum operational current	600 ops./h	(%)	100	100	100	100	100	100

Auxiliary Contacts

Reference code			CWB9...38 (built-in)	BFB (front mounted)	BLB (side mounted)
Standards			IEC 60947-5-1		
Rated insulation voltage Ui (pollution degree 3)	IEC 60947-4-1	(V)	1,000		
	UL, CSA	(V)	600		
Rated operational voltage Ue	IEC 60947-4-1	(V)	690		
	UL, CSA	(V)	600		
Conventional thermal current Ith (θ ≤55 ºC)		(A)	10		
Rated operational current Ie					
AC-15 (IEC 60947-5-1)	220 / 230 V	(A)	10		
	380 / 440 V	(A)	4		
	500 V	(A)	2.5		
	660 / 690 V	(A)	1.5		
DC-13 (IEC 60947-5-1)	24 V	(A)	4		
	48 V	(A)	2		
	110 V	(A)	0.7		
	220 V	(A)	0.3		
	440 V	(A)	0.15		
	600 V	(A)	0.1		
Making capacity	Ue ≤690 V 50/60 Hz - AC-15	(A)	10 x Ie		
Breaking capacity	Ue ≤400 V 50/60 Hz - AC-15	(A)	1 x Ie		
Short-circuit protection max. fuse (gL/gG)		(A)	10		
Control circuit reliability		(V / mA)	17 / 5		
Electrical lifespan		(million cycles)	1		
Mechanical lifespan		(million cycles)	10		
Non-overlapping time between NO and NC contacts		(ms)	1.5		
Impedance per pole		(mΩ)	2.5		

CWB Contactors - Technical Data

UL Ratings

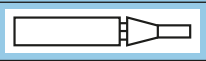
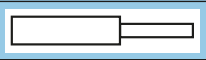
Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Horse power ~ 1Ø	110-120 V	(HP)	0.75	0.75	1	2	3	3
	220-240 V	(HP)	1.5	2	3	5	5	7.5
Horse power ~ 3Ø	200 V	(HP)	3	3	5	7.5	10	10
	230 V	(HP)	3	3	5	7.5	10	10
	460 V	(HP)	5	7.5	10	15	20	25
	575 V	(HP)	7.5	10	15	15	25	25
Short-circuit rating			5 kA - 600 V					
General purpose for 600 V			25	25	32	40	50	50
Coil ratings			12 V ac to 600 V ac, 50/60 Hz					
			12 - 500 V dc					

NEMA Ratings

Reference code			CWB9	CWB18	CWB32
NEMA size			00	0	1
Horse power ~ 3Ø Normal starting duty[1)]	200 V	(HP)	1.5	3	7.5
	230 V	(HP)	1.5	3	7.5
	460 V	(HP)	2	5	10
	575 V	(HP)	2	5	10

Note: 1) When operation requires jogging (inching) or plugging or when normal operation requires continued operation in excess of 5 operations per minute, the Normal Starting Duty horsepower ratings are not applied.

Terminal Capacity and Tightening Torque

Reference code			CWB9 - CWB18		CWB25 - CWB38	
Conductors	Connection	Number of conductors	mm²	AWG	mm²	AWG
Control and auxiliary circuits		1	1...4	16...12	1...4	16...12
		2	1...2.5	16...14	1...2.5	16...14
		1	1...4	16...12	1...4	16...12
		2	1...4	16...12	1...4	16...12
		1	1...4	16...12	1...4	16...12
		2	1...4	16...12	1...4	16...12
Terminal screw			M4 Flat/Philips			
Power circuit		1	1...6	16...10	1.5...10	16...8
		2	1...4	16...12	1.5...6	16...10
		1	1...6	16...10	2.5...10	14...8
		2	1...6	16...10	2.5...10	14...8
		1	1...6	16...10	2.5...10	14...8
		2	1...6	16...10	2.5...10	14...8
Terminal screw			M3.5 Flat/Philips			
Tightening torque (N.m / (lb.in))						
Control and auxiliary circuits			1 / (8.8)		1 / (8.8)	
Power circuit			1.7 / (15)		2.5 / (22)	

