Contactors and Overload Relays

Motor Switching and Protection







Contactors and Overload Relays

Summary

Contactors - Overview	06
Compact Contactors	10
Compact Contactors - Accessories	18
Compact Contactors - Technical Data	21
Compact Contactors - Dimensions	31
Power Contactors	33
Power Contactors - Accessories and Spare Parts	43
Power Contactors - Technical Data	50
Power Contactors - Dimensions	67
Overload Relays	74
Overload Relays - Technical Data	80
Overload Relays - Dimensions	82



Contactors and Overload Relays

CWM and RW - Contactors and Overload Relays

- Complete line from 9 to 800 A (AC-3)
- 3-pole and 4-pole versions
- Quick mounting on 35 mm DIN rail or screw mounting
- Coils available in AC and DC voltage
- Direct mounting on overload relays up to 105 A
- Large accessory range
- Star-delta and reversing wiring kits (easy connection) allows fast mounting and reduced space in the panel
- Overload relays with phase failure sensitivity, according to IEC 60947-4-1 and tripping class 10
- Special contactors for capacitor switching available
- Certifications: UL, CE, RCC, IRAM
- CWM112 to 800 and RW117 to 420 are designed for exclusively industrial and professional use

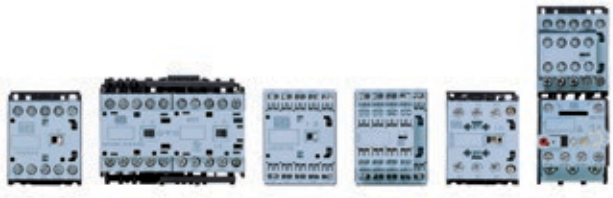




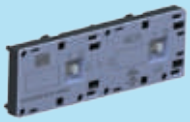
Contactors and Overload Relays

CWC0 - Compact Contactors

- AC-3 operation up to 22 A
- Spring terminal version available up to 12 A (AC-3)
- Quick mounting on 35 mm DIN rail or screw mounting
- Suitable for operation under AC-4 duty
- Built-in auxiliary contacts up to 10 A (AC-15)
- Low-consumption DC coil allows direct connection with PLCs output
- Direct mounting on overload relays
- Compact contactors CWC07 to CWC016 AC and DC coil with the same dimensions
- Fast mounting (clip on) of surge suppressors
- Miniature eletronic timing with right-side fast mounting
- Front mounting and quick assembly of mechanical interlock and latch block
- Certifications: UL, CE, RCC, IRAM



Overview

Reference	3 poles	CWC07	CWC09	CWC012	CWC016	CWC025
Rated operational power[1]						
220/230 V ac	kW / hp	1.5 / 2	2.2 / 3	3 / 4	4 / 5	5.5 / 7.5
380 V ac	kW / hp	3 / 4	4 / 5	5.5 / 7.5	7.5 / 10	11 / 15
400/415 V ac	kW / hp	3 / 4	4 / 5	5.5 / 7.5	7.5 / 10	11 / 15
440 V ac	kW / hp	3.7 / 5	4.5 / 6	5.5 / 7.5	7.5 / 10	11 / 15
500 V ac	kW / hp	3.7 / 5	4.5 / 6	5.5 / 7.5	7.5 / 10	11 / 15
660/690 V ac	kW / hp	3 / 4	4 / 5	5.5 / 7.5	7.5 / 10	11 / 15
Rated operational current I_e AC-3 ($U_e \leq 440$ V)	A	7	9	12	16	22
Conventional thermal current $I_{th} = I_e$ AC-1	A	18	20	22	22	32
Rated operational current I_e AC-4 ($U_e \leq 440$ V)	A	2.8	3.5	4.5	5	9
Dimensions W x H x D	(mm)	45 x 58 x 52				45 x 48 x 56
Overload relay	A	RW17-1D  0.28...0.4 0.4...0.63 0.56...0.8 0.8...1.2 1.2...1.8 1.8...2.8		2.8...4 4...6.3 5.6...8 7...10 8...12.5 10...15 11...17		RW17-2D  7...10 8...12.5 10...15 11...17 15...23 22...32
Auxiliary contact blocks		 BFC0-20 (2NO) BFC0-22 (2NO + 2NC) BFC0-11 (1NO + 1NC) BFC0-04 (4NC) BFC0-02 (2NC) BFC0-31 (2NO + 1NC) BFC0-40 (4NO) BFC0-13 (1NO + 3NC)				 BFC025-11 (1NO + 1NC) BFC025-20 (2NO) BFC025-02 (2NC) BFC025-22 (2NO + 2NC)
Mechanical interlock		 BICO				–
Timer		 ON-Delay (TECO) OFF-Delay (TDCO) Star-Delta (TETCO)				
Surge suppressor		 RC block: RCC0-1 D49 12-24 V 50/60 Hz RCC0-2 D53 24-48 V 50/60 Hz RCC0-3 D55 50-127 V 50/60 Hz RCC0-4 D63 130-250 V 50/60 Hz RCC0-5 D84 275-380 V 50/60 Hz RCC0-6 D73 400-510 V 50/60 Hz RCAC0 D87 180...230 V 50/60 Hz		Varistor block: VRC0-1 E01 12-48 V 50/60 Hz / 12-60 V dc VRC0-2 E34 50-127 V 50/60 Hz / 60-180 V dc VRC0-3 E50 130-250 V 50/60 Hz / 180-300 V dc VRC0-4 E41 277-380 V 50/60 Hz / 300-510 V dc VRC0-5 D73 400-510 V 50/60 Hz Diode block[3]: DIC0-1 C33 12-600 V dc DIZC0 C26 12...250 V dc		

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Electrical and mechanical interlock;
3) Only available for CWC07 to 16.







CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
2.2 / 3	3 / 4	4.5 / 6	5.5 / 7.5	9.2 / 12.5	11 / 15	15 / 20	18.5 / 25	22 / 30	22 / 30	30 / 40
4 / 5	5.5 / 7.5	7.5 / 10	11 / 15	15 / 20	18.5 / 25	22 / 30	30 / 40	37 / 50	45 / 60	55 / 75
4 / 5	5.5 / 7.5	7.5 / 10	11 / 15	15 / 20	18.5 / 25	22 / 30	30 / 40	45 / 60	55 / 75	55 / 75
4.5 / 6	5.5 / 7.5	9.2 / 12.5	11 / 15	15 / 20	22 / 30	30 / 40	37 / 50	45 / 60	55 / 75	55 / 75
4.5 / 6	5.5 / 7.5	9.2 / 12.5	11 / 15	15 / 20	22 / 30	30 / 40	37 / 50	45 / 60	55 / 75	55 / 75
5.5 / 7.5	7.5 / 10	11 / 15	11 / 15	18.5 / 25	22 / 30	30 / 40	37 / 50	45 / 60	55 / 75	55 / 75
9	12	18	25	32	40	50	65	80	95	105
25	25	32	45	60	60	90	110	110	140	140
5	7	8	12	16	18.5	23	30	37	44	50
45 x 81 x 87 (AC) / 115 (DC)			45 x 81 x 87 (AC) / 117 (DC)	55 x 89 x 98 (AC) / 118 (DC)		66 x 117 x 116			75 x 117 x 126	

RW27-1D



0.28. . .0.4
0.4. . .0.63
0.56. . .0.8
0.8. . .1.2
1.2. . .1.8
1.8. . .2.8
2.8. . .4
4. . .6.3
5.6. . .8
7. . .10
8. . .12.5
10. . .15
11. . .17
15…23
22…32

RW67-1D



25...40
32...50

RW67-2D



25...40
40...57
50...63
57...70
63...80

RW117-1D



63...80
75...97
90...112



BCXMF10 (1NO)
BCXMF01 (1NC)
BCXMFA10 (1NC)
BCXMFR01 (1NC)



BCXML 11 (1NO + 1NC)
BCXML 20 (2NO)
BCXMRL 11 (1NO + 1NC)
BCXMRL 20 (2NO)



BLIM9-105
BLIM.02[2)]

–



RC block:
BAMRC4 D53 24-48 V 50/60 Hz
BAMRC5 D55 50-127 V 50/60 Hz
BAMRC6 D63 130-250 V 50/60 Hz
Diode block:
BAMDI10 C33 12-600 V dc
Varistor block:
BAMV1 D68 270-380 V 50/60 Hz
BAMV2 D73 400-510 V 50/60 Hz



RC block:
BAMRC7 D53 24-48 V 50/60 Hz
BAMRC8 D55 50-127 V 50/60 Hz
BAMRC9 D63 130-250 V 50/60 Hz
Varistor block:
BAMV1 D68 270-380 V 50/60 Hz
BAMV2 D73 400-510 V 50/60 Hz

Overview

Reference	3 Poles	CWM112[1]	CWM150[3]	CWM180[1]	CWM250[1]	CWM300[3]
Rated operational power[4]						
220/230 V ac	kW / hp	30 / 40	45 / 60	55 / 75	75 / 100	90 / 125
380 V ac	kW / hp	55 / 75	75 / 100	90 / 125	132 / 175	150 / 200
400/415 V ac	kW / hp	55 / 75	75 / 100	90 / 125	132 / 175	160 / 220
440 V ac	kW / hp	55 / 75	90 / 125	110 / 150	150 / 200	185 / 250
500 V ac	kW / hp	55 / 75	90 / 125	110 / 150	160 / 220	200 / 270
660/690 V ac	kW / hp	75 / 100	110 / 150	110 / 150	160 / 220	200 / 270
Rated operational current Ie AC-3 ($U_e \leq 440$ V)	A	112	150	180	250	300
Conventional thermal current $I_{th} = I_e$, AC-1	A	180	225	225	350	410
Rated operational current I_e AC-4 ($U_e \leq 440$ V)	A	63	69	73	110	145
Dimensions W x H x D	(mm)	122 x 155 (AC) / 163 (AC/DC) x 147		139 x 180 (AC) / 183 (AC/DC) x 172	148 x 205 x 181	
Overload relays	A	RW117-2D  63...80 75...97 90...112		RW317-1D  100...150 140...215 200...310 275...420		
Auxiliary contact blocks				BCXML11 (1NO + 1NC) BCXML20 (2NO) BCXMRL11 (1NO + 1NC) BCXMRL20 (2NO)		
Mechanical interlock				BLIM112-300		
Surge suppressor[2]		RC block: BAMRC13 D53 24-48 V 50/60 Hz BAMRC14 D56 50-250 V 50/60 Hz Varistor block: BAMV3 D68 270-380 V 50/60 Hz BAMV4 D73 400-510 V 50/60 Hz	–	RC block: BAMRC13 D53 24-48 V 50/60 Hz BAMRC14 D56 50-250 V 50/60 Hz Varistor block: BAMV3 D68 270-380 V 50/60 Hz BAMV4 D73 400-510 V 50/60 Hz	–	

Notes: 1) Available with AC coil or with electronic module - AC/DC;
2) Only applicable for contactors without electronic module;
3) Only with electronic module;
4) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design.

			
CWM400[3]	**CWM500**[3]	**CWM630**[3]	**CWM800**[3]
110 / 150	150 / 200	185 / 250	220 / 300
220 / 300	260 / 350	330 / 450	440 / 600
220 / 300	260 / 350	330 / 450	440 / 600
220 / 300	300 / 400	330 / 450	440 / 600
220 / 300	260 / 350	330 / 450	500 / 700
260 / 350	370 / 500	330 / 450	500 / 700
400	500	630	800
450	580	660	900
300	350	400	630
163 x 243 x 201	285 x 331 x 247		

RW407-1D



400…600
560…840



BCXML11 CWM800 (1NO + 1NC)
BCXMRL11 CWM800 (1NO + 1NC) [4]



BLIM CWM400



BLIM CWM800

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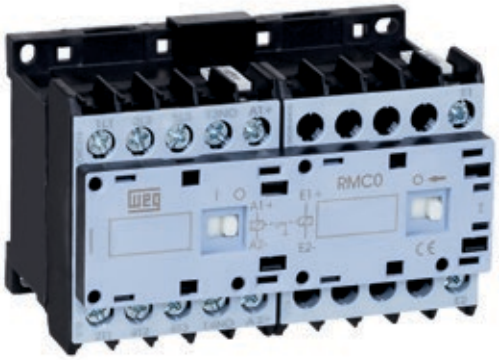
Compact Contactors

The CWC0 compact contactors are offered as a complete solution for switching and controlling motors.



Main Features

- Contactors with screw terminals for AC-3 operation up to 22 A
- Contactors with spring terminals for AC-3 operation up to 12 A (CE Certification only)
- Compact contactors up to 16 A with the same size both for AC and DC coils
- Rated insulation voltage 690 V
- Significantly less consumption and heat dissipation, allowing PLC direct operation without coupling relay
- Wide range of accessories, compact and fast mounting
- Designed according to the standards IEC 60947 and UL 508
- Power and auxiliary contacts comply with IEC 60947-4-1 (mirror contacts) and IEC 60947-5-1 (mechanically linked contacts)
- Mounting through screws or DIN rail 35 mm
- Terminals easy to access and protected against accidental touch (IP20)

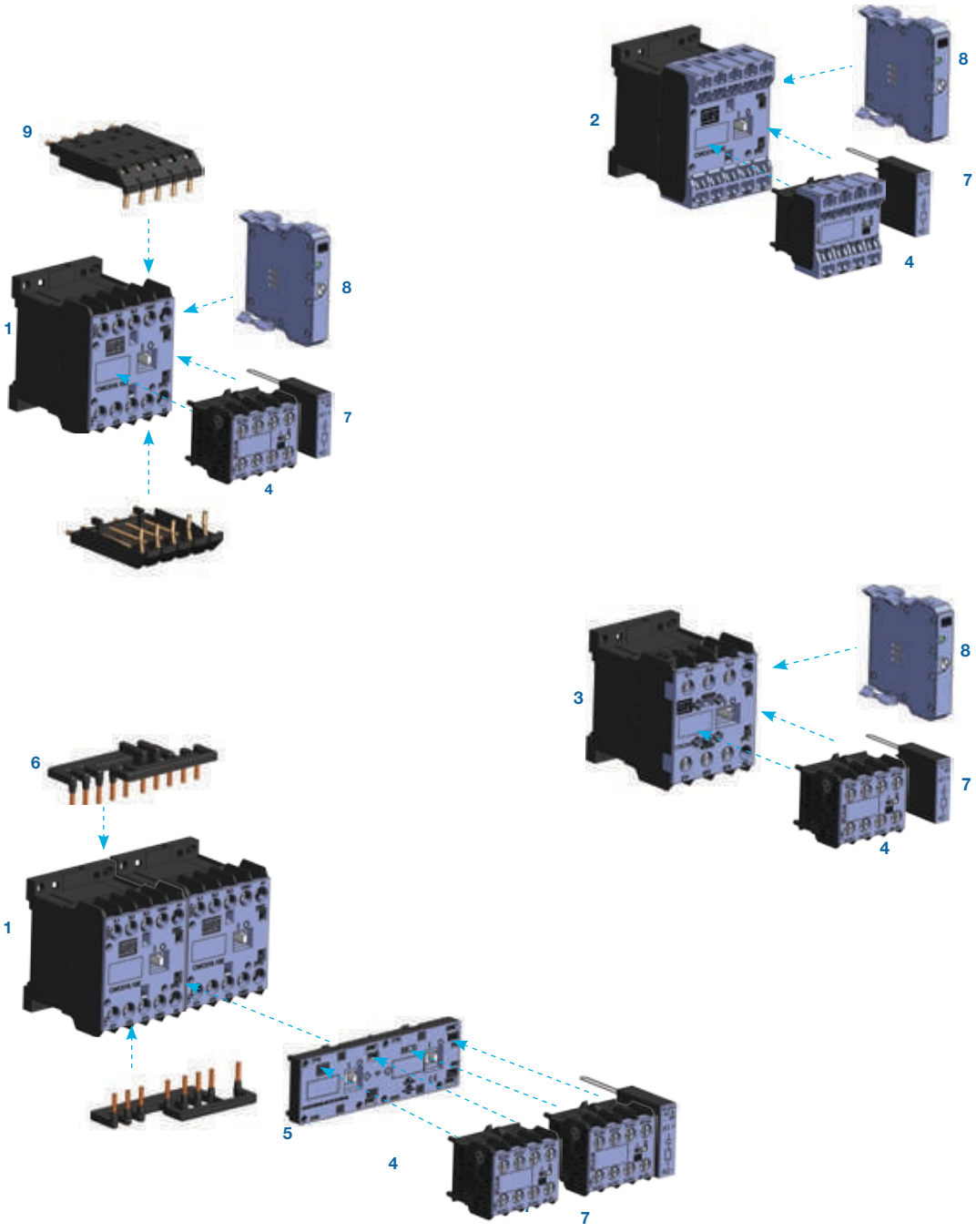






Certifications

Compact Contactors



1 - Compact contactors CWC07...16 (screw terminal)
2 - Compact contactors CWC07...12_S (spring terminal)
3 - Compact contactor CWC025 (screw terminal)
4 - Auxiliary contact block BFC0 - front mounting
5 - Mechanical interlock block BIC0 or latch block RMC0
6 - Easy connection busbars
7 - Surge supressor blocks RCC0 (RC), VRC0 (varistor), DIC0 (diode), RCAC0 (RC), DIZC0 (diode+zener)
8 - Electronic timers TEC0, TDC0 and TETC0
9 - Block module for printed circuit board CIC0

Compact Contactors CWC0







Three-Pole CWC0 Compact Contactors - 7 A to 22 A (AC-3) [4]

Rated operational current I_e AC-3 ($U_e \leq$ 440 V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz[1]						Built-in auxiliary contacts		Reference code		AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	3 4	1 2	Screw terminal	Spring terminal	Weight	
A	A	kW /hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC			kg	
7	18	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWC07-10-30♦ CWC07-01-30♦	CWC07-10-30♦S CWC07-01-30♦S	0.195	0.230
9	20	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWC09-10-30♦ CWC09-01-30♦	CWC09-10-30♦S CWC09-01-30♦S		
12	22	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWC012-10-30♦ CWC012-01-30♦	CWC012-10-30♦S CWC012-01-30♦S		
16	22	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWC016-10-30♦ CWC016-01-30♦	– –		
22	32	5.5 / 7.5	11 / 15	11 / 15	11 / 15	11 / 15	11 / 15	0	0	CWC025-00-30♦	–	0.200	-

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

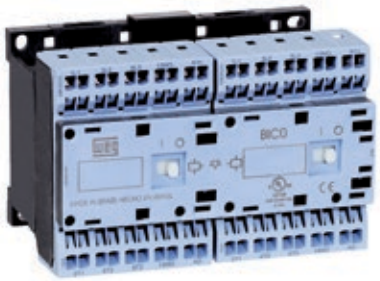
DC coil - Standard consumption coil					
Applicable for CWC07…CWC016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Low consumption coil[3]					
Applicable for CWC07…CWC016 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Other voltages available;
3) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;
4) For selection of accessories, check page A16.

Compact Contactors CWC0





Compact Contactors for Reversing Starter with Mechanical Interlock CWCI0 - 7 A to 16 A (AC-3)[4]

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz[1]						Built-in auxliary contacts		Reference code		AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	3 4 NO	1 2 NC	Screw terminal	Spring terminal	Weight	
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp					kg	
7	18	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWCI07-10-30♦ CWCI07-01-30♦	CWCI07-10-30♦S CWCI07-01-30♦S	0.395	0.480
9	20	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWCI09-10-30♦ CWCI09-01-30♦	CWCI09-10-30♦S CWCI09-01-30♦S		
12	22	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWCI012-10-30♦ CWCI012-01-30♦	CWCI012-10-30♦S CWCI012-01-30♦S		
16	22	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWCI016-10-30♦ CWCI016-01-30♦	– –		

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC coil - Standard consumption coil					
Applicable for CWCI07…CWCI016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Low consumption coil[3]					
Applicable for CWCI07…CWCI016 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Other voltages available;
3) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;
4) For selection of accessories, check page A16.

Compact Contactors CWC0



Three-Pole Compact Contactors for Printed Circuit Boards CWC0 - 7 A to 16 A (AC-3)[4]

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz[1]						Built-in auxiliary contacts		Reference code	AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	•3 / •4	•1 / •2		Weight	
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC		kg	
7	18	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	1 0	0 1	CWC07-10-30♦I CWC07-01-30♦I	0.395	0.480
9	20	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	1 0	0 1	CWC09-10-30♦I CWC09-01-30♦I		
12	22	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWC012-10-30♦I CWC012-01-30♦I		
16	22	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	1 0	0 1	CWC016-10-30♦I CWC016-01-30♦I		

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC coil - Standard consumption coil					
Applicable for CWC07…CWC016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Low consumption coil[3]					
Applicable for CWC07…CWC016 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

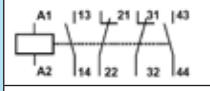
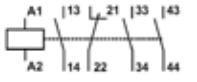
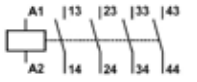
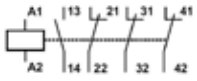
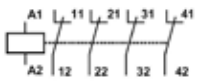
Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Other voltages available;
3) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;
4) For selection of accessories, check page A16.

