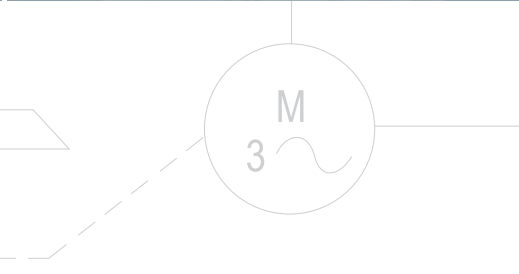
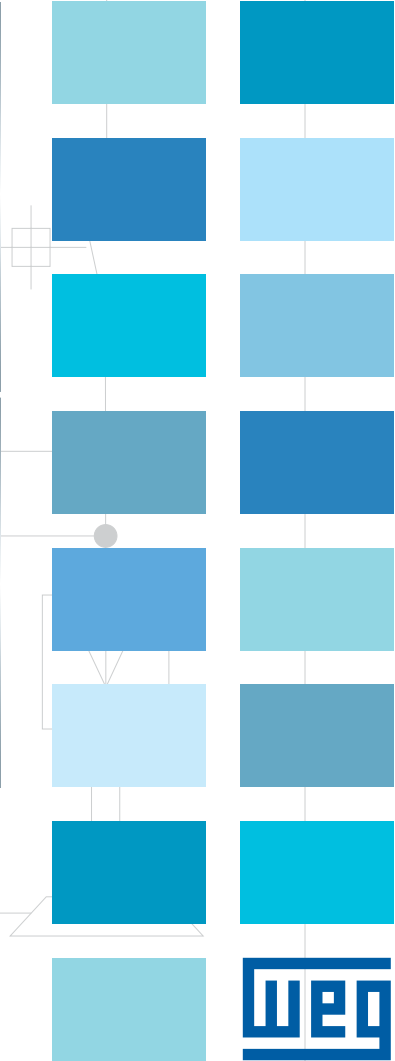
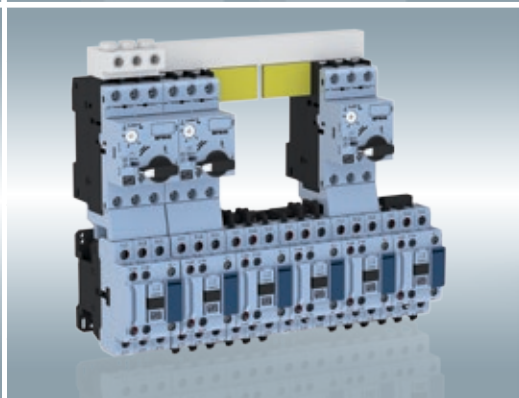
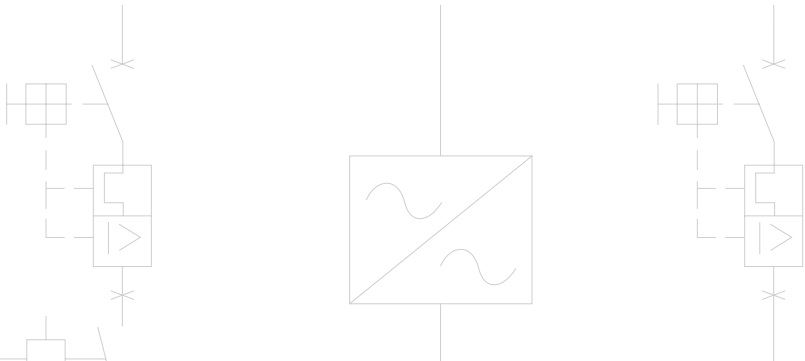


Automation

Motor Control and Protection up to 18.5 kW / 25 HP





Industrial systems
enhancing productivity.

Automation

Motor Control and Protection up to 18.5 kW / 25 HP

CWB Line - Contactors

A

RW27-2D - Thermal Overload Relays

B

MPW - Motor Protective Circuit Breakers

C

Motor Starter Guide up to 18.5 kW / 25 HP

D



WEG IE3-conform control and protection components: **the right choice** for **premium efficiency** motors.



The most recent change of the European directive 640/2009/EC, which came into force in January 2015, affects manufacturers and users of electric motors and switching and protection components. According to the new regulation, motors with rated outputs from 7.5 to 375 kW must not be less efficient than the IE3 efficiency level or may still be IE2 efficiency level if equipped with variable speed drives.

Lowering energy consumption and caring for the environment has always been a priority for WEG. It has been producing premium and super premium efficiency electric (IE3 and IE4 standard or equivalent) motors for over fifteen years. **The new regulation shows how innovative WEG has always been.** The company is aware that the design improvements in the electric motors to achieve the efficiencies will have possible impact on the switching and protection components.

Company experts list the use of cores with thinner silicon steel laminations, greater silicon concentration and windings with increased copper mass as the main optimizations. Improvements also include reduced air-gaps and a more efficient cooling system.

With the higher efficiency, it is common for IE3 motors to present higher inrush and starting currents in

comparison to IE2 motors. Therefore, **is it necessary to use a derating factor when WEG switching and protection components are sized for IE3 motors?**

The answer to this is simple and objective: WEG's line of components has been developed and improved alongside IE3 motors, therefore, it is suitable for such purpose and no derating factor is necessary, **WEG components are IE3-conform.**

There is still some uncertainty in the market about the effect of the changes in standards and directives. This statement seeks to inform and reassure customers. All new motors placed on the market, include within the scope of directive, have to be IE3 efficiency or above IE2 efficiency rated when equipped with a variable speed drive. If on one hand the use of premium efficiency motors is mandatory, **the choice of switching and protection components for IE3 motors is the users decision.**



Manufacturing **Know How**

Committed to growth on a global scale, **WEG continually invests** in state-of-the-art manufacturing facilities and processes and on the development of reliable components. We understand that production facilities need to be **robust, reliable, innovative** and **environmentally sustainable**.

Quality Control

WEG's motor control and protection components are produced in facilities that work according to **the most demanding quality and process control standards** like IEC and NEMA. Our **ISO 9001, ISO 14001** and **ISO 50001** certifications further illustrate our commitment to standards of international quality.



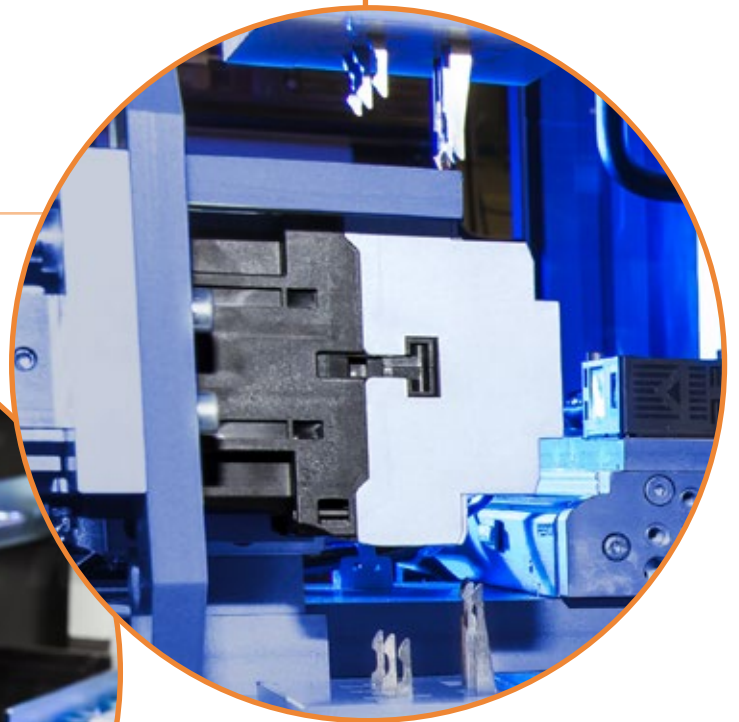
A **Vertically Integrated** Company

WEG is a vertically integrated company. Our facilities, renowned for their capacity, efficiency, quality control, safety and flexibility have all kinds of industrialization processes internally such as, plastic injection molding, metal stamping and machining centers, assuring increased quality control throughout the production chain.

New area in the plastic injection center.



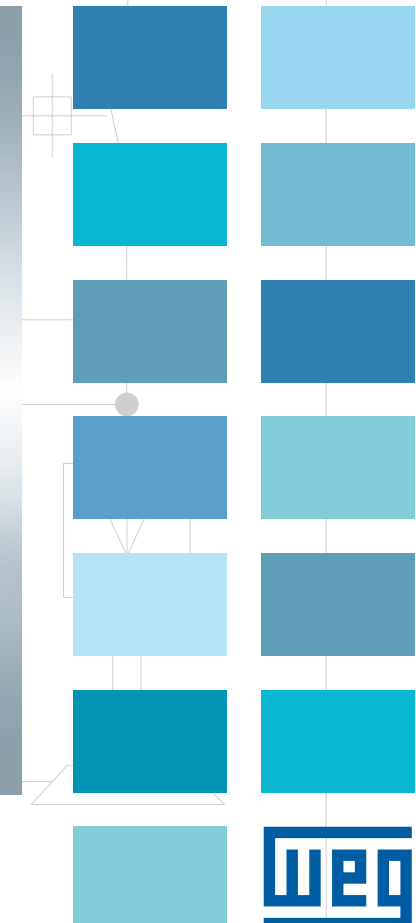
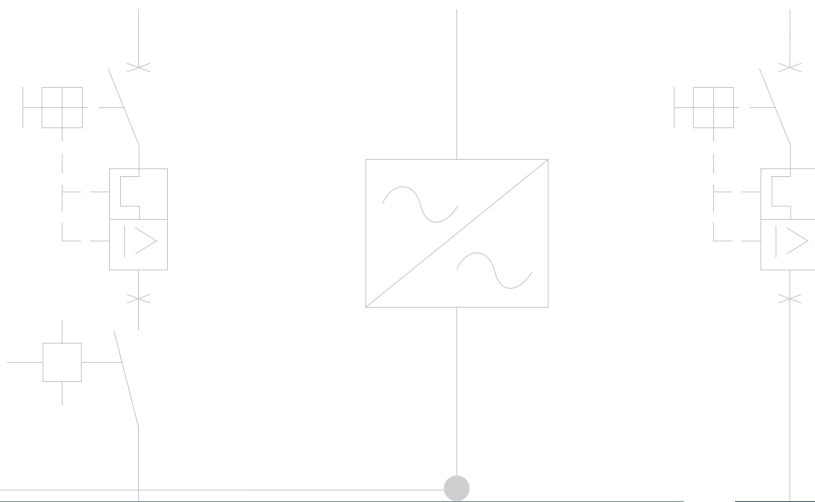
Detail of the final test on the assembly line of contactors: 100% of components are automatically tested for more than 15 different parameters such as operating limits, coil consumption, insulation voltage levels, vibration and noise among others and then individually identified for tracking purposes.



Magnetic core of contactors: precise, temperature-controlled, fully-automatic production assures a high-end product.

Contactors

CWB Line

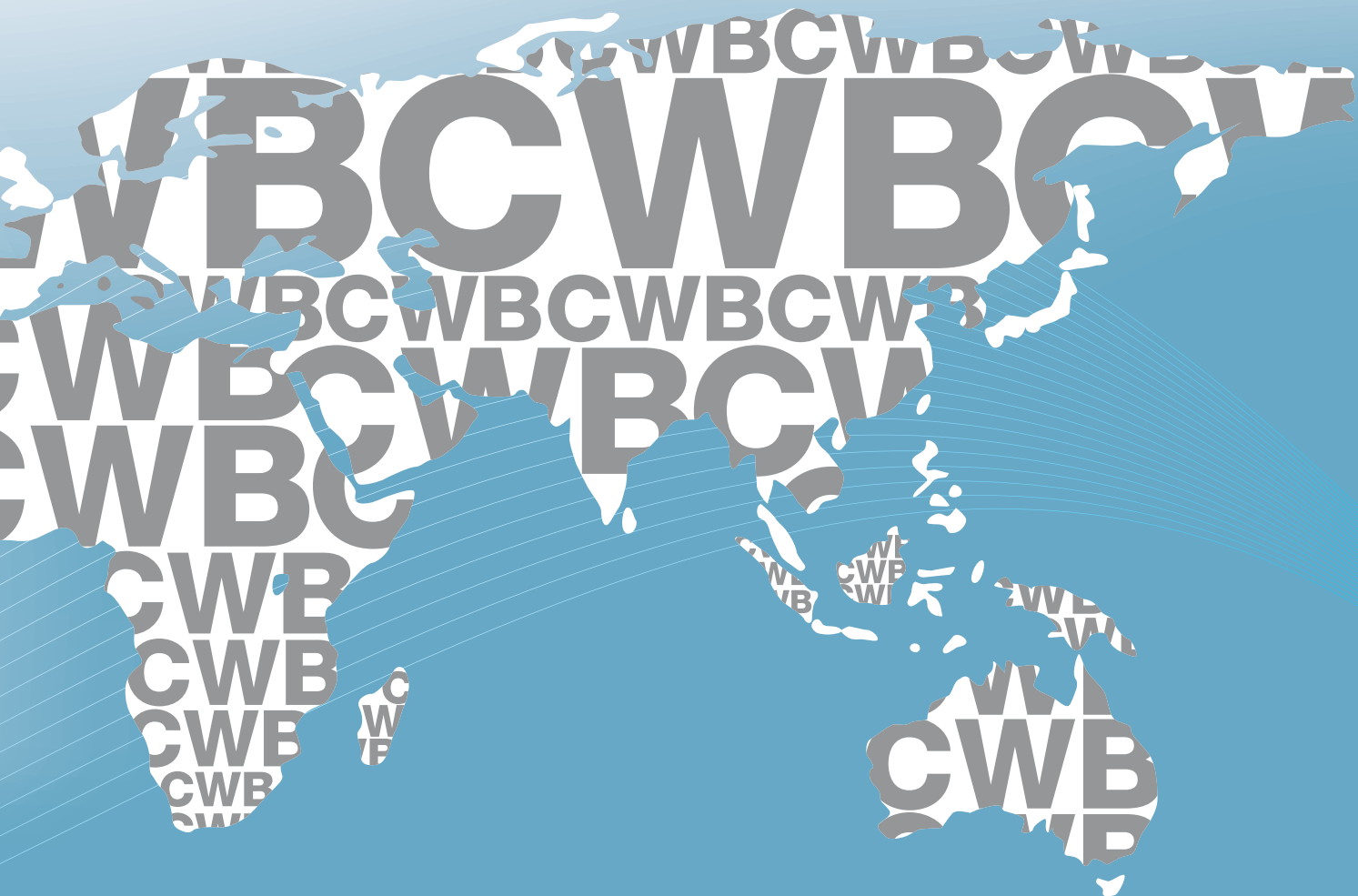




New WEG **CWB** Contactors

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.

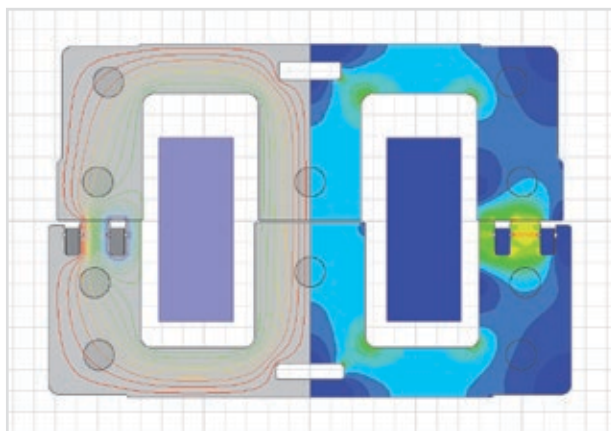




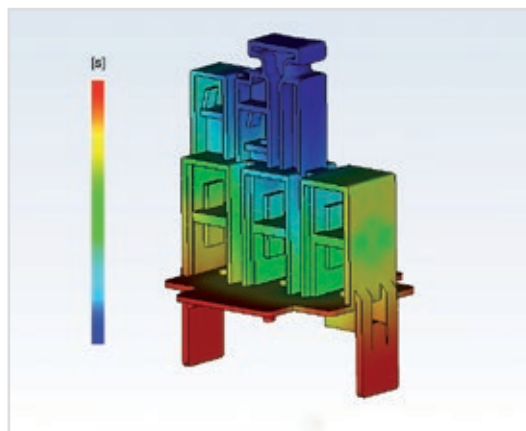
The Technology Within

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 conductivity 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

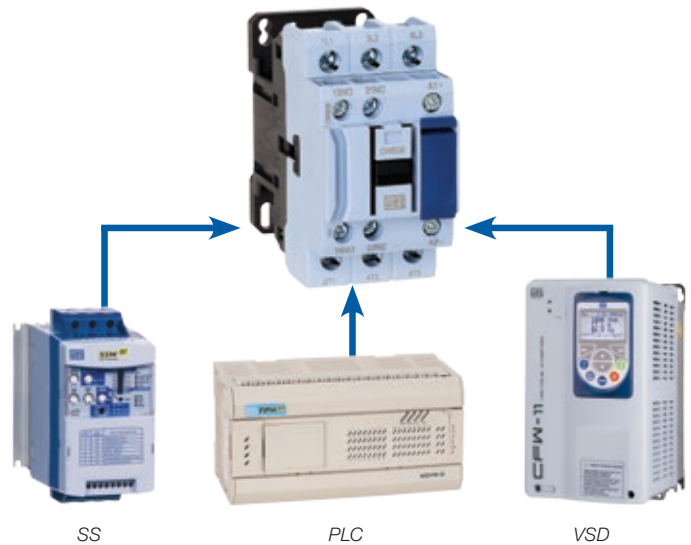
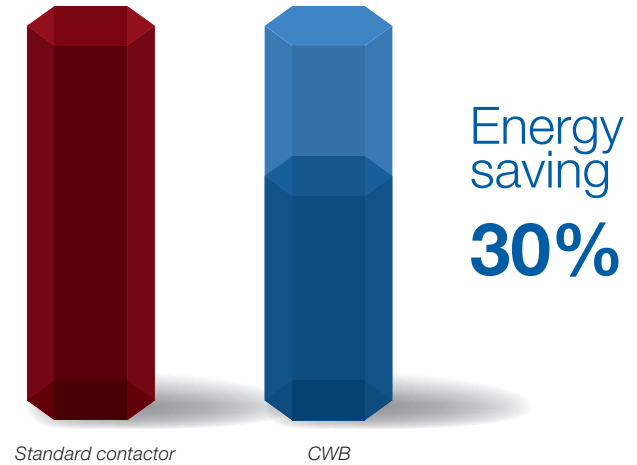
Low Consumption Coils

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.

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.

Coil Consumption DC Operated Contactor



Eco-Friendly

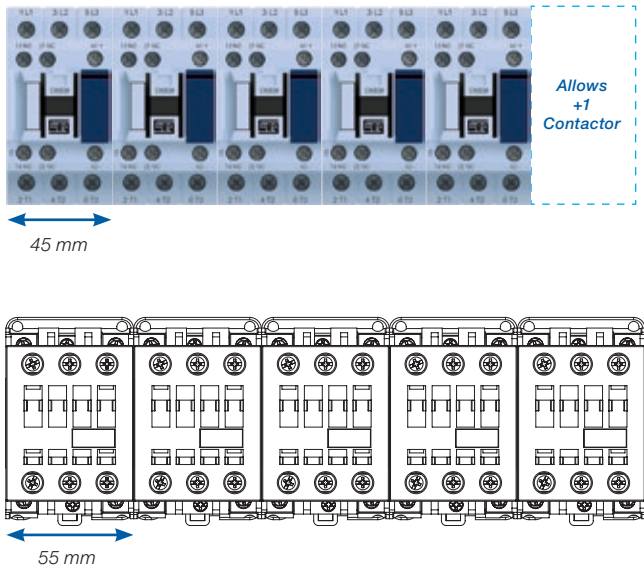
The CWB line uses only nontoxic and eco-friendly materials that are safe and sustainable.



Easy Panel Optimization

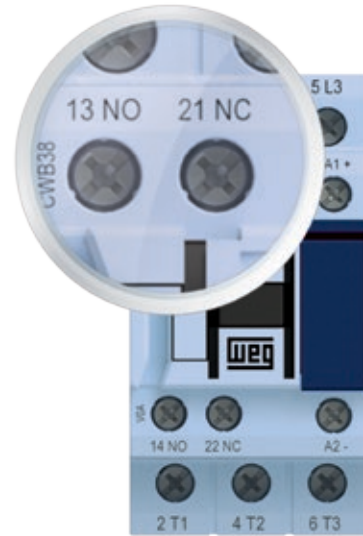
Compact Solution

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.



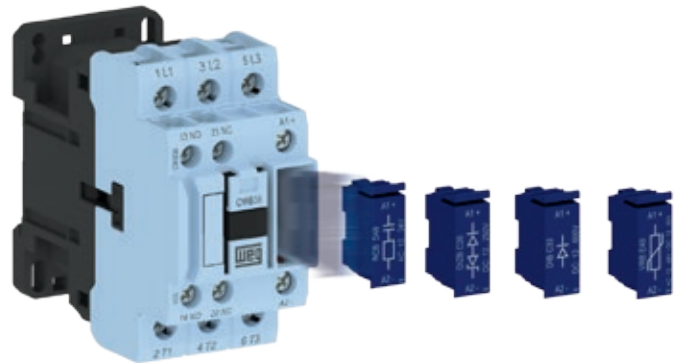
“Zero-Width” Mechanical Interlock

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.



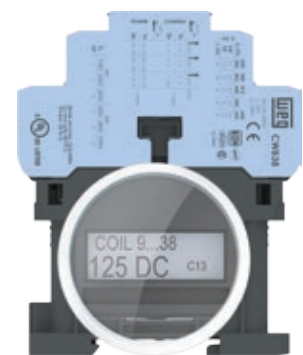
A

Contactors with AC or DC Coils

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.



Contactors with AC coil



Contactors with DC coil

B

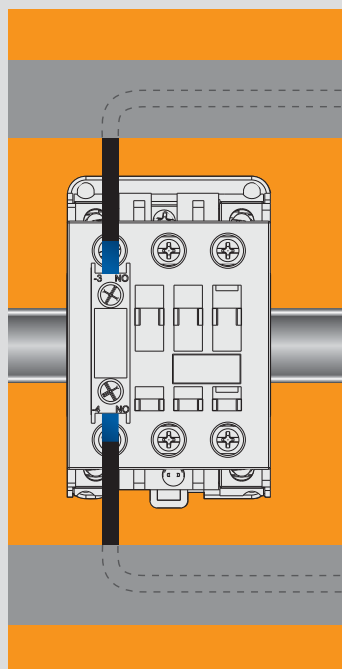
C

D

CWB Line



Standard Contactors



More Simple and Organized Control Circuits

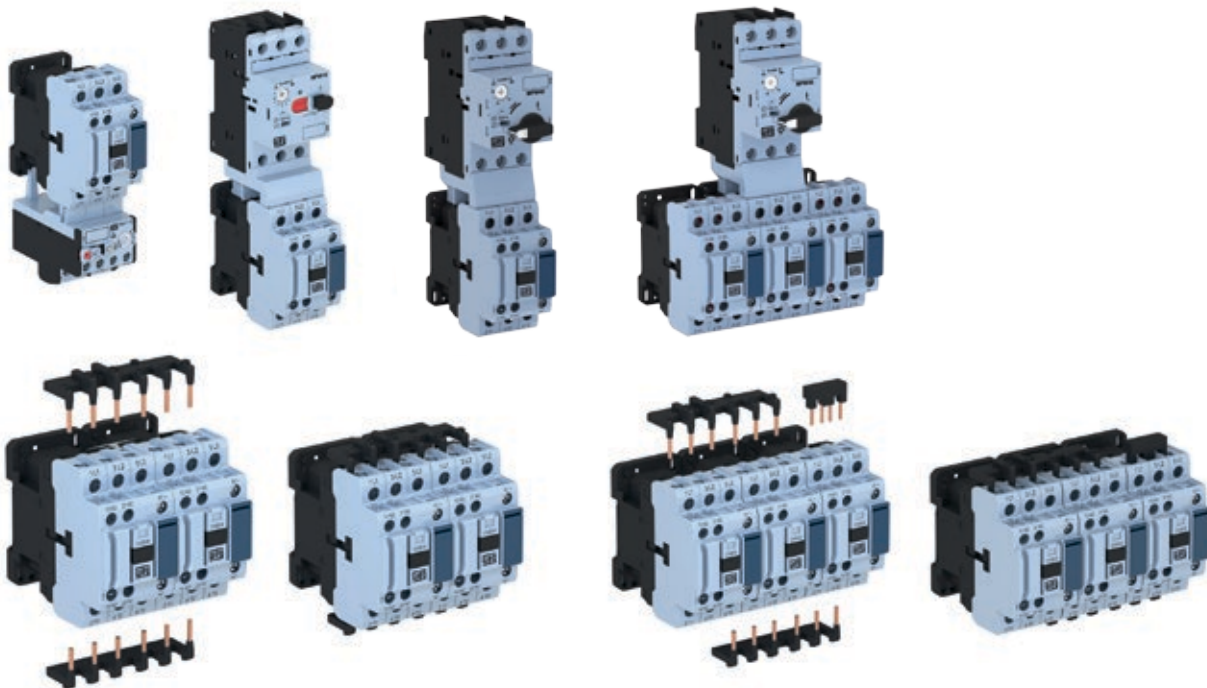
In order to optimize space in electric panels even more, the WEG CWB contactor line has a front channel for the passage of control cables. This could reduce or eliminate the need of control cable passage through the side or front part of contactors providing a “cleaner” and more organized assembly of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





A

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.

B

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.

C

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.

D



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.

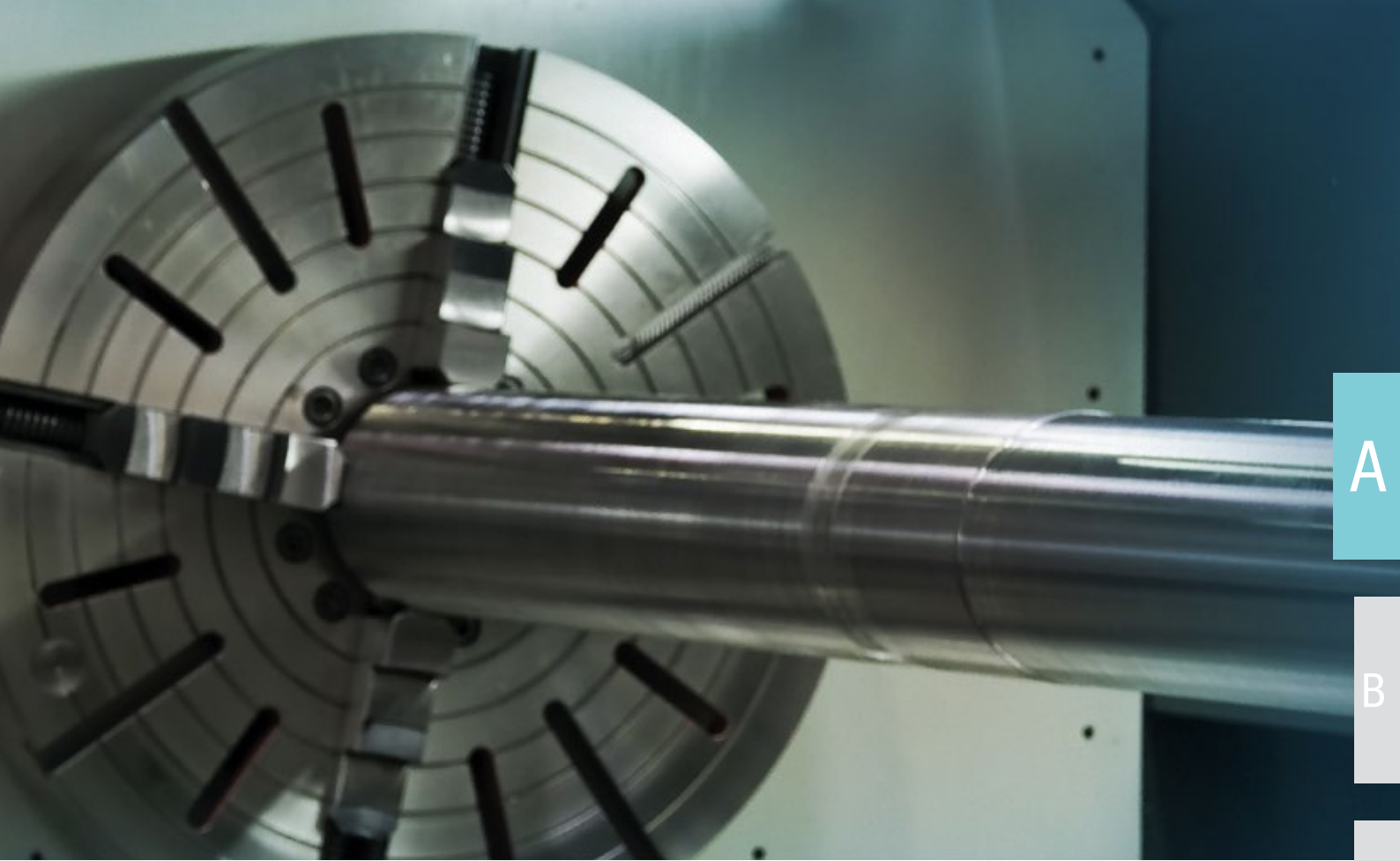


IEC 60947-5-1
Mechanically linked
contacts



IEC 60947-4-1
Mirror contacts





A

B

C

D

Selection Table

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

I _e máx. (U _e ≤ 440 V)	I _e = I _{th} (U _e ≤ 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	
		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 kg	DC coil kg
AC-3 A	AC-1 A										
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

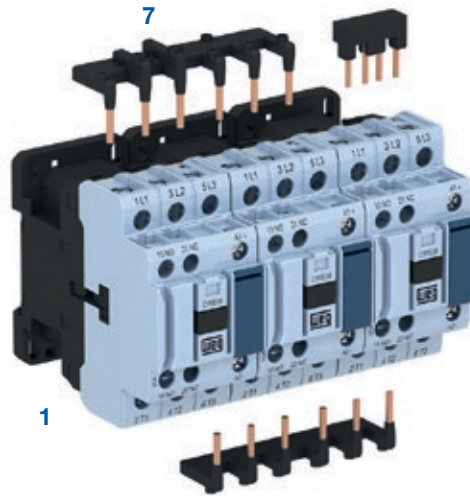
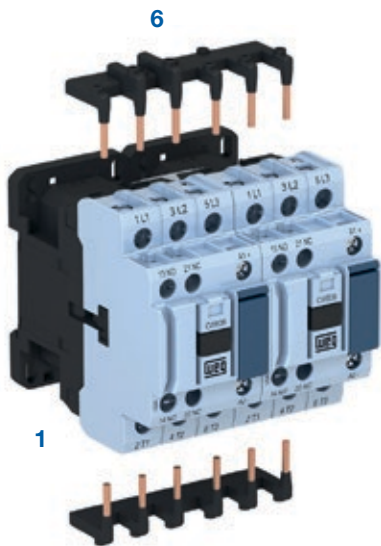
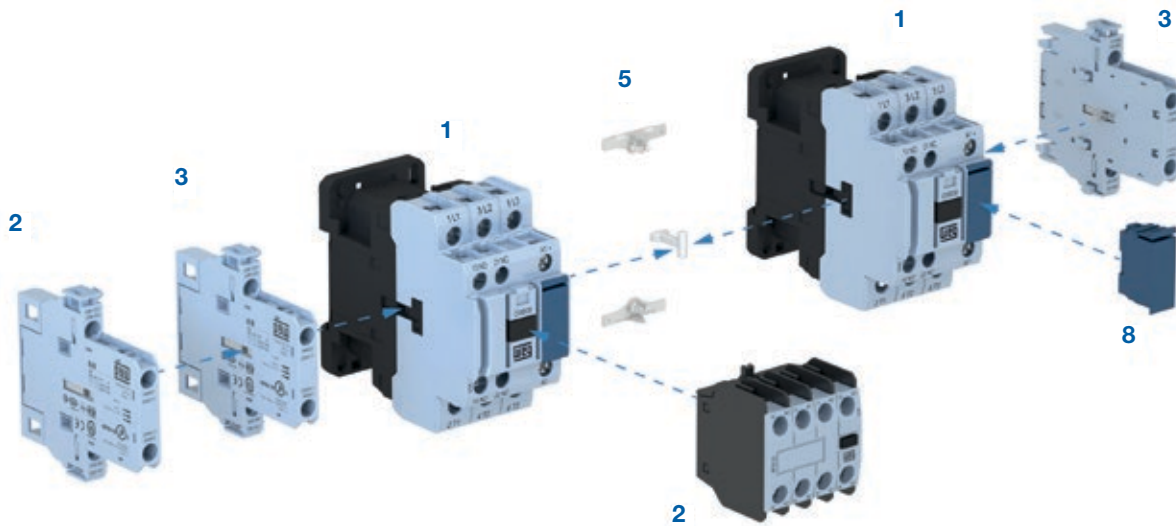
Note: to complete the reference code, replace "♦" by the appropriate coil voltage code.

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

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

Note: other coil voltages available upon request.