Reference code			BFB (front mounted)		BLB (side mounted)	
Conductors	Connection	Number of conductors	mm²	AWG	mm²	AWG
Auxiliary contact blocks		1	1...2.5	16...14	1...2.5	16...14
		2	1...2.5	16...14	1...2.5	16...14
		1	1...2.5	16...14	1...2.5	16...14
		2	1...2.5	16...14	1...2.5	16...14
		1	1...2.5	16...14	1...2.5	16...14
		2	1...2.5	16...14	1...1.5	16
Terminal screw			M3.5 Flat/Philips			
Tightening torque (N.m / (lb.in))			1 / (8.8)		1 / (8.8)	

CWB Contactors - Technical Data

Contactors for Switching Lamps in Lighting Circuits

When a contactor is chosen for switching lighting circuits it should be taken into account the type, number and power of lamps, the values of current during the starting phase and in the steady-state, power factor and the presence or not of compensation capacitors. Compensation capacitors and electronic devices are usually responsible for high inrush currents and may stress the contactors in lighting installations. The current consumption of lighting equipment typically increases when the voltage decreases so it is recommended to utilize a maximum of 90% of the thermal rated current of the contactor. All the aforementioned is considered in the following tables. The tables indicate the maximum number of lamps per phase at 230 V, for single-phase or for 3-phase star-connected circuits. For 3-phase delta-connected, the total number of lamps will be as shown in the table, multiplied by 0.58. The air temperature near the contactor is considered less than or equal to 55 °C.

				Maximum number of lamps per phase at 230 V					
Lamp type	W	A[2]	µF	CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Incandescent and halogen	60	0.27	-	56	56	67	101	118	135
	100	0.45	-	33	33	40	60	71	81
	150	0.68	-	22	22	26	40	47	53
	200	0.91	-	16	16	19	29	35	40
	300	1.4	-	10	10	12	19	22	26
	500	2.3	-	6	6	7	11	13	15
	750	3.4	-	4	4	5	8	9	10
	1,000	4.6	-	3	3	3	5	6	7
	AC-5b[1] (A)			15	15	18	28	32	36
Fluorescent lamps with electronic starter									
Single arrangement									
Without compensation	20	0.39	-	41	41	53	66	89	112
	40	0.45	-	35	35	46	57	77	97
	65	0.7	-	22	22	30	37	50	62
	80	0.8	-	20	20	26	32	43	55
	110	1.2	-	13	13	17	21	29	36
With paralel compensation	20	0.17	5	94	94	123	152	205	258
	40	0.26	5	61	61	80	100	134	169
	65	0.42	7	38	38	50	61	83	104
	80	0.52	7	30	30	40	50	67	84
	110	0.72	16	22	22	29	36	48	61
Dual mounting									
Without compensation	2 x 20	2 x 0.22	-	2 x 36	2 x 36	2 x 46	2 x 58	2 x 78	2 x 100
	2 x 40	2 x 0.41	-	2 x 18	2 x 18	2 x 24	2 x 30	2 x 42	2 x 52
	2 x 65	2 x 0.67	-	2 x 10	2 x 10	2 x 14	2 x 18	2 x 26	2 x 32
	2 x 80	2 x 0.82	-	2 x 8	2 x 8	2 x 12	2 x 14	2 x 20	2 x 26
	2 x 110	2 x 1.10	-	2 x 6	2 x 6	2 x 8	2 x 10	2 x 14	2 x 18
With series compensation	2 x 20	2 x 0.13	-	2 x 60	2 x 60	2 x 80	2 x 100	2 x 134	2 x 168
	2 x 40	2 x 0.24	-	2 x 32	2 x 32	2 x 42	2 x 54	2 x 72	2 x 90
	2 x 65	2 x 0.39	-	2 x 20	2 x 20	2 x 26	2 x 32	2 x 44	2 x 56
	2 x 80	2 x 0.48	-	2 x 16	2 x 16	2 x 20	2 x 26	2 x 36	2 x 44
	2 x 110	2 x 0.65	-	2 x 12	2 x 12	2 x 16	2 x 20	2 x 26	2 x 32
Fluorescent lamps without electronic starter									
Single mounting									
Without compensation	20	0.43	-	37	37	48	60	97	102
	40	0.55	-	29	29	38	47	63	80
	65	0.8	-	20	20	26	32	43	55
	80	0.95	-	16	16	22	27	36	46
	110	1.4	-	11	11	15	18	25	31
With paralel compensation	20	0.19	5	84	84	110	136	184	231
	40	0.29	5	55	55	72	89	101	151
	65	0.46	7	34	34	45	56	76	95
	80	0.57	7	28	28	36	45	61	77
	110	0.79	16	20	20	26	32	44	55
Dual mounting									
Without compensation	2 x 20	2 x 0.25	-	2 x 32	2 x 32	2 x 42	2 x 52	2 x 70	2 x 88
	2 x 40	2 x 0.47	-	2 x 16	2 x 16	2 x 22	2 x 26	2 x 36	2 x 46
	2 x 65	2 x 0.76	-	2 x 10	2 x 10	2 x 12	2 x 16	2 x 22	2 x 28
	2 x 80	2 x 0.93	-	2 x 8	2 x 8	2 x 10	2 x 12	2 x 18	2 x 22
	2 x 110	2 x 1.3	-	2 x 6	2 x 6	2 x 8	2 x 10	2 x 12	2 x 16
With paralel compensation	2 x 20	2 x 0.14	-	2 x 56	2 x 56	2 x 74	2 x 92	2 x 124	2 x 156
	2 x 40	2 x 0.26	-	2 x 30	2 x 30	2 x 40	2 x 50	2 x 66	2 x 84
	2 x 65	2 x 0.43	-	2 x 18	2 x 18	2 x 24	2 x 30	2 x 40	2 x 50
	2 x 80	2 x 0.53	-	2 x 14	2 x 14	2 x 18	2 x 24	2 x 32	2 x 40
	2 x 110	2 x 0.72	-	2 x 10	2 x 10	2 x 14	2 x 18	2 x 24	2 x 30