Compact Contactors CWC0





Control Relay CWCA0[3)]

Rated thermal current I_{th} AC-1 A	Rated current I_e AC-15 A					Circuit diagram	Reference code		AC coil	DC coil
	220 V 230 V	380 V 400 V	415 V 440 V	500 V	660 V 690 V		Screw terminal	Spring terminal	Weight kg	
10	10	6	5	4	2	 22 E	CWCA0-22-00♦	CWCA0-22-00♦S	0.180	0.200
						 31 E	CWCA0-31-00♦	CWCA0-31-00♦S		
						 40 E	CWCA0-40-00♦	CWCA0-40-00♦S		
						 13 E	CWCA0-13-00♦	CWCA0-13-00♦S		
						 04 E	CWCA0-04-00♦	CWCA0-04-00♦S		

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC Coil - Standard consumption					
Applicable for CWCA0 models					
Coil voltage codes	C03	C07	C09	C12	C15
V dc	24	48	60	110	220

DC Coil - Low consumption[2)]					
Applicable for CWCA0 models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

Notes: 1) Other voltages available;
2) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;
3) For selection of accessories, check page A16.

Compact Contactors CWC0





Four-Pole (4P and 2P/2R) Compact Contactors CWC0 up to 22 A (AC-1)[3)]

Conventional thermal current $I_e=I_{th}$ AC-1 A	Main contacts		Reference code		AC coil	DC coil
	NO	NC	Screw terminal	Spring terminal	Weight kg	
18	4	0	CWC07-00-40♦	CWC07-00-40♦S	0.195	0.230
20			CWC09-00-40♦	CWC09-00-40♦S		
22			CWC012-00-40♦	CWC012-00-40♦S		
22			CWC016-00-40♦	–		
18	2	2	CWC07-00-22♦	CWC07-00-22♦S		
20			CWC09-00-22♦	CWC09-00-22♦S		
22			CWC012-00-22♦	CWC012-00-22♦S		
22			CWC016-00-22♦	–		

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

DC Coil - Standard consumption					
Applicable for CWC07...CWC016 four-pole (4NO) models					
Coil voltage codes	C03	C07	C09	C12	C15
V dc	24	48	60	110	220

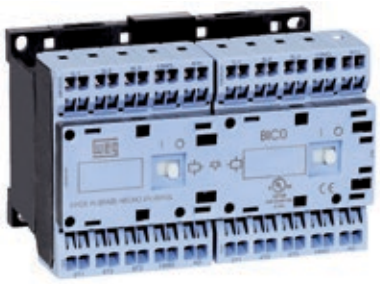
DC Coil - Low consumption[2)]					
Applicable for CWC07...CWC016 four-pole (4NO) models					
Coil voltage codes	L03	L06	L07	L12	L15
V dc	24	42	48	110	220

DC Coil (0.75 x Uc)					
Applicable for CWC07...CWC016 four-pole 2P/2R (2NO+2NC) models					
Coil voltage codes	R03	R06	R07	R12	R15
V dc	24	42	48	110	220

Notes: 1) Other voltages available;
2) The compact contactor CWC0 with low consumption coil allows only 2 additional auxiliary contacts;
3) For selection of accessories, check page A16.

Compact Contactors CWC0





Compact Contactors with Latch Block CWCH0 - 5.6 A to 12.8 A (AC-3)[3) 4)]

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Maximum rated operational power of three-phase motors 50/60 Hz[1)]						Built-in auxiliary contacts		Reference code		AC coil	DC coil
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	3 / 4	1 / 2	Screw terminal	Spring terminal	Weight	
A	A	kW /hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC			kg	
5.6	14.4	1.1 / 1.5	2.2 / 3	2.2 / 3	2.2 / 3	2.2 / 3	3 / 4	1 0	0 1	CWCH7-10-30♦ CWCH7-01-30♦	CWCH7-10-30♦S CWCH7-01-30♦S	0.395	0.480
7.2	16	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3.7 / 5	1 0	0 1	CWCH09-10-30♦ CWCH09-01-30♦	CWCH09-10-30♦S CWCH09-01-30♦S		
9.6	17.6	2.2 / 3	4.5 / 6	4.5 / 6	4.5 / 6	5.5 / 7.5	5.5 / 7.5	1 0	0 1	CWCH012-10-30♦ CWCH012-01-30♦	CWCH012-10-30♦S CWCH012-01-30♦S		
12.8	17.6	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	7.5 / 10	7.5 / 10	1 0	0 1	CWCH016-10-30♦ CWCH016-01-30♦	CWCH016-10-30♦S CWCH016-01-30♦S		

Control Relay with Latch Block - CWCHA0

Rated operational current Ie		Number of auxiliary contacts		Reference code		AC coil	DC coil
AC-14 / AC-15 ($U_e \leq 230$ V)	DC-13 ($U_e \leq 24$ V)	3 / 4	1 / 2	Screw terminal	Spring terminal	Weight	
A	A	NO	NC			kg	
10	6	2	2	CWCHA0-22-00♦	CWCHA0-22-00♦S	0.377	0.444
10	6	3	1	CWCHA0-31-00♦	CWCHA0-31-00♦S		
10	6	4	-	CWCHA0-40-00♦	CWCHA0-40-00♦S		
10	6	1	3	CWCHA0-13-00♦	CWCHA0-13-00♦S		
10	6	-	4	CWCHA0-04-00♦	CWCHA0-04-00♦S		

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2)]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

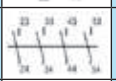
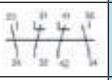
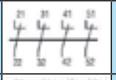
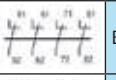
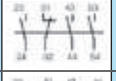
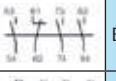
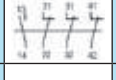
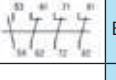
DC coil - Standard consumption coil					
Applicable for CWCH07...CWCH016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

DC coil - Standard consumption coil					
Applicable for CWCH07...CWCH016 models					
Coil voltage codes	C03	C06	C07	C12	C15
V dc	24	42	48	110	220

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change depending on the number of poles and motor design;
2) Other voltages available;
3) For selection of accessories, check page A16;
4) For further information about CWCH0 an its operation, check page A27.

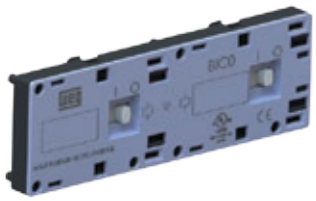
Compact Contactors CWC0 - Accessories

Auxiliary Contact Blocks for CWC07 to CWC025 and CWCA0

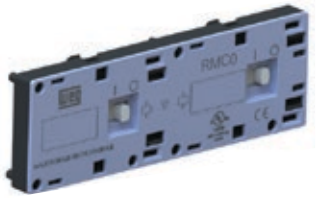
Illustrative picture	For use with	Max. number of contacts/ compact contator	Auxiliary contacts		For use with CWC0 (3 pole)			For use with CWC0 (4 pole)			For use with CWCA0			Weight
			NO	NC	Terminal markings	Reference code		Terminal markings	Reference code		Terminal markings	Reference code		kg
						Screw terminal	Spring terminal		Screw terminal	Spring terminal		Screw terminal	Spring terminal	
 	CWC07...16 CWCA0	2	2	0		BFC0-20	BFC0-20S		BFC4-20	BFC4-20S		BFCA-20	BFCA-20S	0.03
			1	1		BFC0-11	BFC0-11S		BFC4-11	BFC4-11S		BFCA-11	BFCA-11S	
			0	2		BFC0-02	BFC0-02S		BFC4-02	BFC4-02S		BFCA-02	BFCA-02S	
		4	4	0		BFC0-40[1]	BFC0-40S[1]		BFC4-40[1]	BFC4-40S[1]		BFCA-40[1]	BFCA-40S[1]	
			2	2		BFC0-22[1]	BFC0-22S[1]		BFC4-22[1]	BFC4-22S[1]		BFCA-22[1]	BFCA-22S[1]	
			0	4		BFC0-04[2]	BFC0-04S[2]		BFC4-04[2]	BFC4-04S[2]		BFCA-04[2]	BFCA-04S[2]	
			3	1		BFC0-31[1]	BFC0-31S[1]		BFC4-31[1]	BFC4-31S[1]		BFCA-31[1]	BFCA-31S[1]	
			1	3		BFC0-13[2]	BFC0-13S[2]		BFC4-13[2]	BFC4-13S[2]		BFCA-13[2]	BFCA-13S[2]	
	CWC025	2	2	0		BFC025-20		-	-		-	-		
			1	1		BFC025-11		-	-		-	-		
			0	2		BFC025-02		-	-		-	-		
		4	2	2		BFC025-22		-	-		-	-		

1) The compact contactors CWC0 with DC low consumption coils allows only 2 additional auxiliary contacts. For applications that use 4 auxiliary contacts use CWC0 with standard DC coils;
2) Not suitable to be used with CWC0 compact contactors or CWCA0 control relays with DC Low Consumption coils (coil voltage code "L").

Mechanical Interlock for Compact Contactors CWC07 to CWC016 and CWCA0

Illustrative picture	Description	Reference code	Weight kg
	- Front mouting; - For the mechanical interlock using 2 compact contactors (AC or DC coil); - Can be mounted with the following accessories: auxiliary contact block, surge suppressor and timers.	BIC0	0.014

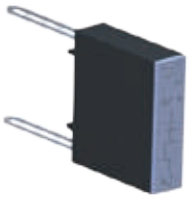
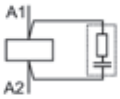
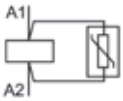
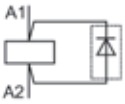
Latch Block for Compact Contactors CWC07 to CWC016 and CWCA0

Illustrative picture	Description	Reference code	Weight kg
	- Front mouting; - For the mechanical interlock using 2 compact contactors (AC or DC coil); - Can be mounted with the following accessories: auxiliary contact block, surge suppressor and timers.	RMC0	0.014

Compact Contactors CWC0 - Accessories

Surge Suppressors for Compact Contactors CWC07 to CWC025 and CWCA0

- Fast front mounting (clip on)
- Can be mounted with all the accessories

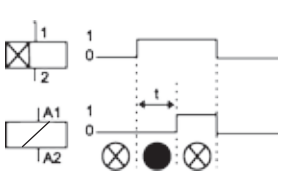
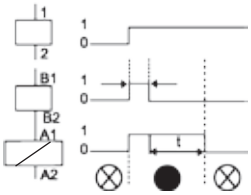
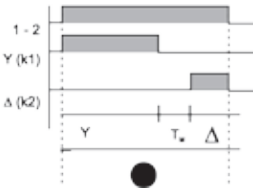
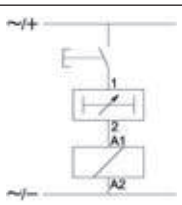
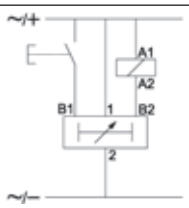
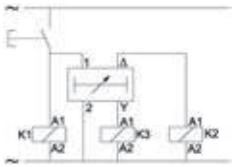
Illustrative picture	For use with	Circuit diagram	Voltages	Reference code	Weight kg
	CWC07...25 CWCA0		12-24 V 50/60 Hz	RCC0-1 D49	0.008
			24-48 V 50/60 Hz	RCC0-2 D53	
			50-127 V 50/60 Hz	RCC0-3 D55	
			130-250 V 50/60 Hz	RCC0-4 D63	
			275-380 V 50/60 Hz	RCC0-5 D84	
			400-510 V 50/60 Hz	RCC0-6 D73	
	CWC07...16 CWCA0		180...230 V 50/60 Hz	RCAC0 D87[1)]	
	CWC07...25 CWCA0		12-48 V 50/60 Hz / 12-60 V dc	VRC0-1 E49	
			50-127 V 50/60 Hz / 60-180 V dc	VRC0-2 E34	
			130-250 V 50/60 Hz / 180-300 V dc	VRC0-3 E50	
			277-380 V 50/60 Hz / 300-510 V dc	VRC0-4 E41	
			400-510 V 50/60 Hz	VRC0-5 D73	
	CWC07...16 CWCA0		12-600 V dc	DIC0-1 C33	
			12...250 V dc	DIZC0 C26	

1) To protect snubbers against overvoltage peaks caused by the switching off of the contactors with AC coils. It is recommended to use in circuits with residual current over than (Us/230 V)x1.4 mA. (Us = Rated voltage).

Eletronic Timing Relay for Compact Contactors CWC07 to CWC025

- Right-side fast mounting
- Up to 30 minutes timing
- LED status indication

Illustrative picture	Function	Timing	Voltages	Reference code		Weight kg
	On-Delay (TEC0)	3 - 0.3 to 3 seconds	24-240 V 50/60 Hz - dc	TEC0-U003S-E05		0.02
		10 - 1 to 10 seconds		TEC0-U010S-E05		
		30 - 3 to 30 seconds		TEC0-U030S-E05		
		60 - 6 to 60 seconds		TEC0-U060S-E05		
		100 - 10 to 100 seconds		TEC0-U100S-E05		
		300 - 30 to 300 seconds		TEC0-U300S-E05		
		1.800 - 180 to 1.800 seconds		TEC0-U030M-E05		
	Off-Delay (TDC0)	-	24-60 V 50/60 Hz - dc 100-240 V 50/60 Hz - dc	24-60 V ac/dc	100-240 V ac/dc	
		3 - 0.3 to 3 seconds		TDC0-U010S-E04	TDC0-U003S-E09	
		10 - 1 to 10 seconds		TDC0-U003S-E04	TDC0-U010S-E09	
		30 - 3 to 30 seconds		TDC0-U030S-E04	TDC0-U030S-E09	
		60 - 6 to 60 seconds		TDC0-U060S-E04	TDC0-U060S-E09	
		100 - 10 to 100 seconds		TDC0-U100S-E04	TDC0-U100S-E09	
		300 - 30 to 300 seconds		TDC0-U300S-E04	TDC0-U300S-E09	
		1.800 - 180 to 1.800 seconds		TDC0-U030M-E04	TDC0-U030M-E09	
	Start-Delta (TETC0)	30 - 3 to 30 seconds	24-28 V 50/60 Hz	TETC0-U030S-D52		
			110-130 V 50/60 Hz	TETC0-U030S-D61		
			220-240 V 50/60 Hz	TETC0-U030S-D66		

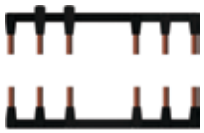
Functions	On-Delay TEC0	Off-Delay TDC0	Start-Delta TETC0
Functionals diagrams Led On Led Off			
Diagrams			

Compact Contactors CWC0 - Accessories

Printed Circuit Board Link Module

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWC07...16 CWCA0	- Direct mounting on the terminals - Allows direct mounting on printed circuit board - Same current capacity (up to 16 A in AC-3 and 22 A in AC-1)	CIC0	0.130

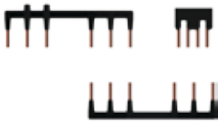
Reversing Wiring Kits for Compact Contactors CWC07 to CWC016



Rated operational current I_e AC - 3 ($U_e \leq 440$ V) A	Max. rated operational power of three-phase motors 50/60 Hz						Compact contactors	Reference code	Weight kg
	220 V 230 V kW /hp	380 V kW / hp	400 V 415 V kW / hp	440 V kW / hp	500 V kW / hp	660 V 690 V kW / hp	K1 = K2		
7	1.5 / 2	3 / 4	3 / 4	3.7 / 5	3.7 / 5	3 / 4	CWC07	CCC0-R (with electrical interlock)	0.13
9	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	4 / 5	CWC09	CCC0-RNI (without electrical interlock)	
12	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	CWC012		
16	4 / 5	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	7.5 / 10	CWC016		



Star-Delta Wiring Kits for Compact Contactors CWC07 to CWC016

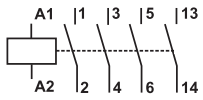
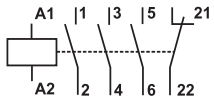
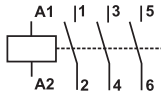
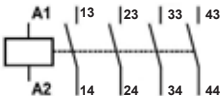
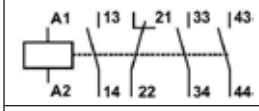
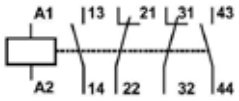
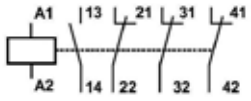
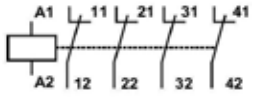
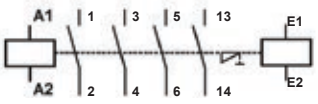
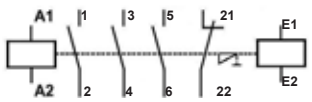
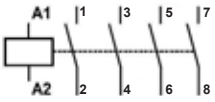
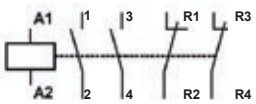


Rated operational current I_e AC - 3 ($U_e \leq 440$ V) A	Max. rated operational power of three-phase motors 50/60 Hz			Compact contactors		Reference code	Weight kg
	220-230 V kW / hp	400-415 V kW / hp	660-690 V kW / hp	K1 = K2	K3		
12	3.7 / 5	5.5 / 7.5	5.5 / 7.5	CWC07	CWC07	CCC0-SD	0.13
18	3.7 / 5	7.5 / 10	9.2 / 12.5	CWC012			
25	5.5 / 7.5	11 / 15	15 / 20	CWC016	CWC09		



Compact Contactors CWC0 - Technical Data

Terminal Markings

Circuit diagram	Auxiliary contacts configuration	Auxiliary contacts		Contactor base reference
		NO	NC	
Three-pole compact contactors with built-in auxiliary contact				
	10	1	0	CWC07-10-30♦ CWC09-10-30♦ CWC012-10-30♦ CWC016-10-30♦
	01	0	1	CWC07-01-30♦ CWC09-01-30♦ CWC012-01-30♦ CWC016-01-30♦
Three-pole compact contactors without built-in auxiliary contact				
	00	0	0	CWC025-00-30♦
Control relay				
	40	4	0	CWCA0-40-00♦
	31	3	1	CWCA0-31-00♦
	22	2	2	CWCA0-40-00♦
	13	1	3	CWCA0-13-00♦
	04	0	4	CWCA0-04-00♦
Control relay with latch block				
	10	1	0	CWCH07-10-30♦ CWCH09-10-30♦ CWCH012-10-30♦ CWCH016-10-30♦
	01	0	1	CWCH07-01-30♦ CWCH09-01-30♦ CWCH012-01-30♦ CWCH016-01-30♦
Circuit diagram	**Main contacts configuration**	**Main contacts**		**Contactor base reference**
		NO	**NC**	
Four-pole compact contactors				
	40	4	0	CWC07-00-40♦ CWC09-00-40 CWC012-00-40♦ CWC016-00-40
	22	2	2	CWC09-00-22♦ CWC012-00-22♦ CWC016-00-22♦

Compact Contactors CWC0 - Technical Data

Terminal Markings

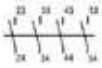
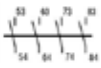
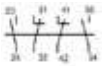
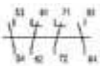
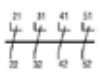
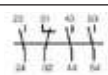
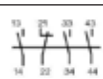
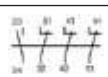
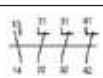
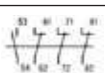
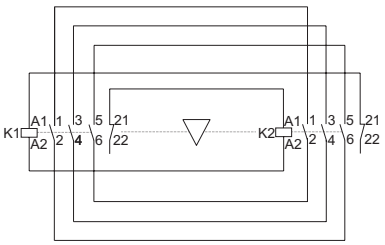
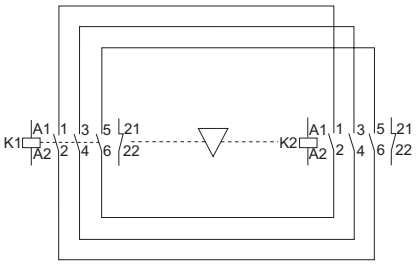
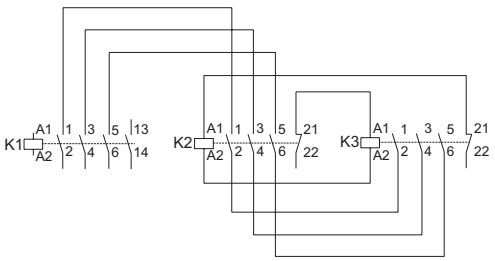
Auxiliary contacts configuration	Contatos auxiliares		For use with (3 poles)		For use with CWC0 (4 poles)		For use with CWCA0	
	NO	NC	Circuit diagram	Reference	Circuit diagram	Reference	Circuit diagram	Reference
Frontal auxiliary contact block								
20	2	0		BFC0-20♦ BFC025-20		BFC4-20♦		BFCA-20♦
11	1	1		BFC0-11♦ BFC025-11		BFC4-11♦		BFCA-11♦
02	0	2		BFC0-02♦ BFC025-02		BFC4-02♦		BFCA-02♦
40	4	0		BFC0-40♦		BFC4-40♦		BFCA-40♦
22	2	2		BFC0-22♦ BFC025-22		BFC4-22♦		BFCA-22♦
04	0	4		BFC0-04♦		BFC4-04♦		BFCA-04♦
31	3	1		BFC0-31♦		BFC4-31♦		BFCA-31♦
13	1	3		BFC0-13♦		BFC4-13♦		BFCA-13♦