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

Accessories and Spare Parts


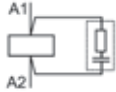

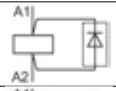
Front Mounted Auxiliary Contact Blocks⁴⁾

Illustrative picture	For use with	Max. n° 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⁾	0.063
			Auxiliary contact blocks according to EN 50012			
			1	1	BFB-11 EN ¹⁾	
			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 Block⁴⁾

Illustrative picture	For use with	Max. n° of additional contacts / contactor	Auxiliary contacts		Reference	Weight kg
			NO	NC		
	CWB9...38	4 / CWB9...38	1	1	BLB11 ¹⁾	0.034
			2	0	BLB20	
			0	2	BLB02 ¹⁾	
			1	1	BLRB11 ¹⁾²⁾	
			2	0	BLRB20 ²⁾	
			0	2	BLRB02 ¹⁾²⁾	

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	

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.

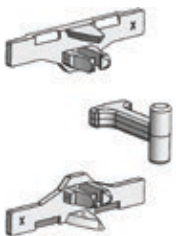
2) For combination of 2 side-mounted auxiliary contact blocks at the same side of the contactor.

3) BFB-22-EL: besides the regular contacts NO and NC, there are two special contacts: early make and late break.

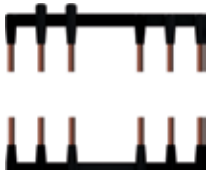
4) The maximum number of auxiliary contacts assembled on the contactor is 4.

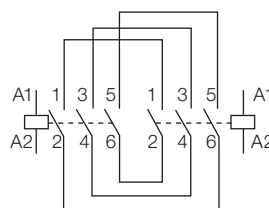
Accessories and Spare Parts

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. <i>Note: it is not possible to interlock one contactor with AC coil with another with DC coil.</i>	IM1	0.004

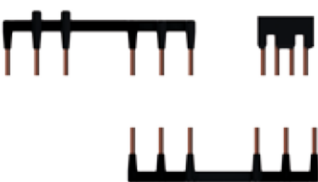
Easy Connection Busbars for Reversing Starters

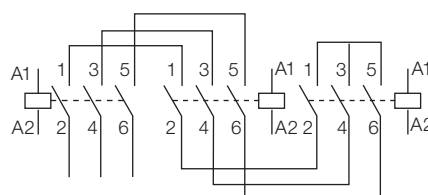
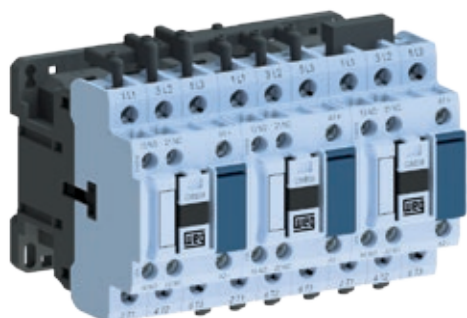
Illustrative picture	For use with	Maximum rated operational power (AC-3) 3-phase motors - IV-poles - 50/60 Hz - 1800 rpm			Reference code	Weight kg
		K1 = K2	220 / 240 V kW / HP	380 / 400 V kW / HP		
	CWB9	2.2 / 3	3.7 / 5	4.5 / 6	EC-R1	0.042
	CWB12	3 / 4	5.5 / 7.5	5.5 / 7.5		
	CWB18	4.5 / 6	7.5 / 10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

Accessories and Spare Parts

Individual Spare Coil for Contactors¹⁾

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	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36	D39	D45
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440	480	600

Note: other coil voltages available upon request.



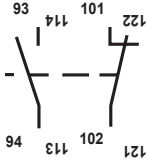
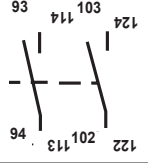
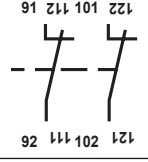
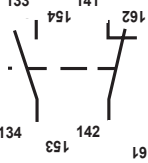
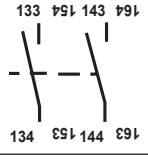
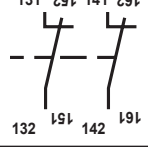
Contactors - Technical Data

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

Contactors - Technical Data

Terminal Markings According to IEC 60947

Diagram	Configuration	NO	NC	Reference code
Side mounted auxiliary contact blocks				
	11	1	1	BLB11
	20	2	0	BLB20
	02	2	0	BLB02
	11	1	1	BLRB11
	20	2	0	BLRB20
	02	2	0	BLRB02

A

B

C

D



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

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 U_i (pollution degree 3)	IEC 60947-4-1 (V)	690 V					
	UL, CSA (V)	600 V					
Rated impulse withstand voltage U_{imp}	IEC 60947-1 (kV)	6 kV					
Rated operational frequency		25...400 (Hz)					
Mechanical lifespan	AC coil (million cycles)	10					
	DC coil (million cycles)	10					
Electrical lifespan	I_e 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 U_c (g)	4					
Shock resistance (½ sine wave = 11 ms - IEC 60068-2-27)	Open contactor (g)	10			10		
	Closed contactor at U_c (g)	15			15		
Ambient temperature	Operating	-25 °C...+55 °C					
	Storage	-55 °C...+80 °C					
Altitude - rated values up to ¹⁾		3000 m					

Control Circuit - Alternating Current (AC)

Reference code		CWB9...38	
Rated insulation voltage U_i (pollution degree 3)	IEC 60947-4-1 (V)	1000	
	UL, CSA (V)	600	
Standard coil voltages 50/60 Hz		12...600 (V)	
Coil operating limits		0.8...1.1 (xUs)	
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
	Sealing (VA)	7.5	9
Coil 50/60 Hz	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		5...7 (W)	

Control Circuit - Direct Current (DC)

Reference code		CWB9...38	
Rated insulation voltage U_i (pollution degree 3)	IEC 60947-4-1 (V)	1000	
	UL, CSA (V)	600	
Standard coil voltages 50/60 Hz		12...500 (V)	
Coil operating limits		0.8...1.1 (xUs)	
	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		5.8 (W)	

Note: 1) For site altitudes of 3000 to 4000 m, the adjustment factors are (0.90 x I_e and 0.80 x U_i) and for site altitudes of 4000 to 5000 m, the adjustment factors are (0.80 x I_e and 0.75 x U_i).

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-1								
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 - 1800 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 - 1800 rpm (200000 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

Contactors - Technical Data

Main Contacts

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
		Utilization category AC-1					
		3P (NO)					
Conventional thermal current I _{th} (θ ≤ 55 °C)	(A)	25	25	32	40	50	50
Rated operational current	θ ≤ 60 °C (U _e ≤ 690 V) (A)	25	25	32	40	50	50
Max. operational power P _{θ ≤ 55 °C} (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	I _e x 1.7					
	3 poles in parallel	I _e x 2.4					
	4 poles in parallel	I _e 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 U _i (pollution degree 3)	IEC 60947-4-1 (V)	1000		
	UL, CSA (V)	600		
Rated operational voltage U _e	IEC 60947-4-1 (V)	690		
	UL, CSA (V)	600		
Conventional thermal current I _{th} (θ ≤ 55 °C)	(A)	10		
Rated operational current I _e				
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	U _e ≤ 690 V 50/60 Hz - AC-15 (A)	10 x I _e		
Breaking capacity	U _e ≤ 400 V 50/60 Hz - AC-15 (A)	1 x I _e		
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		

A

B

C

D

Contactors - Technical Data

UL Ratings

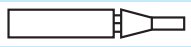





Reference code			CWB9	CWB12	CWB18	CWB25	CWB32	CWB38	
Horse power ~ 1Ø	110-120 V	(HP)	0.75	0.75	1	2	3	3	
	220-240 V	(HP)	1.5	2	3	5	5	7.5	
Horse power ~ 3Ø	200 V	(HP)	3	3	5	7.5	10	10	
	230 V	(HP)	3	3	5	7.5	10	10	
	460 V	(HP)	5	7.5	10	15	20	25	
	575 V	(HP)	7.5	10	15	15	25	25	
Short-circuit rating	5 kA - 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								

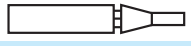


NEMA Ratings

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	mm ²	AWG	mm ²	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	16...12	1...4	16...12
		2	1...4	16...12	16...12	1...4	16...12
		1	1...4	16...12	16...12	1...4	16...12
		2	1...4	16...12	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	16...10	2.5...10	14...8
		2	1...6	16...10	16...10	2.5...10	14...8
		1	1...6	16...10	16...10	2.5...10	14...8
		2	1...6	16...10	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	mm ²	AWG	mm ²	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	16...14	1...2.5	16...14
		2	1...2.5	16...14	16...14	1...2.5	16...14
		1	1...2.5	16...14	16...14	1...2.5	16...14
		2	1...2.5	16...14	16...14	1...1.5	16
Terminal screw			M3.5 Flat/Philips				
Tightening torque (N.m / (lb.in))			1 / (8.8)		1 / (8.8)		

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
	1000	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.

Contactors - Technical Data

Contactors for Switching Lamps in Lighting Circuits

Lamp type	W	A	µF	Maximum number of lamps per phase at 230 V					
				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
	1000	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
	1000	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
	1000	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
	1000	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
	1000	9.5	-	1	1	1	2	2	3
	2000	20	-	-	-	-	-	1	1
With paralel compensation	250	1.4	32	-	-	-	13	18	21
	400	2	32	-	-	-	9	13	15
	1000	5.3	64	-	-	-	-	4	6
	2000	11.2	140	-	-	-	-	-	-

Contactors - Technical Data

DC - Utilization Category for CWB Contactors¹⁾

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 \leq 1ms)

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

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

Reference code		CWB9	CWB12	CWB18	CWB25	CWB32	CWB38
Ue	Poles in series	Maximum operational current Ie (A)					
\leq 24 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
\leq 48 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
\leq 60 V	1	18	18	22	28	36	36
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
\leq 125 V	1	2	2	2	3	3	3
	2	18	18	22	28	36	36
	3	18	18	22	28	36	36
\leq 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
\leq 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
\leq 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.

Contactors - Technical Data

DC - Utilization Category for CWB Contactors¹⁾

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	-	-	-	-	-	-

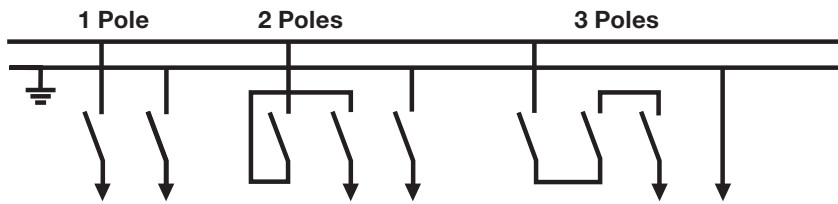
Note: 1) Utilization categories according to IEC 60947-4-1:

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.

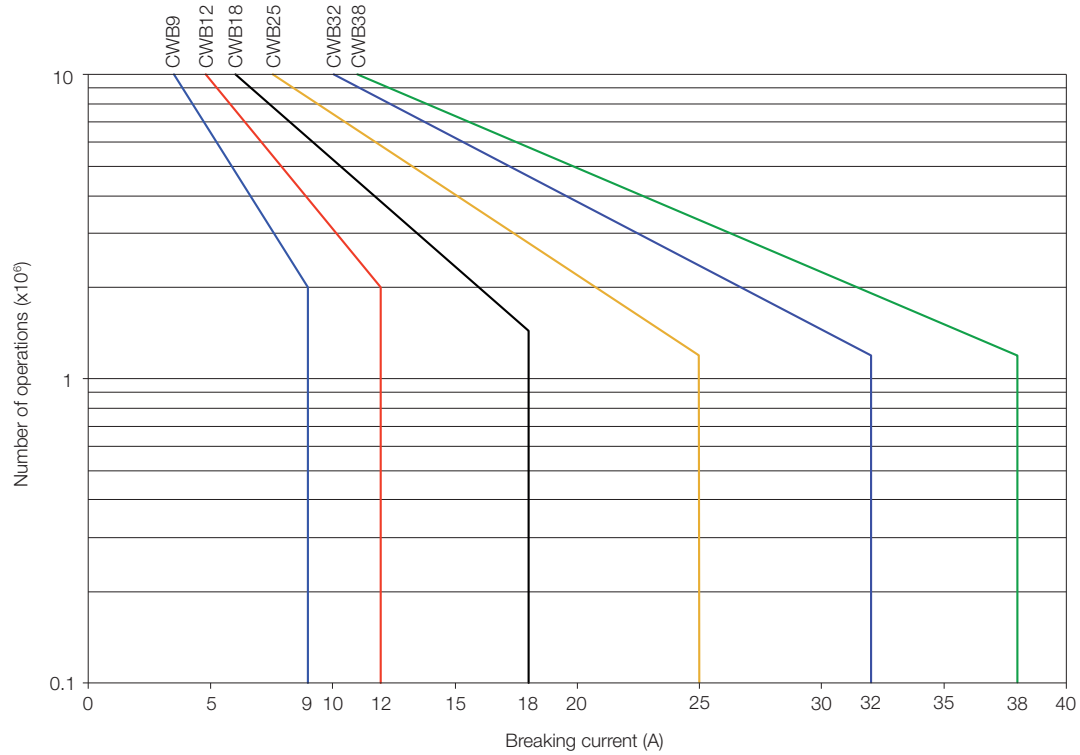
Diagram: Series Connection of Poles



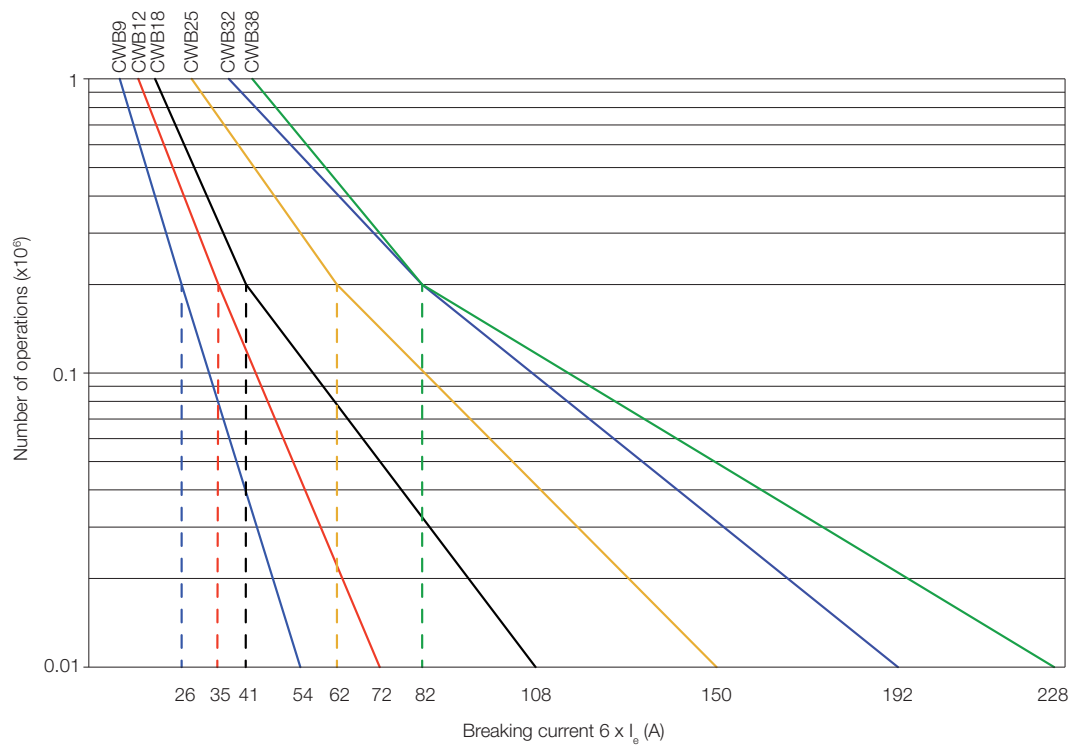
Contactors - Technical Data

Electrical Lifespan

Utilization Category AC-3 ($U_e \leq 440$ V ac)



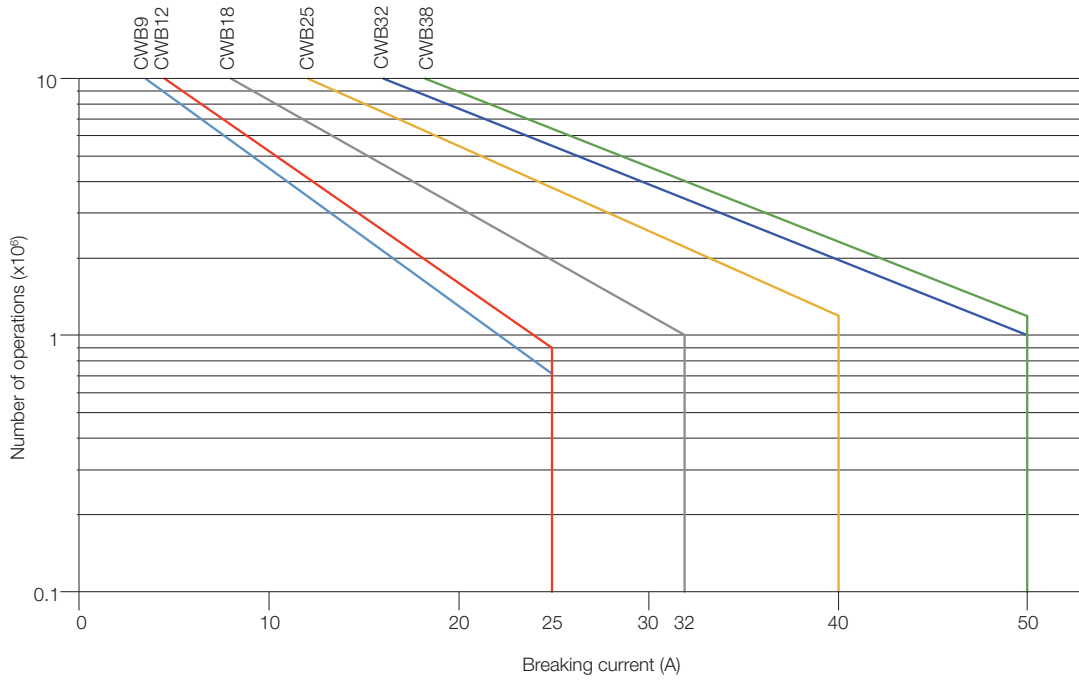
Utilization Category AC-4 ($U_e \leq 440$ V ac)



Contactors - Technical Data

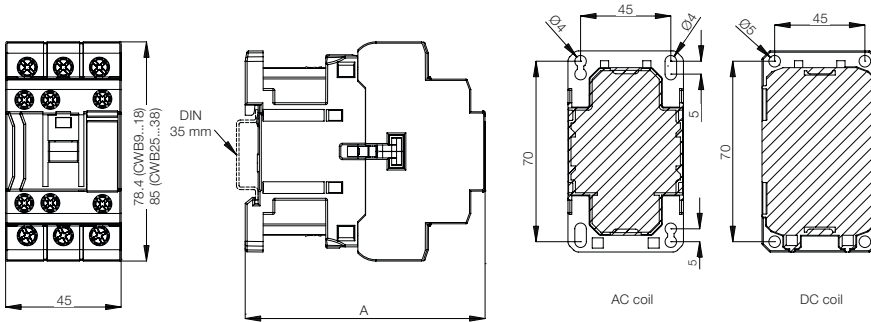
Electrical Lifespan

Utilization Category AC-1 ($U_e \leq 690 \text{ V ac}$)



Contactors - Dimensions (mm)

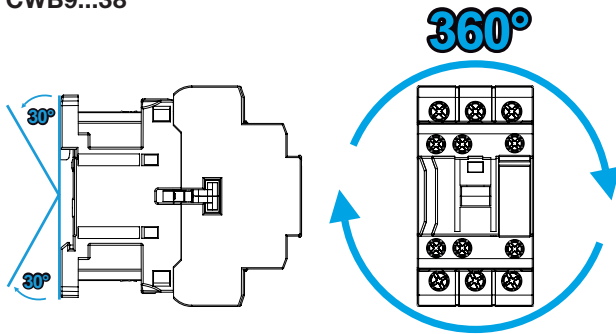
CWB9...18, CWB25...38



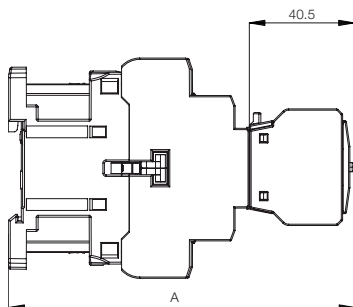
Models	A	
	AC coil	DC coil
CWB9...18	89.5	95.7
CWB25...38	93	102.2

Mounting Position

CWB9...38

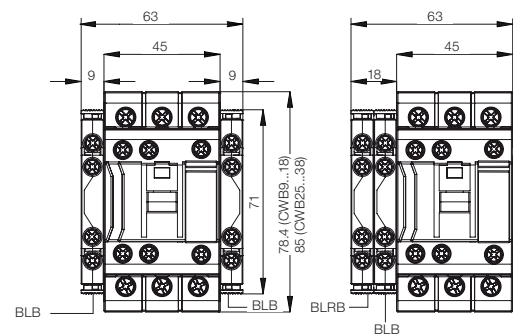


CWB9...18, CWB25...38 + BFB (Front Mounted Auxiliary Contact Block)



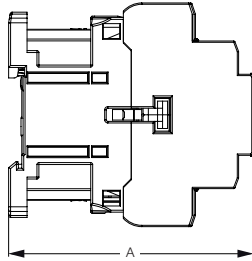
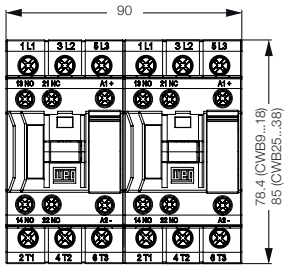
Models	A	
	AC coil	DC coil
CWB9...18	130	136.2
CWB25...38	133.5	142.7

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



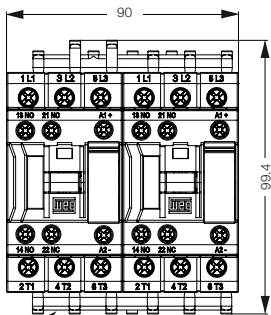
Contactors - Dimensions (mm)

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

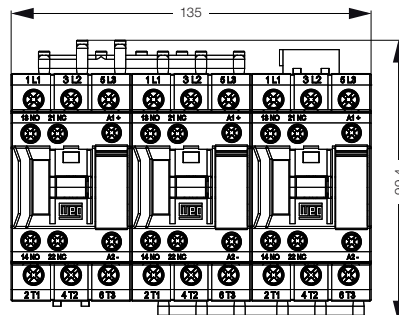


Models	A	
	AC coil	DC coil
CWB9...18	89.5	95.7
CWB25...38	93	102.2

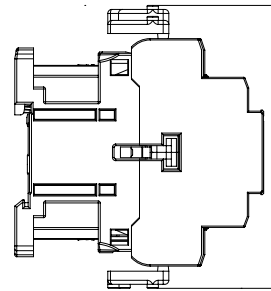
CWB9...18 + Easy Connection Busbars



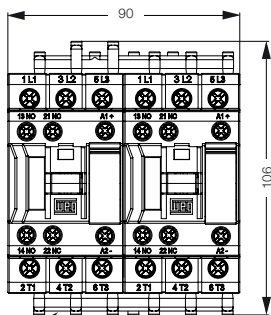
EC-R1 (for reversing starter)



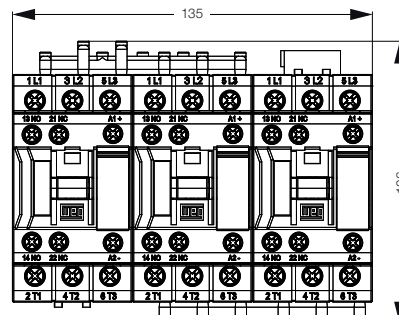
EC-SD1 (for star-delta starter)



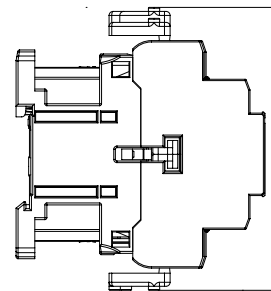
CWB25...38 + Easy Connection Busbars



EC-R1 (for reversing starter)

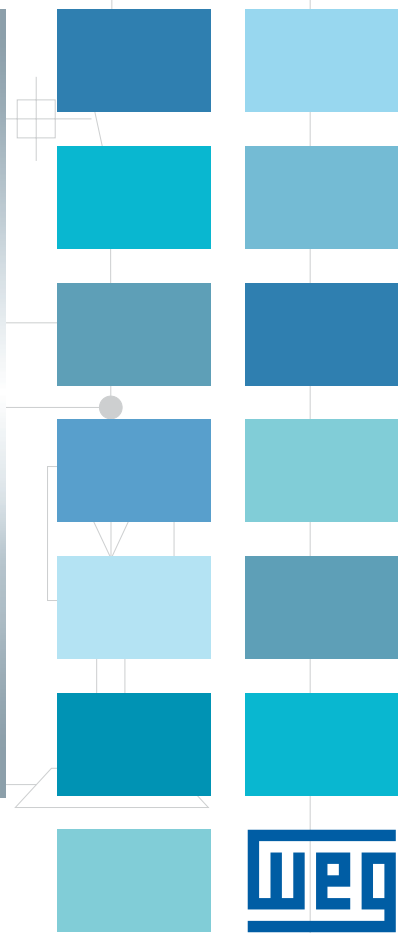
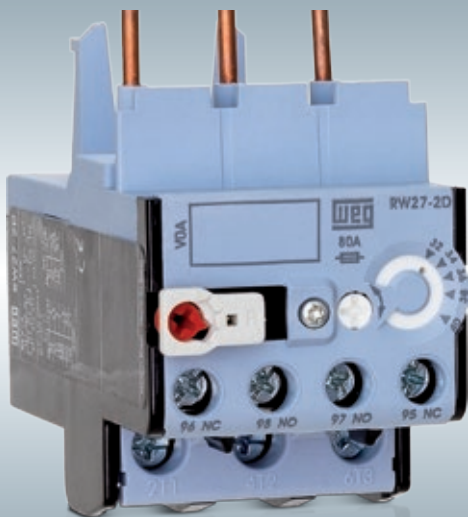
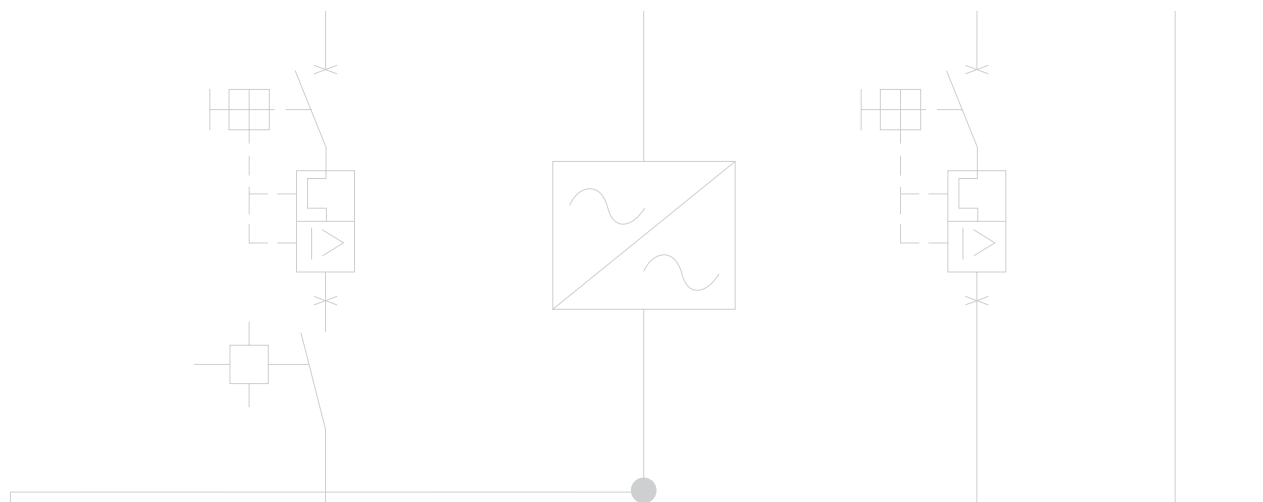


EC-SD1 (for star-delta starter)



Thermal Overload Relays

RW27-2D Thermal Overload Relay Class-10



Thermal Overload Relay

Description

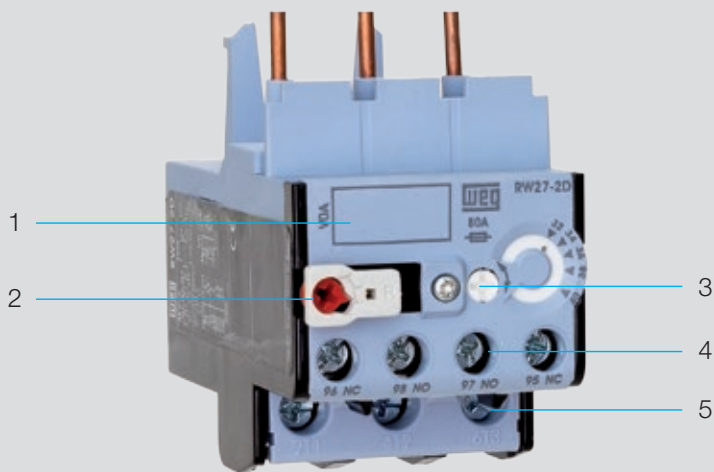
RW thermal overload relays are designed to be combined with contactors to assemble motor starters.

Thermal overload relays are very reliable devices intended to protect motors, controllers and branch-circuit conductors against phase failures and overloads that cause excessive heating.

The thermal overload relay has no power contacts and cannot disconnect the motor by itself. Motor overloads or phase failures increase the motor current. This current increase trips the mechanism and switches the auxiliary contacts.

The auxiliary contacts, when properly wired in series with the coil of the contactor will de-energize the contactor when an overload occurs. Thus, the contactor disconnects the power to the motor and stops its operation. The bimetallic thermal overload relays have thermal memory. Once tripped, the relay will not reset until it has cooled down, allowing the motor to cool before it can be re-started.

General Information



- 1 - Identification tag
- 2 - Multifunction RESET / TEST button
- 3 - Current setting dial
- 4 - Auxiliary contact terminals
- 5 - Main contact terminals

Applications

RW thermal overload relays have been designed to protect three-phase and single-phase AC motors and direct current motors¹⁾. When the RW thermal overload relays are intended to protect single-phase AC loads or DC loads, the connection should be made as shown in the diagrams on page C-9.

RW Thermal Overload Relays in Contactor Assemblies for Wye-Delta Starters

When using thermal overload relays in conjunction with contactor assemblies for wye-delta starters, it should be taken into consideration that only $0.58 (\sqrt{3} / 3) \times$ the motor current flows through the main contactor. An overload relay mounted on the main contactor must be set to the same multiple of the motor current.

A second overload relay may be mounted on the wye contactor if it is desired the load to be optimally protected in wye operation. The wye current is 1/3 of the rated motor current. The relay must then be set to this current.

Protection Against Short-Circuit

The RW thermal overload relays must be protected against short-circuits by fuses or circuit breakers.

Ambient Air Temperature Compensation

RW thermal overload relays are temperature compensated. Its trip point is not affected by temperature, and it performs consistently at the same value of current. The time-current characteristics of RWs refer to a stated value of ambient air temperature within the range of -20 °C to +60 °C and are based on no previous loading of the overload relay (i.e. from an initial cold state). For ambient air temperature within the range of +60 °C up +80 °C (maximum ambient air temperature), the current correction factor shown in the table below should be applied:

Ambient air temperature	Current correction factor
65 °C	0.94
70 °C	0.87
75 °C	0.81
80 °C	0.73



Note: 1) Models RW317 and RW407 should be used only with electric motors in alternating current.

Thermal Overload Relay

Site Altitude Compensation

The site altitude and hence the air density play a role with respect to the cooling conditions and dielectric withstand voltage. A site altitude of up to 2000 m is considered as normal in accordance with IEC 60947. For higher altitudes, the current settings on the thermal overload relay should be higher than the motor rated current. On the other hand, the operational voltage must be reduced.

For site altitudes higher than 2000 m, the values for the current and voltage shown in the table below should be applied:

Altitude above sea level (m)	Adjustment factor on the current setting	Maximum operational voltage Ue (V)
2000	1.00 x I _n	690
3000	1.05 x I _n	550
4000	1.08 x I _n	480
5000	1.12 x I _n	420

Characteristic Tripping Curve

Thermal overload relays are designed to mimic the heat actually generated in the motor. As the motor temperature increases, so does the temperature of the overload relay thermal unit.