Notes: 1) Indicative values - It's highly recommended to take into consideration the values of making capacity and rated AC-1 current when dimensioning the contactor for AC-5b utilization category (AC-5b: switching of incandescent lamps).
2) Rated current for each lamp at rated voltage.

CWB Contactors - Technical Data

Contactors for Switching Lamps in Lighting Circuits

				Maximum number of lamps per phase at 230 V					
Lamp type	W	A	µF	CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Low pressure sodium vapor									
Without compensation	35	1.2	-	10	10	12	15	21	27
	55	1.6	-	7	7	9	11	16	20
	90	2.4	-	5	5	6	7	10	13
	135	3.1	-	3	3	4	6	8	10
	150	3.2	-	3	3	4	5	8	10
	180	3.3	-	3	3	4	5	7	10
	200	3.4	-	3	3	4	5	7	9
With paralel compensation	35	0.3	17	40	40	50	63	86	110
	55	0.4	17	30	30	37	47	65	82
	90	0.6	25	-	-	25	31	43	55
	135	0.9	36	-	-	-	21	28	36
	150	1	36	-	-	-	19	26	33
	180	1.2	36	-	-	-	15	21	27
	200	1.3	36	-	-	-	14	20	25
High pressure sodium vapor									
Without compensation	150	1.9	-	6	6	7	10	13	17
	250	3.2	-	3	3	4	5	8	10
	400	5	-	2	2	3	3	5	6
	700	8.8	-	1	1	1	2	2	3
	1,000	12.4	-	-	-	1	1	2	2
With paralel compensation	150	0.84	20	-	-	17	22	30	39
	250	1.4	32	-	-	-	13	18	23
	400	2.2	48	-	-	-	8	11	15
	700	3.9	96	-	-	-	-	6	8
	1,000	5.5	120	-	-	-	-	-	6
High pressure mercury vapor									
Without compensation	50	0.54	-	22	22	27	35	48	61
	80	0.81	-	14	14	18	23	32	40
	125	1.2	-	9	9	12	15	21	27
	250	2.3	-	5	5	6	8	11	14
	400	4.1	-	2	2	3	4	6	8
	700	6.8	-	1	1	2	2	3	4
	1,000	9.9	-	1	1	1	1	2	3
With paralel compensation	50	0.3	10	40	40	50	63	86	110
	80	0.45	10	26	26	33	42	57	73
	125	0.67	10	17	17	22	28	38	49
	250	1.3	18	9	9	11	14	20	25
	400	2.3	25	-	-	6	8	11	14
	700	3.8	40	-	-	-	5	6	8
	1,000	5.5	60	-	-	-	3	4	6
Metal iodide									
Without compensation	250	2.5	-	4	4	6	7	10	12
	400	3.6	-	3	3	4	5	7	8
	1,000	9.5	-	1	1	1	2	2	3
	2,000	20	-	-	-	-	-	1	1
With paralel compensation	250	1.4	32	-	-	-	13	18	21
	400	2	32	-	-	-	9	13	15
	1,000	5.3	64	-	-	-	-	4	6
	2,000	11.2	140	-	-	-	-	-	-