Diagram	Components
	CWC07...16 + BIC0 + ECC0-R
	CWC07...16 + BIC0 + ECC0-RNI
	CWC07...16 + ECC0-SD

Compact Contactors CWC0 - Technical Data

General Data

Reference code			CWCA0	CWC07	CWC09	CWC012	CWC016	CWC025
Standards			IEC 60947 / UL 508					
Rated insulation voltage U_i (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	690					
	UL, CSA	(V)	600					
Rated impuse withstand voltage U_{imp} (IEC/EN 60947-1)		(kV)	4					
Rated operational frequency		(Hz)	25...400					
Mechanical lifespan	AC coil Ops x 10^6		10					3
	DC coil Ops x 10^6		12					-
Electrical lifespan	I_e AC-3 Ops x 10^6		-	1.4	1.3	1.2	1.1	0.6
Degree of protection (VDE 0160)	Main circuits		IP20					
	Control circuits and auxiliary contacts		IP20					
Mounting			Screw or DIN rail 35 mm					
Coil terminals			2					
Vibration resistance	Contactor open	(g)	2					
	Contactor closed	(g)	4					
Mechanical shock resistance (½ sinusoid = 11ms)	Contactor open	(g)	6					
	Contactor closed	(g)	10					
Ambient temperature	Operation		-25 °C ...+55 °C					
	Storage		-55 °C ... +80 °C					
Normal values			Up to 3,000 m					
Altitude	90% I_e / 80% U_e		3,000 to 4,000 m					
	80% I_e / 75% U_e		4,000 to 5,000 m					

Control Circuit - Alternating Current (AC)

Reference code			CWCA0, CWC07...16	CWC025
Rated insulation voltage U_i (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	1,000	1,000
	UL, CSA	(V)	600	600
Coils rated voltage 50 Hz		(V)	10...550	10...550
Coils rated voltage 60 Hz		(V)	12...660	12...660
Coils rated voltage 50/60 Hz		(V)	12...660	12...660
Coils rated voltage				
Coil operating limits		(xUs)	0.85...1.1	
Coil 60 Hz	Pick up	(xUs)	0.4...0.76	0.4...0.76
	Drop out	(xUs)	0.25...0.65	0.25...0.65
Coil 50/60 Hz	Pick up	(xUs)	0.5...0.8	0.5...0.8
	Drop out	(xUs)	0.2...0.6	0.2...0.6
Average consumption			1.0 x Us coil cold state	
Coil 60 Hz	Magnetic circuit closed	(VA)	2.5...3.5	10.8....13.2
	Power factor	(cos φ)	0.28	0.32
	Power dissipation per pole	(W)	2.6	-
	Magnetic circuit closing	(VA)	35	72
	Power factor	(cos φ)	0.85	0.93
Coil 50/60 Hz	Magnetic circuit closed	(VA)	2...3	4.56...5.8
	Magnetic circuit closing	(VA)	30	58
Average time	Closing NO contacts	(ms)	8...20	13...16
	Opening NO contacts	(ms)	6...13	13.5...17

Control Circuit - Direct Current (DC)

Reference code			CWCA0, CWC07...16		CWC07...16
Coil type			Conventional	Low consumption	4P (2P/2R)
Rated insulation voltage U_i (pollution degree 3)	IEC/EN 60947-4-1, VDE 0660	(V)	1,000		
	UL, CSA	(V)	600		
Standard voltages		(V)	12...440		
Coil operating limits		(xUs)	0.85...1.1		
	Pick up	(xUs)	0.4...0.7		
	Drop out	(xUs)	0.15...0.4		
Power consumption			1.0 x Us coil cold state		
	Magnetic circuit closed	(W)	2.6...3.7	1.7...2.7	2.9...4
	Magnetic circuit closing	(W)	2.6...3.7	1.7...2.7	2.9...4
Operation time	Closing NO contacts	(ms)	35...45		
	Opening NO contacts	(ms)	7...12		

Compact Contactors CWC0 - Technical Data

Power Circuit

Reference code			CWC07	CWC09	CWC012	CWC016	CWC025
Rated operational current I_e	AC-3 ($U_e \leq 440$ V)	(A)	7	9	12	16	22
	AC-4 ($U_e \leq 440$ V)	(A)	2.8	3.5	4.5	5	9
	AC-1 ($\theta \leq 55$ °C, $U_e \leq 690$ V)	(A)	18	20	22	22	32
Rated operational voltage U_e	IEC/EN 60947-4-1, VDE 0660	(V)	690				
	UL, CSA[1)]	(V)	600				
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	18	20	22	22	32
Making capacity - IEC/EN 60947		(A)	70	90	120	160	250
Breaking capacity IEC/EN 60947	($U_e \leq 400$ V)	(A)	50	72	96	128	200
	(U_e=500 V)	(A)	50	72	96	128	200
	(U_e=690 V)	(A)	35	54	72	96	150
Short-time current (no current flowing during recovery time of 10 min and $\theta \leq 40$ °C)	1 seg	(A)	250	250	250	250	-
	5 seg	(A)	125	125	125	125	-
	10 seg	(A)	95	95	95	95	-
	30 seg	(A)	70	70	70	70	-
	1 min	(A)	50	50	50	50	-
	3 min	(A)	40	40	40	40	-
Protection against short-circuits with fuses (gL/gG)	@600 V - UL/CSA[1)]	(kA)	5				
	Coordination type 1	(A)	35	35	35	35	50
	Coordination type 2	(A)	20	20	25	25	35
Average impedance per pole		(mΩ)	6	6	5	5	6
Average power dissipation per pole	AC-1	(W)	1.9	2.4	2.4	2.4	6.1
	AC-3	(W)	0.3	0.5	0.7	1.3	3.8
Utilization category							
Rated operational current I_e ($\theta \leq 55$ °C)	$U_e \leq 440$ V	(A)	7	9	12	16	22
	$U_e \leq 500$ V	(A)	6.2	7.5	8.8	13	16
	$U_e \leq 690$ V	(A)	4.5	5.5	6.6	10	13
	$U_e \leq 1{,}000$ V	(A)	Not available				
Rated operational power[1)]	220 / 230 V	(kW)	1.5	2.2	3	3.7	5.5
		(cv)	2	3	4	5	7.5
	380 / V	(kW)	3	3.7	5.5	7.5	11
		(cv)	4	5	7.5	10	15
	400 / 415 V	(kW)	3	3.7	5.5	7.5	11
		(cv)	4	5	7.5	10	15
	440 V	(kW)	3.7	4.5	5.5	7.5	11
		(cv)	5	6	7.5	10	15
	500 V	(kW)	3.7	4.5	5.5	7.5	11
		(cv)	5	6	7.5	10	15
	660 / 690 V	(kW)	3	3.7	5.5	7.5	11
		(cv)	4	5	7.5	10	15
Max. electrical operational per hour	600 ops./h	(%)	100	100	100	100	100
	1,200 ops./h	(%)	75	75	75	75	75
	3,000 ops./h	(%)	50	50	50	50	50
Utilization category AC-4							
Rated operational current I_e AC-4 ($U_e \leq 440$ V)		(A)	2.8	3.5	4.5	5	9
Rated operational power[1)] (200,000 operations)	220 / 230 V	(kW)	0.55	0.75	0.75	1.1	2.2
		(cv)	0.7	1	1	1.5	2.9
	380 / 400 V	(kW)	1.1	1.1	1.8	2.2	4
		(cv)	1.5	1.5	2.4	2.9	5.4
	415 V	(kW)	1.1	1.5	2.2	2.2	4.5
		(cv)	1.5	2	2.9	2.9	6
	440 V	(kW)	1.1	1.5	2.2	2.2	4.5
		(cv)	1.5	2	2.9	2.9	6
	500 V	(kW)	1.1	1.5	2.2	2.2	4.5
		(cv)	1.5	2	2.9	2.9	6
	660 / 690 V	(kW)	1.1	1.5	2.2	2.2	4.5
		(cv)	1.5	2	2.9	2.9	6

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

Compact Contactors CWC0 - Technical Data

Power Circuit

Reference code			CWC07	CWC09	CWC012	CWC016	CWC025
			Utilization category AC-1				
			3P (NO) or 4P (4NO)				3P (NO)
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	18	20	22	22	32
Maximum operational current (up to 690 V)	$\theta \leq 40$ °C	(A)	18	20	22	22	32
	$\theta \leq 55$ °C	(A)	18	20	22	22	32
	$\theta \leq 70$ °C	(A)	14.4	16	17.6	17.6	25.6
Maximum operational power $\theta \leq 55$ °C 3-phase resistors	220 / 230 V	(kW)	6.8	7.5	8.3	8.3	12
	380 / 400 V	(kW)	11.5	13	14.5	14.5	21
	415 / 440 V	(kW)	13	14.5	16	16	23
	500 V	(kW)	14.8	16.5	18	18	26
	660 / 690 V	(kW)	20	22	25	25	36
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 the max. operational current at	600 ops./h	(%)	100				
	1,200 ops./h	(%)					
	3,000 ops./h	(%)					
			2P (NO/NC) or 4P (2NO + 2NC)				2P (NO/NC)
Maximum operational power $\theta \leq 55$ °C (resistive load)	220 / 230 V	(kW)	3.9	4.4	4.8	4.8	6.6
	380 / 400 V	(kW)	6.8	7.6	8.4	8.4	11.4
	415 / 440 V	(kW)	7.5	8.4	9.2	9.2	12.5
	500 V	(kW)	8.6	9.5	10.5	10.5	14.5
	660 / 690 V	(kW)	11.8	13.1	14.4	14.4	19.5

UL Power Ratings

Reference code			CWC07	CWC09	CWC012	CWC016	CWC025
General purpose current	(600 V)	(A)	18	20	22	22	30
1-phase	110 / 120 V	(HP)	1/3	1/3	1/2	1	1 1/2
	208 V	(HP)	3/4	1/2	1/2	2	3
	220 / 240 V	(HP)	3/4	1/2	2	2	3
3-phase	110 / 120 V	(HP)	3/4	1	1 1/2	2	3
	200 V	(HP)	1 1/2	2	3	3	5
	220 / 240 V	(HP)	1 1/2	3	3	5	7 1/2
	440 / 480 V	(HP)	5	5	7 1/2	10	15
	550 / 600 V	(HP)	5	7 1/2	7 1/2	10	15

Built-In Auxiliary Contacts

Reference code			CWC07...16	CWCA0
Standards			IEC 60947-5-1, IEC 60947-4-1	
Rated insulation voltage U_i (pollution degree 3)	IEC, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated operational voltage U_e	IEC, VDE 0660	(V)	690	
	UL, CSA	(V)	600	
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	10	
Rated operational current I_e				
AC-15 (IEC 60947-5-1)	$U_e \leq 240$ V	(A)	10	
	380-400 V	(A)	6	
	415-440 V	(A)	5	
	500 V	(A)	4	
	660-690 V	(A)	2	
UL, CSA			A600	
DC-13 (IEC 60947-5-1)	24 V	(A)	6	
	48 V	(A)	4	
	110 V	(A)	2	
	220 V	(A)	0.7	
UL, CSA			Q600	
Making capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	10 x I_e (AC-15)	
Breaking capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	10 x I_e (AC-15)	
Max.fuse class gL-gG without welding (short-circuit protection) gL/gG		(A)	10	
Control circuit reliability		(V / mA)	17 / 5	
Electrical endurance		(millions operations)	1	
Mechanical endurance		(millions operations)	10	

Compact Contactors CWC0 - Technical Data

Auxiliary Contacts

Reference code			BFC0 / BFC025
Standards			IEC 60947-5-1, IEC 60947-4-1
Rated insulation voltage U_i (pollution degree 3)	IEC, VDE 0660	(V)	1,000
	UL, CSA[1)]	(V)	600
Rated operational voltage U_e	IEC, VDE 0660	(V)	690
	UL, CSA[1)]	(V)	600
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	10
Rated operational current I_e			
AC-15 (IEC 60947-5-1)	$U_e \leq 240$ V	(A)	10
	380-400 V	(A)	6
	415-440 V	(A)	6
	500 V	(A)	4
	660-690 V	(A)	-
UL, CSA[1)]			A600
DC-13 (IEC 60947-5-1)	24 V	(A)	1.5
	60 V	(A)	0.5
	110 V	(A)	0.4
	220-240 V	(A)	0.4
UL, CSA[1)]			Q600
Making capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	30
Breaking capacity (rms)	$U_e \leq 400$ V 50/60 Hz - AC-15	(A)	3
Max.fuse class gL-gG without welding (short-circuit protection)		(A)	10
Control circuit reliability		(V / mA)	17 / 5
Electrical endurance		(millions operations)	1
Mechanical endurance		(millions operations)	10

Timing relay		
Rated insulation voltage (U_i)	V	300
Supply voltage (U_e)	1 - 2 terminals	24...240 V dc/ V ac 50/60 Hz (TEC0)
		24...60 V dc/ V ac 50/60 Hz (TDC0)
		100...240 V dc/ V ac 50/60 Hz (TDC0)
		220-240 V ac 50/60 Hz (TETC0)
		110-130 V ac 50/60 Hz (TETC0)
		24-28 V ac 50/60 Hz (TETC0)
Control voltage (U_c) only TDC0 - pag A25	2 - B1 terminals	24...60 V dc/ V ac 50/60 Hz (TDC0)
		100...240 V dc/ V ac 50/60 Hz (TDC0)
Voltage operational limits		0.85...1.1 x Uc (V ac)
		0.8...1.25 x Uc (V dc)
Consumption	mA	≤ 5
Minimum time for reset (recovery time)	ms	650
Minimum control time (only TDC0)	ms	50
Setting accuracy (% of the full scale value)	%	+/-5
Repeat accuracy	%	+/-1
Changeover time Y - Δ	ms	50

Compact Contactors CWC0 - Technical Data

Terminal Capacity and Tightening Torque - Power and Built-In Auxiliary Terminals

Reference code	CWC07...CWC016 / CWCA0			CWC025		
Screw type	M3x 8 Flat / Phillips			M3.5x 9 Flat / Phillips		
Power terminal and built-in auxiliary terminal [1)]	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...2.5 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...4	1x 1...6 2x 1...2.5 2x 2.5...6	1x 1...6 2x 1...2.5 2x 2.5...6
AWG (UL)	18...12			18...10		
Tightening torque (N.m)	1.1			1.5		
Tightening torque (lb.in) (UL)	10			13		

Note: 1) Built-in auxiliary terminals not available for CWC025.

Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWC07...CWC025 / CWCA0		
Screw type	M3.5x 8 Flat / Phillips		
Coil terminals	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...2.5 2x 0.5...2.5
AWG (UL)	22...12		
Tightening torque (N.m)	1.1		
Tightening torque (lb.in) (UL)	10		

Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	BFC0 / BFCA / BFC4 / BFC025		
Screw type	M3.5x9 Flat / Phillips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 0.5...2.5 2x 0.5...1.5	1x 0.75...4 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5
AWG (UL)	22...14		
Tightening torque (N.m)	1.1		
Tightening torque (lb.in) (UL)	10		

Terminal Capacity - Power, Coil and Auxiliary Contact Blocks

Reference code	CWC07_S... CWC012_S / CWCA0_S		BFC0_S / BFCA_S / BFC4_S
Terminal type	Spring terminal		
Power terminal	Finely stranded with end sleeve	Solid	
mm²	2x 1...1.5	2x 1...1.5	
Auxiliary contact block / built-in auxiliary terminal / or coil terminal	Finely stranded with end sleeve	Solid	Solid or finely stranded with end sleeve
mm²	2x 0.5...1.5	2x 0.5...1.5	2x 0.5...1.5
AWG	18...12		22...16

Compact Contactors CWC0 - Technical Data

Utilization Category DC-1, DC-3 and DC-5

DC-1(L/R ≤ 1ms)

	Reference	CWC07	CWC09	CWC012	CWC016	CWC025
U_e	Serie poles	Rated operational current I_e (A)				
≤ 24 V	1	10	10	16	16	18
	2	15	15	20	20	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 48 V	1	10	10	13	13	16
	2	15	15	20	20	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 60 V	1	8	8	10	10	13
	2	15	15	18	18	25
	3	15	15	22	22	25
	4	15	15	22	22	-
≤ 125 V	1	4	4	5	5	6
	2	8	8	10	10	13
	3	12	12	16	16	18
	4	15	15	19	19	-
≤ 220 V	1	0.6	0.6	0.7	0.7	1
	2	5	5	6	6	8
	3	9	9	10	10	14
	4	12	12	15	15	-
≤ 440 V	1	0.2	0.2	0.3	0.3	0.4
	2	0.6	0.6	0.7	0.7	1.5
	3	3.5	3.5	4	4	5
	4	8	8	9	9	-
≤ 600 V	1	-	-	-	-	-
	2	0.2	0.2	0.3	0.3	0.6
	3	1	1	1.5	1.5	2
	4	2	2	4	4	-

DC-3(L/R ≤ 2.5ms)

	Reference	CWC07	CWC09	CWC012	CWC016	CWC025
U_e	Serie poles	Rated operational current I_e (A)				
≤ 24 V	1	9	9	9	9	10
	2	12	12	12	12	15
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 48 V	1	8	8	8	8	10
	2	12	12	12	12	15
	3	15	15	15	15	18
	4	15	15	15	15	-
≤ 60 V	1	5	5	5	5	8
	2	10	10	10	10	13
	3	14	14	14	14	18
	4	15	15	15	15	-
≤ 125 V	1	1.5	1.5	1.5	1.5	2
	2	5.5	5.5	5.5	5.5	7
	3	10	10	10	10	13
	4	14	14	14	14	-
≤ 220 V	1	0.4	0.4	0.4	0.4	0.6
	2	1.5	1.5	1.5	1.5	2
	3	7	7	7	7	8
	4	11	11	11	11	-
≤ 440 V	1	-	-	-	-	-
	2	0.2	0.2	0.2	0.2	0.3
	3	1	1	1	1	1.5
	4	3	3	3	3	-
≤ 600 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	0.6	0.6	0.6	0.6	0.8
	4	1.5	1.5	1.5	1.5	-

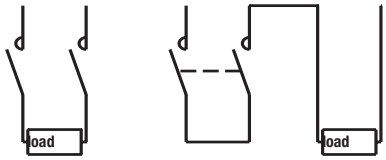
DC-5(L/R ≤ 15ms)

	Reference	CW07	CWC07	CWC09	CWC012	CWC016	CWC025
U_e	Serie poles	Rated operational current I_e (A)					
≤ 24 V	1	1.5	8	8	8	8	10
	2	2.5	12	12	12	12	14
	3	3	15	15	15	15	18
	4	3	15	15	15	15	-
≤ 48 V	1	1.5	8	8	8	8	9
	2	2.5	12	12	12	12	14
	3	3	15	15	15	15	18
	4	3	15	15	15	15	-
≤ 60 V	1	1.2	5	5	5	5	7
	2	2.5	10	10	10	10	12
	3	3	14	14	14	14	18
	4	3	15	15	15	15	-
≤ 125 V	1	0.7	1.5	1.5	1.5	1.5	0.8
	2	1.5	5.5	5.5	5.5	5.5	5
	3	2.5	9	9	9	9	12
	4	3	14	14	14	14	-
≤ 220 V	1	0.1	0.4	0.4	0.4	0.4	-
	2	0.5	0.7	0.7	0.7	0.7	0.8
	3	1.5	2.5	2.5	3	3	3
	4	2.2	9	9	9	9	-
≤ 440 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	0.1	0.3	0.3	0.3	0.3	0.5
	4	0.3	0.7	0.7	0.7	0.7	-
≤ 600 V	1	-	-	-	-	-	-
	2	-	-	-	-	-	-
	3	-	-	-	-	-	-
	4	-	0.2	0.2	0.2	0.2	-