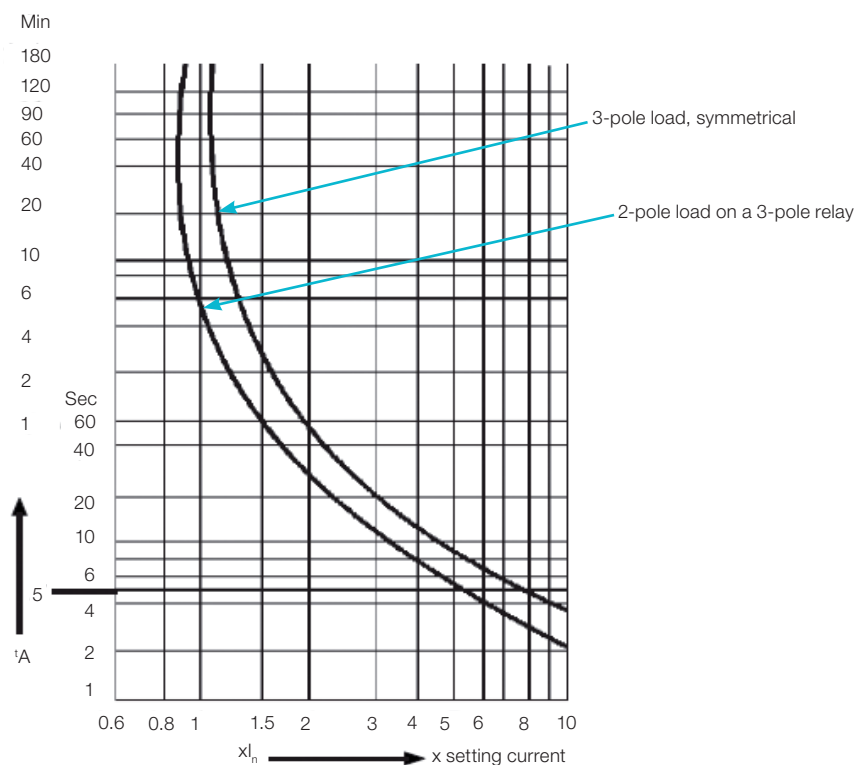
The motor and relay heating curves have a strong relationship. No matter how high the current drawn by the motor, the thermal overload relay provides protection and yet, does not trip unnecessarily.

Thus, the characteristic tripping curves indicate how the tripping time, starting from the cold state, varies with the current for multiples of the full-load current for three-pole symmetrical loads.

Phase Failure Sensitivity

In order to ensure fast tripping in case of phase loss, protecting the motor and avoiding expensive repairs / corrective maintenance services, RW27-2D thermal overload relays include phase failure sensitivity protection as standard. For this purpose, they have a differential release mechanism that, in the case of phase failure, ensures the de-energized cooled down bimetal strip to generate an additional tripping displacement (simulating an overcurrent that actually doesn't exist). This way, in the event of phase failure, the differential release ensures tripping at a lower current than with a three-phase load (characteristic curve below).

However, for more effective protection against phase failure, specific protective products should be evaluated ensuring that such failure is detected much faster. The curve below shows the tripping time in relation to the rated current. It is also considered average values of the tolerance range and at ambient temperature of 20 °C starting from the cold state.



Thermal Overload Relay

Multifunction Reset / Test Button

The thermal overload relay has a multifunction **RESET / TEST** button that can be set in four different positions:

- A** - Automatic **RESET** only;
- AUTO** - Automatic **RESET / TEST**;
- HAND** - Manual **RESET / TEST**;
- H** - Manual **RESET** only.

In **HAND** and **AUTO** positions, when **RESET** button is pressed, both NO (97-98) and NC (95-96) contacts change states.



Operation description:

In H (manual RESET only) or A (automatic RESET only) position, the test function is blocked. However in the positions HAND (manual RESET / TEST) or AUTO (automatic RESET / TEST) it is possible to simulate the test and the trip functions by pressing the RESET button.

When set in the H or HAND position the RESET button must be pressed manually to reset the overload relay after a tripping event. On the other hand, when set in A or AUTO position, the overload relay will reset automatically after a tripping event. The H, HAND, AUTO and A function setting is carried out by rotating without pressing the red button and placing it on the desired position of the RESET button.

When changing from HAND to AUTO, the RESET button must be slightly pressed while the red button is rotated.

Functions	H	HAND	AUTO	A
Relay reset	Manual ¹⁾	Manual ¹⁾	Automatic	Automatic
Auxiliary contact trip test 95-96 (NC)	Function is disabled	Test is allowed	Test is allowed	Function is disabled
Auxiliary contact trip test 97-98 (NO)	Function is disabled	Test is allowed	Test is allowed	Function is disabled

Note: 1) A recovery time of a few minutes is necessary before resetting the thermal overload relay.

Recovery Time

The RW thermal overload relays have thermal memory.

After tripping due to an overload, the relay requires a certain period of time for the bimetal strips to cool down. This period of time is so-called recovery time. The relay can only be reset once it has cooled down. The recovery time depends on the characteristic tripping curves and the level of the tripping current. After tripping due to overload, the recovery time allows the load to cool down.

Operation in the Output Side of Frequency Inverters

The RW27-2D thermal overload relays are designed for operation on 50/60 Hz up to 400 Hz and the tripping values are related to the heating by currents within this frequency range. Depending on the design of the frequency inverter, the switching frequency can reach several kHz and generate harmonic currents at the output that result in additional temperature rise in the bimetal strips. In such applications, the temperature rise not only depends on the rms value of the current, but on the induction effects of the higher

frequency currents in the metal parts of the device (skin effect caused by eddy currents).

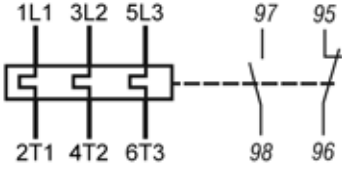
Due to these effects, the current settings on the overload relay should be higher than the motor rated current.



RW27-2D Thermal Overload Relay from 0.28 up to 40 A


- Bimetallic overload relay with tripping class 10
- Phase failure sensitivity protection
- Temperature compensation
- Manual or automatic reset
- Direct mounting on CWB contactors
- Hand/Auto/Reset button
- Auxiliary contacts 1NO + 1NC



Direct mounting Screw terminals	Setting current (A)	Circuit diagram	Blue version Reference	Weight kg
CWB9...38	0.28...0.4		RW27-2D3-D004	0.165
CWB9...38	0.43...0.63		RW27-2D3-C063	
CWB9...38	0.56...0.8		RW27-2D3-D008	
CWB9...38	0.8...1.2		RW27-2D3-D012	
CWB9...38	1.2...1.8		RW27-2D3-D018	
CWB9...38	1.8...2.8		RW27-2D3-D028	
CWB9...38	2.8...4		RW27-2D3-U004	
CWB9...38	4...6.3		RW27-2D3-D063	
CWB9...38	5.6...8		RW27-2D3-U008	
CWB9...38	7...10		RW27-2D3-U010	
CWB9...38	8...12.5		RW27-2D3-D125	
CWB9...38	10...15		RW27-2D3-U015	
CWB9...38	11...17		RW27-2D3-U017	
CWB9...38	15...23		RW27-2D3-U023	
CWB9...38	22...32		RW27-2D3-U032	
CWB9...38	32...40		RW27-2D3-U040	

Accessories

External Cable for Reset

Illustrative picture	Description	Cable length (mm)	Reference	Weight (kg)
	Metallic cable for external reset of all overload relays models RW assembled on electric panels and MCCs. Notes: Hole for external fixation: Ø6.5...7 mm. Panel plate thickness: 2 or 4.25 mm.	250	ERC250RW	0.034
		375	ERC375RW	0.036
		500	ERC500RW	0.041

Technical Data

Main Data

Models		RW27
Standards		IEC 60947-1 and UL 508
Rated insulation voltage U_i (pollution degree 3)	IEC 60947-4-1 (V)	690
	UL, CSA (V)	600
Rated impulse withstand voltage U_{imp} (IEC 60947-1) (kV)		6
Rated operational frequency (Hz)		25...400
Use with direct current		Yes
Maximum operation per hour (ops./h)		15
Protection degree (IEC 60529)	Main contacts	IP10
	Auxiliary contacts	IP20
	Frontal	IP20
Mounting		Direct on the contactor
Resistance to impact (IEC 60068-2-27 - 1/2 sinusoid) (g/ms)		10/11
Ambient temperature	Transport and storage	-50 °C...+80 °C
	Operating	-20 °C...+70 °C
	Temperature compensation	-20 °C...+60 °C
Altitude (m)		2000

Main Contacts

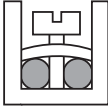
Models		RW27
Rated operational voltage U_e	IEC 60947-4-1 (V)	690
	UL, CSA (V)	600
Setting current / max fuse (gL/gG) ¹⁾ (A)		0.28...0.4 / 2
		0.43...0.63 / 2
		0.56...0.8 / 2
		0.8...1.2 / 4
		1.2...1.8 / 6
		1.8...2.8 / 6
		2.8...4 / 10
		4...6.3 / 16
		5.6... 8 / 20
		7...10 / 25
		8...12.5 / 25
		10...15 / 35
		11...17 / 40
	15...23 / 50	
	22...32 / 63	
	32...40 / 90	
Average power dissipation per pole (W)		≤3

Technical Data

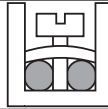
Auxiliary Circuit

Models			RW27
Standards			IEC 60 947-4-1 and UL 508
Rated insulation voltage U_i (pollution degree 3)	IEC	(V)	690
	UL, CSA	(V)	600
Rated operational voltage U_e	IEC	(V)	690
	UL, CSA	(V)	600
Rated thermal current I_{th} ($\theta \leq 55^\circ\text{C}$)		(A)	6
Rated operational current I_e			
AC-14 / AC-15 (IEC 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
UL, CSA			C600
DC-13 / DC-14 (IEC 60947-5-1)	24 V	(A)	1
	60 V	(A)	0.5
	110 V	(A)	0.25
	220 V	(A)	0.1
UL, CSA			R300
Short-circuit protection with fuse (gL/gG)		(A)	6
Minimum voltage / admissible current (IEC 60947-5-4)			17 V / 5 mA

Terminal Capacity and Tightening Torque - Main Contacts

Models			RW27
Type of screws			M4 x 10 Phillips
Cable size (75 °C / Cu cable)			
Flexible cable	(mm ²)		1.5...10
Cable with terminal / rigid cable	(mm ²)		1.5...6.0
AWG-wire			16...8
Tightening torque	(N.m / lb.in)		2.3 / 20

Terminal Capacity and Tightening Torque - Auxiliary Contacts

Models			RW27
Type of screws			M3.5 x 10 Phillips
Cable size (75 °C / Cu cable)			
Cable with or without terminal	(mm ²)		2 x 1...2.5
AWG-wire			16...12
Tightening torque	(N.m / lb.in)		1.5 / 13

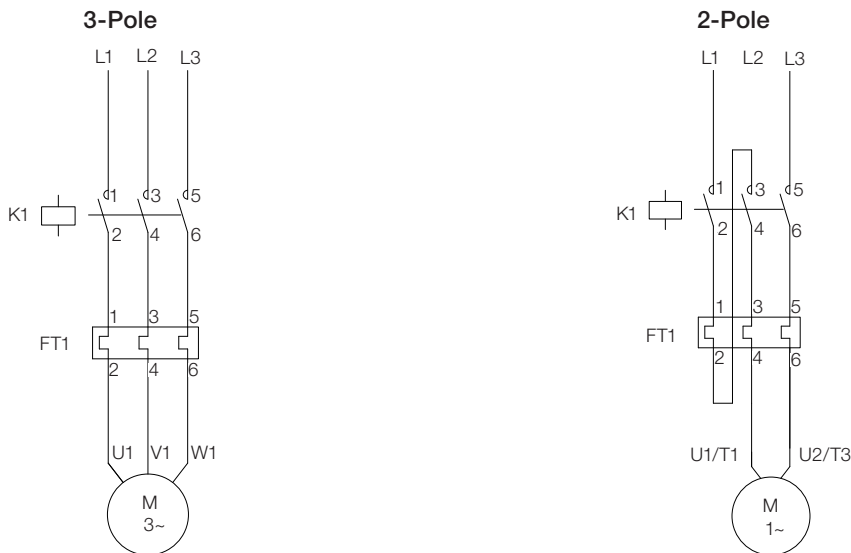
Technical Data

Diagrams

Motor Protection - Direct Current

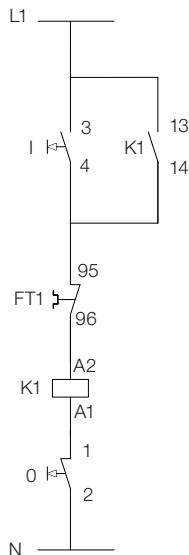


Motor Protection - Alternating Current

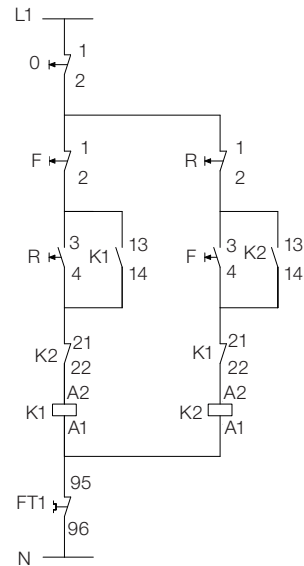


Typical Connection - Contactor + Overload Relay

Direct On Line Starter (1 Direction of Rotation)

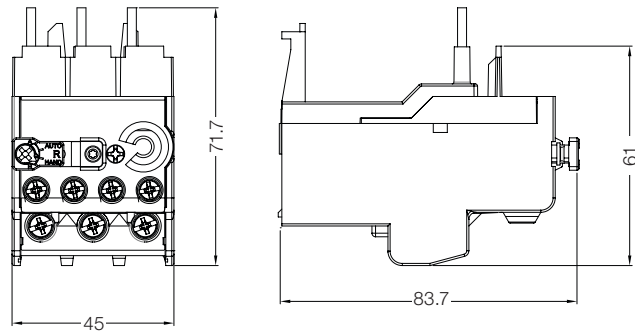


Direct On Line Starter (2 Directions of Rotation)

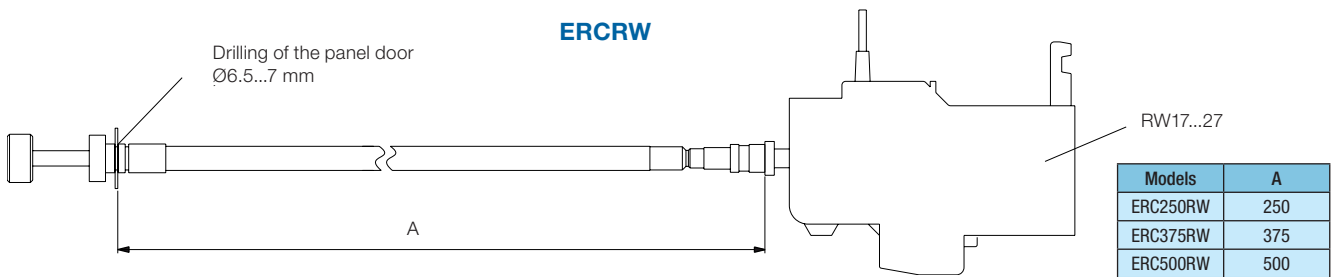


Dimensions (mm)

RW27-2D

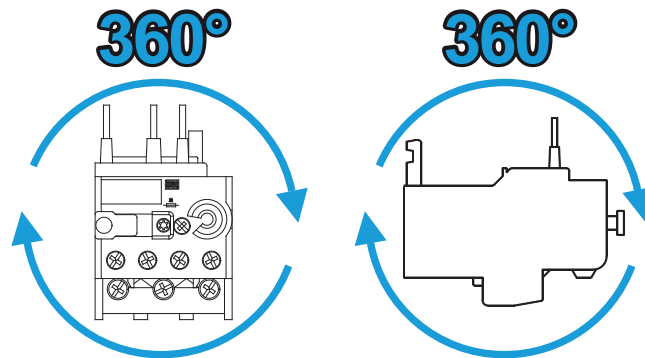


ERCRW



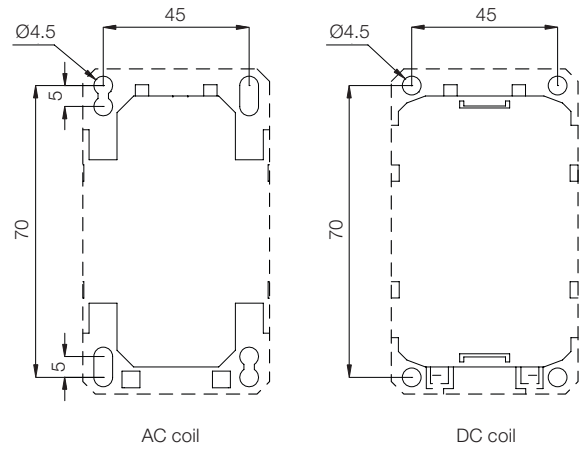
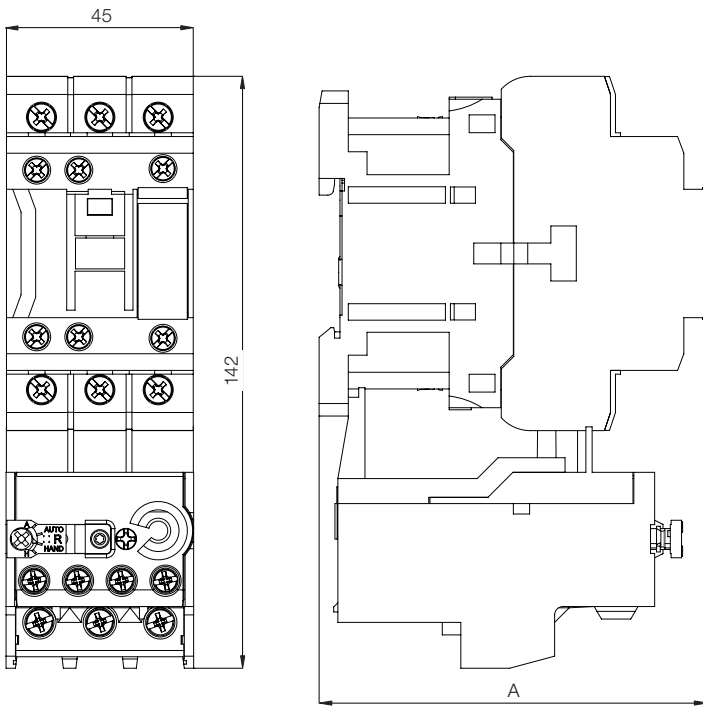
Mounting Position

RW27-2D



Dimensions (mm)

CWB9...38 + RW27-2D

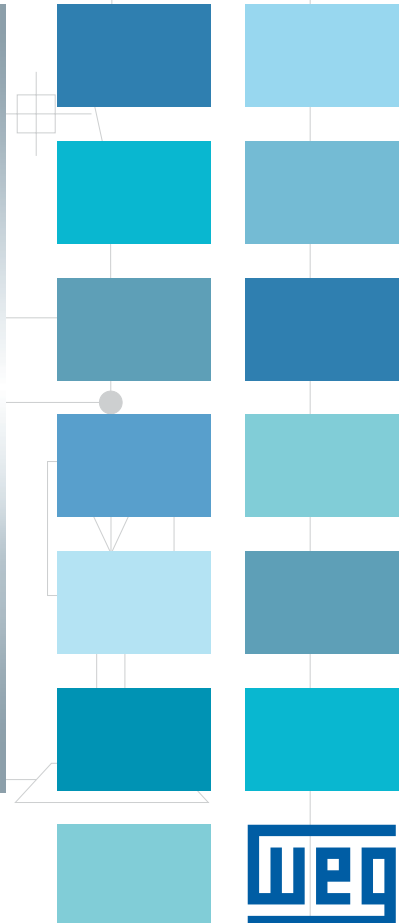
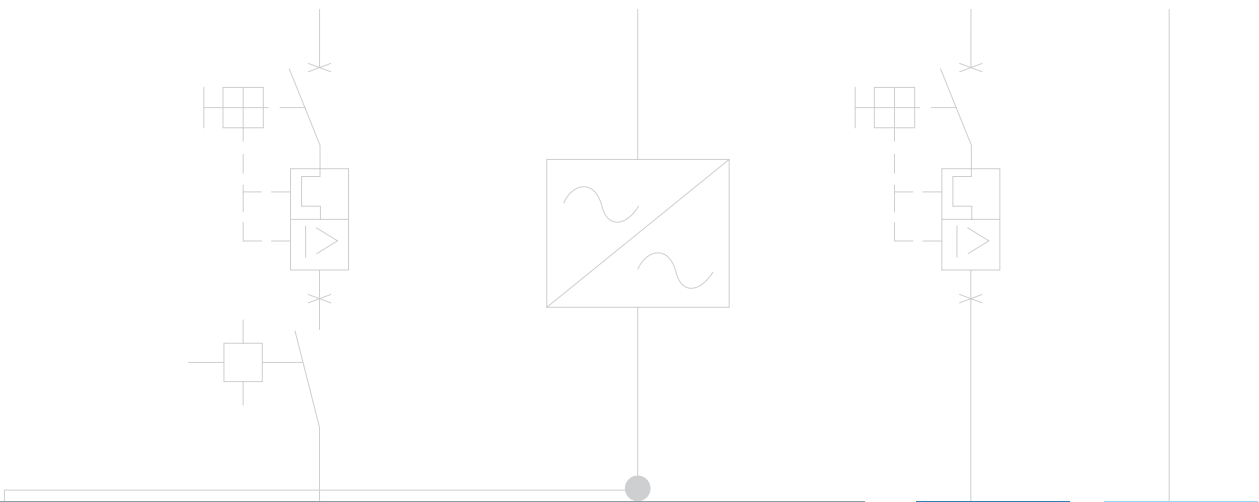


CWB9...18	A	CWB25...38	A
AC coil	89.5	AC coil	93
DC coil	95.7	DC coil	102.2



Motor Protective Circuit Breakers

MPW12, MPW18 and MPW40



New WEG MPW Motor Circuit Breakers

Developed according to IEC 60947 and UL 508 international standards, the new WEG MPW line of motor protective circuit breakers are modular and compact but at the same time robust and highly reliable, meeting the expectations of the most demanding users.

The MPWs are designed with the visual identity of WEG, a brand recognized worldwide for its quality.



MPW12

- Motor protective circuit breaker up to 12 A with spring clamp terminals
- Thermal-magnetic circuit breaker (provides protection against short-circuit and overload) or only magnetic circuit breaker (provides protection against short-circuit)
- Same technical features (mechanical and electrical) of former MPW16 (up to 12 A)
- Pushbutton operated

MPW18

- Motor protective circuit breaker up to 18 A
- Thermal-magnetic circuit breaker (provides protection against short-circuit and overload) or only magnetic circuit breaker (provides protection against short-circuit)
- Same technical features (mechanical and electrical) of former MPW16 (up to 16 A)
- Pushbutton operated

MPW40

- Motor protective circuit breaker up to 40 A - 45 mm wide
- Thermal-magnetic circuit breaker (provides protection against short-circuit and overload) or only magnetic circuit breaker (provides protection against short-circuit)
- Same technical features (mechanical and electrical) of former MPW25 (up to 32 A)
- Rotary handle operated



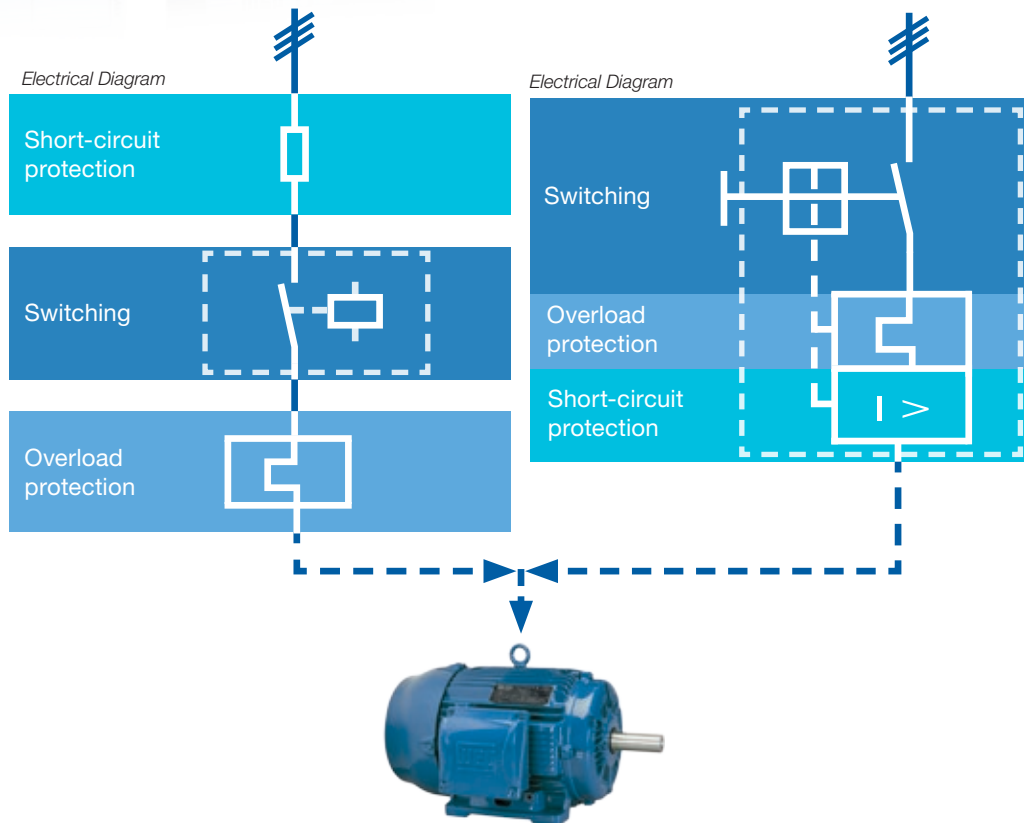
Note: 1) UL certification may not be available for specific products or current ranges.
For further information consult your sales representative.





Motor Protective Circuit Breakers of **MPW** line, the best solution for **operating and protection** of your **electric motor**.

3 Functions in a Single Product!



Characteristics

Type	Conventional starter	Compact starter
Number of components	3 components (fuse ¹⁾ + contactor+ thermal O/L relay)	1 component (motor circuit breaker termomagnetic)
Short-circuit protection	Yes	Yes
Switching	Yes	Yes
Motor overload protection	Yes	Yes
Reset after short-circuit	No	Yes
Reset after overload	Yes	Yes
Overall dimension	Larger	Smaller
Mounting time	Long	Short
Scale cover	No	Yes (with accessory)
Safety disconnect for maintenance	Fuse removal	Padlock on handle/button in OFF position
Operational status signalling	No	Yes
Protection degree	Smaller	Bigger
Number of connections	Bigger	Smaller
Maximum operation per hour	15 operations/hour	15 operations/hour
Operation mode	Remote	Manual

Note: 1) Fuse installed on fuse holders IP00.

MPW18 Motor Protective Circuit Breaker - Selection Table

MPW18 Motor Protective Circuit Breaker up to 18 A (Screw Terminal) - Thermomagnetic or Magnetic Only

- With overload and short-circuit protection
- Fixed short-circuit release 13 x I_n
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Pushbutton operated
- For use as main switch



MPW18 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Setting overload release I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Screw terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP				Reference code	
-	-	-	-	-	-	0.16	0.1...0.16	2.08	MPW18-3-C016	0.28
-	-	-	-	-	0.12 / 0.16	0.25	0.16...0.25	3.25	MPW18-3-C025	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	0.25...0.4	5.2	MPW18-3-D004	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	0.4...0.63	8.2	MPW18-3-C063	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	0.63...1	13	MPW18-3-U001	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	1...1.6	20.8	MPW18-3-D016	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	1.6...2.5	32.5	MPW18-3-D025	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	2.5...4	52	MPW18-3-U004	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	4...6.3	82	MPW18-3-D063	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	6.3...10	130	MPW18-3-U010	
3.7 / 5	7.5 / 10	9.2 / 12.5	7.5 / 10	9.2 / 12.5	9.2 / 12.5	16	10...16	208	MPW18-3-U016	
4.5 / 6	7.5 / 10	9.2 / 12.5	11 / 15	11 / 15	15 / 20	18	12...18	234	MPW18-3-U018	

MPW18i Motor Protective Circuit Breaker - Magnetic - Short-Circuit Protection²⁾

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Screw terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP			Reference code	
-	-	-	-	-	-	0.16	2.08	MPW18i-3-C016	0.28
-	-	-	-	-	0.12 / 0.16	0.25	3.25	MPW18i-3-C025	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	5.2	MPW18i-3-D004	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	8.2	MPW18i-3-C063	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	13	MPW18i-3-U001	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	20.8	MPW18i-3-D016	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	32.5	MPW18i-3-D025	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	52	MPW18i-3-U004	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	82	MPW18i-3-D063	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	130	MPW18i-3-U010	
3.7 / 5	7.5 / 10	9.2 / 12.5	7.5 / 10	9.2 / 12.5	9.2 / 12.5	16	208	MPW18i-3-U016	
4.5 / 6	7.5 / 10	9.2 / 12.5	11 / 15	11 / 15	15 / 20	18	234	MPW18i-3-U018	

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG W22 standard motors. These values are only for reference and may change on the number of poles and motor design.

2) For overload protection, it is suggested the use of RW27-2D thermal overload relay.

MPW40 Motor Protective Circuit Breaker - Selection Table

MPW40 Motor Protective Circuit Breaker up to 40 A (Screw Terminal) - Thermomagnetic or Magnetic Only

- With overload and short-circuit protection
- Fixed short-circuit release 13 x I_n
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch (IEC 60947-2)
- Rotary handle operated
- For use as main switch



MPW40 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Setting overload release I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Screw terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP				Reference code	
-	-	-	-	-	-	0.16	0.1...0.16	2.08	MPW40-3-C016	0.36
-	-	-	-	-	0.12 / 0.16	0.25	0.16...0.25	3.25	MPW40-3-C025	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	0.25...0.4	5.2	MPW40-3-D004	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	0.4...0.63	8.2	MPW40-3-C063	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	0.63...1	13	MPW40-3-U001	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	1...1.6	20.8	MPW40-3-D016	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	1.6...2.5	32.5	MPW40-3-D025	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	2.5...4	52	MPW40-3-U004	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	4...6.3	82	MPW40-3-D063	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	6.3...10	130	MPW40-3-U010	
3.7 / 5	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	11 / 15	16	10...16	208	MPW40-3-U016	
5.5 / 7.5	9.2 / 12.5	11 / 15	11 / 15	-	15 / 20	20	16...20	260	MPW40-3-U020	
-	11 / 15	-	15 / 20	15 / 20	18.5 / 25	25	20...25	325	MPW40-3-U025	
9.2 / 12.5	15 / 20	15 / 20	18.5 / 25	22 / 30	22 / 30	32	25...32	416	MPW40-3-U032	
11 / 15	18.5 / 25	18.5 / 25	22 / 30	-	37 / 50	40	32...40	520	MPW40-3-U040	

MPW40i Motor Protective Circuit Breaker - Magnetic - Short-Circuit Protection²⁾

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Screw terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP			Reference code	
-	-	-	-	-	-	0.16	2.08	MPW40i-3-C016	0.36
-	-	-	-	-	0.12 / 0.16	0.25	3.25	MPW40i-3-C025	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	5.2	MPW40i-3-D004	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	8.2	MPW40i-3-C063	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	13	MPW40i-3-U001	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	20.8	MPW40i-3-D016	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	32.5	MPW40i-3-D025	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	52	MPW40i-3-U004	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	82	MPW40i-3-D063	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	130	MPW40i-3-U010	
3.7 / 5	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	11 / 15	16	208	MPW40i-3-U016	
5.5 / 7.5	9.2 / 12.5	11 / 15	11 / 15	-	15 / 20	20	260	MPW40i-3-U020	
-	11 / 15	-	15 / 20	15 / 20	18.5 / 25	25	325	MPW40i-3-U025	
9.2 / 12.5	15 / 20	15 / 20	18.5 / 25	22 / 30	22 / 30	32	416	MPW40i-3-U032	
11 / 15	18.5 / 25	18.5 / 25	22 / 30	-	37 / 50	40	520	MPW40i-3-U040	

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG W22 standard motors. These values are only for reference and may change on the number of poles and motor design.

2) For overload protection, it is suggested the use of RW27-2D thermal overload relay.



MPW40t Motor Protective Circuit Breaker - Selection Table

MPW40t Motor Protective Circuit Breaker up to 20 A (Screw Terminal) - Thermomagnetic

- Motor protective circuit breaker for protection of transformers or motors with high starting current
- Allows switching and protection against overload and short-circuit of inductive loads
- Fixed short-circuit release 19 x lu
- Breaking capacity 100 kA at 380-415 V ac up to 10 A
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- Rotary handle operated
- For use as main switch



MPW40t Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current In (A)	Setting overload release  In (A)	Instantaneous magnetic trip 13 x In  Im (A)	Screw terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP				Reference code	
-	-	-	-	-	-	0.16	0.1...0.16	3.0	MPW40t-3-C016	0.36
-	-	-	-	-	0.12 / 0.16	0.25	0.16...0.25	4.8	MPW40t-3-C025	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	0.25...0.4	7.6	MPW40t-3-D004	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	0.4...0.63	12.0	MPW40t-3-C063	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	0.63...1	19.0	MPW40t-3-U001	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	1...1.6	30.4	MPW40t-3-D016	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	1.6...2.5	47.5	MPW40t-3-D025	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	2.5...4	76.0	MPW40t-3-U004	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7/5	4 / 5.5	6.3	4...6.3	119.7	MPW40t-3-D063	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	6.3...10	190.0	MPW40t-3-U010	
3.7 / 5	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	11 / 15	16	10...16	304.0	MPW40t-3-U016	
5.5 / 7.5	9.2 / 12.5	11 / 15	11 / 15	-	15 / 20	20	16...20	380.0	MPW40t-3-U020	

Note: 1) For 50/60 Hz three-phase, 4 poles WEG W22 standard motors. These values are only for reference and may change on the number of poles and motor design.