CWB Contactors - Technical Data

DC - Utilization Category for CWB Contactors[1)]

Contactors designed for AC switching can carry the same rated continuous operational DC current. But for operational voltage higher than around 60 V, the switching capacity (of direct current) decreases significantly. By connecting poles in series, the advantages are: improved switching capacity, larger contact lifespan and specially, higher operating voltages.
However, this higher operating voltage may not exceed the rated insulation voltage of the contactor. Similarly, the current loading of poles connected in series is the same as for individual poles.

Utilization Category DC-1 (L/R ≤1ms)

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Ue	Poles in series	Maximum operational current Ie (A)					
≤24 V	1	20	20	25	32	40	40
	2	20	20	25	32	40	40
	3	20	20	25	32	40	40
≤48 V	1	20	20	25	32	40	40
	2	20	20	25	32	40	40
	3	20	20	25	32	40	40
≤60 V	1	20	20	25	32	40	40
	2	20	20	25	32	40	40
	3	20	20	25	32	40	40
≤125 V	1	4	4	4	7	7	7
	2	20	20	25	32	40	40
	3	20	20	25	32	40	40
≤220 V	1	1	1	1	1	1	1
	2	4	4	4	7	7	7
	3	20	20	25	32	40	40
≤440 V	1	0.4	0.4	0.4	0.4	0.5	0.5
	2	1	1	1	1	1	1
	3	4	4	4	7	7	7
≤600 V	1	-	-	-	-	-	-
	2	0.4	0.4	0.4	0.4	0.5	0.5
	3	1	1	1	1	1	1

Note: 1) Utilization categories according to IEC 60947-4-1:
DC-1 - Non-inductive or slightly inductive loads, resistance furnaces;
DC-3 - Shunt motors: starting, plugging, reversing, inching, dynamic braking;
DC-5 - Series motors: starting, plugging, reversing, inching, dynamic braking.

CWB Contactors - Technical Data

DC - Utilization Category for CWB Contactors[1)]

Utilization Category DC-3 (L/R ≤2.5ms)

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Ue	Poles in series	Maximum operational current Ie (A)					
≤24 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤48 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤60 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤125 V	1	2	2	2	3	3	3
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤220 V	1	0.5	0.5	0.5	0.5	0.5	0.5
	2	2	2	2	3	3	3
	3	18	18	22	28	36	36
≤440 V	1	-	-	-	-	-	-
	2	0.3	0.3	0.3	0.5	0.5	0.5
	3	1.5	1.5	1.5	1.5	3	3
≤600 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	0.8	0.8	0.8	0.8	1.5	1.5

Note: 1) Utilization categories according to IEC 60947-4-1:
DC-1 - Non-inductive or slightly inductive loads, resistance furnaces;
DC-3 - Shunt motors: starting, plugging, reversing, inching, dynamic braking;
DC-5 - Series motors: starting, plugging, reversing, inching, dynamic braking.