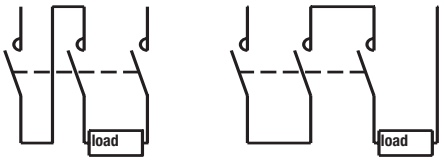
1 serie pole



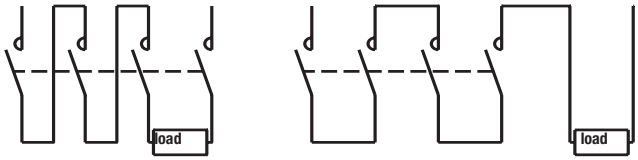
2 serie poles



3 serie poles



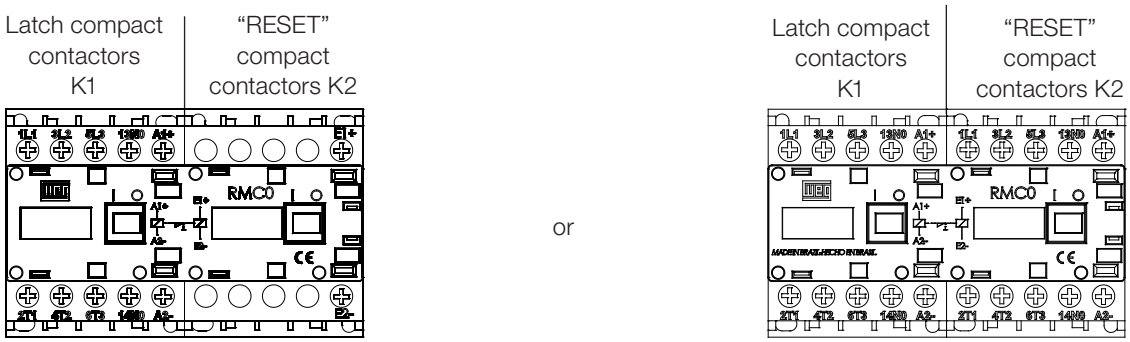
4 serie poles



Compact Contactors CWC0 - Technical Data

Timing relay		
Rated insulation voltage (U_i)	V	300
Supply voltage (U_e)	1 - 2 terminals	24...240 V dc/ V ac 50/60 Hz (TEC0)
		24...60 V dc/ V ac 50/60 Hz (TDC0)
		100...240 V dc/ V ac 50/60 Hz (TDC0)
		220-240 V ac 50/60 Hz (TETC0)
		110-130 V ac 50/60 Hz (TETC0)
		24-28 V ac 50/60 Hz (TETC0)
Control voltage (U_c) only TDC0 - pg A25	2 - B1 terminals	24...60 V dc/ V ac 50/60 Hz (TDC0)
		100...240 V dc/ V ac 50/60 Hz (TDC0)
Voltage operational limits		0.85...1.1 x Uc (V ac)
		0.8...1.25 x Uc (V dc)
Consumption	mA	≤ 5
Minimum time for reset (recovery time)	ms	650
Minimum control time (only TDC0)	ms	50
Setting accuracy (% of the full scale value)	%	+/-5
Repeat accuracy	%	+/-1
Changeover time Y - Δ	ms	50

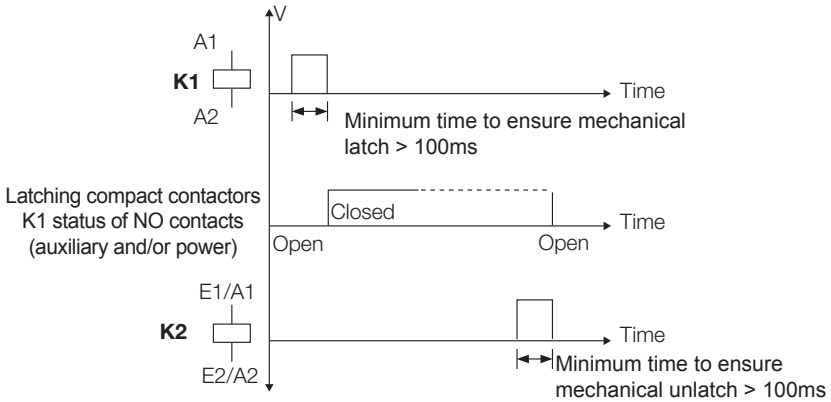
Operation Description of Latch Block RMC0 or Compact Contactors CWCH0



CWCH07...16

2 x CWC07...16 / CWCA0 + RMC0

Functional Diagram



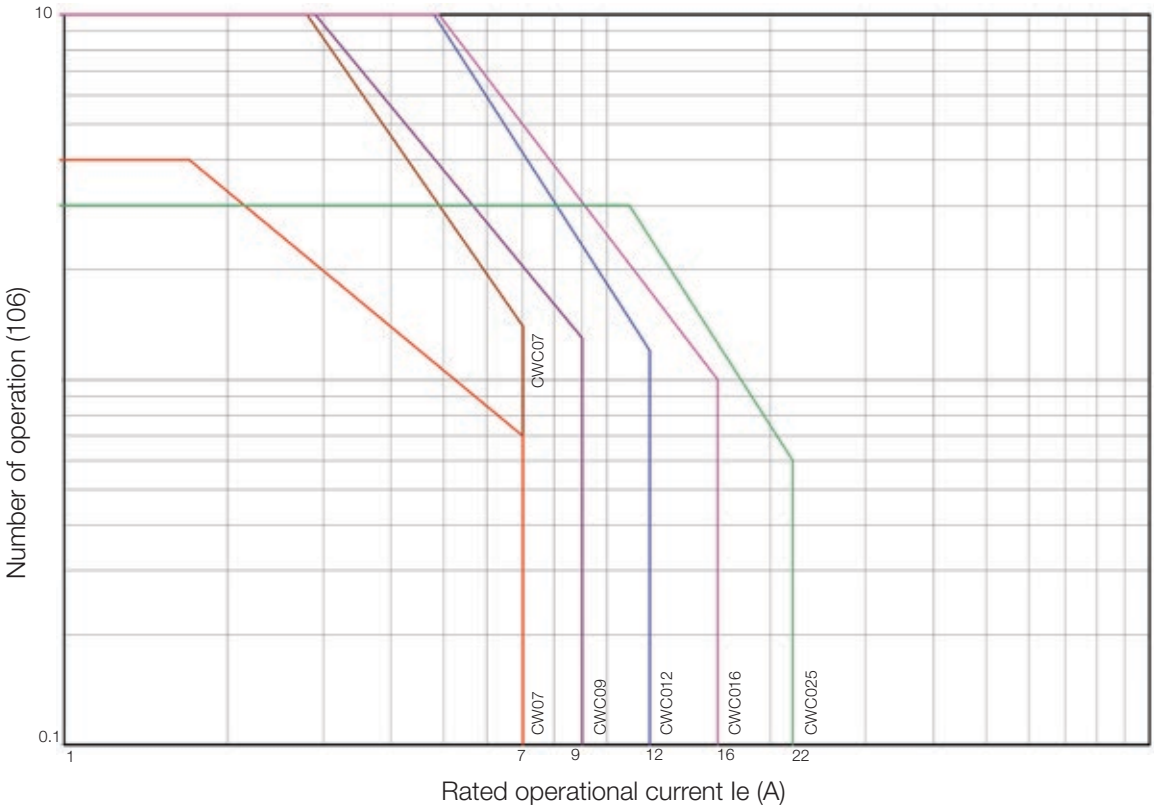
- After a minimum pulse of 100ms on compact contactors coil (K1), the RMC0 will keep K1 contacts switched on;
- The compact contactors K1 will only return to rest position after compact contactors coil (K2) be energized by a releasing pulse;
- The mechanical latch will always and only happen on compact contactors (K1).

Note: if RESET compact contactors coil (K2) remains energized, the latching of compact contactors (K1) is not enabled.

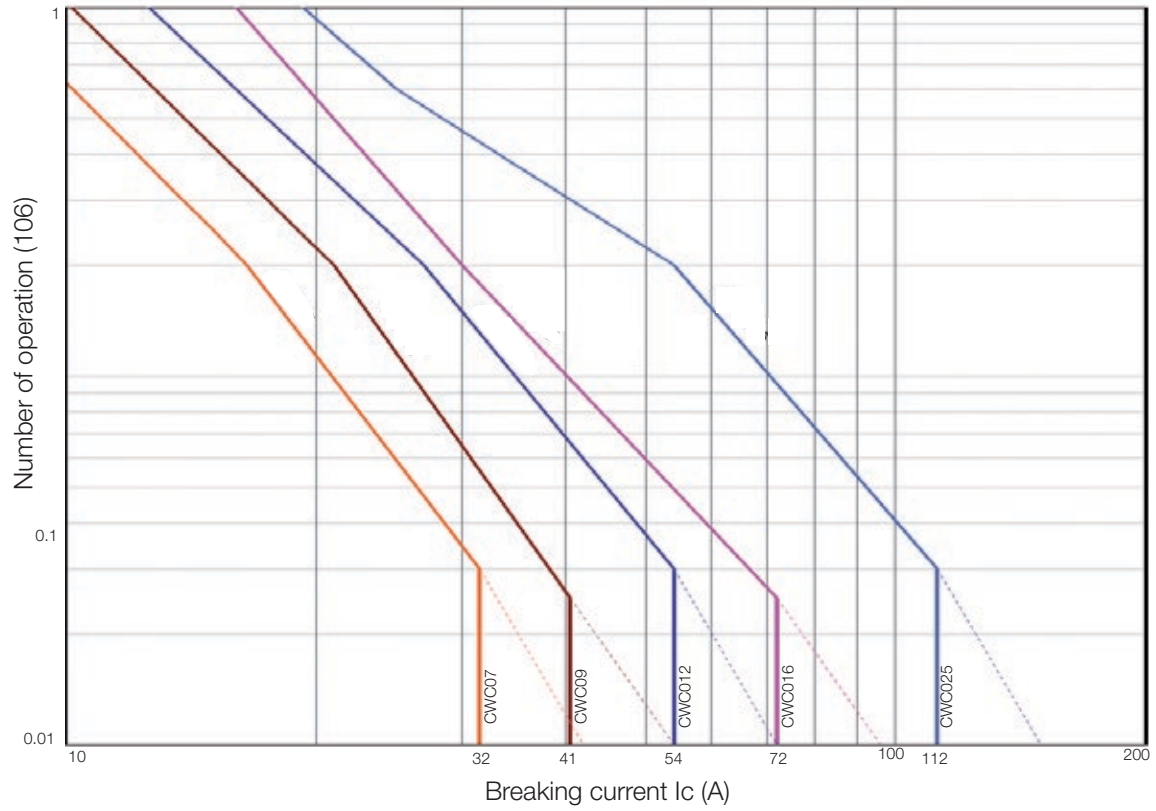
Compact Contactors CWC0 - Technical Data

Electrical Lifespan

AC-3 (U_e ≤ 415 V ac e U_e ≤ 440 V ac)

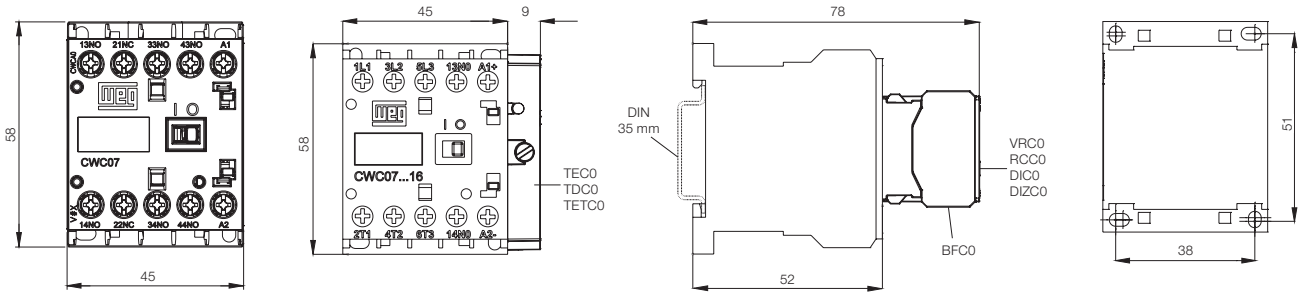


AC-4 (U_e ≤ 440 V ac)

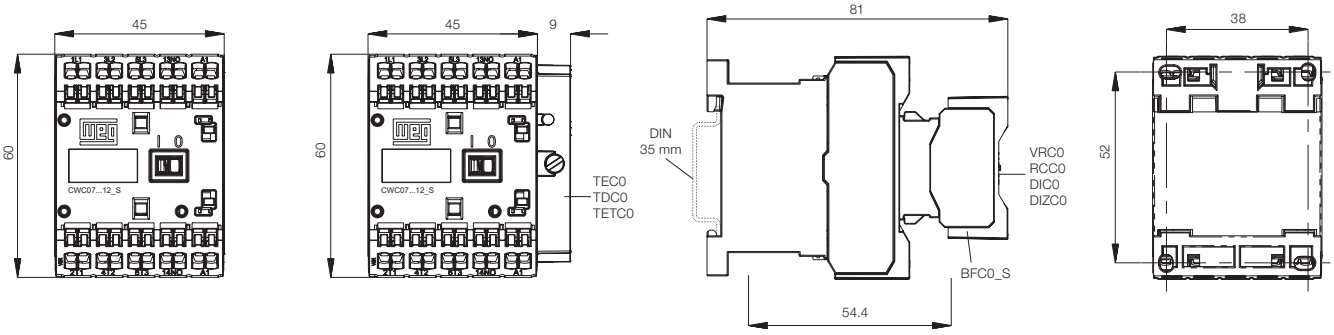


Compact Contactors CWC0 - Dimensions (mm)

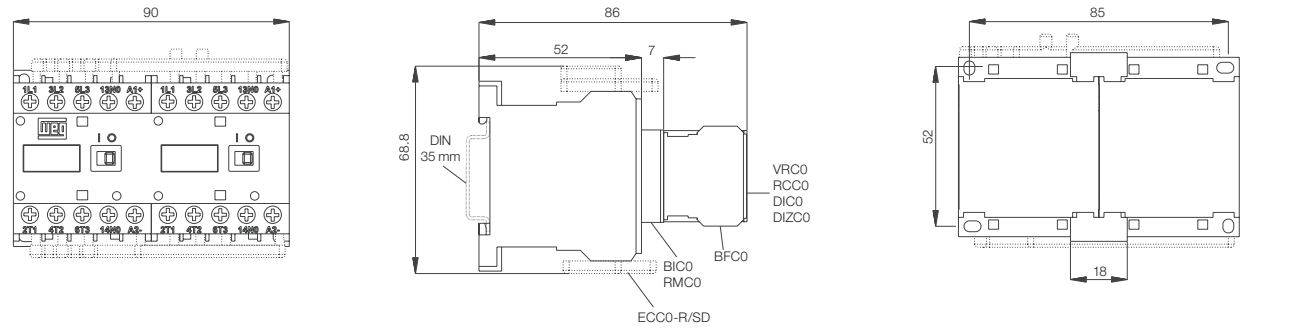
CWC07 up to 16 and CWCA0 - (AC and DC Coil) - Screw Terminal



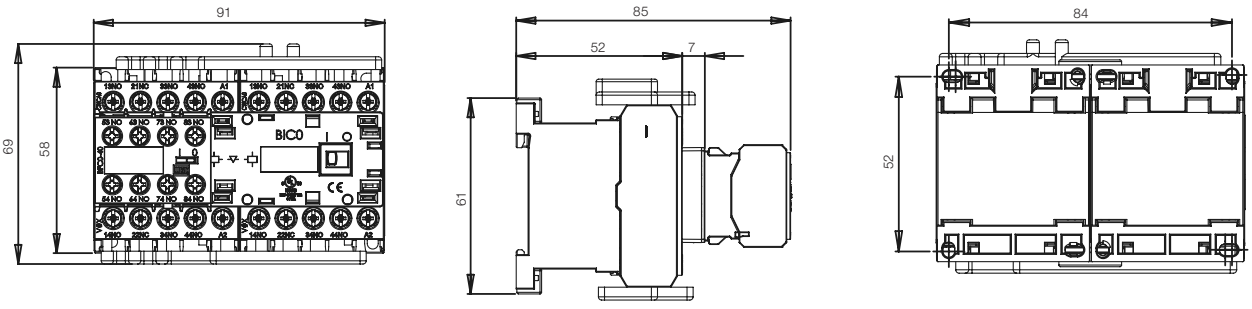
CWC07_S...CWC012_S, and CWCA0_S - (AC and DC Coil) - Spring Terminal



CWCI07...16 or ECC0-R and CWCH07...16 - Screw Terminal

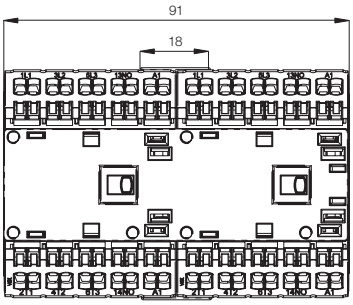


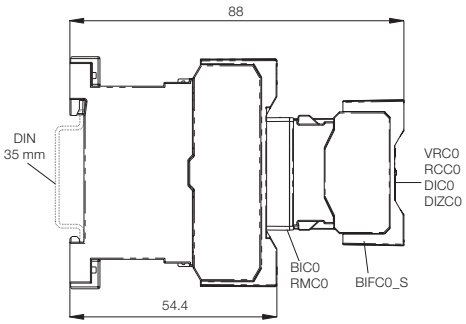
CWCI07...16 + ECC0-R - Screw Terminal

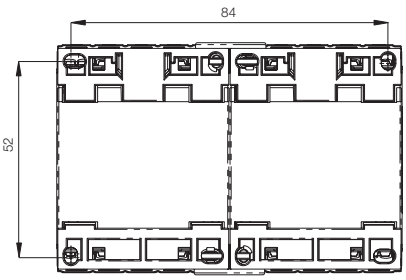


Compact Contactors CWC0 - Dimensions (mm)

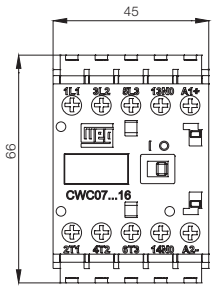
CWCI07...12 or CWCH07...12/CWCHA0 - Spring Terminal

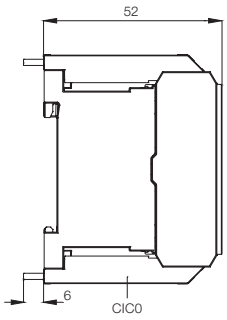


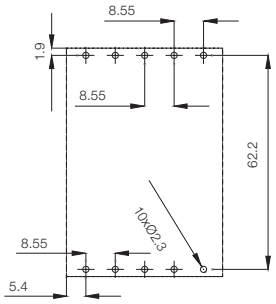




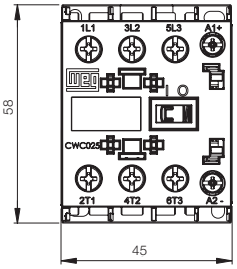
CWC07...16♦I [3)]

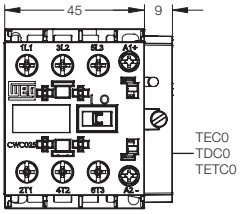


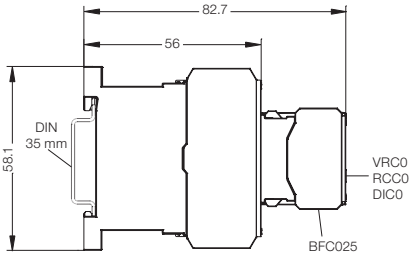


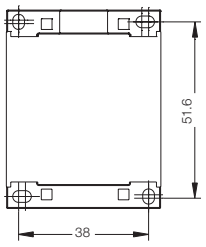


CWC025

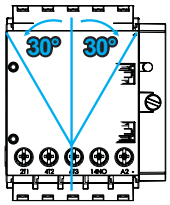


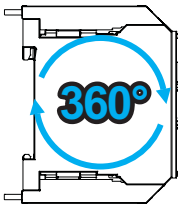






Mounting Position of All Compact Contactors





Contactors

The CWM general-purpose contactor line has been designed taking into consideration industrial duty and reliability.

Rated for inductive loads up to 800 A or 440 kW @ 380/400 V, WEG can offer the most suitable contactor for your application.

CWM contactors allow total panel space optimization, with only a few compact frame sizes from 4 to 440 kW @ 400/415 V. Reducing inventory is simple with CWM common accessories. For example, side-mounted auxiliary contact blocks are the same from 9 to 300 A (AC-3) @ 440 V.