MPW12 Motor Protective Circuit Breaker - Selection Table

MPW12 Motor Protective Circuit Breaker up to 12 A (Spring Terminal) - Thermomagnetic or Magnetic Only

- With overload and short-circuit protection
- Fixed short-circuit release 13 x I_n
- With phase-failure sensitivity according to IEC 60947-4-1
- With temperature compensation
- For use as main switch IEC 60947-2
- Pushbutton operated
- For use as main switch



MPW12 Motor Protective Circuit Breaker - Thermomagnetic - Overload and Short-Circuit Protection

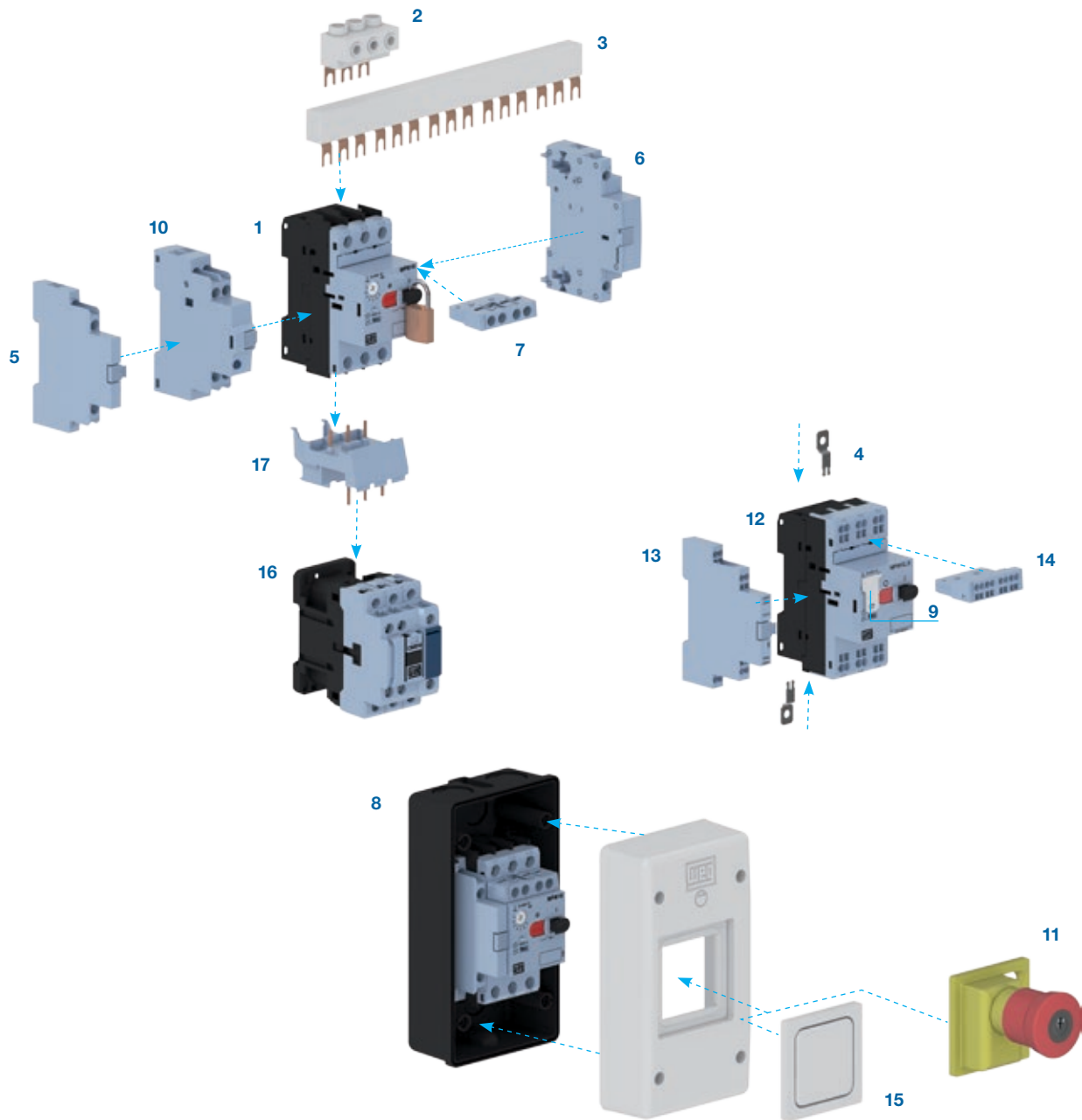
Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Setting overload release I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Spring terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP				Reference code	
-	-	-	-	-	-	0.16	0.1...0.16	2.08	MPW12-3-C016S	0.28
-	-	-	-	-	0.12 / 0.16	0.25	0.16...0.25	3.25	MPW12-3-C025S	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	0.25...0.4	5.2	MPW12-3-D004S	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	0.4...0.63	8.2	MPW12-3-C063S	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.33	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	0.63...1	13	MPW12-3-U001S	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	1...1.6	20.8	MPW12-3-D016S	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	1.6...2.5	32.5	MPW12-3-D025S	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	2.5...4	52	MPW12-3-U004S	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	4...6.3	82	MPW12-3-D063S	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	6.3...10	130	MPW12-3-U010S	
3 / 4	5.5 / 7.5	5.5 / 7.5	7.5 / 10	7.5 / 10	9.2 / 12.5	12	8...12	156	MPW12-3-U012S	

MPW12i Motor Protective Circuit Breaker - Magnetic - Short-Circuit Protection Only²⁾

Reference values for selecting protection of three-phase electric motors ¹⁾						Rated current I _n (A)	Instantaneous magnetic trip 13 x I _n I _m (A)	Spring terminal	Weight kg
220-240 V kW / HP	380-415 V kW / HP	440-480 V kW / HP	500 V kW / HP	550-600 V kW / HP	690 V kW / HP			Reference code	
-	-	-	-	-	-	0.16	2.08	MPW12i-3-C016S	0.28
-	-	-	-	-	0.12 / 0.16	0.25	3.25	MPW12i-3-C025S	
-	-	0.12 / 0.16	0.12 / 0.16	0.12 / 0.16	0.18 / 0.25	0.4	5.2	MPW12i-3-D004S	
-	0.12 / 0.16	0.18 / 0.25	0.18 / 0.25	0.25 / 0.33	0.25 / 0.33	0.63	8.2	MPW12i-3-C063S	
0.12 / 0.16	0.25 / 0.33	0.25 / 0.25	0.37 / 0.5	0.37 / 0.5	0.55 / 0.75	1	13	MPW12i-3-U001S	
0.25 / 0.33	0.37 / 0.5	0.75 / 1	0.75 / 1	0.75 / 1	1.1 / 1.5	1.6	20.8	MPW12i-3-D016S	
0.37 / 0.5	0.75 / 1	1.1 / 1.5	1.1 / 1.5	1.1 / 1.5	1.5 / 2	2.5	32.5	MPW12i-3-D025S	
0.75 / 1	1.5 / 2	1.5 / 2	1.5 / 2	2.2 / 3	3 / 4	4	52	MPW12i-3-U004S	
1.1 / 1.5	2.2 / 3	3 / 4	3 / 4	3.7 / 5	4 / 5.5	6.3	82	MPW12i-3-D063S	
2.2 / 3	4.5 / 6	5.5 / 7.5	4 / 5.5	5.5 / 7.5	7.5 / 10	10	130	MPW12i-3-U010S	
3 / 4	5.5 / 7.5	5.5 / 7.5	7.5 / 10	7.5 / 10	9.2 / 12.5	12	156	MPW12i-3-U012S	

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG W22 standard motors. These values are only for reference and may change on the number of poles and motor design.
2) For overload protection, it is suggested the use of RW27-2D thermal overload relay.

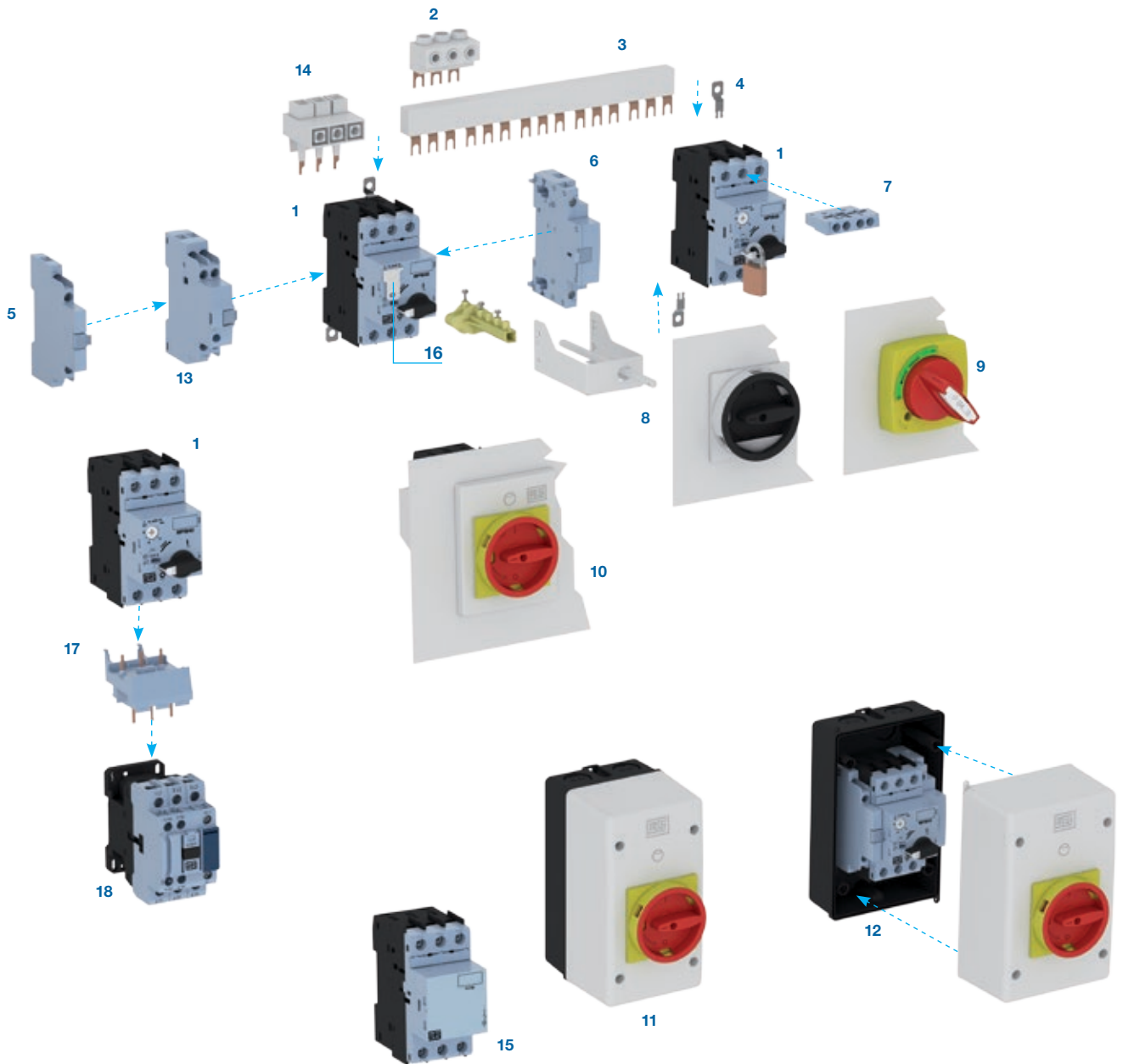
MPW12...MPW18 Motor Protective Circuit Breakers - Overview



- 1 - MPW18 motor protective circuit breaker (screw terminal)
- 2 - Feeder terminal FTBBS
- 3 - Three-phase busbars BBS
- 4 - Push-in-lugs PLMP
- 5 - Side mounted auxiliary contact block ACBS (screw terminal)
- 6 - Undervoltage release URMP or shunt release SRMP (screw terminal)
- 7 - Front mounted auxiliary contact block ACBF (screw terminal)
- 8 - Insulated enclosure

- 9 - Scale cover SCMP
- 10 - Trip signaling block TSB
- 11 - Emergency pushbutton for insulated enclosure
- 12 - MPW12 motor protective circuit breaker (spring terminal)
- 13 - Side mounted auxiliary contact block ACBS_S (spring terminal)
- 14 - Front mounted auxiliary contact block ACBF_S (spring terminal)
- 15 - MPE41 plastic cover for IP66
- 16 - CWB9...38 contactors
- 17 - Link module ECCMP-18B38 (MPW18+CWB9...38)

MPW40 Motor Protective Circuit Breaker - Overview





- 1 - MPW40 motor protective circuit breaker (screw terminal)
- 2 - Feeder terminal FTBBS
- 3 - Three-phase busbars BBS
- 4 - Push-in-lugs PLMP
- 5 - Side mounted auxiliary contact block ACBS (screw terminal)
- 6 - Undervoltage release URMP or shunt release SRMP (screw terminal)
- 7 - Front mounted auxiliary contact block ACBF (screw terminal)
- 8 - Door coupling rotary handle RMMP
- 9 - Door coupling rotary handle MRX



- 10 - Front plate FME55
- 11 - Standard insulated enclosure MPE55
- 12 - Large insulated enclosure MLPE55
- 13 - Trip signaling block TSB
- 14 - LST25 - Feeder terminal for "Type E" motor starter according to UL
- 15 - Current limiter CLT32
- 16 - Scale cover SCMP
- 17 - Link module ECCMP-40B38 (MPW40+CWB9...38)
- 18 - CWB9...38 contactors

MPW Motor Protective Circuit Breakers - Accessories


Front Auxiliary Contact Block - ACBF

For use with	Illustrative picture	Auxiliary contacts		Reference code	Weight kg
		NO	NC		
MPW18 MPW40		1	1	(AZ) ACBF-11	0.024
MPW12				(AZ) ACBF-11S	


Left Side Auxiliary Contact Block - ACBS

For use with	Illustrative picture	Auxiliary contacts		Reference code	Weight kg
		NO	NC		
MPW18 MPW40 ¹⁾		1	1	(AZ) ACBS-11	0.045
		2	-	(AZ) ACBS-20	
		-	2	(AZ) ACBS-02	
MPW12 ¹⁾		1	1	(AZ) ACBS-11S	
		2	-	(AZ) ACBS-20S	
		-	2	(AZ) ACBS-02S	

Trip Signalling Block - TSB²⁾

For use with	Illustrative picture	Description	Reference code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> - Equipped with 2 auxiliary contacts (1NO + 1NC) for overload trip signalling and 2 other auxiliary contacts (1NO + 1NC) for short-circuit trip signaling; - To reset the circuit breaker after a short-circuit, the flag must be manually reset after the cause of the failure has been solved; - Lateral auxiliary contacts can be assembled together with the trip signalling block; - Left side assembly only. 	(AZ) TSB	0.130

Undervoltage Release - URMP²⁾

For use with	Illustrative picture	Description	Voltage and frequency ²⁾	Reference code	Weight kg
MPW12/18 MPW40		<ul style="list-style-type: none"> - Operating voltage: >0.85...1.1 x Ue - Non operating voltage: <0.35...0.7 x Ue - Right side assembly 	220 V 50/60 Hz	(AZ) URMP D23	0.130
			24 V 50/60 Hz	(AZ) URMP D02	
			110 V 50 Hz / 120 V 60 Hz	(AZ) URMP V18	
			110-115 V 50 Hz / 127 V 60 Hz	(AZ) URMP V19	
			180 V 50 Hz / 208 V 60 Hz	(AZ) URMP V23	
			190 V 50 Hz / 220 V 60 Hz	(AZ) URMP V26	
			208 V 50 Hz / 240 V 60 Hz	(AZ) URMP V30	
			220 V 50 Hz / 255 V 60 Hz	(AZ) URMP V32	
			230-240 V 50 Hz / 277 V 60 Hz	(AZ) URMP V37	
			325 V 50 Hz / 380 V 60 Hz	(AZ) URMP V41	
			380 V 50 Hz / 440 V 60 Hz	(AZ) URMP V42	
400-415 V 50 Hz / 480 V 60 Hz	(AZ) URMP V47				


Notes: 1) The accessories TSB and URMP are only available with screw terminal.

2) Other voltages available upon request.

The following accessories can be assembled at the same time: - ACBF + TSB + (URMP or SRMP)
- ACBS + TSB + (URMP or SRMP)
- ACBF + ACBS + (URMP or SRMP)

MPW Motor Protective Circuit Breakers - Accessories

Shunt Release - SRMP¹⁾

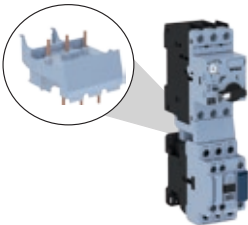
For use with	Illustrative picture	Description	Voltage and frequency ²⁾	Reference code	Weight kg
MPW12/18 MPW40 ¹⁾		<ul style="list-style-type: none"> - Operating voltage: 0.7...1.1 x Ue - Right side assembly 	20-24 V 50/60 Hz	(AZ) SRMP D51	0.130
			40-48 V 50/60 Hz	(AZ) SRMP D54	
			100-127 V 50/60 Hz	(AZ) SRMP D59	
			200-240 V 50/60 Hz	(AZ) SRMP D65	
			365-440 V 50/60 Hz	(AZ) SRMP D69	

Notes: 1) The accessory SRMP is only available with screw terminal.



2) Other voltages available upon request.

The following accessories can be assembled at the same time: ACBF + URMP/SRMP + TSB or ACBS + URMP/SRMP + TSB.

Block Modules for Motor Protective Circuit Breaker Assembly + Contactors - ECCMP, C2075 and C20100




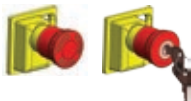

For use with	Illustrative picture	Description	Contactors	Reference code	Weight kg
MPW18		For direct connection (electrical and mechanical) of motor circuit breakers to contactors.	CWB9...38 AC coil	ECCMP-18B38	0.025
MPW40			CWB9...38 AC coil	ECCMP-40B38	
			CWB9...38 DC coil	ECCMP-40B38DC	

Door Coupling Rotary Handle - RMMP and MRX


For use with	Illustrative picture	Description	Handle color	Reference code	Weight kg
MPW40		<ul style="list-style-type: none"> - Degree of protection IP55; - Shows circuit breaker position "I"(ON) or "0"(OFF); - Panel door can only be opened in OFF position; - Adjustable shaft length. There are 2 standard shaft sizes: 130-155 mm (Model 130) and 330-355 mm (Model 330). To assemble the handle on the circuit breaker the shaft must have a length of at least 80 mm; - Up to 3 padlocks can be used in the OFF position. This blocks circuit breaker operation and opens panel door; - Handle can be mounted on panels with a thickness of 1 to 5 mm; - Handle can be assembled even with circuit breaker turned in 90° position. 	Black	RMMP-130	0.140
				RMMP-330	0.175
			Red	RMMP-130E	0.140
				RMMP-330E	0.175
MPW40		<ul style="list-style-type: none"> - Panel door can be opened in ON position (thermometry); - Degree of protection: MRX = IP65/NEMA 4X; - Shows circuit breaker position "I"(ON) or "0"(OFF); - Adjustable shaft length. There are 2 standard shaft sizes: 130-155 mm (Model 130) and 330-355 mm (Model 330). To assemble the handle ON the circuit breaker the shaft must have a length of at least 80 mm; - Up to 3 padlocks can be used in the OFF position. This blocks circuit breaker operation and opens panel door; - Handle can be mounted on panels with a thickness of 1 to 5 mm. 	Black	MRX-130	0.185
				MRX-330	0.220
			Red	MRX-130E	0.185
				MRX-330E	0.220

MPW Motor Protective Circuit Breakers - Accessories


Standard Insulated Enclosure - MPE

For use with	Illustrative picture	Description	Terminals	Handle color	Reference code	Weight kg	
MPW12...18		<ul style="list-style-type: none"> - Empty plastic enclosure; - Degree of protection: IP41; - Two M25 metric cable entry knockouts, top and bottom; - Two M20 metric cable entry, back; - Allows installing: MPW + ACBF11/PL lamps + ACBS; - Color: cover (grey RAL 7035) and base (black RAL 7021). 	-	-	MPE41	0.41	
			Ground	-	MPE41G	0.41	
			Ground and neutral	-	MPE41GN	0.41	
		<ul style="list-style-type: none"> - Empty plastic enclosure; - Degree of protection: IP66; - Two M25 metric cable entry knockouts, top and bottom; - Two M20 metric cable entry, back; - Allows installing: MPW + ACBF11/PL lamps + ACBS; - Color: cover (grey RAL 7035) and base (black RAL 7021). 	-	-	MPE66	0.41	
			Ground	-	MPE66G	0.41	
			Ground and neutral	-	MPE66GN	0.41	
		- Enable to increase degree of protection from MPE41 (IP41) to IP66.	-	-	KIT66PE	0.016	
	<ul style="list-style-type: none"> - Emergency pushbutton: twist to unlock. - Emergency pushbutton: pull to unlock. - Emergency pushbutton: key to unlock. 	Mounted on the enclosures models MPE41 or MPE66.	-	Red	FESTPE	0.060	
					FESPE	0.060	
					FESYPE	0.125	
MPW40		<ul style="list-style-type: none"> - Empty plastic enclosure; - Protection degree IP55; - Allows installing: MPW + ACBF11/PL lamps + ACBS; - Two M25 metric cable entry knockouts, top and bottom; - Two M20 metric cable entry, back; - Rotary handle on the cover connected on MPW's handle; - Handle can be locked with up to 3 padlocks in the OFF position; - Color: cover (grey RAL 7035) and base (black RAL 7021). 	-	Black	MPE55	0.44	
				Red	MPE55E	0.44	
				Ground	Black	MPE55G	0.54
					Red	MPE55G-E	0.54
				Ground and neutral	Black	MPE55GN	0.45
					Red	MPE55GN-E	0.45

Large Insulated Enclosure - MLPE

For use with	Illustrative picture	Description	Terminals	Handle color	Reference code	Weight kg	
MPW40		<ul style="list-style-type: none"> - Empty plastic enclosure; - Protection degree IP55; - Allows installing: MPW + ACBF11/PL lamps + ACBS /TSB + URMP/SRMP; - Two M25 metric cable entry knockouts, top and bottom; - Two M20 metric cable entry, back; - Rotary handle on the cover connected on MPW's handle; - Handle can be locked with up to 3 padlocks in the OFF position; - Color: cover (grey RAL 7035) and base (black RAL 7021). 	-	Black	MLPE55	0.44	
				Red	MLPE55E	0.44	
				Ground	Black	MLPE55G	0.54
					Red	MLPE55G-E	0.54
				Ground and neutral	Black	MLPE55GN	0.45
					Red	MLPE55GN-E	0.45

Front Plate - FME55



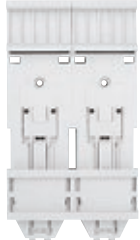
For use with	Illustrative picture	Description	Handle color	Reference code	Weight kg
MPW40		<ul style="list-style-type: none"> - For motor protective circuit breaker assembly in panel door or side; - Frontal protection degree IP55; - Rotary handle on the cover connected on MPW's handle; - Handle can be locked with up to 3 padlocks in the OFF position; - Allows installing: MPW + ACBF11/lâmpada PL + ACBS + URMP/SRMP; - Mounted on panels with a thickness of 1 to 5 mm; - Color: cover (grey RAL 7035). 	Black	FME55	0.41
			Red	FME55E	0.41

MPW Motor Protective Circuit Breakers - Accessories

Pilot Light - PL

For use with	Illustrative picture	Lamp color	Voltage and frequency	Reference code	Weight kg	
All models		Red	24 V dc / 50/60 Hz	PL24 E26	0.005	
			110...130 V 50/60 Hz	PL130 D61		
			210...230 V 50/60 Hz	PL230 D78		
			400...560 V 50/60 Hz	PL560 D79		
		Green	24 V dc / 50/60 Hz	PL24G E26		0.005
			110...130 V 50/60 Hz	PL130G D61		
			210...230 V 50/60 Hz	PL230G D78		
			400...560 V 50/60 Hz	PL560G D79		
		White	24 V dc / 50/60 Hz	PL24W E26		0.005
			110...130 V 50/60 Hz	PL130W D61		
			210...230 V 50/60 Hz	PL230W D78		
			400...560 V 50/60 Hz	PL560W D79		



Motor Protective Circuit Breaker Mounting Adapter + Contactor - MA

For use with	Illustrative picture	Description	Contactors	Reference code	Weight kg
MPW12...18 MPW40		<ul style="list-style-type: none"> - Used for direct on line starters; - Adapter fixed by screws or DIN rail 35 mm; - 45 mm width; - Motor protective circuit breaker + contactors: connection by cables. 	CWB9...38	MA45DOL	0.025
MPW12...18 MPW40		<ul style="list-style-type: none"> - Used for reversing starters; - Adapter fixed by screws or DIN rail 35 mm; - 90 mm width; - Motor protective circuit breaker + contactors: connection by cables. 	2 x CWB9...38	MA90RVS	0.025
MPW12...18 MPW40		<ul style="list-style-type: none"> - Used for star-delta starters; - Adapter fixed by screws or DIN rail 35 mm; - 90 mm width; - Motor protective circuit breaker + contactors: connection by cables. 	CWB9...38	MA90SDS	0.025




MPW Motor Protective Circuit Breakers - Accessories


Three-Phase Feeder Terminal - FTBBS, LST25 and LST65

For use with	Illustrative picture	Description	Reference code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> - For feeding the busbars; - Rated insulation voltage: 690 V ac; - I_e = 63 A; - Terminals: 6-25 mm² rigid wire and 6-16 mm² flexible wire with terminal. 	FTBBS	0.042
MPW40		<ul style="list-style-type: none"> - Block module for Type E combination motor controller in accordance with UL (LST25+MPW+TSB); - Rated insulation voltage: 690 V ac; - I_e = 63 A; - Terminals: 8-20 AWG. 	LST25	0.055

Current Limiter - CLT32

For use with	Illustrative picture	Description	Reference code	Weight kg
MPW40		<ul style="list-style-type: none"> - For protecting electrical circuits where high short-circuit breaking capacity is required: 100 kA @ 500 V ac. <p><i>Note: this accessory must be used together with a MPW motor protective circuit breaker up to 32 A.</i></p>	CLT32	0.310


Three-Phase Busbars for Circuit Breakers Without Side Fitted Auxiliary Contacts - BBS45

For use with	Illustrative picture	Description	Number of circuit breakers	Reference code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> - For parallel blocking of side-by-side mounted circuit breakers; - Without side auxiliary contacts; - Enables the use of frontal auxiliary contact block ACBF-11; - Rated insulation voltage: 690 V ac; - I_e = 63 A. 	2	BBS45-2	0.044
			3	BBS45-3	0.071
			4	BBS45-4	0.102
			5	BBS45-5	0.122




MPW Motor Protective Circuit Breakers - Accessories


Three-Phase Busbars for Motor Protective Circuit Breakers with Side Fitted Auxiliary Contacts - BBS54

For use with	Illustrative picture	Description	Number of circuit breakers	Reference code	Weight kg
MPW18 MPW40		<ul style="list-style-type: none"> - For parallel connection of circuit breakers with screw terminals mounted side-by-side; - Enables the use of side auxiliary contact block ACBS mounted on each motor protective circuit breaker; - Rated Insulation Voltage: 690 V ac; - Ie = 63 A. 	2	BBS54-2	0.047
			3	BBS54-3	0.077
			4	BBS54-4	0.102
			5	BBS54-5	0.134


Shrouded for Unused Terminals - CSD

For use with	Illustrative picture	Description	Reference code	Weight kg
BBS45 and BBS54		Protection against direct contact in energized terminals without the use of busbars BBS.	CSD	0.020

Scale Cover - SCMP

For use with	Illustrative picture	Description	Reference code	Weight kg
MPW12...18 MPW40		Protects the current adjustment dial against direct contact while enabling the adjusted current to be viewed.	SCMP	0.005

Push-In-Lugs - PLMP

For use with	Illustrative picture	Description	Reference code	Weight kg
MPW12...18 MPW40		For direct assembly of motor protective circuit breaker into any surface using screws.	PLMP	0.005

MPW Motor Protective Circuit Breakers - Technical Data

Models		MPW12	MPW18	MPW12i	MPW18i
Maximum rated current Inmax (Ie)		12 A	18 A	12 A	18 A
Number of poles		3			
Short-circuit release		13xIe _{max}		13xIe _{max}	
Rated operational voltage Ue		690 V ¹⁾		690 V ¹⁾	
Rated frequency		50/60 Hz		50/60 Hz	
Rated insulation voltage Ui		690 V		690 V	
Rated impulse withstand voltage Uimp		6 kV		6 kV	
Use category	IEC 60947-2 (circuit breaker)	A		A	
	IEC 60947-4-1 (motor starter)	AC-3		AC-3	
Tripping test		Yes		Yes	
Overload protection		Yes		No	
Phase failure sensitivity (IEC 60947-4-1)		Yes		No	
Tripping indication		No		No	
Tripping class (IEC 60947-4-1)		10		-	
Maximum operation per hour	Operations/hour	15		15	
Altitude (m)		2000		2000	
Degree of protection (IEC 60529)		IP20		IP20	
Mechanical life	Number of operations	100000		100000	
Electrical life	Number of operations	100000		100000	
Permissible ambient temperature					
Transport and storage		-50...+80 °C		-50...+80 °C	
Operation ²⁾		-20...+70 °C		-20...+70 °C	
Temperature compensation (IEC 60947-4-1)		-20...+60 °C		-	
Power dissipation per circuit breaker					
Maximum rated currents In	≤10 A	7 W		7 W	
	≤12 A ³⁾	7 W		7 W	
	≤16 A	8 W		8 W	
	≤18 A	7 W		7 W	
Resistance to impact (IEC 60068-2-27)		15 g		15 g	
Standards					
IEC 60947-1		Yes			
IEC 60947-2		Yes			
IEC 60947-4-1		Yes			
Connection					
Type of terminal		Spring	Screws Phillips (N° 2)	Spring	Screws Phillips (N° 2)
Tightening torque	N.m	-	1.2...1.7	-	1.2...1.7
	lb.in	-	11...16	-	11...16
Dimensions					
Width (mm)		45	45	45	45
Height (mm)		100	90	100	90
Depth (mm)		77	77	77	77

Notes: 1) 500 V with plastic enclosure.

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

3) Only available with spring terminal.



MPW Motor Protective Circuit Breakers - Technical Data

Models		MPW40	MPW40i	MPW40t
Maximum rated current Inmax (Ie)		40 A		20 A
Number of poles		3		
Short-circuit release		13xIe _{max}		19 x Ie _{max}
Rated operational voltage Ue		690 V ¹⁾		
Rated frequency		50/60 Hz		
Rated insulation voltage Ui		690 V		
Rated impulse withstand voltage Uimp		6 kV		
Use category	IEC 60947-2 (circuit breaker)	A		
	IEC 60947-4-1 (motor starter)	AC-3		
Tripping test		Yes		
Overload protection		Yes	No	Yes
Phase failure sensitivity (IEC 60947-4-1)		Yes	No	Yes
Tripping indication		Yes	No	Yes
Tripping class (IEC 60947-4-1)		10	-	10
Maximum operation per hour	Operations/hour	15		
Altitude (m)		2000		
Degree of protection (IEC 60529)		IP20		
Mechanical life	Number of operations	100000		
Electrical life	Number of operations	100000		
Permissible ambient temperature				
Transport and storage		-50...+80 °C		
Operation ²⁾		-20...+70 °C		
Temperature compensation (IEC 60947-4-1)		-20...+60 °C	-	-
Power dissipation per circuit breaker				
Maximum rated currents In	≤10 A	7 W		
	≤16 A	8 W		
	≤20 A	9 W		
	≤25 A	10 W		
	≤32 A	15 W		
	≤40 A	15 W		
Resistance to impact (IEC 60068-2-27)		15 g		
Standards				
IEC 60947-1		Yes		
IEC 60947-2		Yes		
IEC 60947-4-1		Yes		
Connection				
Type of terminal		Screws phillips (N° 2)		
Tightening torque	N.m	2...2.5		
	lb.in	18...22		
Dimensions				
Width (mm)		45		
Height (mm)		97		
Depth (mm)		98		

Notes: 1) 500 V with plastic enclosure.

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

3) Only available with spring terminal.