CWB Contactors - Technical Data

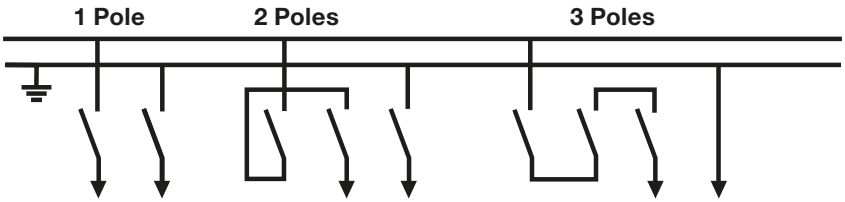
DC - Utilization Category for CWB Contactors[1)]

Utilization Category DC-5 (L/R ≤15ms)

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Ue	Poles in series	Maximum operational current Ie (A)					
≤24 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤48 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤60 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤125 V	1	2	2	2	3	3	3
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
≤220 V	1	-	-	-	-	-	-
	2	2	2	2	3	3	3
	3	18	18	22	28	36	36
≤440 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	1.5	1.5	1.5	1.5	3	3
≤600 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-

Note: 1) Utilization categories according to IEC 60947-4-1:
DC-1 - Non-inductive or slightly inductive loads, resistance furnaces;
DC-3 - Shunt motors: starting, plugging, reversing, inching, dynamic braking;
DC-5 - Series motors: starting, plugging, reversing, inching, dynamic braking.