Designed for extended mechanical and electrical life, dependable switching in even the most heavy-duty applications can be achieved. No matter how demanding the application, all WEG contactors are tested and approved to be used under Type 1 and Type 2 short circuit coordination.
Ensuring global acceptance, all components conform to UL 508 (USA and Canada), IEC 60947 and CE.

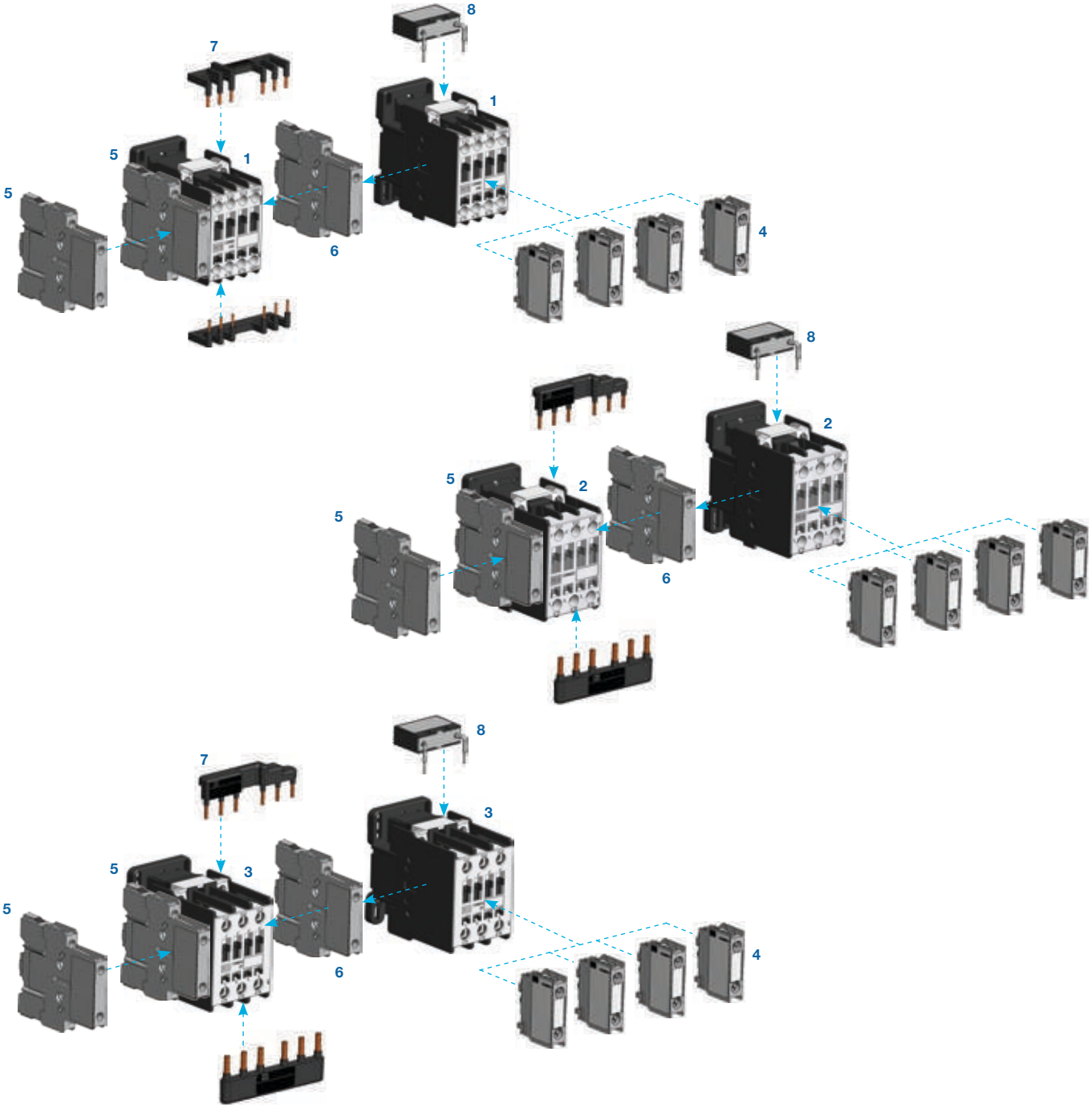
All WEG contactors are manufactured to assure the highest quality manufacturing processes and component materials.

This way, WEG offers reliable solutions for low-voltage applications in electric panel assemblers, OEMs, distributors and end users.



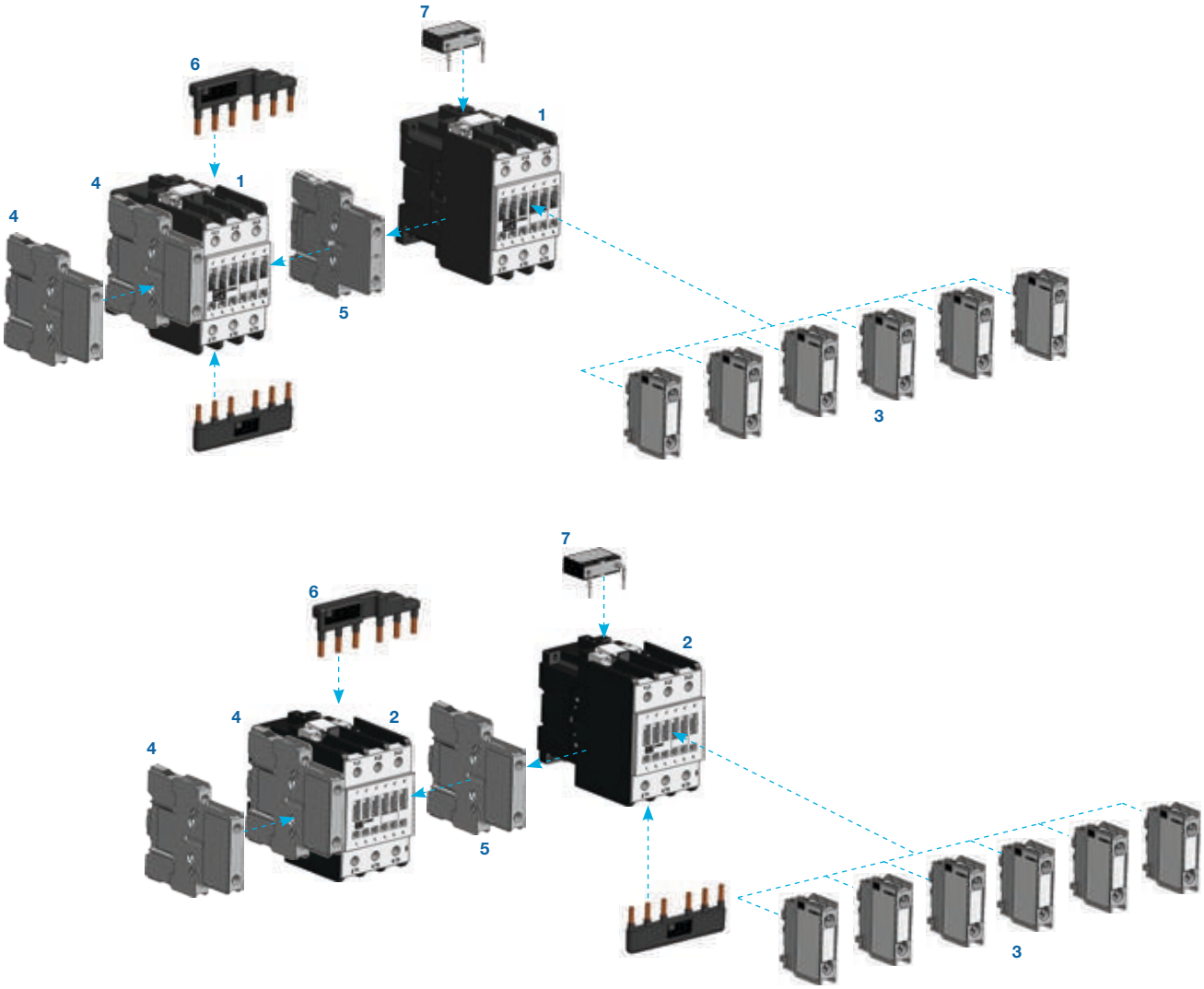
Certifications

Contactors CWM from 9 up to 40 A (AC-3) - Overview



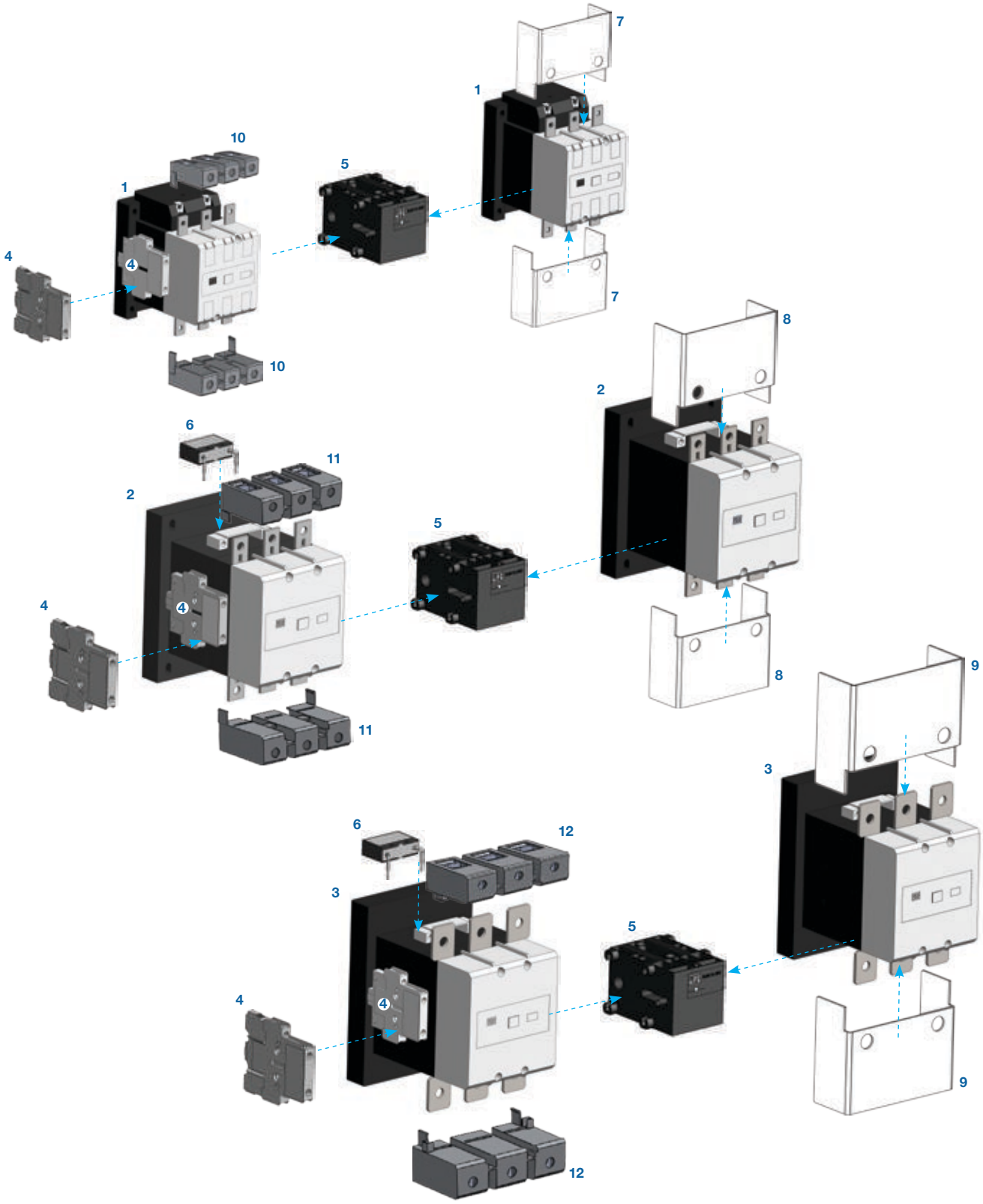
1 - Contactors CWM9...18
2 - Contactors CWM25
3 - Contactors CWM32/40
4 - Front mounting auxiliary contact block BCXMF
5 - Side mounting auxiliary contact block BCXML
6 - Mechanical interlock block BLIM
7 - Easy connection busbar
8 - Surge suppressor blocks BAM

Contactors CWM from 50 up to 105 A (AC-3) - Overview



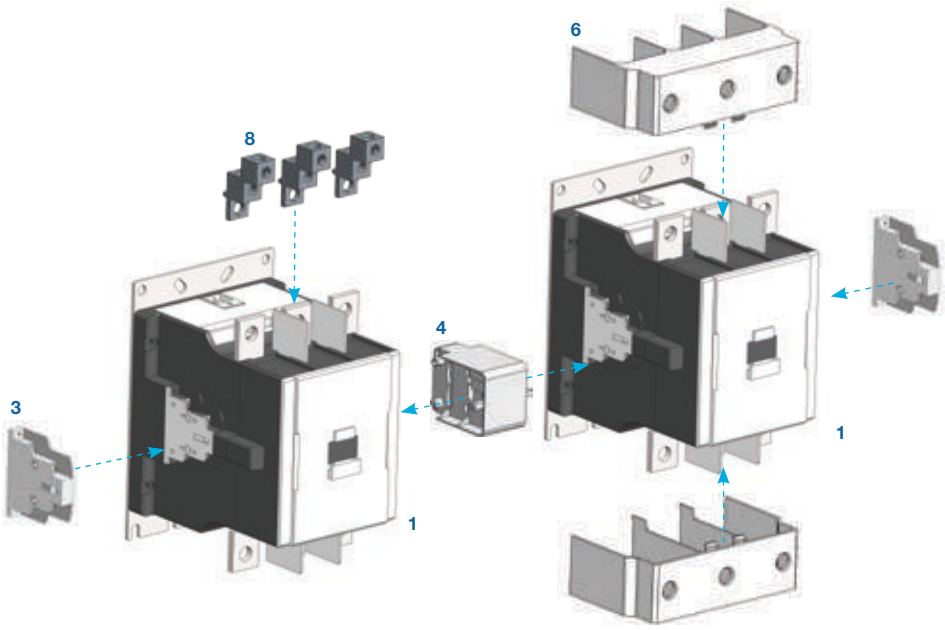
1 - Contactors CWM50...80
2 - Contactors CWM95/105
3 - Front mounting auxiliary contact block BCXMF
4 - Side mounting auxiliary contact block BCXML
5 - Mechanical interlock block BLIM
6 - Easy connection busbar
7 - Surge suppressor blocks BAM

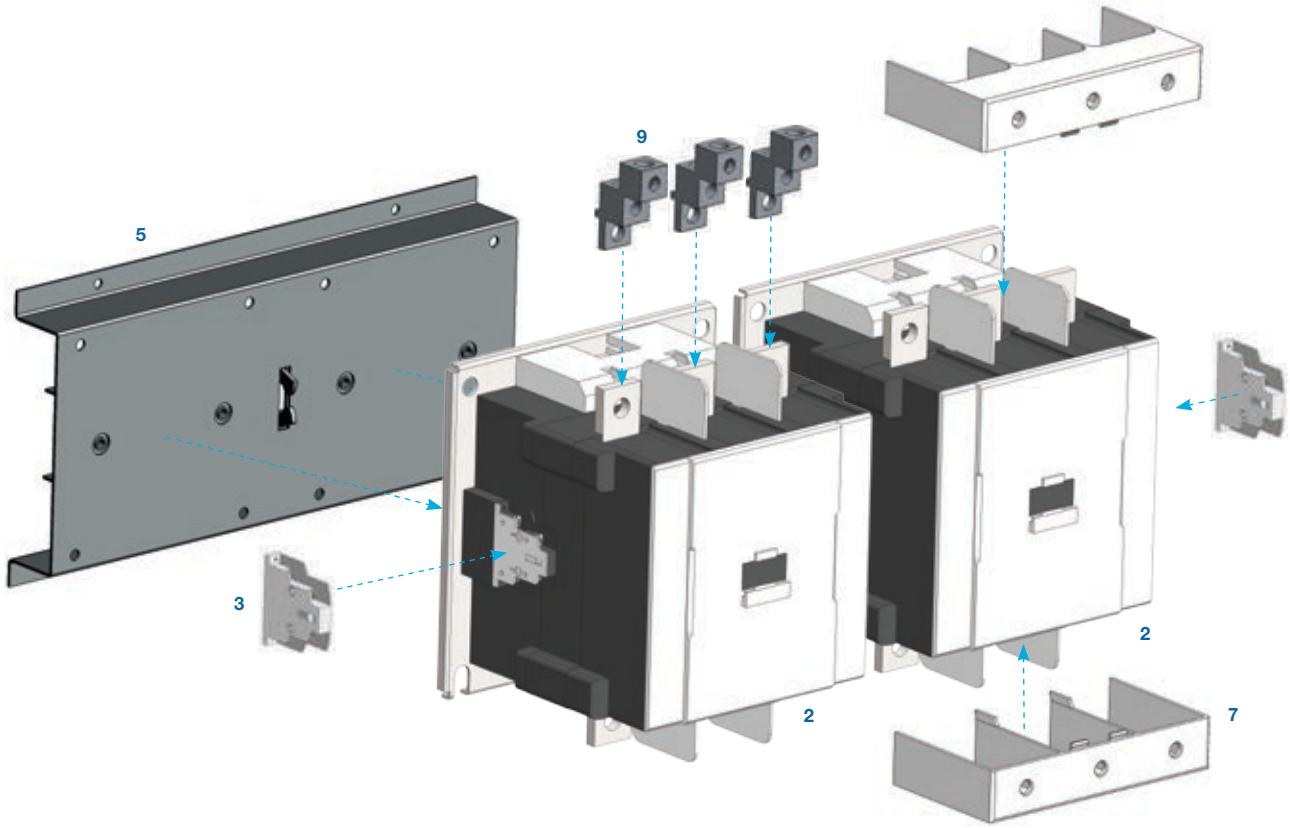
Contactors CWM from 112 up to 300 A (AC-3) - Overview



1 - Contactors CWM112/150
2 - Contactors CWM180
3 - Contactors CWM250/300
4 - Side mounting auxiliary contact block BCXML
5 - Mechanical interlock BLIM112-300
6 - Surge suppressor block BAMV
7 - Terminal cover BMP CWM150
8 - Terminal cover BMP CWM180
9 - Terminal cover BMP CWM300
10 - TB150 terminal block for CWM112-150
11 - TB180 terminal block for CWM180
12 - TB300 terminal block for CWM250-300

Contactors CWM from 400 up to 800 A (AC-3) - Overview





1 - Contactor CWM400
2 - Contactors CWM500...800
3 - Auxiliary contacts block BCXML** CWM800
4 - Mechanical interlock BLIM CWM400
5 - Mechanical interlock BLIM CWM800
6 - Terminal cover BMP CWM400
7 - Terminal cover BMP CWM800
8 - Lugs BMJ CWM400
9 - Lugs BMJ CWM800

Contactors



Three-Pole CWM Contactors from 9 up to 250 A (AC-3) - AC Coil[3]

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz[1]						Auxiliary contacts per contactor		Auxiliary contact blocks separately delivered		Reference code	Weight
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	•3 / •4	•1 / •2	BCXMF10	BCXMF01		
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC	NO	NC		kg
9	25	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	5.5 / 7.5	1	0	Built-in	-	CWM9-10-30♦	0.360
								0	1	-	Built-in	CWM9-01-30♦	
								1	1	Built-in	1	cWM9-11-30♦	
								2	2	1	2	CWM9-22-30♦	
12	25	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	7.5 / 10	1	0	Built-in	-	CWM12-10-30♦	0.360
								0	1	-	Built-in	CWM12-01-30♦	
								1	1	Built-in	1	CWM12-11-30♦	
								2	2	1	2	CWM12-22-30♦	
18	32	4.5 / 6	7.5 / 10	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	1	0	Built-in	-	CWM18-10-30♦	0.360
								0	1	-	Built-in	CWM18-01-30♦	
								1	1	Built-in	1	CWM18-11-30♦	
								2	2	1	2	CWM18-22-30♦	
25	45	5.5 / 7.5	11 / 15	11 / 15	11 / 15	11 / 15	11 / 15	0	0	-	-	CWM25-00-30♦	0.390
								1	0	1	-	CWM25-10-30♦	
								0	1	-	1	CWM25-01-30♦	
								1	1	1	1	CWM25-11-30♦	
								2	2	2	2	CWM25-55-30♦	
32	60	9.2 / 12.5	15 / 20	15 / 20	15 / 20	15 / 20	18.5 / 25	0	0	-	-	CWM32-00-30♦	0.620
								1	0	1	-	CWM32-10-30♦	
								0	1	-	1	CWM32-01-30♦	
								1	1	1	1	CWM32-11-30♦	
								2	2	2	2	CWM32-22-30♦	
40	60	11 / 15	18.5 / 25	18.5 / 25	22 / 30	22 / 30	22 / 30	0	0	-	-	CWM40-00-30♦	0.650
								1	1	1	1	CWM40-11-30♦	
								2	2	2	2	CWM40-22-30♦	
50	90	15 / 20	22 / 30	22 / 30	30 / 40	30 / 40	30 / 40	0	0	-	-	CWM50-00-30♦	1.205
								1	1	1	1	CWM50-11-30♦	
								2	2	2	2	CWM50-22-30♦	
65	110	18.5 / 25	30 / 40	30 / 40	37 / 50	37 / 50	37 / 50	0	0	-	-	CWM65-00-30♦	1.215
								1	1	1	1	CWM65-11-30♦	
								2	2	2	2	CWM65-22-30♦	
80	110	22 / 30	37 / 50	45 / 60	45 / 60	45 / 60	45 / 60	0	0	-	-	CWM80-00-30♦	1.220
								1	1	1	1	CWM80-11-30♦	
								2	2	2	2	CWM80-22-30♦	
95	140	22 / 30	45 / 60	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM95-00-30♦	1.525
								1	1	1	1	CWM95-11-30♦	
								2	2	2	2	CWM95-22-30♦	
105	140	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM105-00-30♦	1.505
								1	1	1	1	CWM105-11-30♦	
								2	2	2	2	CWM105-22-30♦	
112	180	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	75 / 100	2	2	-	-	CWM112-22-30♦	3.1
180	225	55 / 75	90 / 125	90 / 125	110 / 150	110 / 150	110 / 150	2	2	-	-	CWM180-22-30♦	51.0
250	350	75 / 100	132 / 175	132 / 175	150 / 200	160 / 220	160 / 220	2	2	-	-	CWM250-22-30♦	6.66

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

AC coil - 50/60 Hz											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Other voltages available;
3) For selection of acessories, check page A41.