Altitude - Correction Factor

The MPW motor protective circuit breakers do not undergo any change to their specified performance when applied at an altitude of up to 2000 meters above sea level. However, as the altitude increases, the atmospheric properties vary in terms of dielectric rigidity and pressure. Therefore, current and voltage correction factors must be applied for altitudes exceeding 2000 meters, as shown in the following table:

Altitude (above sea level) - h	Rated operational voltage Ue	Current correction factor Iu
h ≤ 2000 m	690 V	1 x I _n
2000 < h ≤ 3000 m	550 V	0.96 x I _n
3000 < h ≤ 4000 m	480 V	0.93 x I _n
4000 < h ≤ 5000 m	420 V	0.90 x I _n

MPW Motor Protective Circuit Breakers - Technical Data

Main Terminal Capacity

Models	Type	Number of conductors	Cross-section
MPW18	Rigid or flexible cable	 1 or 2	1...4 mm ² 18...12 AWG
MPW12	Rigid cable	 1 or 2	1...1.5 mm ² 18...16 AWG
	Finely stranded with end sleeve ¹⁾		1...1.5 mm ² 18...16 AWG
MPW40	Rigid or flexible cable	 1 or 2	1...2.5 mm ² 2.5...6 mm ² 14...8 AWG ²⁾

Auxiliary Contact Blocks - ACB

Reference	ACBF-11 (S)			ACBS- __ (S), TSB			
For use with	MPW12...40						
Rated insulation voltage U _i	250 V			690 V			
Utilization category	24 V ac	220-230 V ac		24 V ac	230 V ac	400 V ac	690 V ac
AC-15	2 A	0.5 A		6 A	4 A	3 A	1 A
AC-12	2.5 A		2.5 A	10 A	10 A	10 A	10 A
DC-13	24 V dc	48 V dc	60 V dc	24 V dc	110 V dc	220 V dc	440 V dc
	1 A	0.3 A	0.15 A	2 A	0.5 A	0.25 A	0.1 A
Type of terminal	Flat		Spring	Flat			Spring
Type of screw	Phillips (N° 2)		-	Phillips (N° 2)			-
Tightening torque	1...1.5 N.m (7...10 lb.in)		-	1...1.5 N.m (7...10 lb.in)			-
Rigid cable	1 or 2 x (0.5...1.5 mm ²)		1 or 2 x (1...1.5 mm ²) 1 or 2 x (18...16 AWG)	1 or 2 x (0.5...1.5 mm ²)			1 or 2 x (1...1.5 mm ²) 1 or 2 x (18...16 AWG)
Flexible cable	1 or 2 x (0.75...2.5 mm ²)		-	1 or 2 x (0.75...2.5 mm ²)			-
Finely stranded with end sleeve ¹⁾	1 or 2 x (18...14 AWG)		1 or 2 x (1 mm ²) 1 or 2 x (18 AWG)	1 or 2 x (18...14 AWG)			1 or 2 x (1 mm ²) 1 or 2 x (18 AWG)
Backup fuses gL/gG	10 A						

Undervoltage Release - URMP

Reference	URMP
For use with	MPW12...40
Rated insulation voltage U _i	690 V
Operating voltage (enables cir. breaker switch ON)	0.85...1.1 x U _e
Non-operating voltage (guarantees circuit breaker switch OFF)	0.35...0.7 x U _e
Energization consumption	20.2 VA / 13 W
Consumption	7.2 VA / 2.4 W
Max. opening time	20 ms
Type of terminal	Flat
Type of screws	Phillips (N° 2)
Tightening torque	1...1.5 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm ²)
Flexible cable	1 or 2 x (0.75...2.5 mm ²) 1 or 2 x (18...14 AWG)
Backup fuses gL/gG	10 A

Notes: 1) Mandatory use (finely stranded cable without end sleeve is not allowed).
2) 8 AWG for flexible cable only.

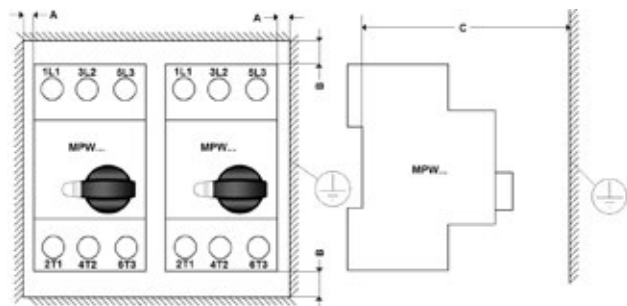
MPW Motor Protective Circuit Breakers - Technical Data

Shunt Release - SRMP

Reference codes	SRMP
For use with	MPW12...40
Rated insulation voltage U_i	690 V
Operating voltage (guarantee cir. breaker switch OFF)	0.7...1.1 x U_e
Energization consumption	20.2 VA / 13 W
Max. opening time	20 ms
Type of terminal	Flat
Type of screws	Phillips (N° 2)
Tightening torque	1...1.5 N.m (7...10 lb.in)
Rigid cable	1 or 2 x (0.5...1.5 mm ²)
Flexible cable	1 or 2 x (0.75...2.5 mm ²)
Backup fuses gL/gG	10 A

Mounting Configurations for MPW Motor Protective Circuit Breaker

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
MPW12...18	Up to 690 V	20	75	9
MPW40	Up to 500 V	30	95	9
	Up to 690 V	50	95	30



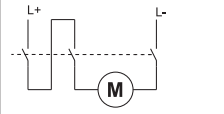
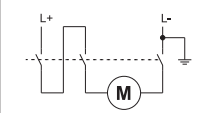
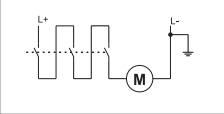
The motor protective circuit breaker can be mounted in any position, but according to IEC 60447 standard, the "On - I" indicator must be to the right, or up.

DC Operation

The MPW12...40 can also be used for operating continuous current loads. For such operation it is necessary to connect 2 or 3 poles in series.

See recommended circuits and their voltage limits in the table on the right.

Short-circuit breaking capacity $I_{cu} = 10$ kA for all configurations.

Circuits	Max. V dc	Notes
	150 V dc	System not grounded; 2 pole series connected.
	300 V dc	System grounded; 2 pole series connected.
	450 V dc	System grounded; 3 pole series connected.

MPW Motor Protective Circuit Breakers - Rated Short-Circuit Breaking Capacity (IEC 60947-2)¹⁾

MPW12...40

Models	Setting overload release (A)	220-230 V ac		380-415 V ac		440 V ac		460-500 V ac		630-690 V ac	
		Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
		kA	kA	kA	kA	kA	kA	kA	kA	kA	kA
MPW12...18	0.10...0.16	100	100	100	100	100	100	100	100	10	10
	0.16...0.25	100	100	100	100	100	100	100	100	10	10
	0.25...0.4	100	100	100	100	100	100	100	100	10	10
	0.4...0.63	100	100	100	100	100	100	100	100	10	10
	0.63...1	100	100	100	100	100	100	100	100	10	10
	1...1.6	100	100	100	100	100	100	100	100	10	10
	1.6...2.5	100	100	100	100	100	100	100	100	8	8
	2.5...4	100	100	100	100	100	100	100	100	8	8
	4...6.3	100	100	100	100	100	100	100	100	8	8
	6.3...10	100	100	50	10	50	10	10	10	5	5
	8...12 ²⁾	100	100	10	10	10	10	10	8	4	3
	10...16 ³⁾	100	100	10	10	10	10	10	8	4	3
12...18	100	100	10	10	10	10	10	8	4	3	
MPW40	0.10...0.16	100	100	100	100	100	100	100	100	100	100
	0.16...0.25	100	100	100	100	100	100	100	100	100	100
	0.25...0.4	100	100	100	100	100	100	100	100	100	100
	0.4...0.63	100	100	100	100	100	100	100	100	100	100
	0.63...1	100	100	100	100	100	100	100	100	100	100
	1...1.6	100	100	100	100	100	100	100	100	100	100
	1.6...2.5	100	100	100	100	100	100	100	100	8	8
	2.5...4	100	100	100	100	100	100	100	100	8	8
	4...6.3	100	100	100	100	100	100	100	100	8	8
	6.3...10	100	100	100	100	50	25	42	21	8	8
	10...16	100	100	50	25	50	15	10	8	5	5
	16...20	100	100	50	25	50	15	10	8	5	5
	20...25	100	100	50	25	50	15	10	8	5	5
25...32	100	100	50	25	25	15	10	8	5	5	
32...40	100	100	30	15	20	10	10	5	5	2	

Notes: 1) In cases where Prospective Short-Circuit Current >Icu, backup fuses are required.

2) Only available with spring terminals.

3) Only available with screw terminals.



MPW Motor Protective Circuit Breakers + CLT32 Current Limiter - Rated Short-Circuit Breaking Capacity (IEC 60947-2)

MPW40+CLT32

Model	Setting overload release (A)	380-415 V ac		440 V ac		460-500 V ac		630-690 V ac	
		Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics
		kA	kA	kA	kA	kA	kA	kA	kA
MPW40 + CLT32	0.10...0.16	◆	◆	◆	◆	◆	◆	◆	◆
	0.16...0.25	◆	◆	◆	◆	◆	◆	◆	◆
	0.25...0.4	◆	◆	◆	◆	◆	◆	◆	◆
	0.4...0.63	◆	◆	◆	◆	◆	◆	◆	◆
	0.63...1	◆	◆	◆	◆	◆	◆	◆	◆
	1...1.6	◆	◆	◆	◆	◆	◆	◆	◆
	1.6...2.5	◆	◆	◆	◆	◆	◆	50	50
	2.5...4	◆	◆	◆	◆	◆	◆	50	50
	4...6.3	◆	◆	◆	◆	◆	◆	50	50
	6.3...10	◆	◆	100	100	100	100	50	50
	10...16	100	100	100	100	100	100	50	50
	16...20	100	100	100	100	100	100	50	50
	20...25	100	100	100	100	100	100	10	10
25...32	100	100	100	100	100	100	10	10	

Note: 1) In cases where Prospective Short-Circuit Current > Icu, backup fuses are required.

◆ Not applicable due to circuit breaker MPW40 already have 100 kA Icu / Ics in related ranges.

A

B

C

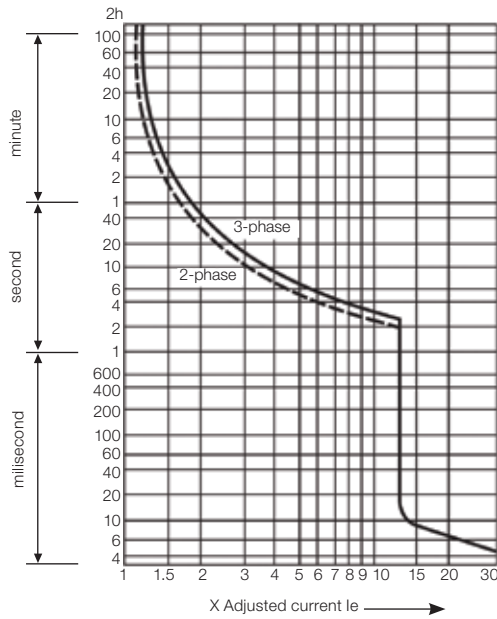
D

MPW Motor Protective Circuit Breakers - Characteristics Curves

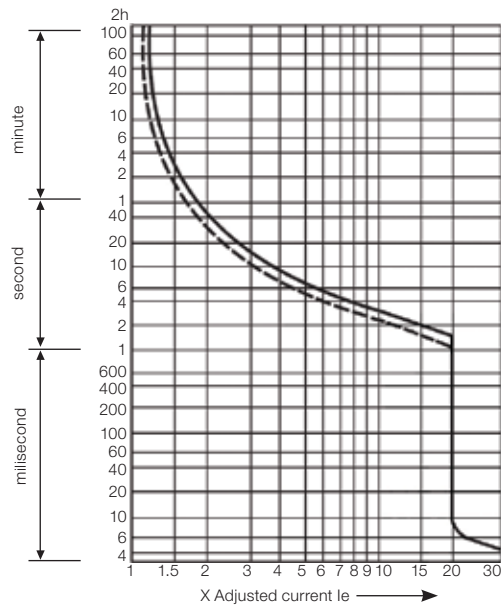
The tripping characteristic shows the motor circuit breaker trip time in relation to the rated current.

The curves show average tolerance range values for an ambient temperature of 20 °C, starting in cold state. Thermal trip time when working in operating temperature is reduced to around 25% of the presented values. Under normal operating conditions, all 3 circuit breaker phases must be conducting.

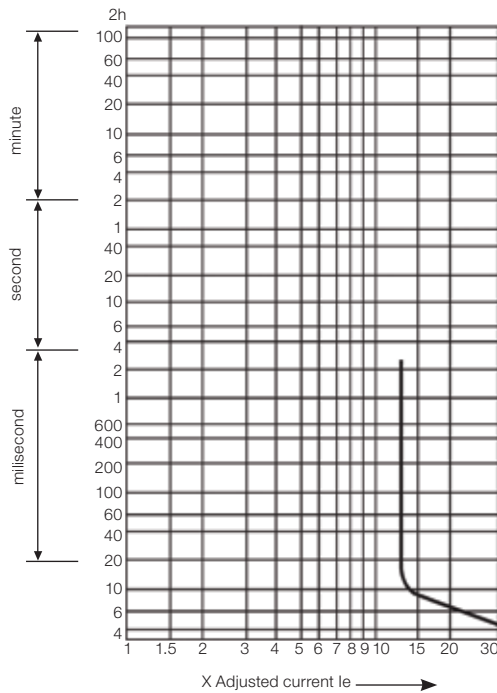
MPW12...40



MPW40t

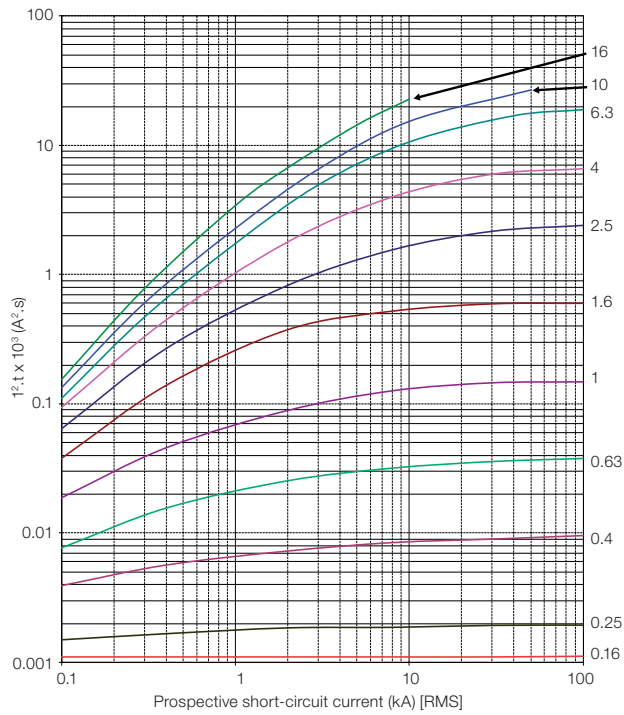


MPW12i...40i

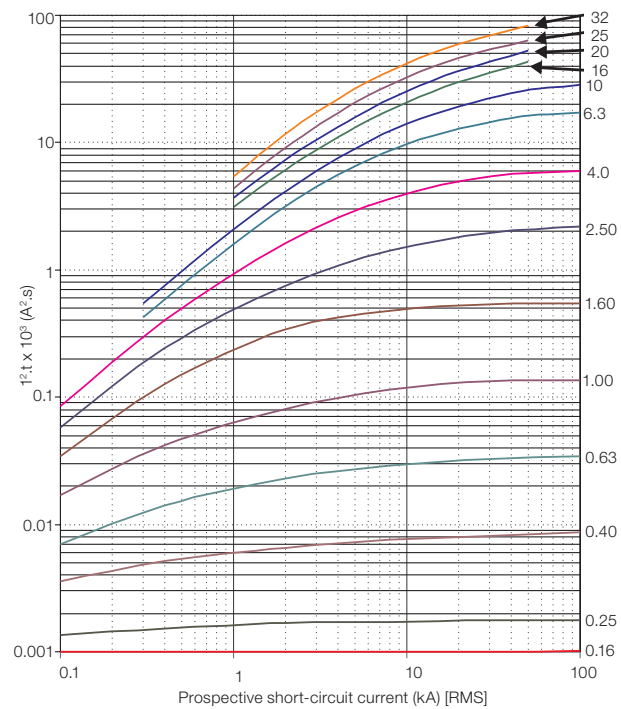


MPW Motor Protective Circuit Breakers - Characteristics Curves

I²t at 415 V - MPW12/18



I²t at 415 V - MPW40



A

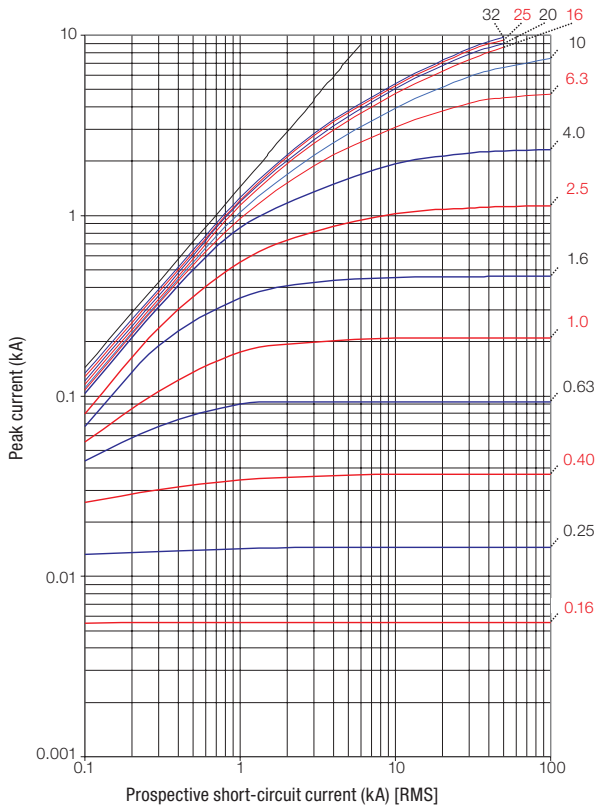
B

C

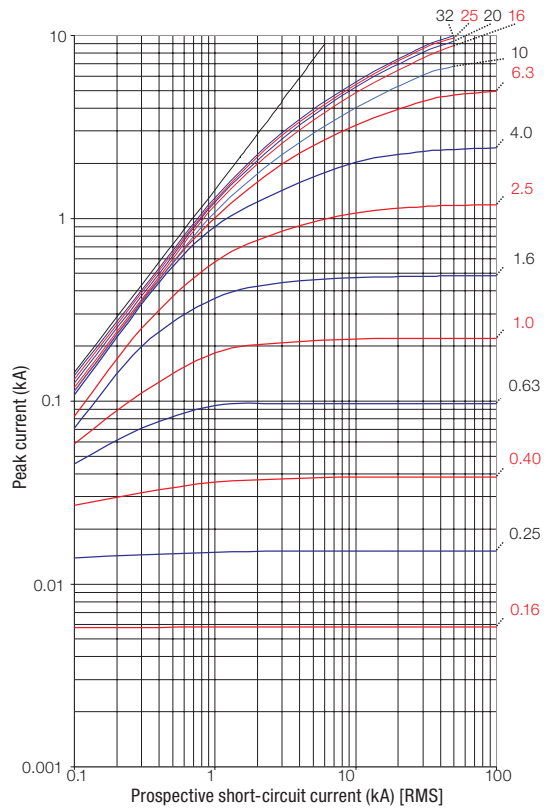
D

MPW Motor Protective Circuit Breakers - Characteristics Curves

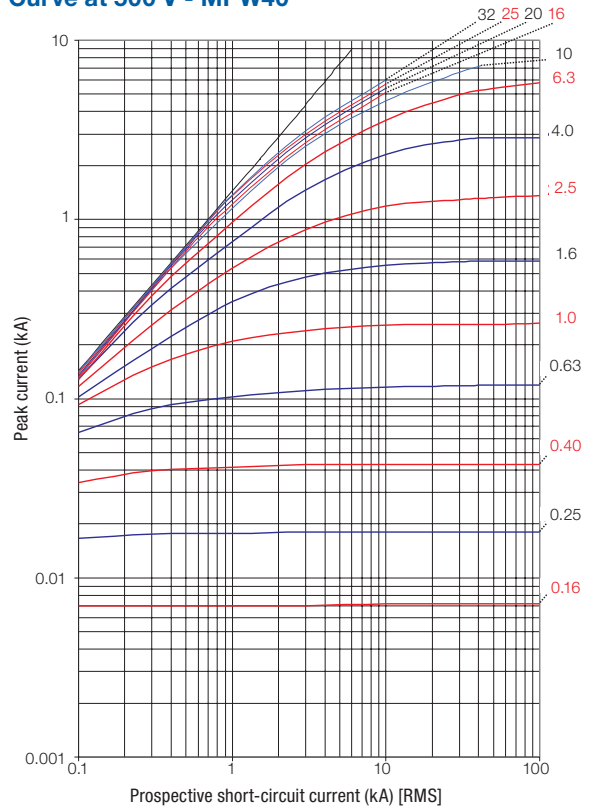
**Short-Circuit Current Limitation
Curve at 400/415 V - MPW40**



**Short-Circuit Current Limitation
Curve at 440 V - MPW40**

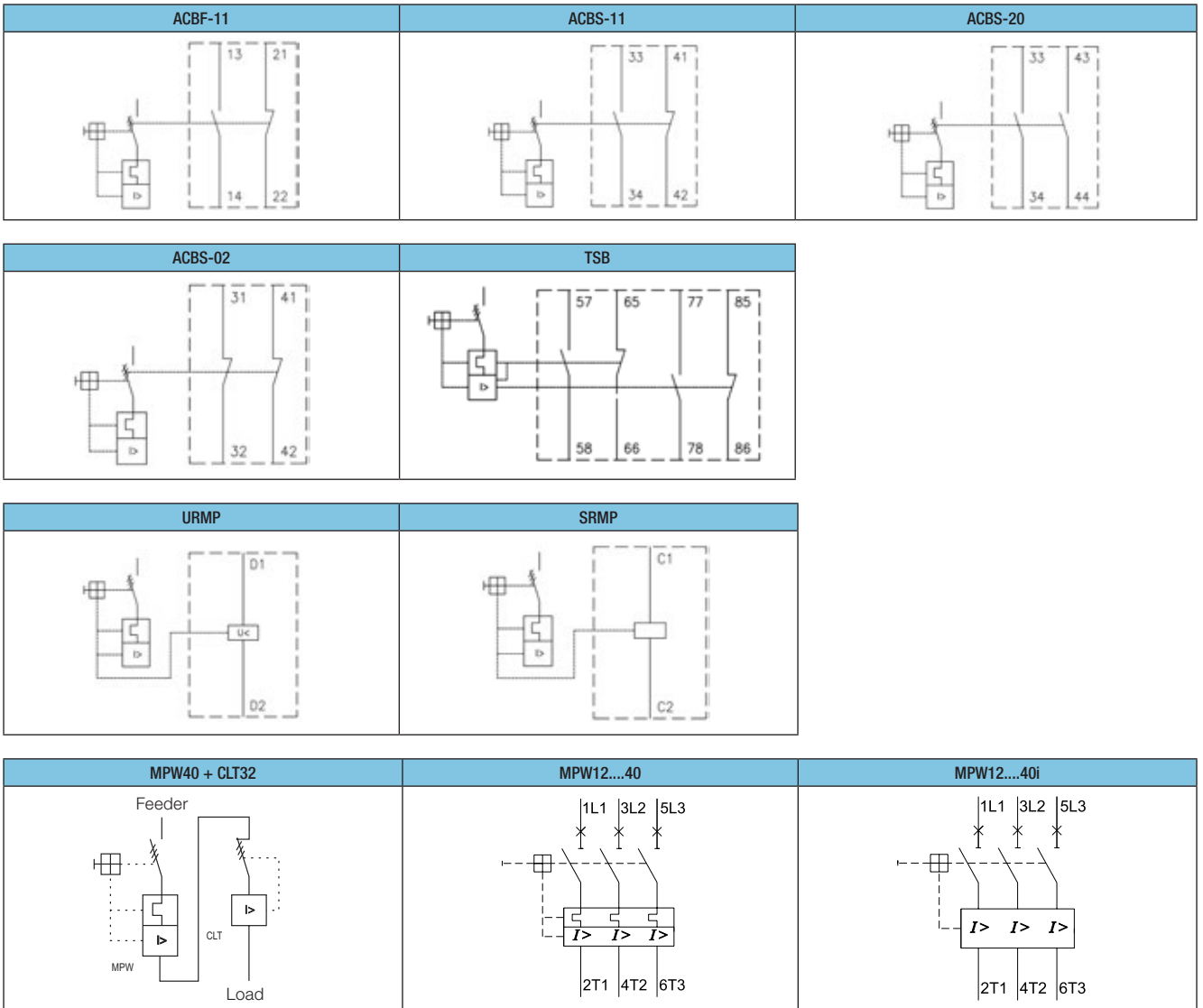


**Short-Circuit Current Limitation
Curve at 500 V - MPW40**

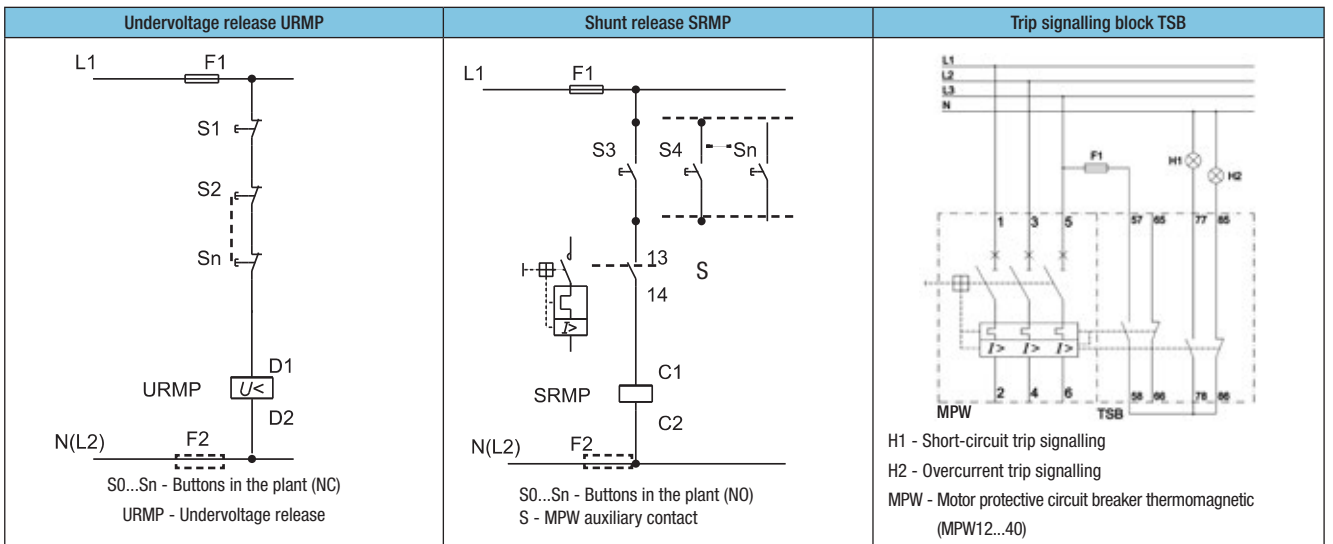


MPW - Diagrams and Typical Circuits

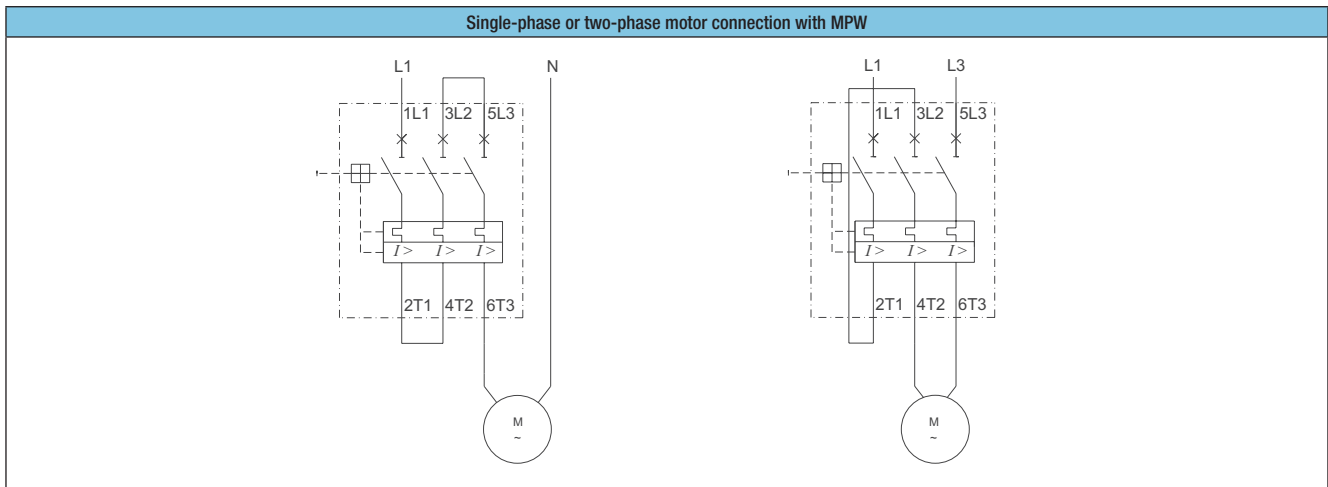
Diagrams



Typical Circuits

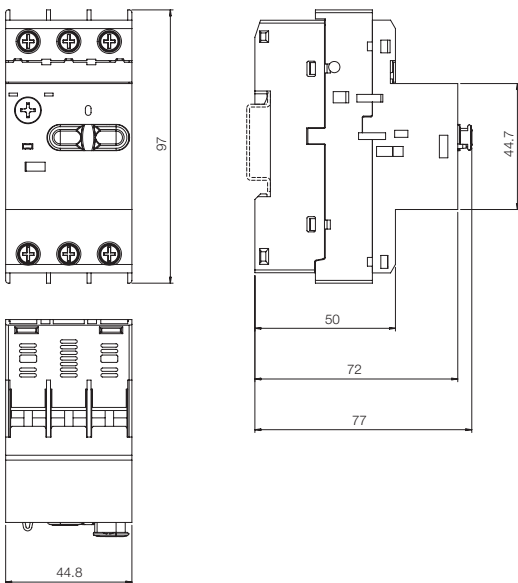


MPW - Diagrams and Typical Circuits

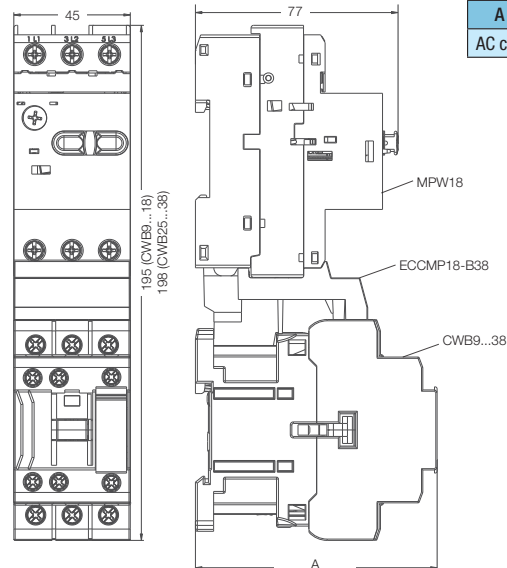


MPW - Dimensions (mm)