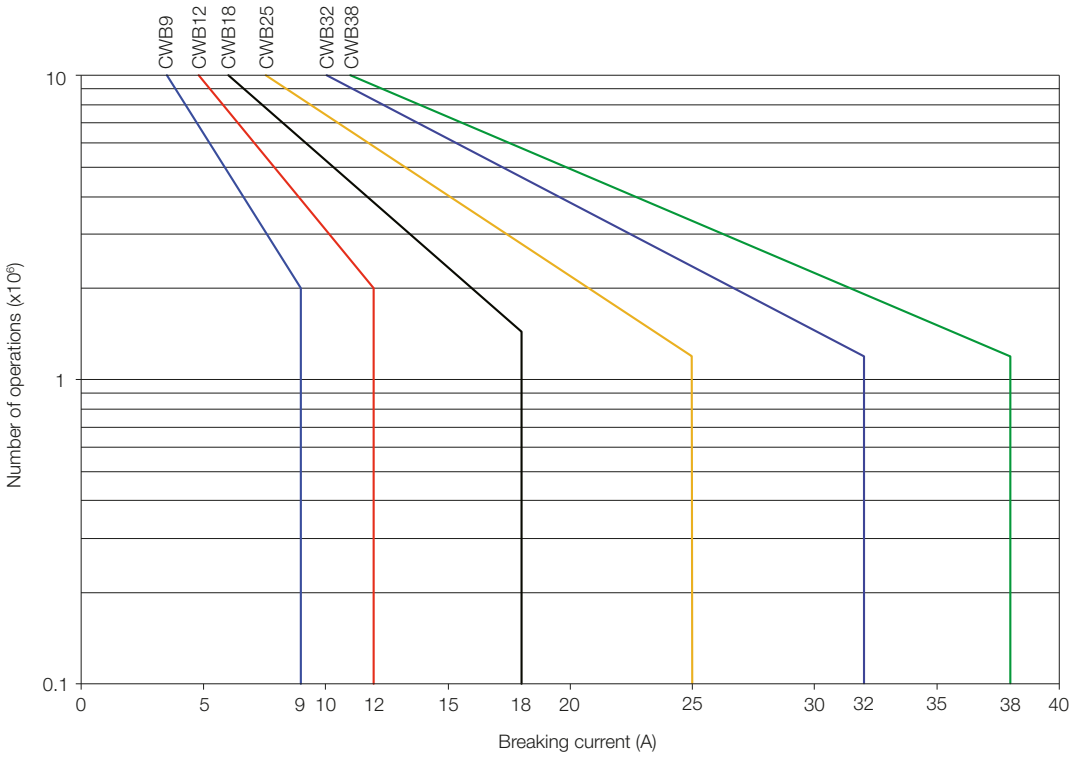
Diagram: Series Connection of Poles



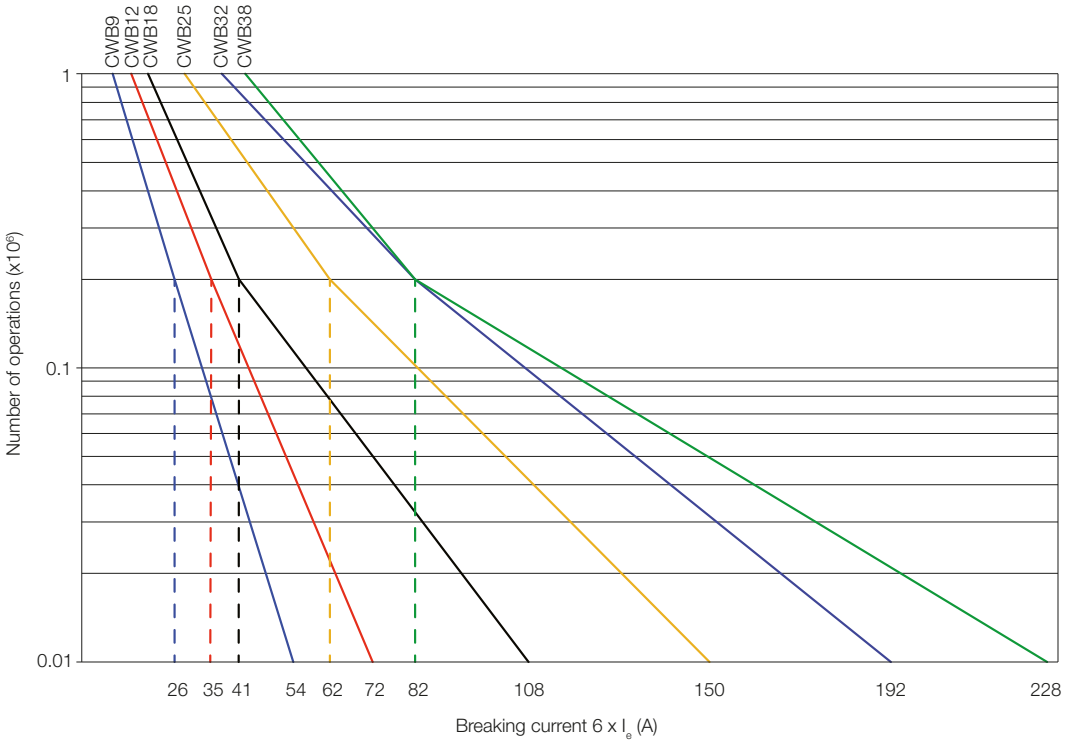
CWB Contactors - Technical Data

Electrical Lifespan

Utilization Category AC-3 (Ue ≤440 V ac)



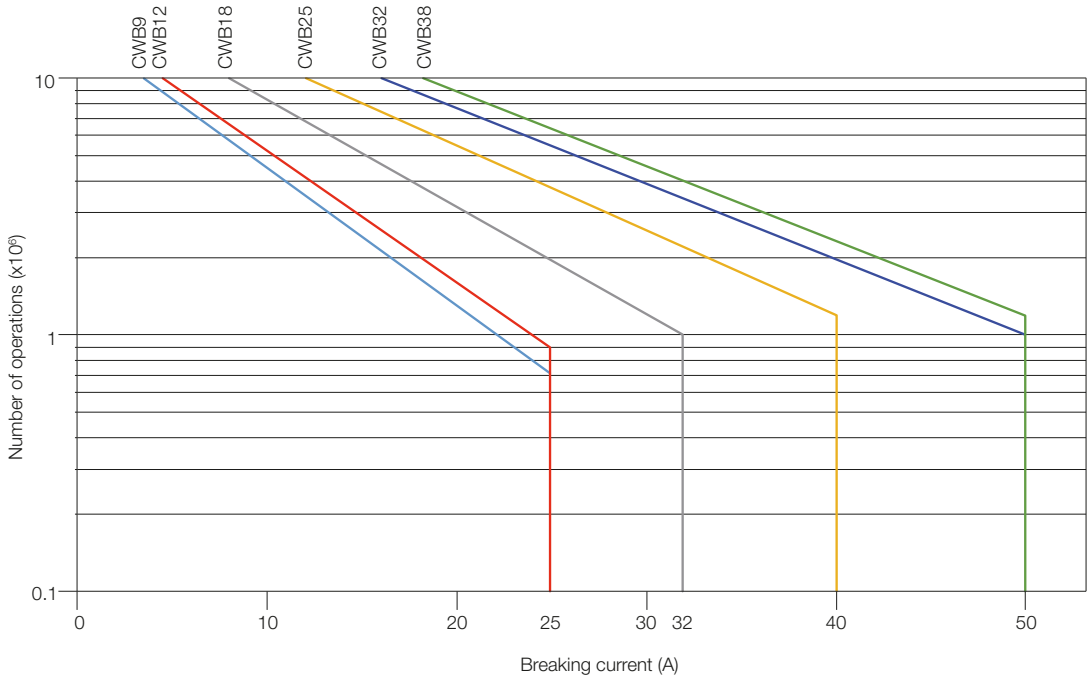
Utilization Category AC-4 (Ue ≤440 V ac)