Contactors







Three-Pole CWM Contactors from 9 up to 105 A (AC-3) - DC Coil[4)]

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz[1)]						Auxiliary contacts per contactor		Auxiliary contact blocks separately delivered		Reference code	Weight
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	660 V 690 V	3 4	1 2	BCXMF10	BCXMF01		
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC	NO	NC		kg
9	25	2.2 / 3	4 / 5	4 / 5	4.5 / 6	4.5 / 6	5.5 / 7.5	1	0	Built-in	-	CWM9-10-30♦	0.520
								0	1	-	Built-in	CWM9-01-30♦	
								1	1	Built-in	1	CWM9-11-30♦	
								2	2	1	2	CWM9-22-30♦	
12	25	3 / 4	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	5.5 / 7.5	7.5 / 10	1	0	Built-in	-	CWM12-10-30♦	0.520
								0	1	-	Built-in	CWM12-01-30♦	
								1	1	Built-in	1	CWM12-11-30♦	
								2	2	1	2	CWM12-22-30♦	
18	32	4.5 / 6	7.5 / 10	7.5 / 10	9.2 / 12.5	9.2 / 12.5	11 / 15	1	0	Built-in	-	CWM18-10-30♦	0.520
								0	1	-	Built-in	CWM18-01-30♦	
								1	1	Built-in	1	CWM18-11-30♦	
								2	2	1	2	CWM18-22-30♦	
25	45	5.5 / 7.5	11 / 15	11 / 15	11 / 15	11 / 15	11 / 15	0	0	-	-	CWM25-00-30♦	0.520
								1	0	1	-	CWM25-10-30♦	
								0	1	-	1	CWM25-01-30♦	
								1	1	1	1	CWM25-11-30♦	
								2	2	2	2	CWM25-22-30♦	
32	60	9.2 / 12.5	15 / 20	15 / 20	15 / 20	15 / 20	18.5 / 25	0	0	-	-	CWM32-00-30♦	0.640
								1	0	1	-	CWM32-10-30♦	
								0	1	-	1	CWM32-01-30♦	
								1	1	1	1	CWM32-11-30♦	
								2	2	2	2	CWM32-22-30♦	
40	60	11 / 15	18.5 / 25	18.5 / 25	22 / 30	22 / 30	22 / 30	0	0	-	-	CWM40-00-30♦	0.640
								1	1	1	1	CWM40-11-30♦	
								2	2	2	2	CWM40-22-30♦	
50	90	15 / 20	22 / 30	22 / 30	30 / 40	30 / 40	30 / 40	0	0	-	-	CWM50-00-30♦	1.463
								1	1	1	1	CWM50-11-30♦	
								2	2	2	2	CWM50-22-30♦	
65	110	18.5 / 25	30 / 40	30 / 40	37 / 50	37 / 50	37 / 50	0	0	-	-	CWM65-00-30♦	1.463
								1	1	1	1	CWM65-11-30♦	
								2	2	2	2	CWM65-22-30♦	
80	110	22 / 30	37 / 50	45 / 60	45 / 60	45 / 60	45 / 60	0	0	-	-	CWM80-00-30♦	1.463
								1	1	1	1	CWM80-11-30♦	
								2	2	2	2	CWM80-22-30♦	
95	140	22 / 30	45 / 60	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM95-00-30♦	1.463
								1	1	1	1	CWM95-11-30♦	
								2	2	2	2	CWM95-22-30♦	
105	140	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	55 / 75	0	0	-	-	CWM105-00-30♦	1.463
								1	1	1	1	CWM105-11-30♦	
								2	2	2	2	CWM105-22-30♦	

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2) 3)]

Coil voltage codes (CWM9...25)	C02	C03	C07	C09	C12	C15
V dc	12	24	48	60	110	220

Coil voltage codes (CWM32...105)	C34	C37	C40	C44
V dc	24-28	42-50	110-130	208-240

Notes: 1) For 50/60 Hz three-phase, 4 poles WEG standard motors. These values are only for reference and may change on the number of poles and motor design;
2) Other voltages available;
3) Contactors CWM32-105 with DC coils do not need surge suppressor blocks;
4) For selection of acessories, check page A41.

Contactors





Three-Pole CWM Contactors from 112 up to 300 A (AC-3) - Electronic Module AC/DC

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz[1]						Auxiliary contacts per contactor (BCXML)		Reference code	Weight
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	690 V	3 4	1 2		
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC		kg
112	180	30 / 40	55 / 75	55 / 75	55 / 75	55 / 75	75 / 100	2	2	CWM112-22-30♦	3.12
150	225	45 / 60	75 / 100	75 / 100	90 / 125	90 / 125	110 / 150	2	2	CWM150-22-30♦	3.20
180	225	50 / 75	90 / 125	90 / 125	110 / 150	110 / 150	110 / 150	2	2	CWM180-22-30♦	5.01
250	350	75 / 100	132 / 175	132 / 175	150 / 200	160 / 220	160 / 200	2	2	CWM250-22-30♦	6.86
300	410	90 / 125	150 / 200	160 / 220	185 / 250	200 / 270	200 / 270	2	2	CWM300-22-30♦	6.73

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

Coil voltage codes	E02	E06	E07	E10	E13	E16	E21
50/60 Hz / DC *	24-28 V	42-50 V	60-72 V	110-130 V	208-250 V	360-415 V	430-500 V

** Surge suppressor is already integrated.*






Three-Pole CWM Contactors from 400 up to 800 A (AC-3) - Electronic Module AC/DC

Rated operational current I_e AC-3 ($U_e \leq 440$ V)	Conv. thermal current $I_{th} = I_e$ AC-1	Max. rated operational power of three-phase motors 50/60 Hz[1]						Auxiliary contacts per contactor (BCXML)		Reference code	Weight
		220 V 230 V	380 V	400 V 415 V	440 V	500 V	690 V	3 4	1 2		
A	A	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	kW / hp	NO	NC		kg
400	450	125 / 150	220 / 300	220 / 300	220 / 300	220 / 300	250 / 330	2	2	CWM400-22-30♦	9.2
500	580	150 / 200	265 / 355	265 / 355	265 / 355	265 / 355	300 / 400	2	2	CWM500-22-30♦	22.4
630	660	190 / 250	330 / 450	330 / 450	330 / 450	330 / 450	330 / 450	2	2	CWM630-22 -30♦	23.2
800	900	220 / 300	440 / 600	440 / 600	440 / 600	500 / 700	500 / 700	2	2	CWM800-22 -30♦	23.3

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[2]

Coil voltage codes(CWM400)	E36	D80	D81	D82
50/60 Hz / DC *	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz *	-	265-347 V	380-450 V	440-575 V

Coil voltage codes(CWM500/630/800)	E35	E39	D80	D81	D82
50/60 Hz / DC *	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz *	-	-	265-347 V	380-450 V	440-575 V

** Surge suppressor is already integrated.*

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

Contactors



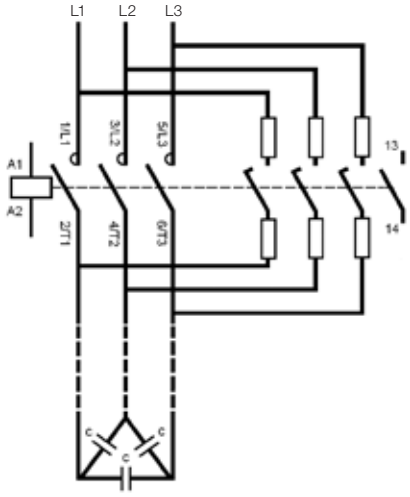


CWMC Contactor for Capacitor Switching (AC-6b)

AC coil			CWMC9	CWMC18	CWMC25	CWMC32	CWMC50	CWMC65	CWMC80
Reactive power AC-6b @ 55 °C	220 - 230 V	kvar	6	8	11	15	25	30	35
	380 - 415 V		10	15	20	25	40	50	61
	440 V		12	16	23	30	45	60	71
	480 V		12.5	17	25	33	50	65	77
	660 - 690 V		17.5	25	34	45	65	87	106
AC-6b current (I_e)	(55 °C)	A	16	21	30	40	60	77	93
Thermal current (I_{th})	(55 °C)		25	32	45	60	90	110	140
AC-6b current (I_e)	(70 °C)		10	15	22	34	50	62	67
Max fuse (gL/gG)			25	35	50	63	100	125	160
Cable cross section		mm^2	6	6	2 x 10	16 + 16	35 + 35	35 + 35	35
		AWG	10	10	2 x 7	6 + 6	2 + 2	2 + 2	2
Tightening torque		N.m	1...1.7		1.6 ... 3	2.5 ... 4	4 ... 6	4 ... 6	5...6.5
Max. operation per hour		ops/h.	120						
Max. number of auxiliary contacts			1			3	5		
Electrical lifespan		Ops x 10^3	100						
Coil consumption (AC) Pick-up/Sealing		VA	75/9.3			123/12.5	308/25	308/25	308/25
Weight		kg	0.619			0.670	1.370	1.389	1.7

Notes: - One auxiliary contact 1NO included in CWMC contactors;
- Examples of reference code: - CWMC25-10-30♦ ; - CWMC32-10-30♦ ; - CWMC50-10-30♦ ; - CWMC-65-10-30♦ .

Diagram



To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

Coil voltage codes	X06	X18	X32	X37	X42	X47	X50	X56
50 Hz	24 V	110 V	220 V	230-240 V	380 V	400-415 V	440 V	500 V
Coil voltage codes	X04	X15	X26	X28	X30	X41	X42	X47
60 Hz	24 V	110 V	220 V	230 V	240 V	380 V	440 V	480 V

Coil voltage codes (CWM9...25)	C02	C03	C07	C09	C12	C15
V dc	12	24	48	60	110	220

Coil voltage codes (CWM32...105)	C34	C37	C40	C44
V dc	24-28	42-50	110-130	208-240

Note: 1) Other voltages on request.

Contactors

Four-Pole Contactors CWM from 25 to 32 A (AC-1)

$I_e = I_{th}$ ($U_e \leq 690$ V) $\theta \leq 55$ °C AC-1 A	Number of poles 3-4 NO	Number of poles 1-2 NC	Reference code	Weight kg
25	2	2	CWM9-00-22♦	0.360
	4	-	CWM9-00-40♦	
25	2	2	CWM12-00-22♦	0.360
	4	-	CWM12-00-40♦	
32	2	2	CWM18-00-22♦	0.360
	4	-	CWM18-00-40♦	



To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

AC coil - 50/60 Hz											
Applicable for CWC07…CWC025 models											
Coil voltage codes	D02	D07	D13	D23	D24	D25	D33	D34	D35	D36	D39
V ac - 50/60 Hz	24	48	110	220	230	240	380	400	415	440	480

Four-Pole CWM Contactors from 420 up to 800 A AC-1

Conv. Thermal current I_{th} (55°C) A	AC-1 Current A	AC-1 Power 220 V 240 V kW	AC-1 Power 380 V 400 V kW	AC-1 Power 500 V 550 V kW	AC-1 Power 690 V kW	Auxiliary contacts per contactor (BCXML) 3-4 NO	Auxiliary contacts per contactor (BCXML) 1-2 NC	Reference code	Weight kg
500	420	160	300	375	470	2	2	CWM400-22-40♦	9.9
630	630	245	450	560	710	2	2	CWM500-22-40♦	26.3
750	660	255	470	590	740	2	2	CWM630-22 -40♦	26.3
900	800	310	570	710	900	2	2	CWM800-22 -40♦	26.3

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

Coil voltage codes (CWM400)	E36	D81
50/60 Hz / DC *	100-240 V ac / 100-220 V dc	-
50/60 Hz *	-	380-450 V

Coil voltage codes (CWM500/630/800)	E35	E39
50/60 Hz / DC *	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc
50/60 Hz *	-	-

** Surge suppressor is already integrated.*

Note: 1) Other voltages available.

Contactors - Accessories and Spare Parts

Auxiliary Contact Blocks for CWM9 to CWM800

- Terminal markings to EN 50 005 and EN 50 012
- Positive driven contacts in accordance with IEC/EN 60947-4-1 resp. IEC/EN60947-5-1

Illustrative picture	For use with	Max. number of contacts/ contactor	Auxiliary contacts		Terminal markings	Reference code	Weight kg
			NO	NC			
	CWM9...105	4 / CWM9...25 6 / CWM32...40	1	0		BCXMF10	0.015
			0	1		BCXMF01	
			1[1]	0		BCXMFA10	
			0	1[2]		BCXMFR01	
	CWM9...300	8 / CWM50...105 8 / CWM112...300	2	0		BCXML20	0.050
			1	1		BCXML11	
			2	0		BCXMRL20 [3]	
			1	1		BCXMRL11 [3]	
	CWM 400...800	8 / CWM400...800	1	1		BCXML11 CWM800	0.045
						BCXML11 CWM800 [3]	

Mechanical Interlock for Contactors [5]

Illustrative picture	For use with	Reference code	Weight kg
	CWM9...CWM105	BLIM9-105	0.050
		BLIM.02 [4]	
	CWM112...CWM300	BLIM112-300	0.150
	CWM400	BLIM CWM400	0.100
	CWM500...800 - 3 poles	BLIM CWM800	15.0
	CWM500...800 - 4 poles	BLIM CWM800-4P	16.0

Notes: 1) Early-make contact;
2) Late-break contact;
3) For combination of more than 2 side-mounted auxiliary contacts;
4) This accessory allows mechanical and electrical interlock;
5) Can only be used with 2 contactors of the same frame.

To Complete the Reference Code, Replace "♦" with the Appropriate Coil Voltage Code [1]

Coil voltage codes(CWM400)	E36	D80	D81	D82
50/60 Hz / DC *	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz *	-	265-347 V	380-450 V	440-575 V

Coil voltage codes(CWM500...800)	E35	E39	D80	D81	D82
50/60 Hz / DC *	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz *	-	-	265-347 V	380-450 V	440-575 V

** Surge suppressor is integrated.*

Note: 1) Other voltages available.

Contactors - Accessories and Spare Parts

Individual Spare Coils

Illustrative picture	Description	For use with	Reference code	Weight kg
	AC coil	CWM9....25. CWMC25	BCA4-25♦	0.065
		CWM32...40. CWMC32	BCA4-40♦	0.110
		CWM50...105. CWMC50...65	BCA-105♦	0.140
		CWM112	BCA-112♦	0.235
		CWM180	BCA-180♦	0.400
		CWM250	BCA-250♦	0.675
	DC coil	CWM9...25	BCC-25♦	0.120
		CWM32...40	BECC4-40♦	0.180
		CWM50...105	BECC-105♦	0.220
	Dual-voltage coils ac/dc (contactors with electronic module)	CWM112...150	BCE-150♦	0.235
		CWM180	BCE-215♦	0.400
		CWM250...300	BCE-300♦	0.675
		CWM400	BCE400♦	1.0
		CWM500...800	BCE800♦	

Electronic Module

Illustrative picture	Control type	For use with	Reference code	Weight kg
	AC/DC	CWM112…300	ME-300♦ *	0.140

** The coil voltage code must be the same of BCE coil voltage code selected.*

To Complete the Reference code, Replace "♦" with the Appropriate Coil Voltage Code[1)]

Contactors CWM9...300

Coil voltage codes(CWM9...250 and CWMC25...65)	D02	D07	D13	D24	D25	D34	D35
50/60 Hz	24 V	48 V	110 V	230 V	240 V	400 V	415 V

Coil voltage codes (CWM9...25)	C02	C03	C07	C09	C12	C15
V dc	12	24	48	60	110	220

Coil voltage codes (CWM32...105)	C34	C37	C40	C44
V dc	24-28 V	42-50 V	110-130 V	208-240 V

Coil voltage codes (CWM112...300)	E02	E06	E07	E10	E13	E16	E21
50/60 Hz / DC *	24-28 V	42-50 V	60-72V	110-130 V	208-250 V	360-415 V	430-500 V

** Surge suppressor is already integrated.*

Contactors CWMC25...65

Coil voltage codes	X06	X18	X32	X37	X42	X47	X50	X56
50 Hz	24 V	110 V	220 V	230-240 V	380 V	400-415 V	440 V	500 V
Coil voltage codes	X04	X15	X26	X28	X30	X41	X42	X47
60 Hz	24 V	110 V	220 V	230 V	240 V	380 V	440 V	480 V

Contactors CWM400...800

Coil voltage codes (CWM400)	E36	D80	D81	D82
50/60 Hz / DC *	100-240 V ac / 100-220 V dc	-	-	-
50/60 Hz *	-	265-347 V	380-450 V	440-575 V

Coil voltage codes (CWM500...800)	E35	E39	D80	D81	D82
50/60 Hz / DC *	100-127 V ac / 100-110 V dc	200-240 V ac / 200-220 V dc	-	-	-
50/60 Hz *	-	-	265-347 V	380-450 V	440-575 V

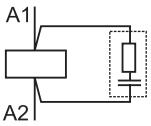
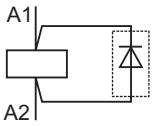
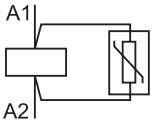
** Surge suppressor is integrated.*

Note: 1) Other voltages on request.

Contactors - Accessories and Spare Parts

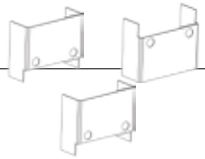
Surge Suppressors

- Connect directly to coil terminals A1 - A2

Illustrative picture	For use with	Voltage	Circuit diagram	Reference code	Weight kg
 	CWM9...40	24 - 48 V 50/60 Hz		BAMRC4 D53	0.014
		50 - 127 V 50/60 Hz		BAMRC5 D55	
		130 - 250 V 50/60 Hz		BAMRC6 D63	
	CWM50...105	24 - 48 V 50/60 Hz		BAMRC7 D53	
		50 - 127 V 50/60 Hz		BAMRC8 D55	
		130 - 250 V 50/60 Hz		BAMRC9 D63	
	CWM112...250	24 - 48 V 50/60 Hz		BAMRC13 D53	
		50 - 250 V 50/60 Hz		BAMRC14 D56	
	CWM9...25	12 - 600 V dc		BAMDI10 C33	
	CWM9...105	270 - 380 V 50/60 Hz		BAMV1 D68	
		400 - 510 V 50/60 Hz		BAMV2 D73	
	CWM112...250	270 - 380 V 50/60 Hz		BAMV3 D68	
		400 - 510 V 50/60 Hz		BAMV4 D73	

Terminal Cover

- Protection against touching in accordance with relating installation rules

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWM112/150	1 kit with 2 parts[1)]	BMP CWM150	0.10
	CWM180		BMP CWM180	0.15
	CWM250/300		BMP CWM300	0.20
	CWM112/150	1 kit with 1 part[1)]	BMP1 CWM150	0.05
	CWM180		BMP1 CWM180	0.08
	CWM250/300		BMP1 CWM300	0.10
	CWM400 (3-pole)	1 kit with 2 parts[1)]	BMP CWM400	0.12
	CWM500...800 (3-pole)		BMP CWM800	0.28
	CWM400 (4-pole)		BMP CWM400-4P	0.16
	CWM500...800 (4-pole)		BMP CWM800-4P	0.37

Terminal Blocks[2)]

Illustrative picture	For use with	Flexible cable	Tightening torque	Description	Reference code	Weight kg
	CWM112/150	25...70 mm² 3...2/0 AWG	14 N.m	1 unit (3-pole)	TB150	0.29
	CWM180	50...120 mm² 1/0...250 kcmil AWG	14 N.m		TB180	0.35
	CWM250/300	50...150 mm² 1/0...300 kcmil AWG	20 N.m		TB300	0.45

Lug Terminals

Illustrative picture	For use with	Description	Reference code	Weight kg
	CWM400	1 kit with 3 pieces	BMJ CWM400	0.495
	CWM500...800	1 kit with 3 pieces	BMJ CWM400	1.0

Notes: 1) Every part is a 3-phase protector.
2) For IP20 protection degree on front.