MPW18

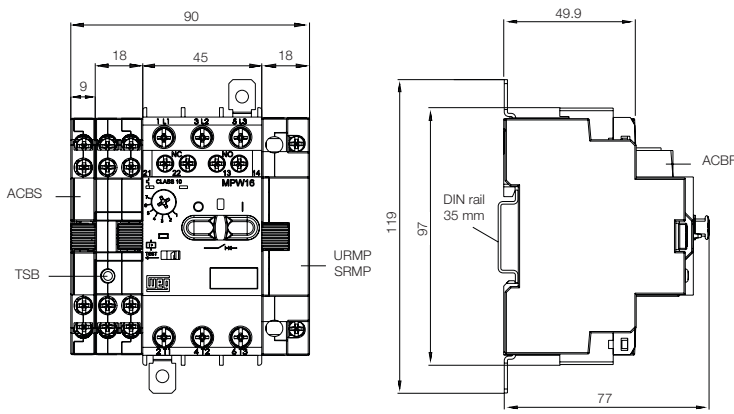


MPW18 + CWB9...18 / CWB25...38

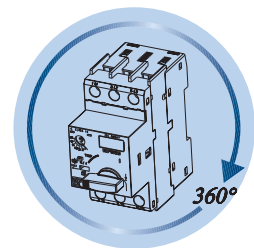


A	CWB9...18	CWB25...38
AC coil	89.5	93

MPW18 + Accessories - Screw Terminal

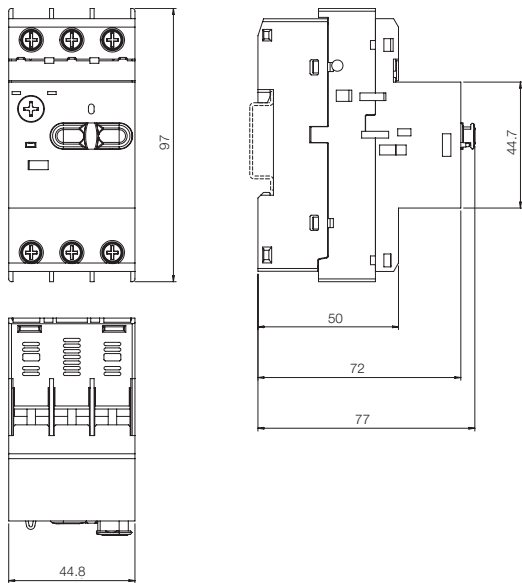


Mounting Position

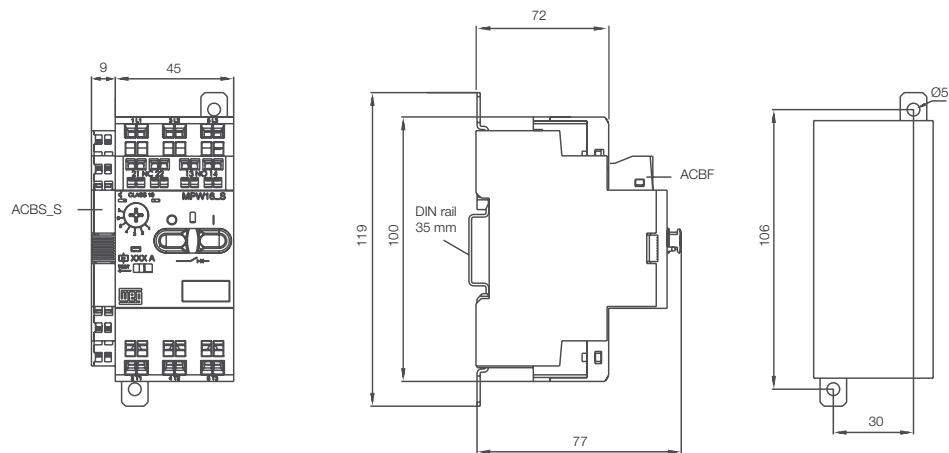


MPW - Dimensions (mm)

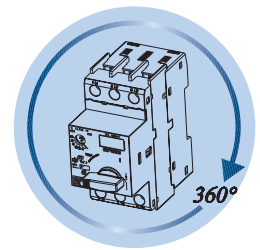
MPW12



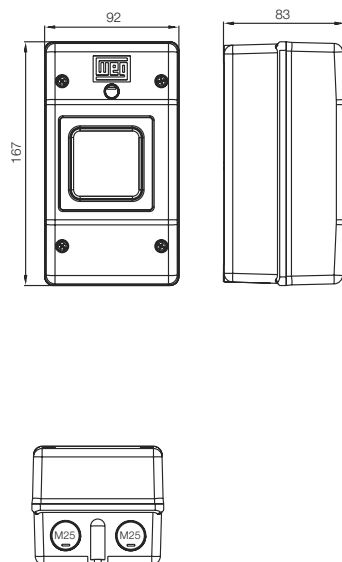
MPW12 + Accessories - Spring Terminal



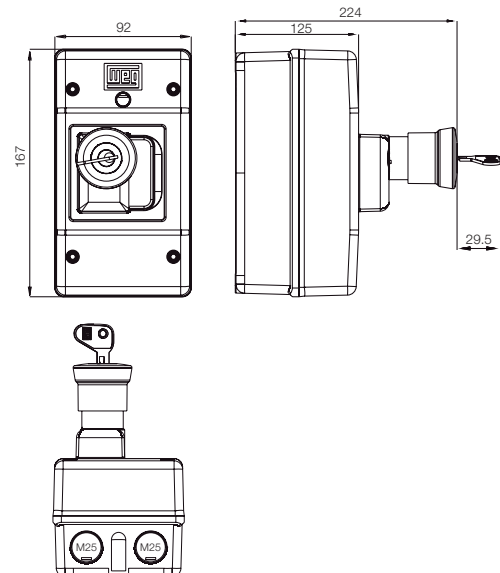
Mounting Position



Insulated Enclosure MPE41/66

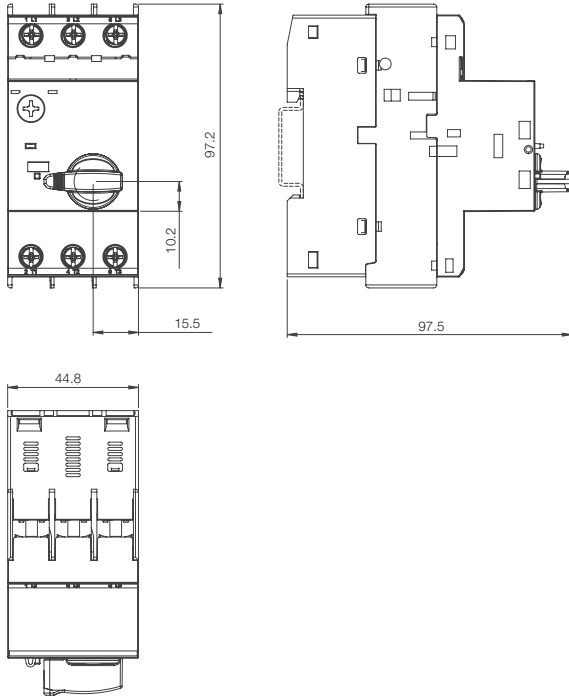


Insulated Enclosure MPE41/66 + Emergency Button

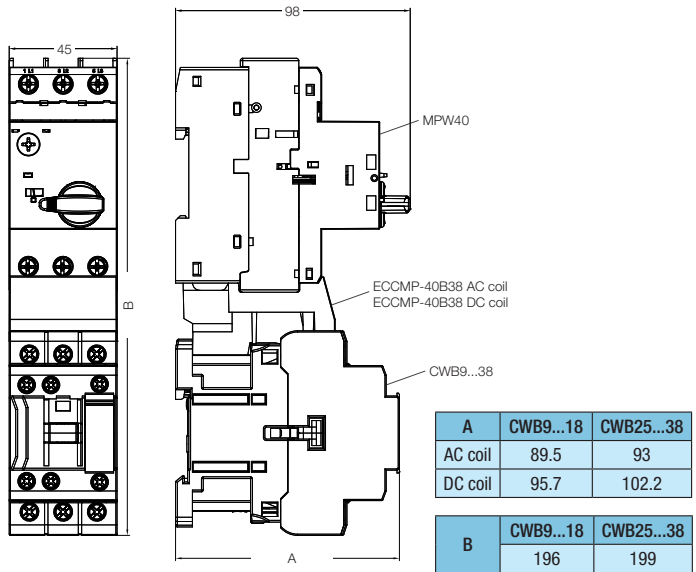


MPW - Dimensions (mm)

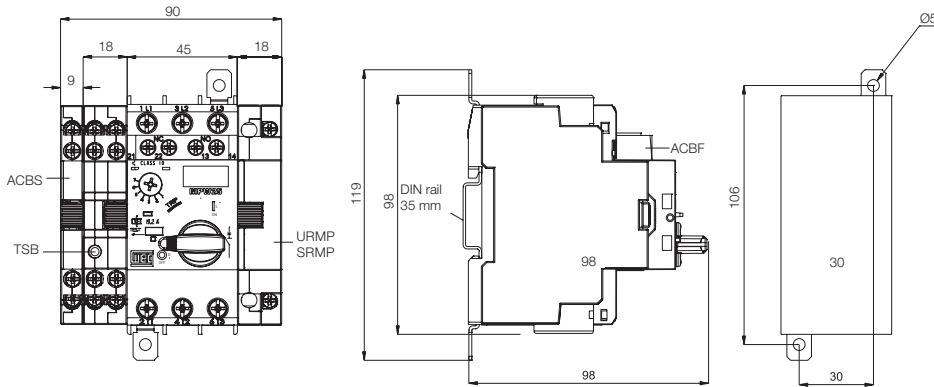
MPW40



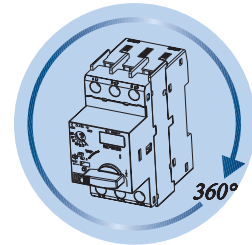
MPW40 + CWB9...18 / CWB25...38



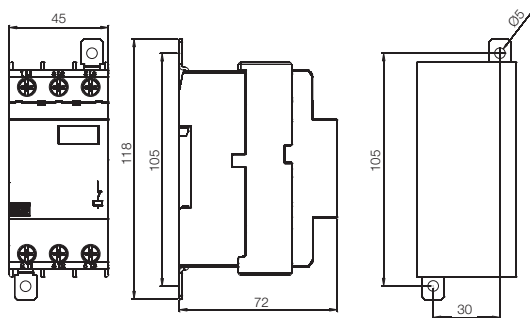
MPW40 + Accessories



Mounting Position

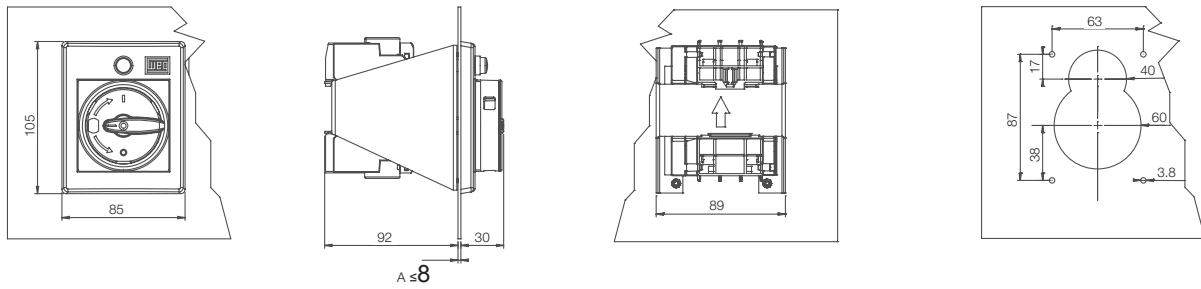


Current Limiter - CLT32

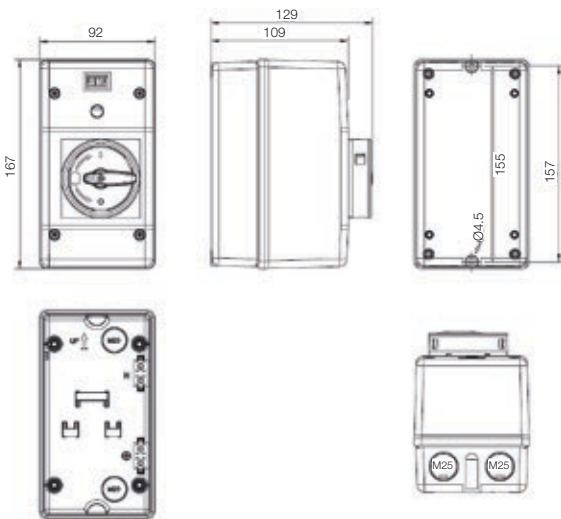


MPW - Dimensions (mm)

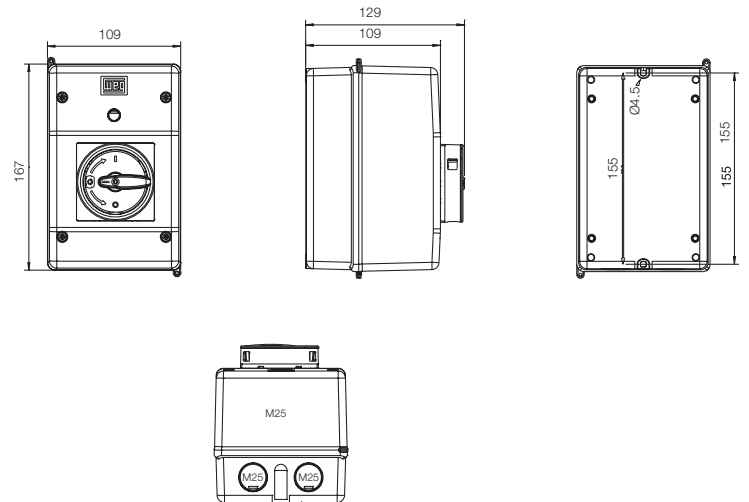
Front Plate - FME55



Insulated Enclosure - MPE55

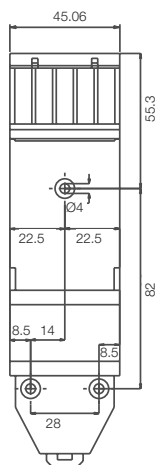


Insulated Enclosure - MLPE55

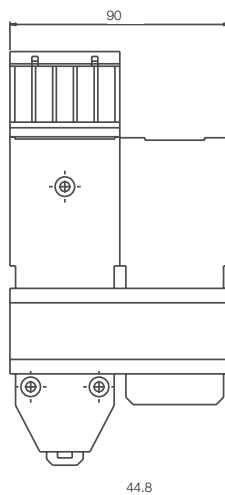


Motor Protective Circuit Breaker Mounting Adapter + Contactor - MA

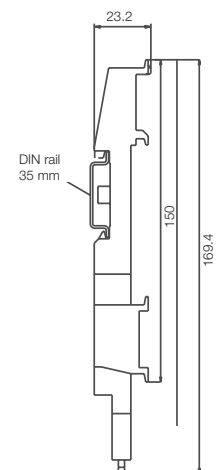
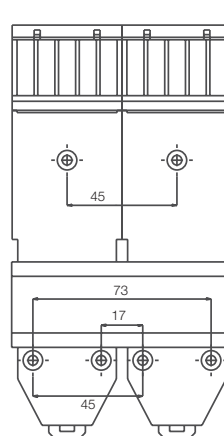
MA45DOL



MA90RVS

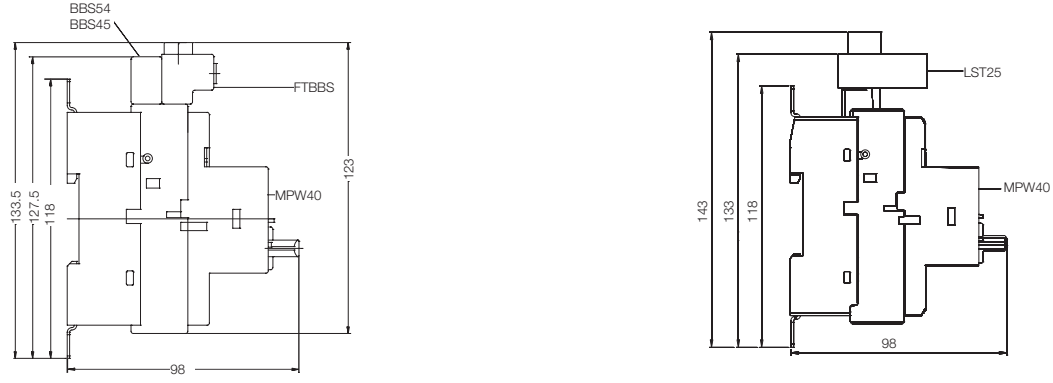
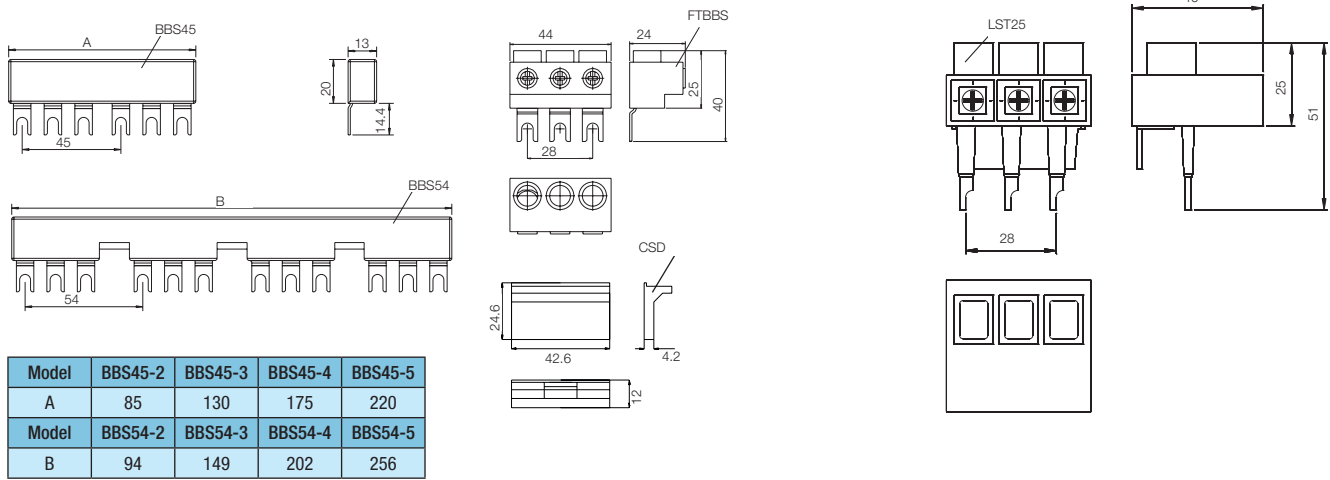


MA90SDS

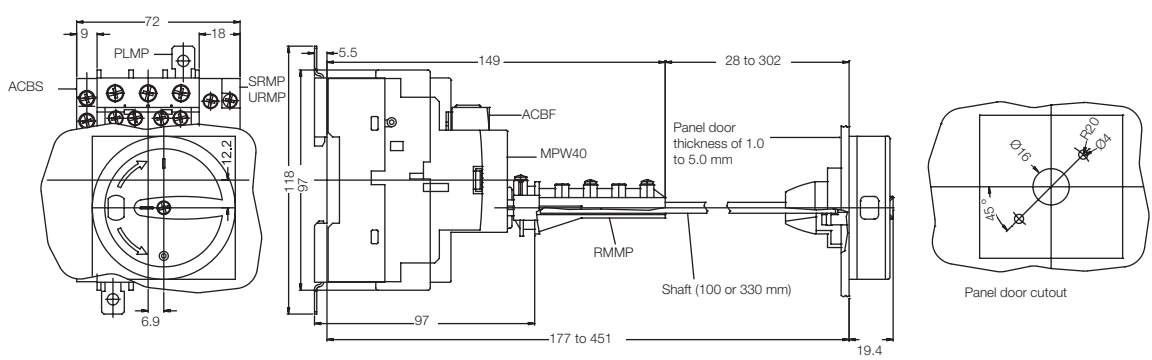


MPW - Dimensions (mm)

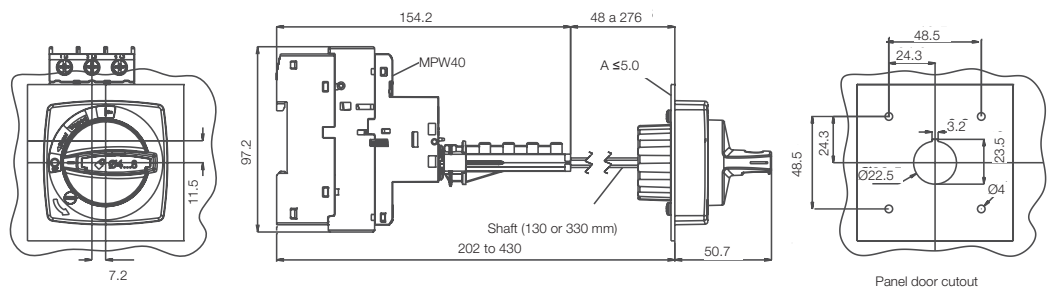
Accessories: BBS45, BBS54, FTBBS, CSD, LST25



Door Coupling Rotary Handle - RMMP

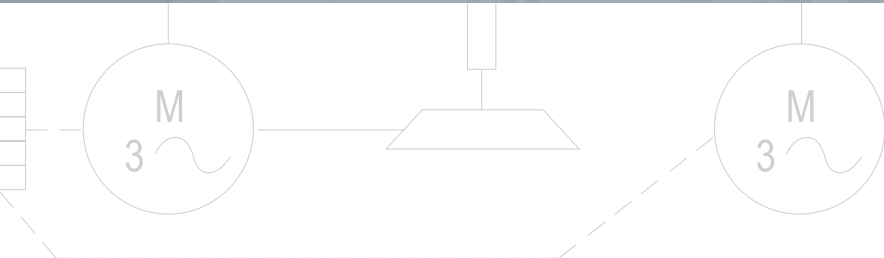
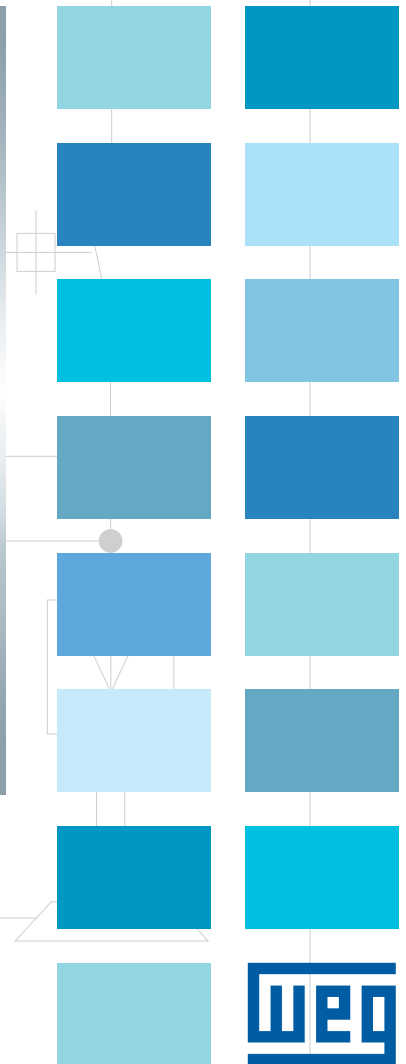
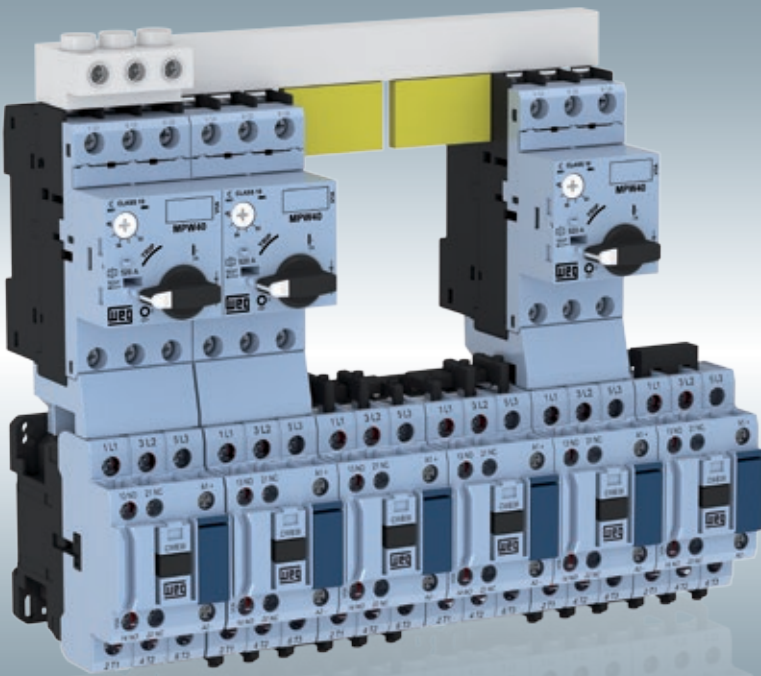
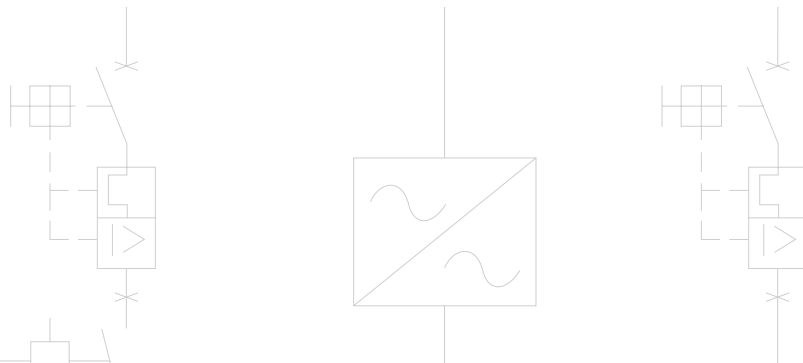


Door Coupling Rotary Handle - MRX



Automation

Motor Starter Guide up to 18.5 kW / 25 HP



Motor Starters

Complementing the new CWB line of contactors, WEG is also launching the 45 mm wide motor protective circuit breakers, MPW40 of 0.16 to 40 A and MPW18 of 0.16 up to 18 A, and the thermal overload relay RW27-2D of 0.28 to 40 A, with the same visual pattern and identity of the WEG brand.

With the new CWB line of contactors, MPW motor protective circuit breaker and the RW27-2D thermal overload relay, WEG now offers a complete and compact line of starters that stands out on the market with:

Easy Installation

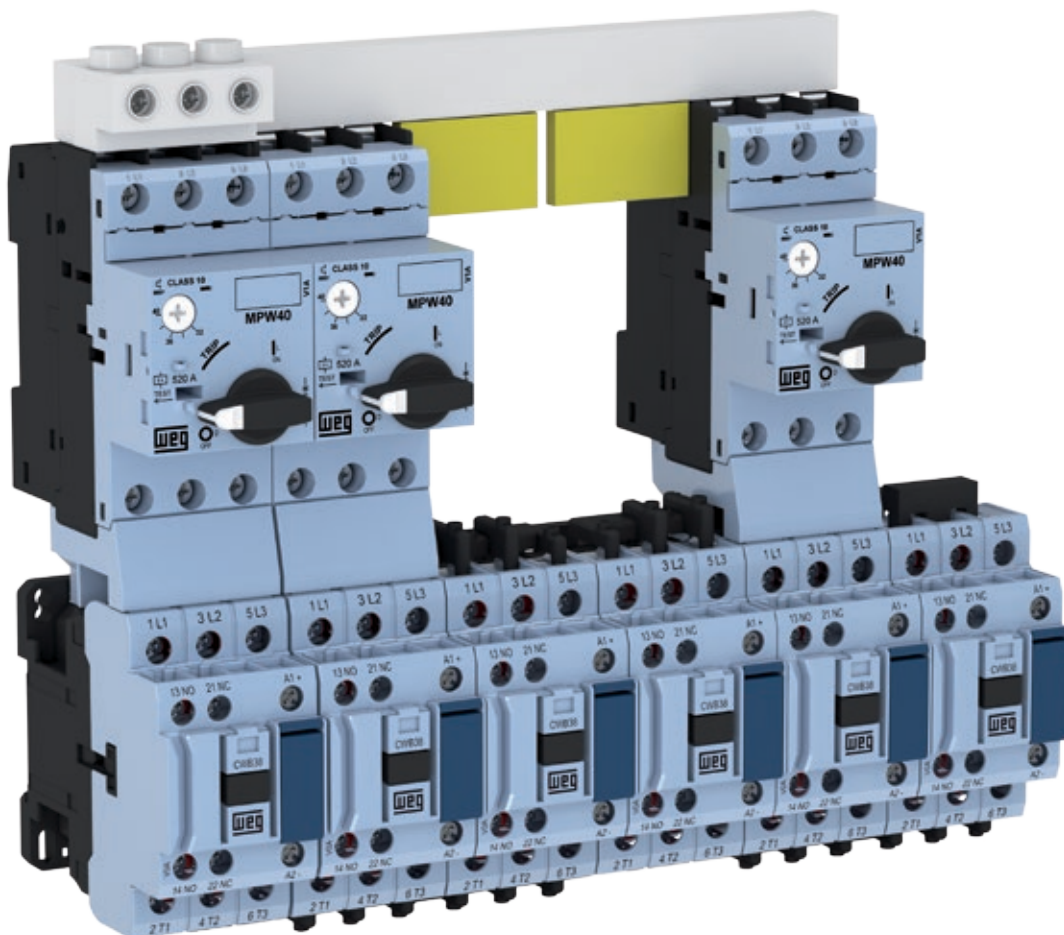
- CWB contactors, overload relays and motor protective circuit breakers in compact design up to 38 A (18.5 kW @ 380/415 V)
- Easy connection busbars and connectors for DOL, reversing and star-delta starters saving assembly time
- Easy combination among all starter components
- Contactors with built-in 1NO + 1NC auxiliary contacts

Easy Panel Optimization

- 45 mm up to 38 A
- 9 mm wide side auxiliary contact blocks
- Very compact starters
- Mechanical interlock with “zero” additional side space
- Simple and reliable components

Easy Operation

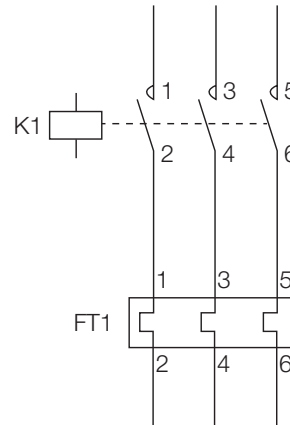
- High performance and reliability for a wide variety of applications
- Energy savings
- No inrush current on pick-up for DC operated contactors
- Integrated overload and/or short-circuit protection (when using MPW)



Direct On Line Starter

CWB Contactor + RW27-2D Thermal Overload Relay

- Hand / auto / reset button
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Overload relay		CWB + RW27-2D		Total weight (kg)
	Reference code	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Maximum gL/gG fuse (type 1 coordination) (A)	Maximum gL/gG fuse (type 2 coordination) (A)	
0.28...0.4	CWB9-11-30 ♦	9	RW27-2D3-D004	0.28...0.4	2	2	0.57
0.43...0.63	CWB9-11-30 ♦	9	RW27-2D3-C063	0.43...0.63	2	2	0.57
0.56...0.8	CWB9-11-30 ♦	9	RW27-2D3-D008	0.56...0.8	2	2	0.57
0.8...1.2	CWB9-11-30 ♦	9	RW27-2D3-D012	0.8...1.2	4	4	0.57
1.2...1.8	CWB9-11-30 ♦	9	RW27-2D3-D018	1.2...1.8	6	6	0.57
1.8...2.8	CWB9-11-30 ♦	9	RW27-2D3-D028	1.8...2.8	6	6	0.57
2.8...4	CWB9-11-30 ♦	9	RW27-2D3-U004	2.8...4	10	10	0.57
4...6.3	CWB9-11-30 ♦	9	RW27-2D3-D063	4...6.3	16	16	0.57
5.6...8	CWB9-11-30 ♦	9	RW27-2D3-U008	5.6...8	20	20	0.57
7...9	CWB9-11-30 ♦	9	RW27-2D3-U010	7...10	25	25	0.57
8...12	CWB12-11-30 ♦	12	RW27-2D3-D125	8...12.5	25	25	0.57
10...15	CWB18-11-30 ♦	18	RW27-2D3-U015	10...15	35	35	0.57
11...17	CWB18-11-30 ♦	18	RW27-2D3-U017	11...17	40	35	0.57
15...23	CWB25-11-30 ♦	25	RW27-2D3-U023	15...23	50	50	0.57
22...32	CWB32-11-30 ♦	32	RW27-2D3-U032	22...32	63	63	0.57
25...38	CWB38-11-30 ♦	38	RW27-2D3-U040	25...40	90	80	0.57

Notes: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.
For other conditions verify technical data of each individual component.
Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace “♦” by the Appropriate Coil Voltage Code

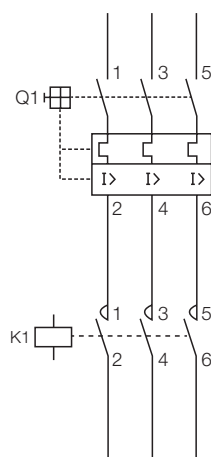
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Direct On Line Starter

MPW18 Motor Protective Circuit Breaker + CWB Contactor

- Supply disconnecting device acc. to IEC 60204-1
- Pushbutton operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xlu
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories	Total weight (kg)
	Reference code	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module	
0.1...0.16	CWB9-11-30 ◆	9	MPW18-3-C016	0.1...0.16	2.0	ECCMP-18B38 (CWB - AC coil)	0.71
0.16...0.25	CWB9-11-30 ◆	9	MPW18-3-C025	0.16...0.25	3.2		0.71
0.25...0.4	CWB9-11-30 ◆	9	MPW18-3-D004	0.25...0.4	5.2		0.71
0.4...0.63	CWB9-11-30 ◆	9	MPW18-3-C063	0.4...0.63	8.1		0.71
0.63...1	CWB9-11-30 ◆	9	MPW18-3-U001	0.63...1	13		0.71
1...1.6	CWB9-11-30 ◆	9	MPW18-3-D016	1...1.6	20.8		0.71
1.6...2.5	CWB9-11-30 ◆	9	MPW18-3-D025	1.6...2.5	32.5		0.71
2.5...4	CWB9-11-30 ◆	9	MPW18-3-U004	2.5...4	52		0.71
4...6.3	CWB9-11-30 ◆	9	MPW18-3-D063	4...6.3	81.9		0.71
6.3...10	CWB12-11-30 ◆	12	MPW18-3-U010	6.3...10	130		0.71
10...16	CWB18-11-30 ◆	18	MPW18-3-U016	10...16	208		0.71
16...18	CWB18-11-30 ◆	18	MPW18-3-U020	16...20	260		0.71

Notes: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.
 For other conditions verify technical data of each individual component.
 Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace “◆” by the Appropriate Coil Voltage Code

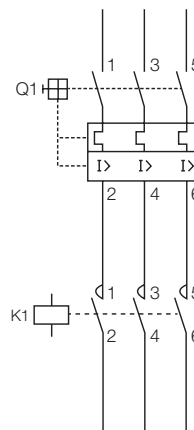
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Direct On Line Starter

MPW40 Motor Protective Circuit Breaker + CWB Contactor

- Supply disconnecting device acc. to IEC 60204-1
- Rotary handle operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xI_n
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories	Total weight (kg)	
	Reference code	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module		
0.1...0.16	CWB9-11-30 ◆	9	MPW40-3-C016	0.1...0.16	2.0	ECCMP-40B38 (CWB - AC coil)	0.79	
0.16...0.25	CWB9-11-30 ◆	9	MPW40-3-C025	0.16...0.25	3.2		0.79	
0.25...0.4	CWB9-11-30 ◆	9	MPW40-3-D004	0.25...0.4	5.2		0.79	
0.4...0.63	CWB9-11-30 ◆	9	MPW40-3-C063	0.4...0.63	8.1		0.79	
0.63...1	CWB9-11-30 ◆	9	MPW40-3-U001	0.63...1	13		0.79	
1...1.6	CWB9-11-30 ◆	9	MPW40-3-D016	1...1.6	20.8		0.79	
1.6...2.5	CWB9-11-30 ◆	9	MPW40-3-D025	1.6...2.5	32.5		0.79	
2.5...4	CWB9-11-30 ◆	9	MPW40-3-U004	2.5...4	52		0.79	
4...6.3	CWB9-11-30 ◆	9	MPW40-3-D063	4...6.3	81.9		ECCMP-40B38DC (CWB - DC coil)	0.79
6.3...10	CWB12-11-30 ◆	12	MPW40-3-U010	6.3...10	130			0.79
10...16	CWB18-11-30 ◆	18	MPW40-3-U016	10...16	208	0.79		
16...20	CWB25-11-30 ◆	25	MPW40-3-U020	16...20	260	0.79		
20...25	CWB25-11-30 ◆	25	MPW40-3-U025	20...25	325	0.79		
25...32	CWB32-11-30 ◆	32	MPW40-3-U032	25...32	416	0.79		
32...38	CWB38-11-30 ◆	38	MPW40-3-U040	32...40	520	0.79		

Notes: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.