CWB Contactors - Technical Data

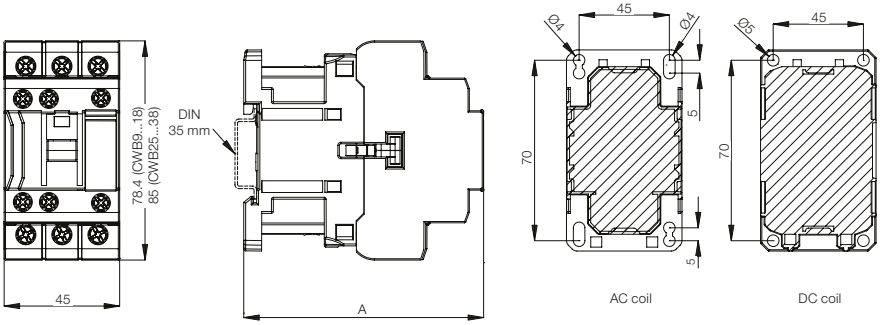
Electrical Lifespan

Utilization Category AC-1 (Ue ≤690 V ac)



CWB Contactors - Dimensions (mm)

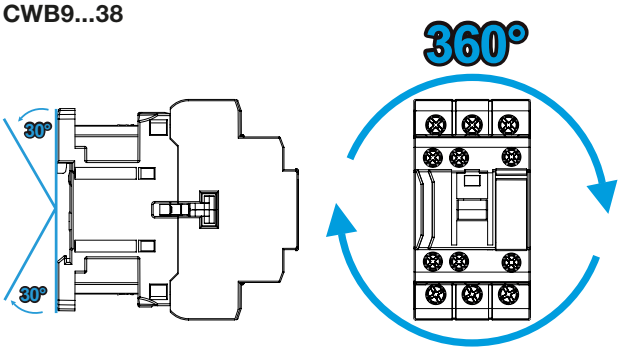
CWB9...18, CWB25...38



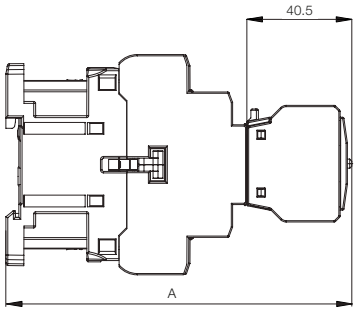
Models	A	
	AC coil	DC coil
CWB9...18	89.5	95.7
CWB25...38	93	102.2

Mounting Position

CWB9...38

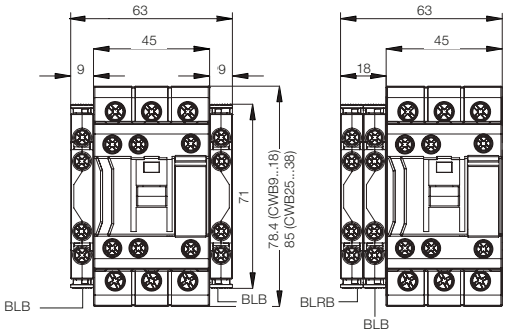


CWB9...18, CWB25...38 + BFB (Front Mounted Auxiliary Contact Block)



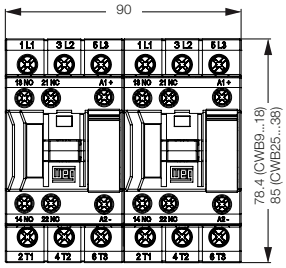
Models	A	
	AC coil	DC coil
CWB9...18	130	136.2
CWB25...38	133.5	142.7