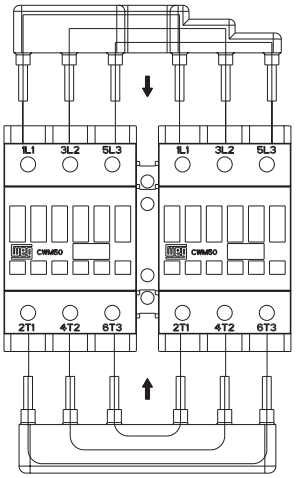
Contactors - Wiring kits for Starters

Reversing Wiring Kits

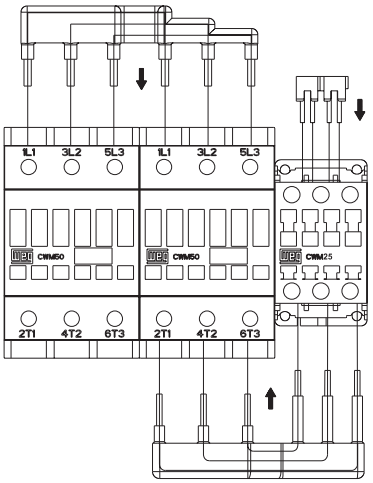
Rated operational current Ie AC - 3 ($U_e \leq 440$ V) A	Maximum rated operational power of three-phase motors 50/60 Hz			Contactors	Reference code	Weight
	220-230 V	400-415 V	660-690 V			
	kW / hp	kW / hp	kW / hp	K1 = K2		kg
9	2.2 / 3	4 / 5	5.5 / 7.5	CWM9	EC-R-7.5	0.033
12	3 / 4	5.5 / 7.5	7.5 / 10	CWM12		
18	4.5 / 6	7.5 / 10	11 / 15	CWM18		
25	5.5 / 7.5	11 / 15	11 / 15	CWM25	EC-RC-11	0.5
32	9.2 / 12.5	15 / 20	18.5 / 25	CWM32	EC-RC-18.5	
40	11 / 15	18.5 / 25	22 / 30	CWM40		
50	15 / 20	22 / 30	30 / 40	CWM50	EC-RC-37	
65	18.5 / 25	30 / 40	37 / 50	CWM65		
80	22 / 30	45 / 60	45 / 60	CWM80		

Star-Delta Wiring Kits

Rated operational current Ie AC - 3 ($U_e \leq 440$ V) A	Maximum rated operational power of three-phase motors 50/60 Hz			Contactors		Reference code	Weight
	220-230 V	400-415 V	660-690 V				
	kW / hp	kW / hp	kW / hp	K1 = K2	K3		kg
25	5.5 / 7.5	11 / 15	18.5 / 25	CWM18	CWM9	EC-SD-15	0.051
32	7.5 / 10	15 / 20	18.5 / 25	CWM18	CWM12		
40	7.5 / 10	18.5 / 25	22 / 30	CWM25	CWM18	EC-SD-22	0.5
50	11 / 15	22 / 30	22 / 30	CWM25	CWM18		
54	15 / 20	22 / 30	30 / 40	CWM32	CWM18	EC-SD-25	
60	15 / 20	30 / 40	37 / 50	CWM40	CWM25	EC-SD-30	
80	18.5 / 25	37 / 50	45 / 60	CWM50	CWM25	EC-SD-37	
85	22 / 30	45 / 60	55 / 75	CWM50	CWM32	EC-SD-55	
105	30 / 40	55 / 75	55 / 75	CWM65	CWM40		
138	37 / 50	75 / 100	75 / 100	CWM80	CWM50	EC-SD-75	
140	37 / 50	75 / 100	90 / 125	CWM95	CWM50	EC-SD-90	
175	45 / 60	90 / 125	110 / 150	CWM105	CWM65		



Wiring kit for reversing starters

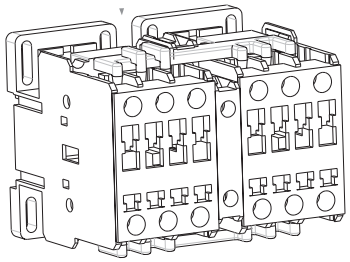


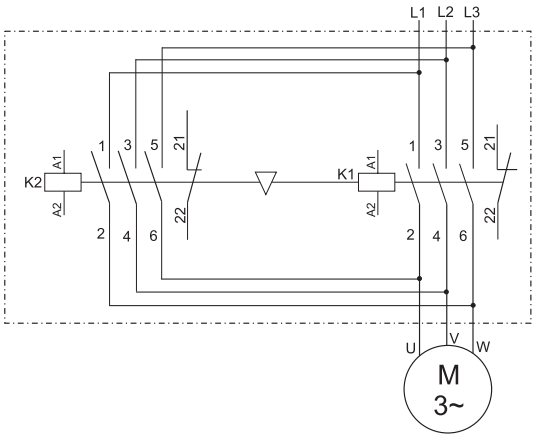
Wiring kit for star-delta starters

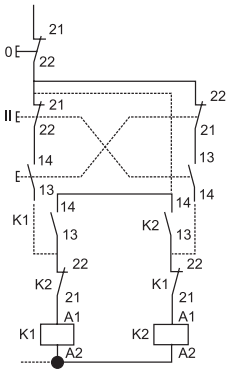
Contactors - Reversing Starters

Individual Components for Reversing Starters

Maximum rated operational power of three-phase motors 50/60 Hz				Individual components for reversing starters					
				Contactor K1	Contactor K2	Spare auxiliary contacts		Mechanical interlock	Wiring kit
220-230 V kW / hp	400-415 V kW / hp	500 V kW / hp	660-690 V kW / hp	Type	Type	K1	K2		
2.2 / 3	4 / 5	4.5 / 6	5.5 / 7.5	CWM9-11	CWM9-11	-	-	BLIM9-105	EC-SD
3 / 4	5.5 / 7.5	5.5 / 7.5	7.5 / 10	CWM12-11	CWM12-11	-	-		
4.5 / 6	7.5 / 10	9.2 / 12.5	11 / 15	CWM18-11	CWM18-11	-	-		
5.5 / 7.5	11 / 15	11 / 15	11 / 15	CWM25-11	CWM25-11	-	-		
9.2 / 12.5	15 / 20	15 / 20	18.5 / 25	CWM32-11	CWM32-11	-	-		
11 / 15	18.5 / 25	22 / 30	22 / 30	CWM40-11	CWM40-11	-	-		
15 / 20	22 / 30	30 / 40	30 / 40	CWM50-11	CWM50-11	-	-		
18.5 / 25	30 / 40	37 / 50	37 / 50	CWM65-11	CWM65-11	-	-		
22 / 30	45 / 60	45 / 60	45 / 60	CWM80-11	CWM80-11	-	-		
22 / 30	55 / 75	55 / 75	55 / 75	CWM95-11	CWM95-11	-	-		-
30 / 40	55 / 75	55 / 75	55 / 75	CWM105-11	CWM105-11	-	-		
30 / 40	55 / 75	55 / 75	75 / 100	CWM112-22	CWM112-22	1NO/1NC	1NO/1NC	BLIM112-300	
45 / 60	75 / 100	90 / 125	110 / 150	CWM150-22	CWM150-22	1NO/1NC	1NO/1NC		
55 / 75	90 / 125	110 / 150	110 / 150	CWM180-22	CWM180-22	1NO/1NC	1NO/1NC		
75 / 100	132 / 175	160 / 220	160 / 220	CWM250-22	CWM250-22	1NO/1NC	1NO/1NC		
90 / 125	160 / 220	200 / 270	200 / 270	CWM300-22	CWM300-22	1NO/1NC	1NO/1NC		







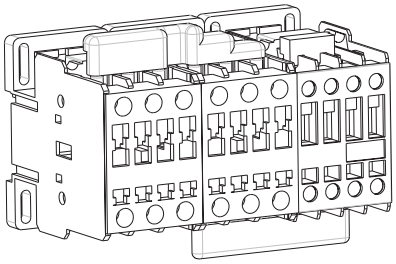
Reversing starters

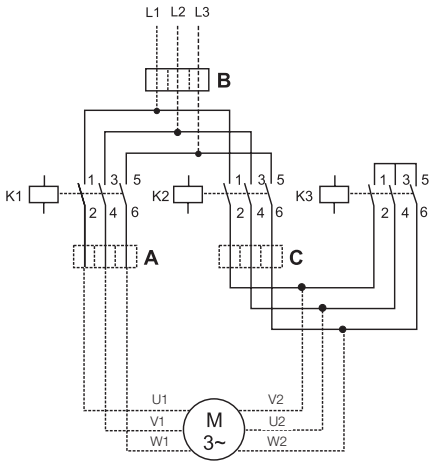
Contactors - Star-Delta Starters

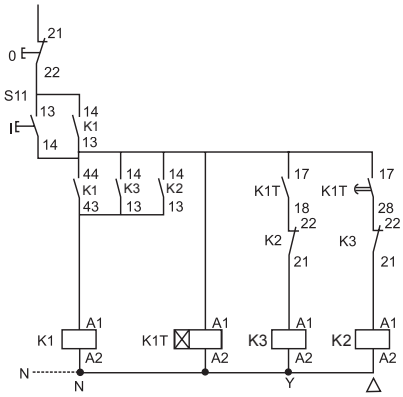
Individual Components for Star-Delta Starters

Maximum rated operational power of three-phase motors 50/60 Hz				Individual components for Star-Delta Starters							
				Main contactor K1	Delta contactor K2	Star contactor K3	Timer	Spare auxiliary contacts			Wiring kit
220-230 V kW / hp	400-415 V kW / hp	500 V kW / hp	660-690 V kW / hp	Type	Type	Type		K1	K2	K3	
5.5 / 7.5	11 / 15	15 / 20	18.5 / 25	CWM18-10 + BCXMF10	CWM18-11	CWM9-11	RTW-ET....	-	-	-	EC-SD...
7.5 / 10	15 / 20	15 / 20	18.5 / 25	CWM18-10 + BCXMF10	CWM18-11	CWM12-11		-	-	-	
7.5 / 10	18.5 / 25	22 / 30	22 / 30	CWM25-00 + 2 x BCXMF10	CWM25-11	CWM18-11		-	-	-	
11 / 15	22 / 30	22 / 30	22 / 30	CWM25-00 + 2 x BCXMF10	CWM25-11	CWM18-11		-	-	-	
15 / 20	30 / 40	37 / 50	37 / 50	CWM40-00 + 2 x BCXMF10	CWM40-11	CWM25-11		-	-	-	
18.5 / 25	37 / 50	37 / 50	45 / 60	CWM50-00 + 2 x BCXMF10	CWM50-11	CWM25-11		-	-	-	
22 / 30	45 / 60	45 / 60	55 / 75	CWM50-00 + 2 x BCXMF10	CWM50-11	CWM32-11		-	-	-	
30 / 40	55 / 75	55 / 75	55 / 75	CWM65-00 + 2 x BCXMF10	CWM65-11	CWM40-11		-	-	-	
37 / 50	75 / 100	75 / 100	90 / 125	CWM95-00 + 2 x BCXMF10	CWM95-11	CWM50-11		-	-	-	
45 / 60	90 / 125	110 / 150	110 / 150	CWM105-00 + 2 x BCXMF10	CWM105-11	CWM65-11		-	-	-	
55 / 75	110 / 150	110 / 150	132 / 175	CWM150-22	CWM150-22	CWM65-11		2NC	1NO/NC	-	
75 / 100	132 / 175	132 / 175	132 / 175	CWM180-22	CWM180-22	CWM80-11		2NC	1NO/NC	-	
90 / 125	160 / 220	160 / 220	200 / 300	CWM250-22	CWM250-22	CWM105-11		2NC	1NO/NC	-	
110 / 150	200 / 270	250 / 330	-	CWM300-22	CWM300-22	CWM150-22		2NC	1NO/NC	1NO/NC	

Star-Delta Starters







A: 0.58 x Ir, motor protection at star and delta position
B: 1 x Ir, only partial motor protecton at star position
C: 0.58 x Ir, motor not protected at star position

Contactors - Technical Data

General Data for CWM9...CWM300

Reference code	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300
Standards	IEC 60947 / UL 508															
Rated insulation voltage U_i IEC 60947 UL / CSA	1.000 V 600 V															
Rated impuse withstand voltage U_{imp}	6 kV						8 kV									
Rated operational frequency	25 - 400 Hz															
Degree of protection Main circuits Control circuits and auxiliary contacts	Protection against direct contact from the front when operated by a perpendicular test finger (IEC 536)															
	IP20				IP10							IP00				
	IP20															
Ambient temperature Operating temperature Storage temperature	-25 °C to +55 °C -55 °C to +80 °C															
Altitude Normal values 90% I_e / 80% U_e 80% I_e / 75% U_e	Up to 3,000 m 3,000 to 4,000 m 4,000 to 5,000 m															
Overvoltage category / Pollution degree	III / 3															
Climatic proofing	Acc. IEC 60680-2															
Pole numbers of main circuits	3															
Rated operation voltage U_e	690 V						1,000 V									
Mechanical lifespan Ops x 10^6	10															
Electrical lifespan (AC - 3) Ops x 10^6	1.5		1.2				1.1					1.0				
Mounting	Screw or 35 mm DIN Rail											Screw				

Control Circuit for CWM9...CWM300

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300
Rated insulation voltage U_i	IEC	1,000 V															
	UL, CSA	600 V															
Rated voltages (standard coil)	Us 50/60 Hz	12...660 V											12...550 V	-	24...690		-
Rated voltages (electronic module)	Us 50/60 Hz	-											24...500 V				
Rated voltages	Us dc	12...440 V				24...240 V							24...500 V				
Operation time[1]	Closing/Opening (AC) ms	8...20 / 6...13				10...19 / 5...25		15...30 / 9...15					60...70 / 13...17				
	Closing/Opening (DC) ms	35...45 / 7...12				50...60 / 55...60							60...70 / 13...17			60...70 / 15...25	
Power consumption of the AC coil 50/60 Hz[1]																	
Pick-up	(VA)	69.5				98		255					213		214	229	
	cos φ	0.85				0.69		0.32					0.71		0.68	0.73	
Sealing	(VA)	4...7.2				6.6...12.3		13.1...19.1					14.8		14.1	14.1	
	cos φ	0.28				0.34		0.54					0.26		0.27	0.26	
Power consumption of the coil - DC coils[1]																	
Pick-up	(W)	3.8...7.5				240		340					166		154	171	
Sealing	(W)	3.8...7.5				6		6.5					2.4		2.4	2.5	
Number of terminals	AC coil	4				4		3					2				
	DC coil	3				4		3					2				
Coil operation limits 50/60 Hz[1]		0.85...1.1 x U_s											0.65...1.1 x U_s				
Bifrequency coils[1]	Pick-up	0.5...0.8				0.5...0.8		0.5...0.8					0.7...0.85		0.7...0.85	0.7...0.85	
	Sealing	0.2...0.6				0.2...0.6		0.25...0.6					0.4...0.6		0.4...0.6	0.4...0.6	

Note: 1) Values applicable for contactors CWM112...300 with electronic module. For contactors with standard coil only on request;

Contactors - Technical Data

Main Contacts for CWM9...CWM300

Reference code			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300
Rated operational current I_e	AC-3 ($U_e \leq 440$ V)	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300
	AC-4 ($U_e \leq 440$ V)	(A)	5	7	8	12	16	18.5	23	30	37	44	50	63	69	73	110	145
	AC-1 ($\theta \leq 55$ °C, $U_e \leq 690$ V)	(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410
Rated operational voltage U_e	IEC/EN 60947-4-1, VDE 0660	(V)	690						1,000									
	UL, CSA	(V)	600															
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	350	410
Making capacity - IEC/EN 60947		(A)	300	300	300	450	550	550	1,000	1,000	1,000	1,280	1,280	1,430	1,820	2,100	2,600	3,000
Breaking capacity IEC/EN 60947	($U_e \leq 400$ V)	(A)	250	250	250	350	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-
	($U_e = 500$ V)	(A)	250	250	250	320	450	450	920	920	920	1,050	1,050	1,290	1,350	1,400	2,000	-
	($U_e = 690$ V)	(A)	130	130	130	170	205	205	780	780	780	950	950	-	-	-	-	-
Short-time current No current flowing during recovery time 10 min. and $\theta \leq 40$ °C)	1 sec	(A)	455	455	570	630	1,010	1,265	1,580	2,530	2,530	3,300	3,300	3,165	3,763	4,649	4,427	-
	5 sec	(A)	205	205	254	280	450	450	710	1,130	1,130	1,485	1,485	1,820	2,164	2,673	2,546	-
	10 sec	(A)	144	144	180	200	320	400	500	800	800	1,050	1,050	1,430	1,700	2,100	2,000	-
	30 sec	(A)	85	85	104	115	185	230	290	460	460	600	600	826	980	1,212	1,155	
	1 min	(A)	60	60	74	80	130	165	205	325	325	430	430	584	694	857	816	-
	3 min	(A)	35	35	46	50	90	100	120	185	185	250	250	337	401	495	471	-
Protection against short-circuits with fuses(gL/gG)	@600 V - UL/CSA	(kA)	5						10								18	
	Coordination type 1	(A)	50	50	63	63	100	125	200	200	200	250	250	-	355	355	500	630
	Coordination type 2	(A)	25	35	35	50	63	80	100	125	125	160	200	224	250	250	400	500
Impedance per pole		(mΩ)	2.4	2.4	2.4	1.7	1.3	1.0	0.9	0.9	0.9	0.8	0.8	0.5	0.5	0.45	0.3	0.3
Power dissipation per pole	AC-1	(W)	1.5	1.5	2.5	3.3	4.6	3.4	6.7	10.4	10.4	14.9	14.9	16	25	21.6	35	45.7
	AC-3	(W)	0.2	0.3	0.8	1.0	1.3	1.5	2.1	3.6	5.5	6.9	8.4	6.2	11.1	13.8	17.9	25.7
Utilization category AC-3																		
Rated operational current I_e ($\theta \leq 55$ °C)	$U_e \leq 440$ V	(A)	9	12	18	25	32	40	50	65	80	95	105	112	150	180	250	300
	$U_e \leq 500$ V	(A)	7.5	10.5	14	19	24	32	38	55	63	79	85	95	130	155	220	265
	$U_e \leq 690$ V	(A)	7	9	13	15	22	25	34	44	48	60	67	82	110	135	185	220
	$U_e \leq 1{,}000$ V	(A)	Not available						19	25	30	37	40	42	48	68	103	126
Rated operational power	220 / 230 V	(kW)	2.2	3	4.5	5.5	9.2	11	15	18.5	22	22	30	30	45	55	75	90
		(hp)	3	4	6	7.5	12.5	15	20	25	30	30	40	40	60	75	100	125
	380 / V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	90	132	150
		(hp)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	125	175	200
	400 / 415 V	(kW)	3.7	5.5	7.5	11	15	18.5	22	30	37	45	55	55	75	110	132	150
		(hp)	5	7.5	10	15	20	25	30	40	50	60	75	75	100	150	175	200
	440 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185
		(hp)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250
	500 V	(kW)	4.5	5.5	9.2	11	15	22	30	37	45	55	55	55	90	110	150	185
		(hp)	6	7.5	12.5	15	20	30	40	50	60	75	75	75	125	150	200	250
	660 / 690 V	(kW)	5.5	7.5	11	11	18.5	22	30	37	45	55	55	75	110	110	150	185
		(hp)	7.5	10	15	15	25	30	40	50	60	75	75	100	150	150	200	250
Percentage of the maximum operational current at	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1,200 ops./h	(%)	100	100	100	100	100	100	100	100	100	75	75	75	75	75	75	75
	3,000 ops./h	(%)	35	35	35	35	35	35	35	35	35	25	25	25	25	25	25	25
Utilization category AC-4																		
Rated operational current Ie AC-4 ($U_e \leq 690$ V)		(A)	5	7	8	12	16	18.5	23	30	37	44	50	50	55	58	88	116
Rated operational power	220 / 230 V	(kW)	1.1	1.5	1.5	3	3.7	4.5	55	7.5	9.2	11	11	18.5	18.5	22	37	45
		(hp)	1.5	2	2	4	5	6	7.5	10	12.5	15	15	25	25	30	50	60
	380 / 400 V	(kW)	2.2	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	30	37	55	75
		(hp)	3	4	5	7.5	10	12.5	15	20	25	30	30	40	40	50	75	100
	415 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75
		(hp)	3	5	6	7.5	12.5	15	15	20	30	30	40	50	50	60	75	100
	440 V	(kW)	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30	37	37	45	55	75
		(hp)	3	5	6	7.5	125	15	15	20	30	30	40	50	50	60	75	100
	500 V	(kW)	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22	30	37	45	45	75	90
		(cv)	4	5	7.5	10	12.5	15	20	25	30	30	40	50	60	60	100	125
	660 / 690 V	(kW)	3	4.5	5.5	7.5	11	11	15	18.5	22	30	30	45	45	55	90	90
		(cv)	4	6	7.5	10	15	15	20	25	30	40	40	60	60	75	125	125