For other conditions verify technical data of each individual component.

Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace "◆" by the Appropriate Coil Voltage Code

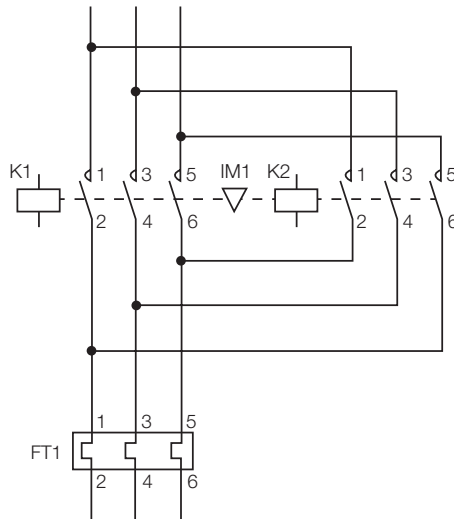
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Reversing Starter

CWB Contactors + RW27-2D Thermal Overload Relay

- Hand / auto / reset button
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Overload relay		Accessories		CWB + RW27-2D		Total weight (kg)
	Reference code	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Mechanical interlock kit	Easy connection busbars	Maximum gL/gG fuse (type 1 coordination) (A)	Maximum gL/gG fuse (type 2 coordination) (A)	
0.28...0.4	CWB9-11-30◆	9	RW27-2D3-D004	0.28...0.4	IM1	EC-R1	2	2	1.02
0.43...0.63	CWB9-11-30◆	9	RW27-2D3-C063	0.43...0.63			2	2	1.02
0.56...0.8	CWB9-11-30◆	9	RW27-2D3-D008	0.56...0.8			2	2	1.02
0.8...1.2	CWB9-11-30◆	9	RW27-2D3-D012	0.8...1.2			4	4	1.02
1.2...1.8	CWB9-11-30◆	9	RW27-2D3-D018	1.2...1.8			6	6	1.02
1.8...2.8	CWB9-11-30◆	9	RW27-2D3-D028	1.8...2.8			6	6	1.02
2.8...4	CWB9-11-30◆	9	RW27-2D3-U004	2.8...4			10	10	1.02
4...6.3	CWB9-11-30◆	9	RW27-2D3-D063	4...6.3			16	16	1.02
5.6...8	CWB9-11-30◆	9	RW27-2D3-U008	5.6...8			20	20	1.02
7...9	CWB9-11-30◆	9	RW27-2D3-U010	7...10			25	25	1.02
8...12	CWB12-11-30◆	12	RW27-2D3-D125	8...12.5			25	25	1.02
10...15	CWB18-11-30◆	18	RW27-2D3-U015	10...15			35	35	1.02
11...17	CWB18-11-30◆	18	RW27-2D3-U017	11...17			40	35	1.02
15...23	CWB25-11-30◆	25	RW27-2D3-U023	15...23			50	50	1.03
22...32	CWB32-11-30◆	32	RW27-2D3-U032	22...32			63	63	1.03
25...38	CWB38-11-30◆	38	RW27-2D3-U040	25...40			90	80	1.03

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.

For other conditions, verify technical data of each individual component.

Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace “◆” by the Appropriate Coil Voltage Code

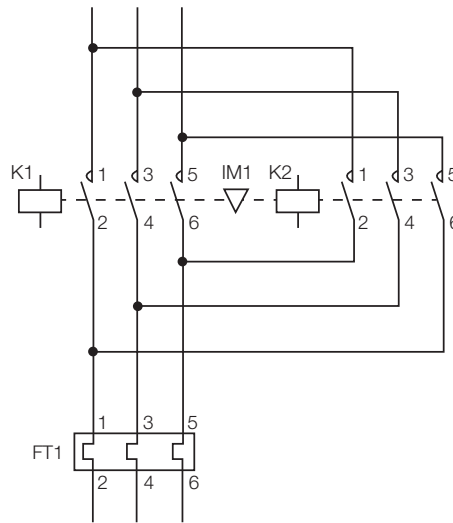
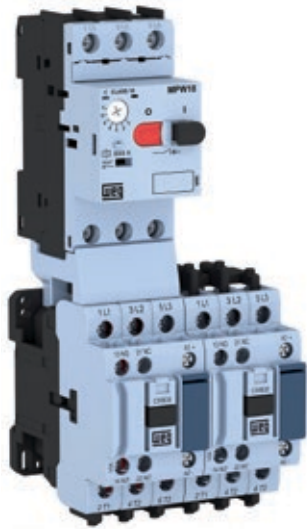
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Reversing Starter

MPW18 Motor Protective Circuit Breaker + CWB Contactors

- Supply disconnecting device acc. to IEC 60204-1
- Pushbutton operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xlu
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories			Total weight (kg)
	K1 = K2	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module	Mechanical interlock kit	Easy connection busbars	
0.1...0.16	CWB9-11-30◆	9	MPW18-3-C016	0.1...0.16	2.0	ECCMP18B38 (CWB - AC coil)	IM1	EC-R1	1.138
0.16...0.25	CWB9-11-30◆	9	MPW18-3-C025	0.16...0.25	3.2				1.138
0.25...0.4	CWB9-11-30◆	9	MPW18-3-D004	0.25...0.4	5.2				1.138
0.4...0.63	CWB9-11-30◆	9	MPW18-3-C063	0.4...0.63	8.1				1.138
0.63...1	CWB9-11-30◆	9	MPW18-3-U001	0.63...1	13				1.138
1...1.6	CWB9-11-30◆	9	MPW18-3-D016	1...1.6	20.8				1.138
1.6...2.5	CWB9-11-30◆	9	MPW18-3-D025	1.6...2.5	32.5				1.138
2.5...4	CWB9-11-30◆	9	MPW18-3-U004	2.5...4	52				1.138
4...6.3	CWB9-11-30◆	9	MPW18-3-D063	4...6.3	81.9				1.138
6.3...10	CWB12-11-30◆	12	MPW18-3-U010	6.3...10	130				1.138
10...16	CWB18-11-30◆	18	MPW18-3-U016	10...16	208				1.138
16...18	CWB18-11-30◆	18	MPW18-3-U020	16...20	260				1.138

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.

For other conditions, verify technical data of each individual component.

Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace “◆” by the Appropriate Coil Voltage Code

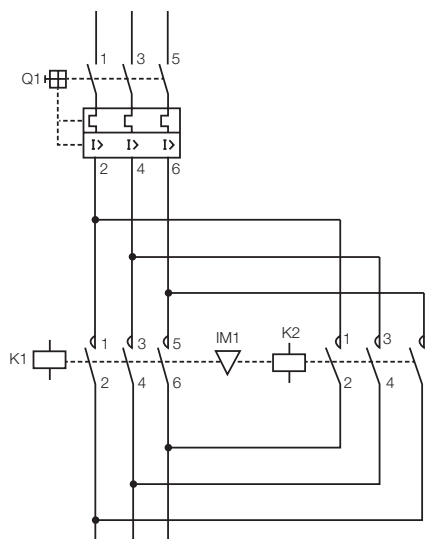
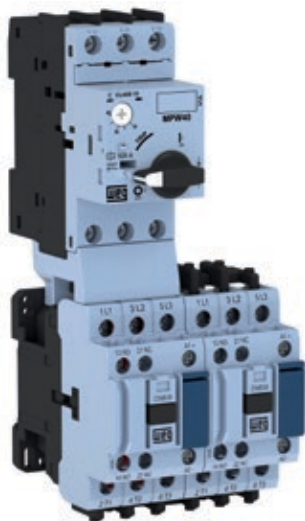
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Reversing Starter

MPW40 Motor Protective Circuit Breaker + CWB Contactors

- Supply disconnecting device acc. to IEC 60204-1
- Rotary handle operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xlu
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories			Total weight (kg)
	K1 = K2	Maximum rated current AC-3 (A)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module	Mechanical interlock kit	Easy connection busbars	
0.1...0.16	CWB9-11-30♦	9	MPW40-3-C016	0.1...0.16	2.0	ECCMP-40B38 (CWB - AC coil)	IM1	EC-R1	1.218
0.16...0.25	CWB9-11-30♦	9	MPW40-3-C025	0.16...0.25	3.2				1.218
0.25...0.4	CWB9-11-30♦	9	MPW40-3-D004	0.25...0.4	5.2				1.218
0.4...0.63	CWB9-11-30♦	9	MPW40-3-C063	0.4...0.63	8.1				1.218
0.63...1	CWB9-11-30♦	9	MPW40-3-U001	0.63...1	13				1.218
1...1.6	CWB9-11-30♦	9	MPW40-3-D016	1...1.6	20.8				1.218
1.6...2.5	CWB9-11-30♦	9	MPW40-3-D025	1.6...2.5	32.5				1.218
2.5...4	CWB9-11-30♦	9	MPW40-3-U004	2.5...4	52				1.218
4...6.3	CWB9-11-30♦	9	MPW40-3-D063	4...6.3	81.9				1.218
6.3...10	CWB12-11-30♦	12	MPW40-3-U010	6.3...10	130				1.218
10...16	CWB18-11-30♦	18	MPW40-3-U016	10...16	208				1.218
16...20	CWB25-11-30♦	25	MPW40-3-U020	16...20	260				1.226
20...25	CWB25-11-30♦	25	MPW40-3-U025	20...25	325				1.226
25...32	CWB32-11-30♦	32	MPW40-3-U032	25...32	416				1.226
32...38	CWB38-11-30♦	38	MPW40-3-U040	32...40	520				1.226

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.
 For other conditions, verify technical data of each individual component.
 Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

To Complete the Reference Code, Replace “♦” by the Appropriate Coil Voltage Code

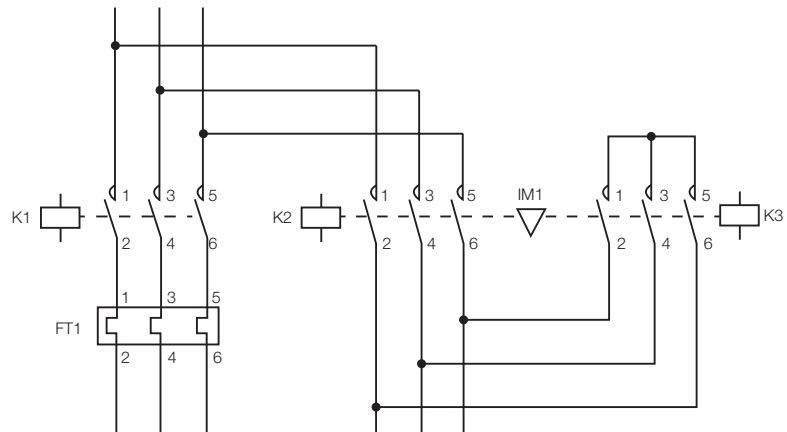
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Star-Delta Starter

CWB Contactor + RW27-2D Thermal Overload Relay

- Hand / auto / reset button
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Overload relay		Accessories			CWB + RW27-2D		Total weight (kg)
	Δ Contactor (K1 and K2)	Y Contactor (K3)	Reference code	Setting overload release I (A)	Mechanical interlock kit	Easy connection busbars	Electronic timer Y - Δ	Maximum gL/gG fuse (type 1 coordination) (A)	Maximum gL/gG fuse (type 2 coordination) (A)	
0.5...0.7	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D004	0.28...0.4	IM1	EC-SD1	RTW ET02-MATE05	2	2	1.12
0.7...1.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-C063	0.4...0.63				2	2	1.12
1.1...1.4	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D008	0.63...0.8				2	2	1.12
1.4...2.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D012	0.8...1.2				4	4	1.12
2.1...3.1	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D018	1.2...1.8				6	6	1.12
3.1...4.8	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D028	1.8...2.8				6	6	1.12
4.8...6.9	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-U004	2.8...4				10	10	1.12
6.9...10.9	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-D063	4...6.3				16	16	1.12
9.6...13.8	CWB9-11-30♦	CWB9-11-30♦	RW27-2D3-U008	5.6...8				20	20	1.12
12.1...17.2	CWB12-11-30♦	CWB9-11-30♦	RW27-2D3-U010	7...10				25	25	1.12
13.8...21.6	CWB18-11-30♦	CWB9-11-30♦	RW27-2D3-D125	8...12.5				25	25	1.12
17.2...25.9	CWB18-11-30♦	CWB9-11-30♦	RW27-2D3-U015	10...15				35	35	1.12
19...29.3	CWB18-11-30♦	CWB12-11-30♦	RW27-2D3-U017	11...17				40	35	1.12
25.9...39.7	CWB25-11-30♦	CWB18-11-30♦	RW27-2D3-U023	15...23				50	50	1.12
37.9...55.2	CWB32-11-30♦	CWB25-11-30♦	RW27-2D3-U032	22...32				63	63	1.13
43.1...65.5	CWB38-11-30♦	CWB25-11-30♦	RW27-2D3-U040	25...40				90	80	1.13

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.

For other conditions verify technical data of each individual component.

Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

Electronic timer relay is not shown in the picture.

To Complete the Reference Code, Replace “♦” by the Appropriate Coil Voltage Code

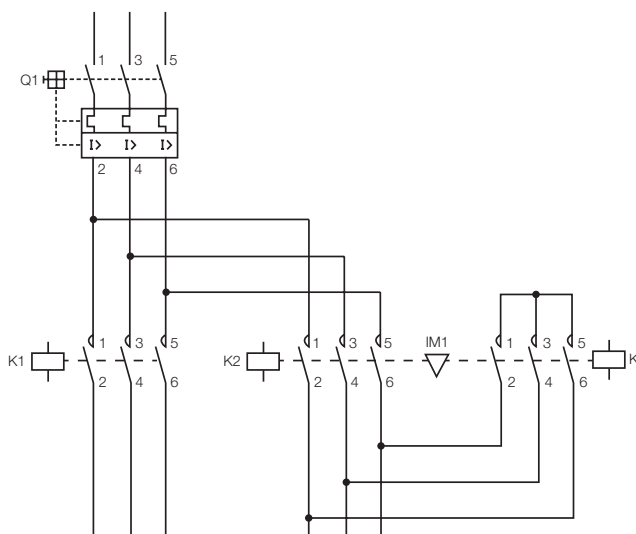
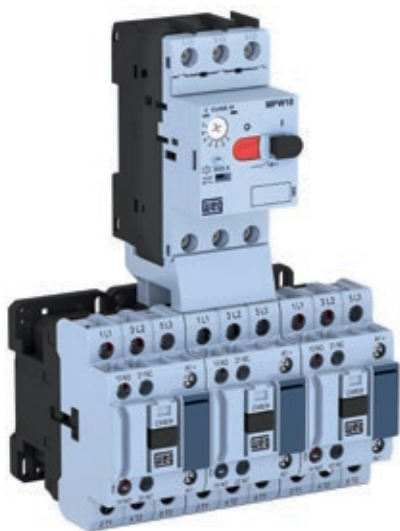
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Star-Delta Starter

MPW18 Motor Protective Circuit Breaker + CWB Contactor

- Supply disconnecting device acc. to IEC 60204-1
- Pushbutton operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xlu
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories				Total weight (kg)
	Δ Contactor (K1 and K2)	Y Contactor (K3)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module	Mechanical interlock kit	Easy connection busbars	Electronic timer Y - Δ	
0.1...0.16	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C016	0.1...0.16	2.0	ECCMP-18B38 (CWB - AC coil)	IM1	EC-SD1	RTW ET 02-MATE05	1.258
0.16...0.25	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C025	0.16...0.25	3.2					1.258
0.25...0.4	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D004	0.25...0.4	5.2					1.258
0.4...0.63	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-C063	0.4...0.63	8.1					1.258
0.63...1	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U001	0.63...1	13					1.258
1...1.6	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D016	1...1.6	20.8					1.258
1.6...2.5	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D025	1.6...2.5	32.5					1.258
2.5...4	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U004	2.5...4	52					1.258
4...6.3	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-D063	4...6.3	81.9					1.258
6.3...10	CWB9-11-30◆	CWB9-11-30◆	MPW18-3-U010	6.3...10	130					1.258
10...16	CWB12-11-30◆	CWB9-11-30◆	MPW18-3-U016	10...16	208	1.258				
12...18	CWB12-11-30◆	CWB9-11-30◆	MPW18-3-U018	12...18	260	1.258				

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.
 For other conditions verify technical data of each individual component.
 Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.
 Electronic timer relay is not shown in the picture.

To Complete the Reference Code, Replace “◆” by the Appropriate Coil Voltage Code

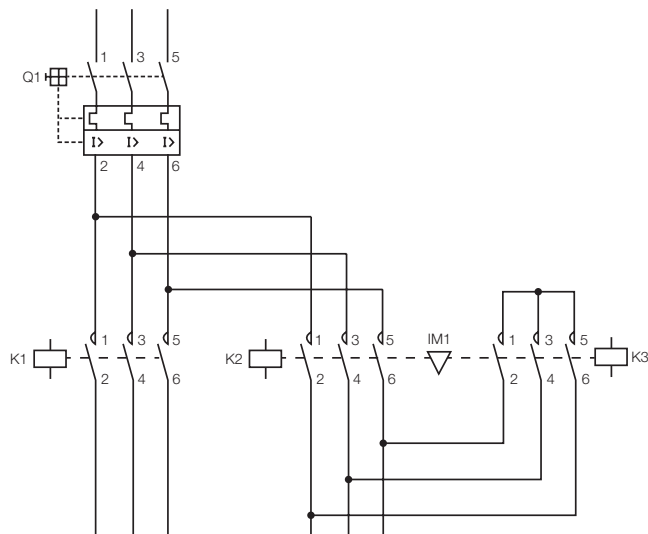
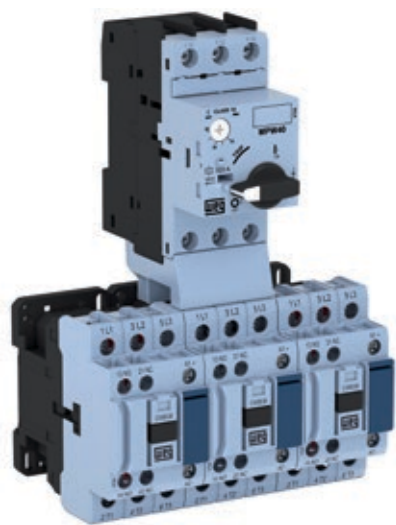
Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

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

Star-Delta Starter

MPW40 Motor Protective Circuit Breaker + CWB Contactor

- Supply disconnecting device acc. to IEC 60204-1
- Rotary handle operated
- Short-circuit protection
- High short-circuit breaking capacity
- Fixed short-circuit release 13xlu
- Overload protection
- Allows assembly on a DIN rail by fixing a single component
- Remote load switching
- Phase-loss sensitivity
- Tripping class 10
- Temperature compensation



Motor current I _n (A)	Contactor AC-3		Motor protective circuit breaker			Accessories				Total weight (kg)
	Δ Contactor (K1 and K2)	Y Contactor (K3)	Reference code	Setting overload release I (A)	Instantaneous magnetic trip I _{rm} (A)	Link module	Mechanical interlock kit	Easy connection busbars	Electronic timer Y - Δ	
0.1...0.16	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-C016	0.1...0.16	2.0	ECCMP-40B38 (CWB - AC coil)				1.34
0.16...0.25	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-C025	0.16...0.25	3.2					1.34
0.25...0.4	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-D004	0.25...0.4	5.2					1.34
0.4...0.63	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-C063	0.4...0.63	8.1					1.34
0.63...1	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-U001	0.63...1	13					1.34
1...1.6	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-D016	1...1.6	20.8					1.34
1.6...2.5	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-D025	1.6...2.5	32.5					1.34
2.5...4	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-U004	2.5...4	52					1.34
4...6.3	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-D063	4...6.3	81.9	ECCMP-40B38DC (CWB - DC coil)	IM1	EC-SD1	RTW ET 02-MATE05	1.34
6.3...10	CWB9-11-30◆	CWB9-11-30◆	MPW40-3-U010	6.3...10	130					1.34
10...16	CWB12-11-30◆	CWB9-11-30◆	MPW40-3-U016	10...16	208					1.34
16...20	CWB12-11-30◆	CWB9-11-30◆	MPW40-3-U020	16...20	260					1.34
20...25	CWB18-11-30◆	CWB9-11-30◆	MPW40-3-U025	20...25	325					1.34
25...32	CWB25-11-30◆	CWB12-11-30◆	MPW40-3-U032	25...32	416					1.34
32...40	CWB25-11-30◆	CWB18-11-30◆	MPW40-3-U040	32...40	520					1.34

Note: Orientative values valid for operational voltages up to 440 V, site altitude up to 2000 m, temperature range of -20 °C...+55 °C and maximum switching frequency up to 15 operations/hour.

For other conditions verify technical data of each individual component.

Find orientative diagrams on pages D-12 to D-14 and information related to the motor current on pages D-20 and D-21.

Electronic timer relay is not shown in the picture.

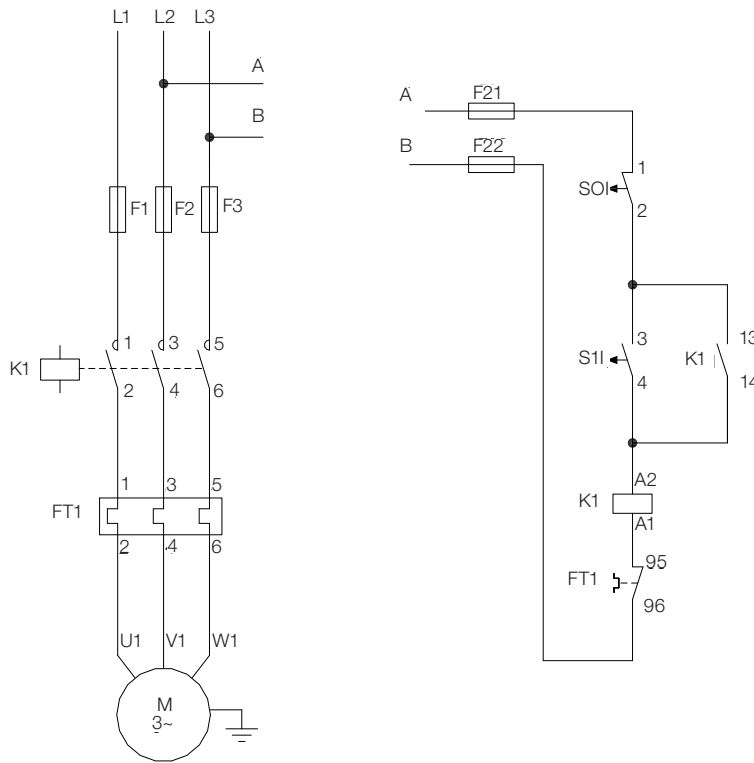
To Complete the Reference Code, Replace “◆” by the Appropriate Coil Voltage Code

Coil voltage code	D02	D07	D13	D15	D17	D77	D23	D24	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	120	127	208	220	230	240	380	400	415	440

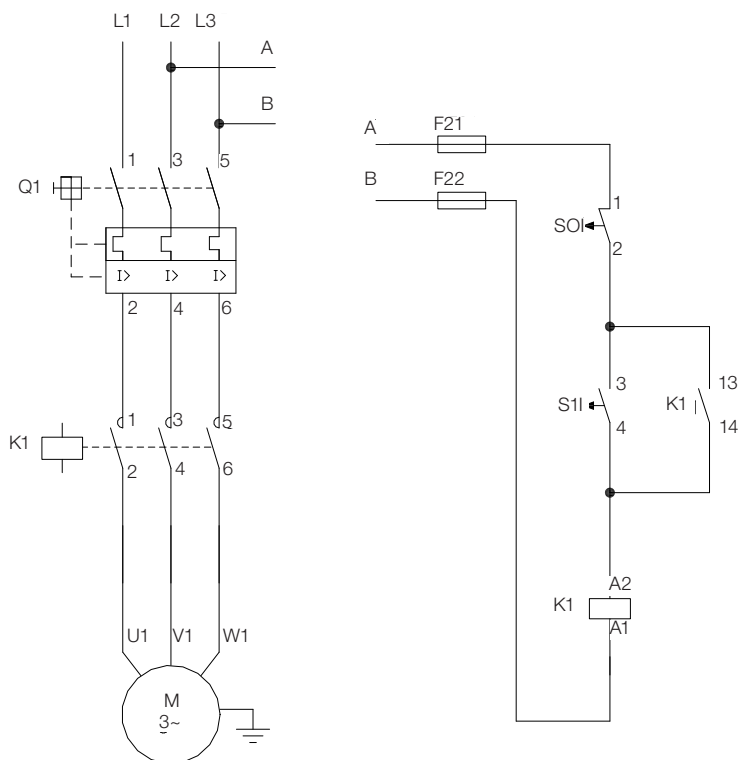
Coil voltage code	C02	C03	C07	C09	C12	C13	C15
V dc	12	24	48	60	110	125	220

Orientative Diagrams

Direct On Line Starters with Overload Relay + Contactor

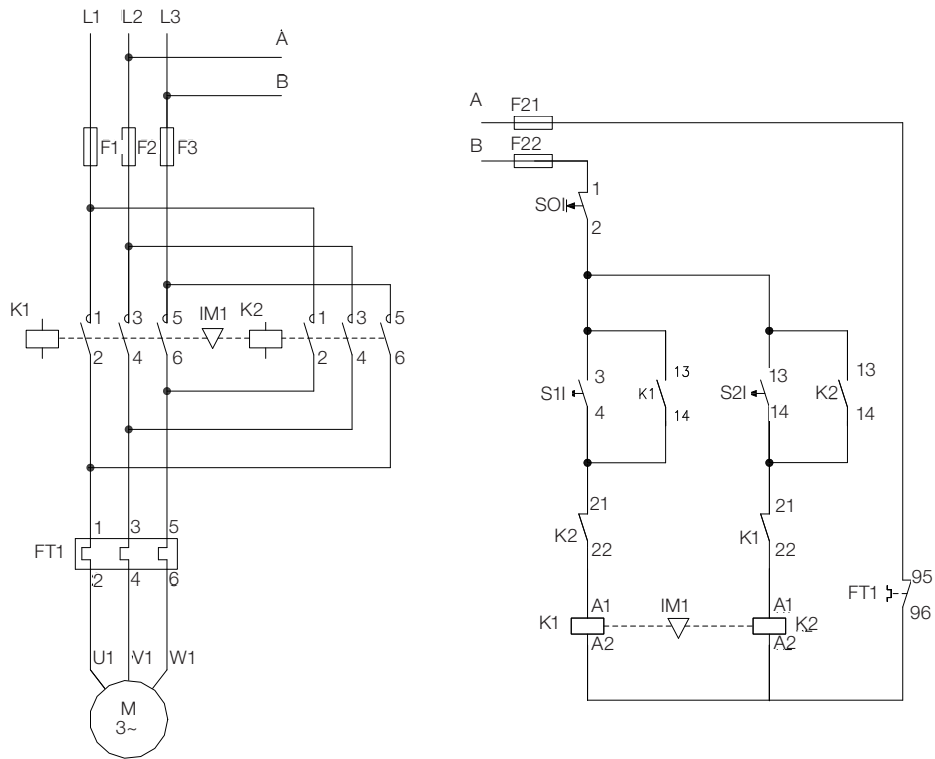


Direct On Line Starters with Motor Protective Circuit Breaker + Contactor

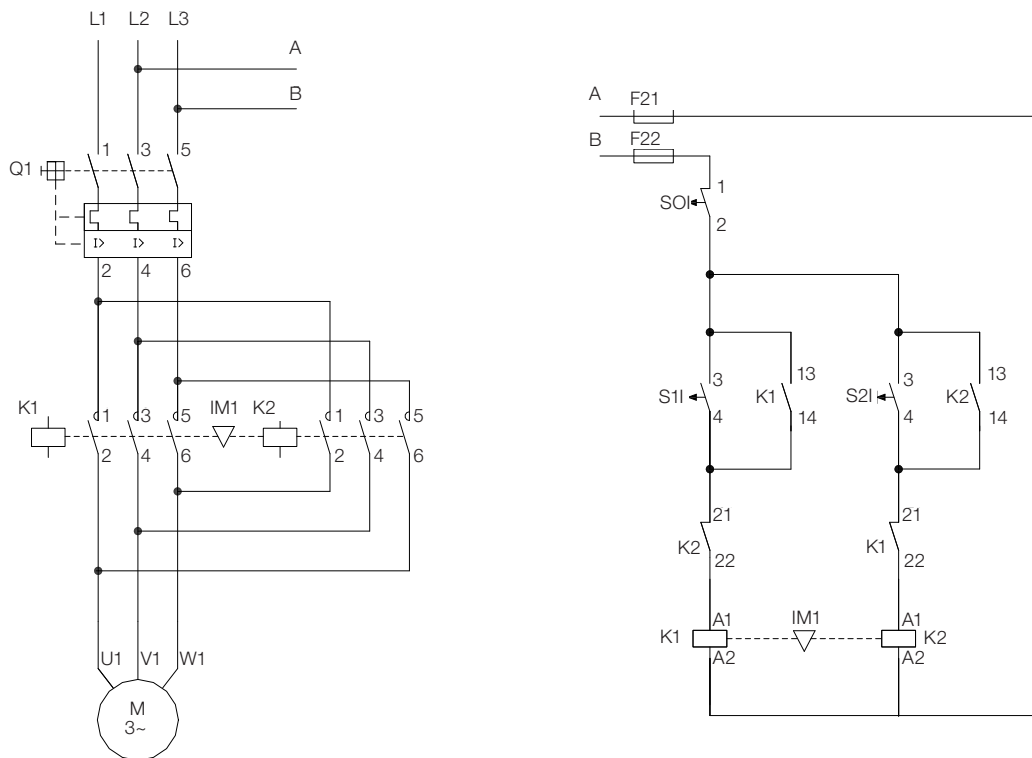


Orientative Diagrams

Reversing Starters with Overload Relay + Contactors

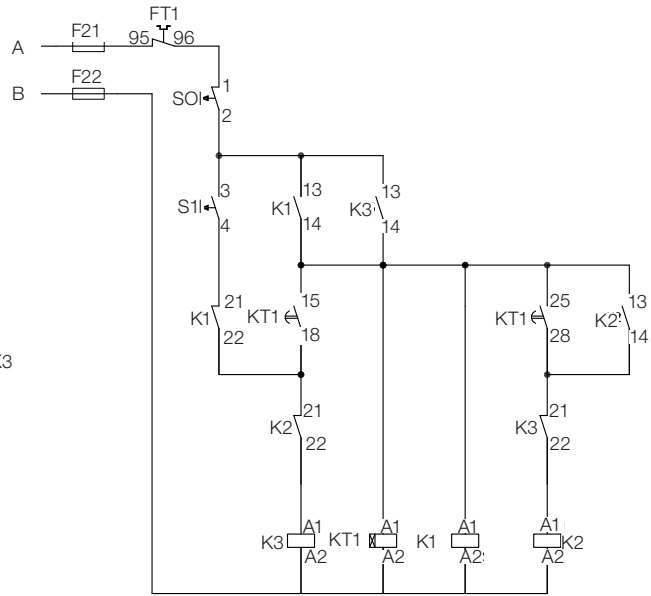
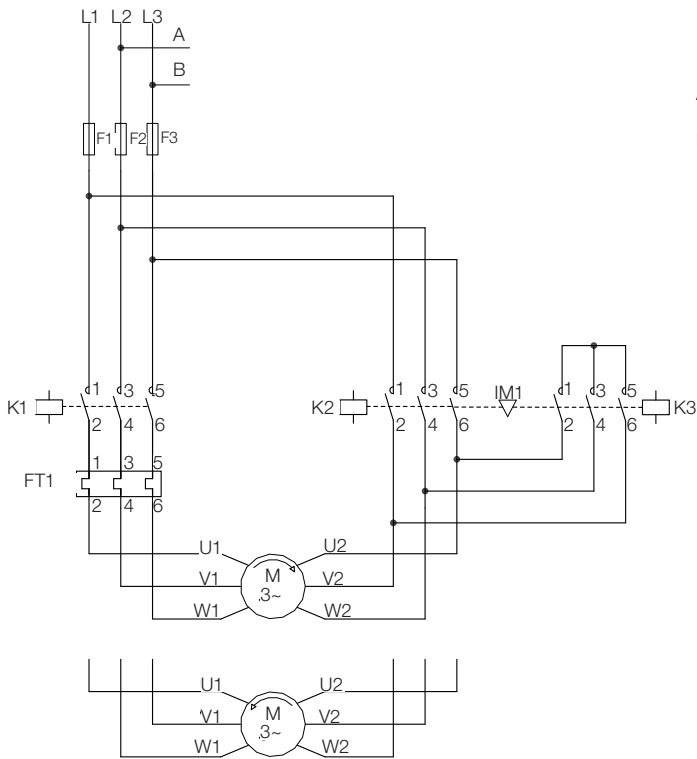