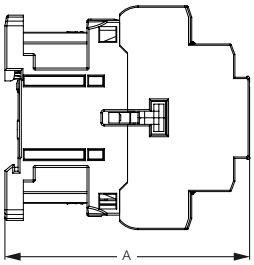
CWB9...18, CWB25...38 + BLB (Side Mounted Auxiliary Contact Block)



CWB Contactors - Dimensions (mm)

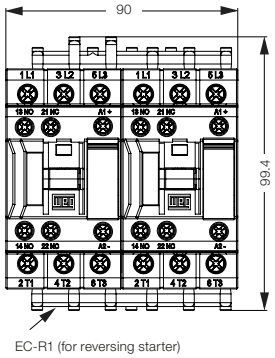
2 x CWB9...38 + IM1 (Mechanical Interlock)



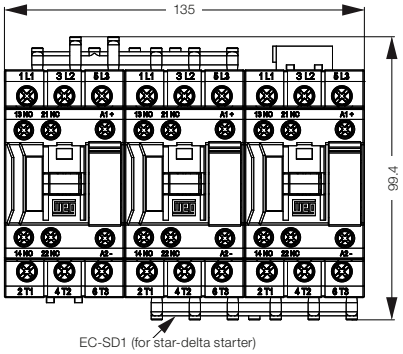


Models	A	
	AC coil	DC coil
CWB9...18	89.5	95.7
CWB25...38	93	102.2

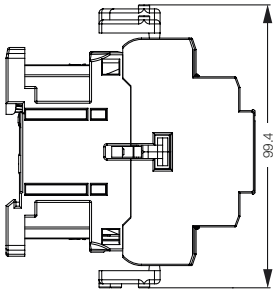
CWB9...18 + Easy Connection Busbars



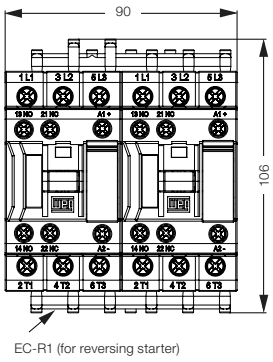
EC-R1 (for reversing starter)



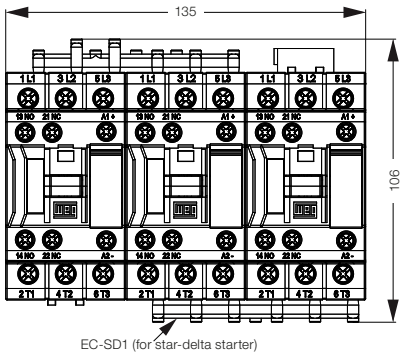
EC-SD1 (for star-delta starter)



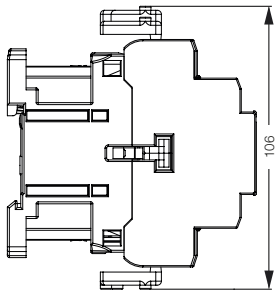
CWB25...38 + Easy Connection Busbars



EC-R1 (for reversing starter)



EC-SD1 (for star-delta starter)



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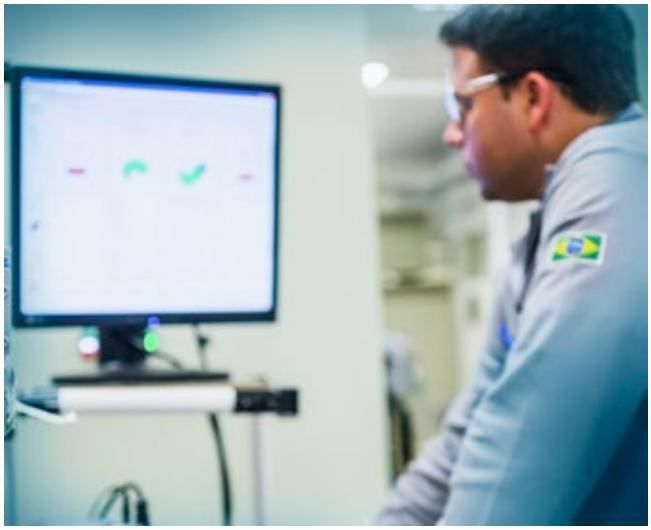

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