Reversing Starters with Motor Protective Circuit Breaker + Contactors

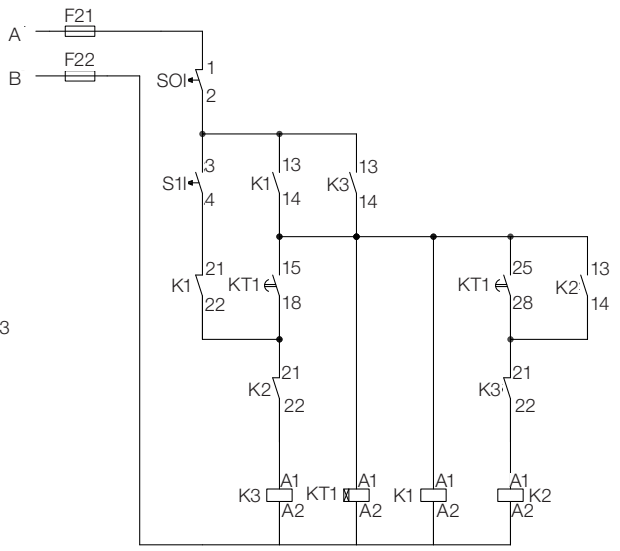
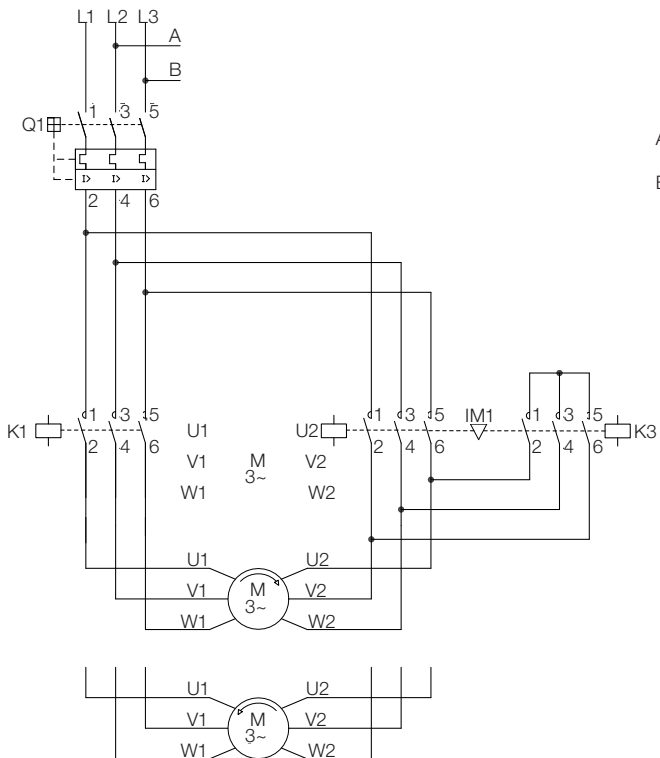


Orientative Diagrams

Star-Delta Starters with Overload Relay + Contactors

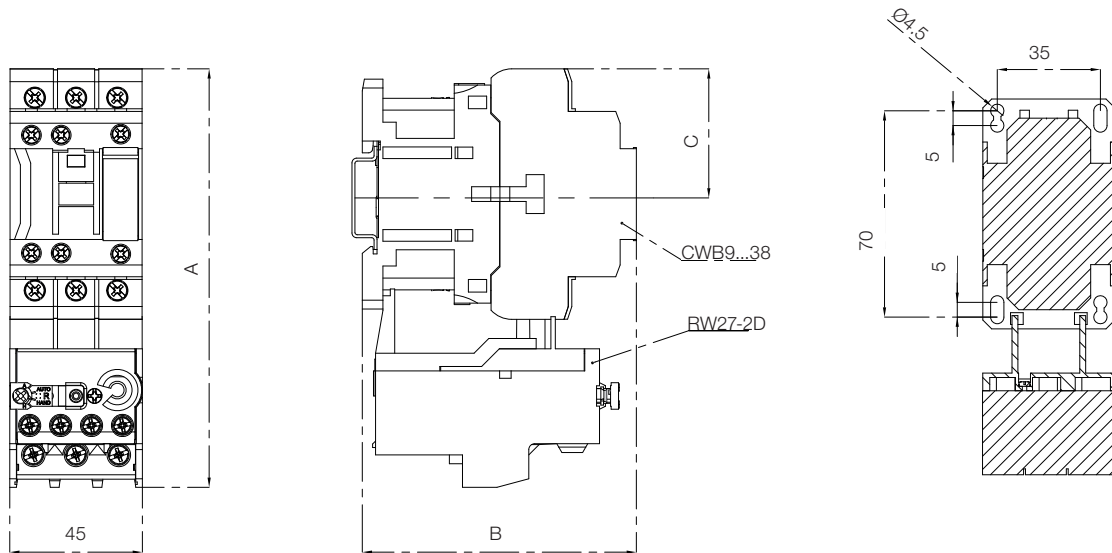


Star-Delta Starters with Motor Protective Circuit Breaker + Contactors



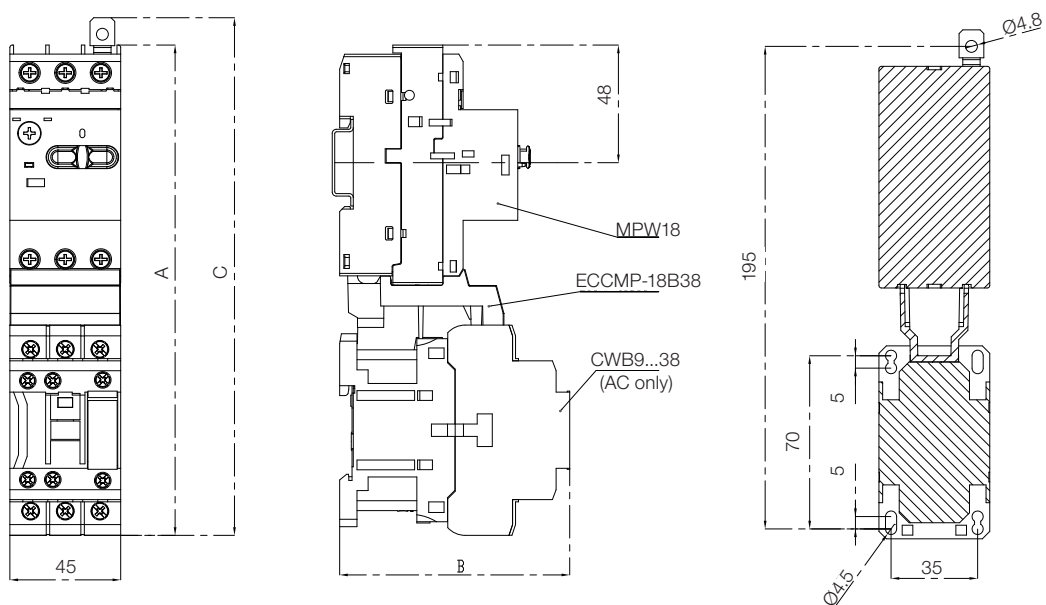
Dimensions (mm)

Direct On Line Starter - CWB + RW27-2D



Dimensions	Coil	A	B	C
CWB9...18	AC	140	89.5	42
CWB25...38		142	93	44
CWB9...18	DC	140	95.7	42
CWB25...38		142	102.2	44

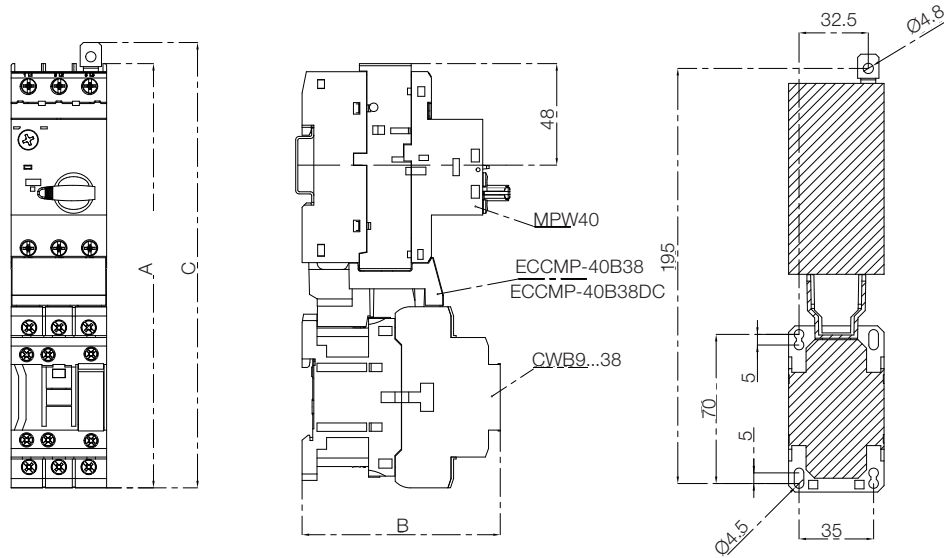
Direct On Line Starter - MPW18 + CWB



Dimensions	Coil	A	B	C
CWB9...18	AC	195	89.5	206
CWB25...38		198	93	209

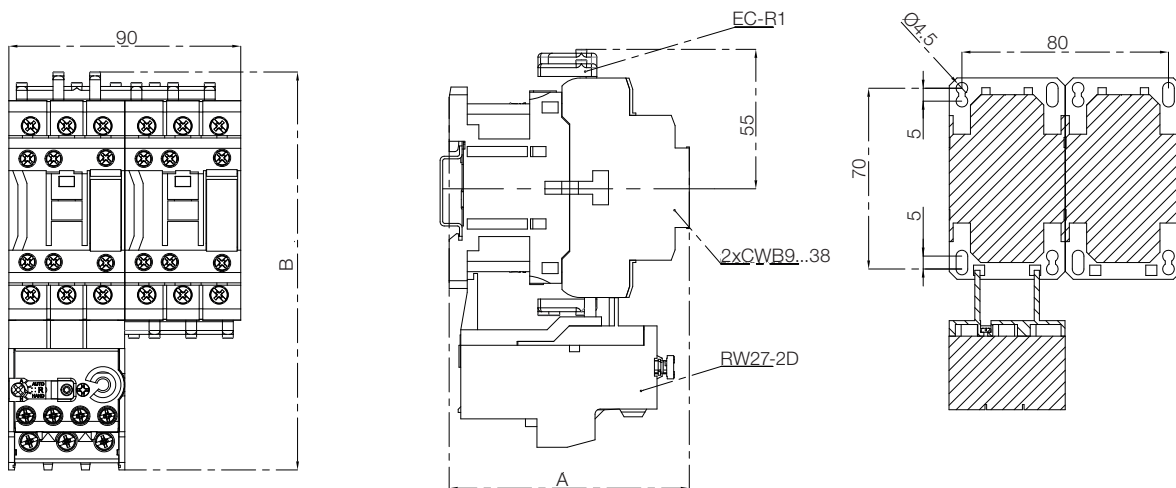
Dimensions (mm)

Direct On Line Starter - MPW40 + CWB



Dimensions	Coil	A	B	C
CWB9...18	AC	196	89.5	206
CWB25...38		199	93	209
CWB9...18	DC	196	95.7	206
CWB25...38		199	102.2	209

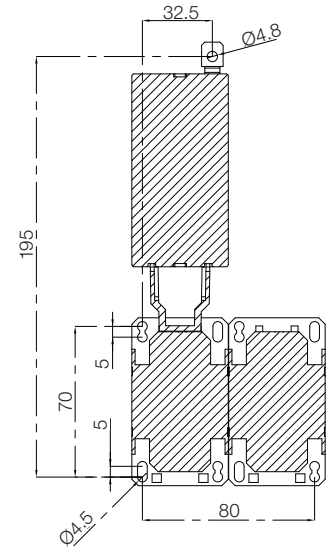
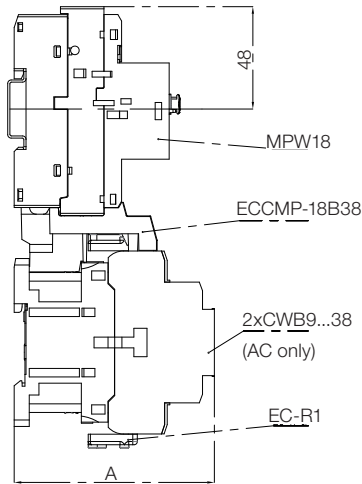
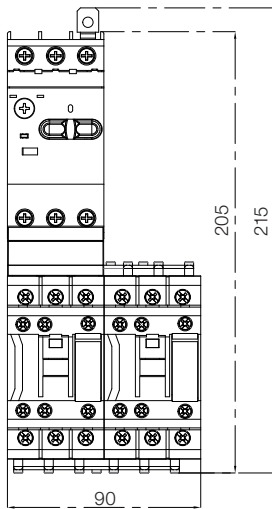
Reversing Starter - CWB + RW27-2D



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93
CWB9...18	DC	95.7
CWB25...38		102.2

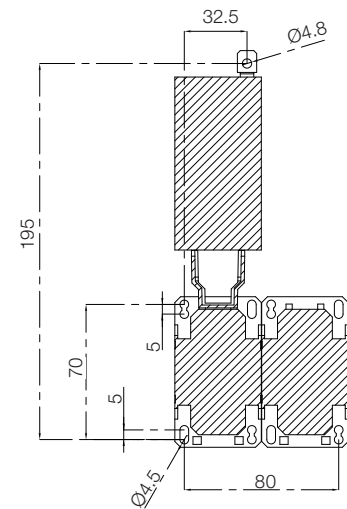
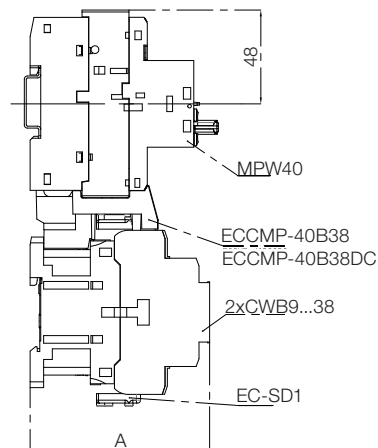
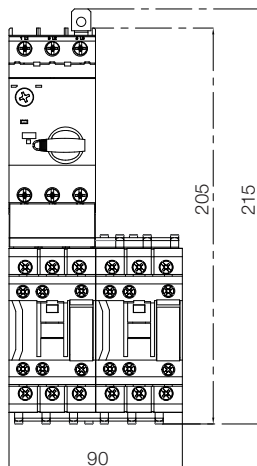
Dimensions (mm)

Reversing Starter - MPW18 + CWB



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93

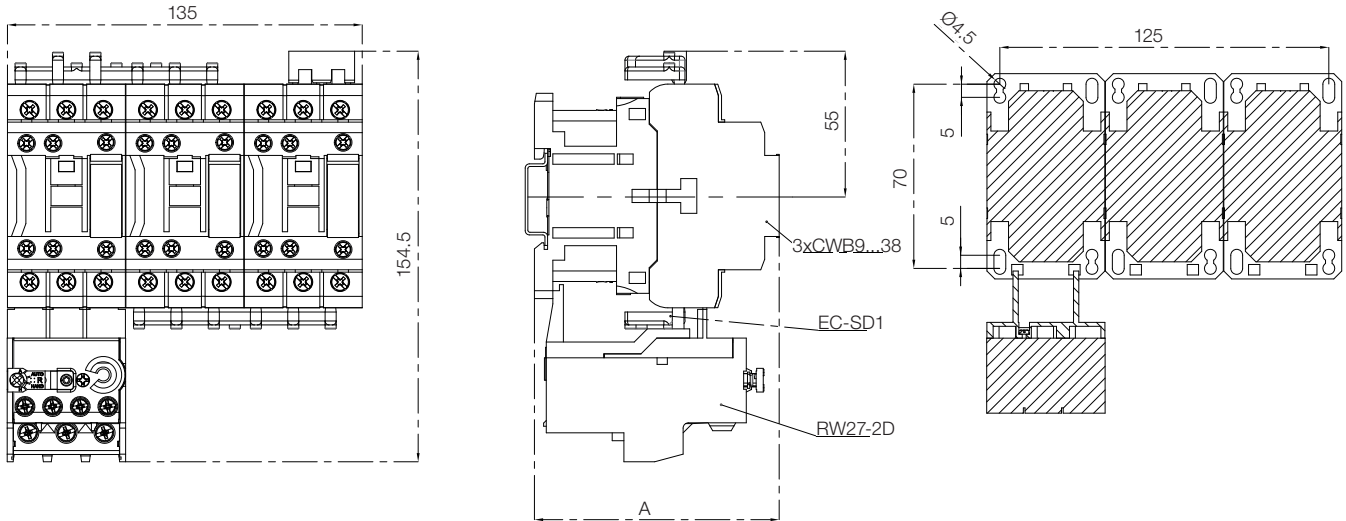
Reversing Starter - MPW40 + CWB



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93
CWB9...18	DC	95.7
CWB25...38		102.2

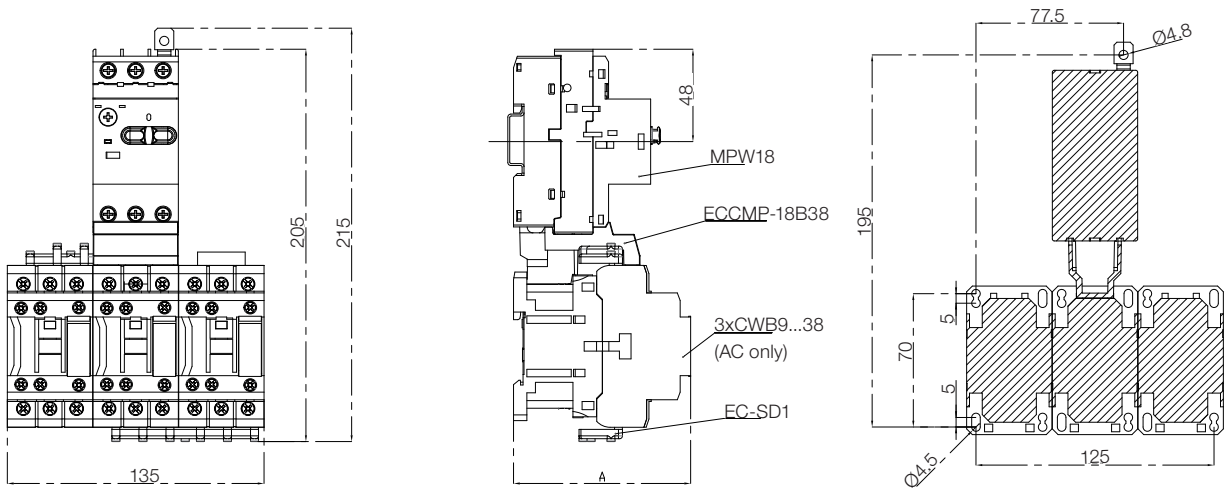
Dimensions (mm)

Star-Delta Starter - CWB + RW27-2D



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93
CWB9...18	DC	95.7
CWB25...38		102.2

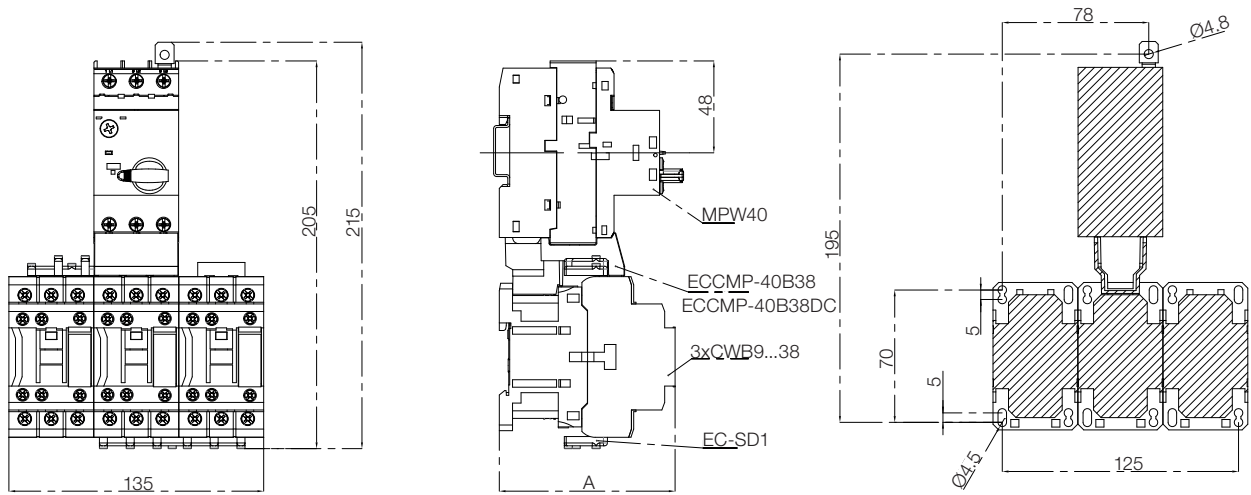
Star-Delta Starter - MPW18 + CWB



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93

Dimensions (mm)

Star-Delta Starter - MPW40 + CWB



Dimensions	Coil	A
CWB9...18	AC	89.5
CWB25...38		93
CWB9...18	DC	95.7
CWB25...38		102.2

A

B

C

D



Orientative Table - Three Phase Motors 50 Hz

$$I_n (A) = \frac{P (W)}{V \times \sqrt{3} \times \cos\phi \times \eta}$$

$I_n (A)$ = rated current
 $P (W)$ = power
 V = rated voltage
 $\cos\phi$ = power factor
 η = efficiency



Output		Rated current I_n						Locked rotor current (I/I _n)	Locked rotor time	Frame	Efficiency (%)			Power factor		
kW	HP	220 V	230 V	380 V	400 V	415 V	440 V				50%	75%	100%	50%	75%	100%
0.12	0.16	0.69	0.66	0.40	0.38	0.37	0.35	3.9	51s	63	55.0	58.0	59.0	0.54	0.67	0.77
0.18	0.25	1.08	1.03	0.62	0.59	0.57	0.54	4.1	40s	63	53.0	59.0	61.0	0.50	0.63	0.72
0.25	0.33	1.42	1.36	0.82	0.78	0.75	0.71	4.5	68s	71	59.0	65.0	66.0	0.49	0.62	0.71
0.37	0.50	1.92	1.84	1.11	1.06	1.02	0.96	4.3	48s	71	63.0	66.0	68.0	0.50	0.64	0.74
0.55	0.75	2.38	2.28	1.38	1.31	1.26	1.19	6	18s	80	72.0	73.8	74.0	0.60	0.73	0.82
0.75	1.00	2.96	2.83	1.71	1.63	1.57	1.48	6	15s	80	79.0	79.6	79.8	0.63	0.76	0.81
1.10	1.50	4.36	4.17	2.52	2.40	2.31	2.18	6.5	14s	90S	81.0	81.8	81.8	0.62	0.75	0.81
1.50	2.00	5.93	5.67	3.43	3.26	3.14	2.96	6.3	10s	90L	81.5	83.0	83.0	0.57	0.71	0.80
2.20	3.00	8.44	8.07	4.88	4.64	4.47	4.22	7	11s	100L	83.0	84.5	84.5	0.60	0.73	0.81
3.00	4.00	11.19	10.70	6.48	6.15	5.93	5.59	6.5	14s	100L	85.0	85.6	85.6	0.63	0.75	0.82
4.00	5.50	15.16	14.50	8.78	8.34	8.04	7.58	6.6	13s	112M	86.0	86.7	86.7	0.62	0.74	0.80
5.50	7.50	19.1	18.3	11.1	10.5	10.1	9.6	7.3	8s	132S	87.5	88.0	88.1	0.68	0.80	0.86
7.50	10.00	25.6	24.5	14.8	14.1	13.6	12.8	7.2	8s	132M	88.7	89.0	89.0	0.71	0.81	0.86
9.20	12.50	31.5	30.1	18.2	17.3	16.7	15.7	7.7	7s	132M	89.2	89.5	89.5	0.69	0.80	0.85
11.00	15.00	38.6	36.9	22.3	21.2	20.5	19.3	6.4	10s	160M	89.0	90.2	90.2	0.65	0.76	0.83
15.00	20.00	52.2	49.9	30.2	28.7	27.7	26.1	6.2	10s	160L	90.6	91.0	91.0	0.66	0.76	0.83
18.50	25.00	63.8	61.0	36.9	35.1	33.8	31.9	6.6	14s	180M	91.5	91.8	91.6	0.68	0.78	0.83
22.00	30.00	73.6	70.4	42.6	40.5	39.0	36.8	6.8	15s	180L	92.2	92.5	92.3	0.70	0.80	0.85
30.00	40.00	102.1	97.7	59.1	56.2	54.1	51.1	6.3	16s	200L	92.6	93.0	92.8	0.68	0.78	0.83
37.00	50.00	121.3	116.0	70.2	66.7	64.3	60.6	6.6	12s	225S/M	93.0	93.2	93.2	0.74	0.83	0.86
45.00	60.00	146.4	140.0	84.7	80.5	77.6	73.2	6.8	10s	225S/M	93.2	93.7	93.6	0.74	0.83	0.86
55.00	75.00	176.7	169.0	102.3	97.2	93.7	88.3	6.4	14s	250S/M	93.6	93.9	94.0	0.75	0.84	0.87
75.00	100.00	241.5	231.0	139.8	132.8	128.0	120.8	7.2	22s	280S/M	93.8	94.4	94.4	0.74	0.83	0.86
90.00	125.00	287.5	275.0	166.4	158.1	152.4	143.8	7.2	20s	280S/M	94.1	94.7	94.7	0.76	0.84	0.87
110.00	150.00	349.2	334.0	202.2	192.1	185.1	174.6	7.6	18s	280S/M	94.3	95.0	95.0	0.75	0.83	0.87

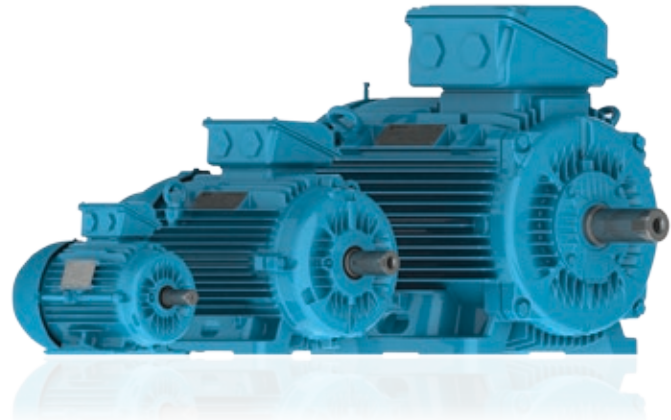
Note: WEG W22 Motor - Cast Iron Frame High Efficiency - IE2.
 4 poles - Standard Frame - IEC Standard - 50 Hz - Duty S1 - Service factor 1.00.



Orientative Table - Three Phase Motors 60 Hz

$$I_n (A) = \frac{P (W)}{V \times \sqrt{3} \times \cos\phi \times \eta}$$

$I_n (A)$ = rated current
 $P (W)$ = power
 V = rated voltage
 $\cos\phi$ = power factor
 η = efficiency



Output		Rated current I_n			Locked rotor current (I/L _n)	Locked rotor time	Frame	Efficiency (%)			Power factor		
kW	HP	220 V	380 V	400 V				50%	75%	100%	50%	75%	100%
0.12	0.16	0.81	0.47	0.40	4.6	37s	63	50.0	57.0	61.0	0.44	0.55	0.64
0.18	0.25	1.04	0.60	0.52	4.7	30s	63	57.0	64.0	67.0	0.47	0.59	0.68
0.25	0.33	1.36	0.79	0.68	5.0	25s	63	62.0	68.0	70.0	0.47	0.60	0.69
0.37	0.50	1.87	1.08	0.94	4.6	35s	71	68.0	71.0	72.0	0.50	0.63	0.72
0.55	0.75	2.7	1.5	1.3	5.1	31s	71	71.0	74.5	75.0	0.50	0.63	0.72
0.75	1.00	3.0	1.7	1.5	7.3	16s	80	79.0	82.0	82.6	0.61	0.72	0.80
1.10	1.50	4.4	2.5	2.2	7.5	16s	90S	81.0	83.5	84.0	0.57	0.70	0.78
1.50	2.00	6.0	3.5	3.0	7.1	11s	90S	81.0	83.5	84.2	0.57	0.70	0.78
2.20	3.00	8.1	4.7	4.1	7.4	11s	L90L	86.0	86.5	87.5	0.61	0.74	0.81
3.00	4.00	11.1	6.4	5.6	6.7	16s	100L	86.4	87.2	87.5	0.61	0.74	0.81
3.70	5.00	13.8	8.0	6.9	8.0	11s	100L	85.0	87.0	88.0	0.59	0.72	0.80
4.50	6.00	16.5	9.6	8.3	6.2	19s	112M	88.0	88.5	88.5	0.62	0.74	0.81
5.50	7.50	20.4	11.8	10.2	6.3	15s	112M	88.4	89.1	90.0	0.59	0.72	0.79
7.50	10.00	25.8	14.9	12.9	7.9	12s	132S	90.0	90.8	91.0	0.66	0.78	0.84
9.20	12.50	31.6	18.3	15.8	8.0	9s	132M	90.0	90.8	91.0	0.67	0.79	0.84
11.00	15.00	37.0	21.4	18.5	8.2	8s	132M/L	90.5	91.2	91.7	0.67	0.79	0.85
15.00	20.00	52.6	30.5	26.3	6.8	11s	160M	91.0	92.4	92.4	0.64	0.75	0.81
18.50	25.00	64.6	37.4	32.3	6.8	10s	160L	92.0	92.8	92.8	0.64	0.75	0.81
22.00	30.00	74.0	42.8	37.0	6.4	19s	180M	92.5	92.8	93.0	0.71	0.81	0.84
30.00	40.00	99.2	57.4	49.6	6.2	18s	200M	92.7	93.2	93.4	0.72	0.81	0.85
37.00	50.00	122	70.6	61	6.2	14s	200L	93.0	93.2	93.6	0.72	0.80	0.85
45.00	60.00	146	84.5	73	7.2	12s	225S/M	93.5	93.7	94.1	0.76	0.83	0.86
55.00	75.00	176	102	88	7.2	12s	225S/M	93.9	94.2	94.4	0.77	0.84	0.87
75.00	100.00	244	141	122	7.2	12s	250S/M	94.0	94.5	94.6	0.71	0.81	0.85
90.00	125.00	292	169	146	7.2	20s	280S/M	94.0	94.8	94.9	0.73	0.82	0.85
110.00	150.00	352	204	176	7.3	18s	280S/M	94.3	94.8	95.2	0.75	0.83	0.86

Note: WEG W22 Motor - Cast Iron Frame High Efficiency - IE2.
 4 poles - Standard Frame - IEC Standard - 60 Hz - Duty S1 - Service factor 1.00.

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