Contactors - Technical Data

Main Contacts for CWM9...CWM300

Reference code			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM300
Utilization category AC-1																	
			3P (NO) or 4P (4NO)			3P (NO)								3P (NO)			
Rated thermal current I_{th} ($\theta \leq 55$ °C)		(A)	25	25	32	45	60	60	90	110	110	140	140	180	225	225	410
Max. operational current at ambient temperature of (up to 690 V)	$\theta \leq 55$ °C	(A)	25	25	32	45	60	60	90	110	110	140	140	160	190	200	350
	$\theta \leq 70$ °C	(A)	20	20	25	32	48	48	72	88	88	110	110	120	145	145	250
	$\theta \leq 75$ °C	(A)	17	17	22	26	42	42	63	77	77	95	95	101	124	120	206
Max. operational power $\theta \leq 55$ °C (Three-phase resistors)	220 / 230 V	(kW)	9.5	9.5	12	17	22.5	22.5	34	42	42	53	53	68	85	85	156
	380 / 400 V	(kW)	16.5	16.5	21	29.5	39.5	39.5	59	72.5	72.5	92	92	118	145	145	270
	415 / 440 V	(kW)	19	19	24	34	45.5	45.5	68.5	84	84	106.5	106.5	130	160	160	295
	500 V	(kW)	21.5	21.5	27.5	39	52	52	77	95	95	121	121	155	190	190	355
	575 / 600 V	(kW)	24.1	24.1	30.9	43.4	57.9	57.9	86.8	106.1	106.1	135.1	135.1	180	225	225	400
	660 / 690 V	(kW)	28.5	28.5	38	51	68.5	68.5	100	125	125	160	160	205	255	255	470
Cable size		(mm²)	4	4	6	10	16	16	35	35	35	50	50	120	120	120	2 x 150
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 the maximum operational current at	600 ops./h	(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1,200 ops./h	(%)	100	100	100	100	100	100	100	100	100	80	80	80	80	80	80
	3,000 ops./h	(%)	50	50	50	50	50	50	50	50	50	40	40	40	40	40	40
			2P (NO/NC) 4P (2NO+2NC)			2P (NO/NC)											
Max. operational power $\theta \leq 55$ °C (Resistive loads)	220 / 230 V	(kW)	5.5	5.5	7.04	9.9	13.2	14.9	22.2	27.5	27.5	34.1	34.1	-	-	-	-
	380 / 400 V	(kW)	9.5	9.5	12.1	17.1	22.8	25.8	38.6	47.5	47.5	58.9	58.9	-	-	-	-
	415 / 440 V	(kW)	10.3	10.3	13.2	18.6	24.9	28.2	42.3	51.8	51.8	64.3	64.3	-	-	-	-
	500 V	(kW)	12.5	12.5	16	22.5	30	34	50.6	62.5	62.5	77.5	77.5	-	-	-	-
	660 / 690 V	(kW)	16.5	16.5	21.1	29.7	39.6	44.8	66	82.5	82.5	102.3	102.3	-	-	-	-

UL Power Ratings for CWM9...CWM300

Reference code			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105	CWM112	CWM150	CWM180	CWM250	CWM300
General purpose current	(600 V)	(A)	25	25	32	32	60	60	90	110	110	140	140	170	200	200	300	400
1-phase	110 / 120 V	(HP)	0,75	0,75	1	2	3	3	5	5	7,5	7,5	10	-	-	-	-	-
	220 / 240 V	(HP)	1,5	2	3	5	5	5	7,5	10	15	15	20	-	-	-	-	-
3-phase	200 V	(HP)	3	3	5	7,5	10	10	15	20	20	25	30	40	50	60	75	100
	220 / 240 V	(HP)	3	3	5	7,5	10	15	15	20	25	30	40	50	60	75	100	125
	440 / 480 V	(HP)	5	7,5	10	15	20	30	40	50	50	60	75	100	125	150	200	250
	550 / 600 V	(HP)	7,5	10	15	15	25	25	40	50	60	75	75	100	150	200	250	350

Contactors - Technical Data

General Data and Main Contacts for CWM400...CWM800

Reference code		CWM400	CWM500	CWM630	CWM800
Standards		IEC 60947 / UL 508			
Rated insulation voltage U_i IEC 60947 UL / CSA		1,000 V 600 V			
Rated impuse withstand voltage U_{imp}		6 kV			
Rated operational frequency		25 - 400 Hz			
Degree of protection Main circuits Control circuits and auxiliary contacts		IP00 IP20			
Ambient temperature Operating temperature Storage temperature		-25 °C to + 55 °C -55 °C to + 80 °C			
Altitude Normal values 90% I_e / 80% U_e 80% I_e / 75% U_e		Up to 3,000 m 3,000 to 4,000 m 4,000 to 5,000 m			
Overvoltage category / Pollution degree		III / 3			
Climatic proofing		Acc. to IEC 60680-2			
Pole numbers of main circuits		3			
Rated operation voltage U_e		690 V			
Conv. thermal current I_{th} at < 55 °C rated operational current Ie/AC-1	(A)	450	580	660	900
Rated operational current I_e AC-4 ($U_e \leq 440$ V)	(A)	300	350	400	630
AC-3 utilization category Rated operational power 220-230 V 400-415 V 440 V 500 V 690 V	 (kW) (kW) (kW) (kW) (kW)	 125 220 220 225 250	 150 265 265 265 300	 190 330 330 330 330	 220 440 440 500 500
Short circuit rating max. fuse gL-gG[1)]	(A)	630	800	800	1,000
Max. electrical operational per hour AC-1 AC-3 AC-4 No load	 Ops/h Ops/h Ops/h Ops/h	 300 1,200 150 1,200	 300 1,200 150 1,200	 300 1,200 150 1,200	 300 1,200 150 1,200
Mechanical lifespan	Ops x 10^6	5			
Electrical lifespan (AC - 3)	Ops x 10^6	0.5			0.6

Note: 1) Type 2 coordination.

UL Power Ratings for CWM400...CWM800

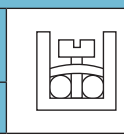
Reference code			CWM400	CWM500	CWM630	CWM800
General purpose current	(600 V)	(A)	450	580	660	900
3-phase	200 V	(HP)	125	150	200	200
	220 / 240 V	(HP)	150	200	250	300
	440 / 480 V	(HP)	300	400	500	600
	550 / 600 V	(HP)	300	400	500	600

Control Circuit for CWM400...CWM800

Reference code (3 pole and 4 pole contactors)			CWM400	CWM500	CWM630	CWM800
Coil operation limit			0.85...1.1 x U_s			
Pick-up		(xUs)	0.78	0.75		
Drop-out		(xUs)	0.30...0.60	0.30...0.60		
Coil consumption	Closing	(VA)	571	1,000		
	Closed	(VA)	14	29		
	Dissipation	(W)	5	7.8		
Number of terminals			2			

Contactors - Technical Data

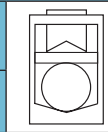
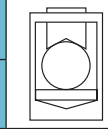
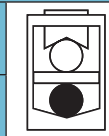
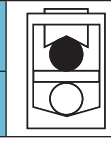
Terminal Capacity and Tightening Torque - Power Terminals

Reference code		CWM9 / CWM12 / CWM18			CWM25		
Screw type		M3.5x 9 Flat / Phillips			M4x 12 Flat / Phillips		
Power terminal capacity[1)]		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²		1x 0.5...4 2x 0.5...2.5	1x 1...6 2x 1...2.5 2x 2.5...6	1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	1x 1...10 2x 1...2.5 2x 2.5...10
AWG (UL)		14...10			14...8		

Tightening torque (N.m)	1...1.5	1.6...2.5
Tightening torque (lb.in) (UL)	15	16

Note: 1) This information is also valid for built-in auxiliary terminals for CWM9 to CWM18.

Terminal Capacity and Tightening Torque - Power Terminals

Reference code		CWM32 / CWM40			CWM50 / CWM65 / CWM80			CWM95 / CWM105		
Screw type		M4x 16.5 Flat / Phillips			M8 Allen 4mm			M10 Allen 4mm		
Power terminal capacity		Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
One conductor on bottom										
mm²		1...16	1.5...16	1...16	2.5...35	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
One conductor on top										
mm²		0.75...16	1...16	0.75...16	1...35	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		
Two conductors at the same time - bottom conductor										
mm²		1...16	1.5...16	1...16	2.5...25	6...35	2.5...35	4...35	6...35	4...35
AWG (UL)		14...8			14...1/0			10...1/0		
Two conductors at the same time - top conductor										
mm²		0.75...16	1...16	0.75...16	1...25	1.5...35	1...35	1.5...50	2.5...50	1.5...50
AWG (UL)		14...8			14...1/0			10...1/0		

Tightening torque (N.m)	2...2.5	4...6	5...6.5
Tightening torque (lb.in) (UL)	22	40	60

Reference code		CWM112 / CWM150		CWM180		CWM250 / CWM300		CWM400		CWM500 / CWM630		CWM800	
Screw type		M6 Hexagon Head		M8 Hexagon Head		M10 Hexagon Head		M12 Hexagon Head		M16 Hexagon Head		M16 Hexagon Head	
Main terminal capacity		Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars	Solid and stranded with end sleeve	Busbars
mm²		2x 25...70	2 x (15 x 3)	2x 50...120	2 x (20 x 3)	2x 50...150	2 x (30 x 5)	2x 120...185	2x (30x5)	2x 185...300	2x(50x5)	2x 185...300	2x (60x5)
AWG (UL)		2x 2...3/0	-	2x 1/0...250	-	2x 1/0...300	-	2x 250...400	-	2x 400...600	-	2x 400...600	-
Tightening Torque (N.m)		5.4...6		14...16		23...26		23...26		54...60			

Contactors - Technical Data

Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWM9...105			CWM112...300		
Screw type	M3.5x 10 Flat / Phillips			M3.5x 10 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5	1x 1...4 2x 1...2.5	1x 0.5...4 2x 0.5...1.5 2x 1...2.5
AWG (UL)	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 20...10 2x 20...14 2x 16...12	1x 16...10 2x 16...12	1x 20...10 2x 20...14 2x 16...12
Tightening torque (N.m)	0.8...1.1			0.8...1.1		
Tightening torque (lb.in) (UL)	10			10		

Terminal Capacity and Tightening Torque - Coil Terminals

Reference code	CWM400...CWM800		
Screw type	M4 Flat / Phillips		
Coil terminal	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 1.25...5.5 or 2x 1.25...5.5		
AWG (UL)	16...10		
Tightening torque (N.m)	2...2.3		
Tightening torque (lb.in) (UL)	17.7...20.3		

Terminal Capacity and Tightening Torque - Auxiliary Contact Blocks

Reference code	BCXMF BCXML		
Screw type	M3.5x9 Fenda / Philips		
Auxiliary contact block	Finely stranded with end sleeve	Stranded and finely stranded without end sleeve	Solid
mm²	1x 0.5...4 2x 0.5...2.5	1x 0.75...2.5 2x 0.75...2.5	1x 0.5...4 2x 0.5...2.5
AWG (UL)	22...12		
Tightening torque (N.m)	0.8...1.1		
Tightening torque (lb.in) (UL)	10		

Contactors - Technical Data

Auxiliary Contacts - Contactors CWM

Reference code			Built-in auxiliary contacts of contactors			Auxiliary contact blocks	
			CWM9	CWM12	CWM18	BCXMF...	BCXML...
Rated insulation voltage U_i							
IEC/EN 60 947		(V)	1.000			1.000	
UL/CSA		(V)	600			600	
Rated operational voltage U_e		(V)	690			690	
Conv. thermal current I_{th}		(A)	16			10	
Rated operational current I_e							
AC-15	220 - 240 V	(A)	10			6	
	380 - 400 V	(A)	6			4	
	415 V	(A)	5			3.5	
	500 V	(A)	4			2.5	
UL/CSA			A600			A600	
DC-13	24 V	(A)	6			6	
	48 V	(A)	4			4	
	110 V	(A)	2			2	
	220 V	(A)	0.7			0.7	
UL/CSA			P600			Q600	
Making capacity I_m							
AC-15/AC-11	$U_e \leq$ 400 V 50/60 Hz	(A)	250			90	
AC-13/DC-11	$U_e \leq$ 220 V dc	(A)	250			90	
Breaking capacity I_c							
AC-15/AC-11	$U_e \leq$ 400 V 50/60 Hz	(A)	250			60	
AC-13/DC-11	$U_e \leq$ 220 V dc	(A)	2			0.95	
Short circuit protection max. fuse gL/gG		(A)	10			10	
Control circuit reliability			I_e min = 5 mA. U_e min = 17 V				
Electrical lifespan		Ops	10^6				
Mechanical lifespan		Ops	15 x 10^6				

Auxiliary Contacts - Auxiliary Contact Blocks BCXML11 CWM800 and BCXMRL11 CWM800

Reference code			BCXML11 CWM800 / BCXMRL11 CWM800	
Conv. thermal current I_{th}		(A)	16	
Rated operational current I_e				
AC category			AC-15	AC-12
(A600)		110 V (A)	6	10
		220 V (A)	5	10
		440 V (A)	3	5
		600 V (A)	3	5
DC category			DC-13	DC-12
(P600)		24 V (A)	6	5
		48 V (A)	3	3
		110 V (A)	1.2	1.3
		220 V (A)	0.2	0.25
Mechanical lifespan		Ops x 10^6	10	
Electrical lifespan Operations x 10^6	AC-15		0.5	
	AC-12		0.25	
	DC-13 / DC-12		0.5	
Max. electrical operational per hour			1.800	

Contactors - Technical Data

Contactors for Lighting Circuits

				Maximum number of lamps per phase at 220 V										
Lamp type	W	A	µF	CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Incandescent	60	0.27	-	62	62	70	77	85	122	156	191	222	264	284
	100	0.45	-	40	40	50	60	66	73	95	116	133	160	170
	200	0.91	-	20	20	25	30	33	36	47	58	66	79	84
	300	1.36	-	13	13	17	20	22	24	31	38	44	53	56
	500	2.27	-	8	8	10	12	12	14	19	23	26	31	33
	1,000	4.50	-	4	4	5	6	6	7	9	11	13	16	16
	2,000	9.1	-	1	1	2	3	3	3	4	5	6	8	8
		AC-5b[1]	(A)	18	18	23	27	30	33	43	52	60	73	77
Fluorescent Single arrangement Without compensation	15	0.23	-	88	98	126	155	224	237	355	390	434	496	553
	20	0.37	-	57	61	78	110	139	147	221	243	270	309	344
	40	0.44	-	48	51	66	93	118	124	186	204	227	260	289
	65	0.7	-	30	32	41	58	74	78	116	127	142	163	181
	100	1.5	-	14	16	19	27	34	36	54	59	66	76	85
Fluorescent Single arrangement With compensation	15	0.23	3.5	61	77	94	111	134	149	191	232	273	312	347
	20	0.25	4.5	48	61	74	87	103	115	148	180	212	243	270
	40	0.3	4.5	48	61	74	87	103	115	148	180	212	243	270
	65	0.45	7	31	39	47	56	66	74	95	115	136	155	173
	100	0.7	18	11	14	17	21	23	29	37	45	53	60	67
High pressure Mercury vapour Without compensation	250	2.13	-	6	8	10	12	15	18	27	30	33	36	42
	400	3.25	-	4	5	6	8	10	12	18	20	22	24	28
	700	5.4	-	2	3	4	5	6	7	11	12	13	14	17
	1,000	7.5	-	2	2	3	3	4	5	8	9	9	10	12
High pressure Mercury vapour With compensation	250	1.3	20	11	14	18	22	27	33	49	55	60	66	77
	400	2.1	25	7	9	11	14	17	20	31	34	37	41	48
	700	3.6	40	4	5	6	8	10	12	18	20	22	24	28
	1,000	5.3	60	3	3	4	5	7	8	12	13	15	16	19
High pressure Sodium vapour Without compensation	250	3	-	4	5	7	9	11	13	19	21	24	26	30
	400	4.4	-	3	4	5	6	7	9	13	15	16	18	20
	1,000	10.3	-	1	2	2	2	3	4	6	6	7	7	9
High pressure Sodium vapour With compensation	250	1.45	40	10	12	16	20	25	30	44	49	54	59	69
	400	2.5	45	6	7	9	11	14	17	26	29	31	34	40
	1,000	5.5	100	3	3	4	5	6	8	12	13	14	16	18
Metal Iodide Without compensation	250	2.17	-	4	5	7	9	12	12	19	21	23	25	29
	400	3.48	-	3	3	4	6	8	8	12	13	14	16	18
	700	6.09	-	1	2	2	3	4	4	7	7	8	9	10
	1,000	8.7	-	1	1	2	2	3	3	5	5	6	6	7
	2,000	17.39	-	1	1	1	1	2	2	2	3	3	3	4
Metal Iodide With compensation	250	1.4	32	7	9	11	16	21	21	32	36	39	43	50
	400	2	45	5	6	8	11	15	15	23	25	28	30	35
	700	3.6	65	3	3	4	6	8	8	13	14	15	17	19
	1,000	5.3	85	2	2	3	4	6	6	8	9	10	11	13
	2,000	10.6	100	1	1	2	2	3	3	4	5	5	6	7

Note: 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).

Contactors - Technical Data

Contactors for Lighting Circuits

				Maximum number of lamps per phase at 220 V				
Lamp type	W	A	µF	CWM112	CWM150	CWM180	CWM250	CWM300
Incandescent	60	0.27	-	318	404	467	578	667
	100	0.45	-	193	245	283	350	404
	200	0.91	-	95	121	140	173	200
	300	1.36	-	64	81	93	116	133
	500	2.27	-	38	49	56	69	80
	1,000	4.50	-	19	24	28	35	40
	2,000	9.1	-	10	12	14	17	20
		AC-5b[1)]	(A)	87	110	127	158	182
Fluorescent Single arrangement Without compensation	15	0.23	-	652	815	978	1,522	1,783
	20	0.37	-	405	507	608	946	1,108
	40	0.44	-	341	426	511	795	932
	65	0.7	-	214	268	321	500	586
	100	1.5	-	100	125	150	233	273
Fluorescent Single arrangement With compensation	15	0.23	3.5	409	520	600	743	857
	20	0.25	4.5	318	404	467	578	667
	40	0.3	4.5	318	404	467	578	667
	65	0.45	7	204	260	300	371	429
	100	0.7	18	79	101	117	144	167
High pressure Mercury vapour Without compensation	250	2.13	-	54	62	68	106	124
	400	3.25	-	36	40	45	69	81
	700	5.4	-	21	24	27	42	49
	1,000	7.5	-	15	18	19	30	35
High pressure Mercury vapour With compensation	250	1.3	20	79	100	116	143	165
	400	2.1	25	63	80	92	114	132
	700	3.6	40	39	50	58	72	83
	1,000	5.30	60	26	33	39	48	55
High pressure Sodium vapour Without compensation	250	3.0	-	39	44	48	75	88
	400	4.4	-	26	30	33	51	60
	1,000	10.3	-	11	13	14	22	26
High pressure Sodium vapour With compensation	250	1.45	40	45	57	66	81	94
	400	2.5	45	40	51	58	72	83
	1,000	5.5	100	18	23	26	33	38
Metal Iodide Without compensation	250	2.17	-	37	42	47	73	85
	400	3.48	-	23	26	29	45	53
	700	6.09	-	13	15	17	26	30
	1,000	8.7	-	9	11	12	18	21
	2,000	17.39	-	5	5	6	9	11
Metal Iodide With compensation	250	1.4	32	56	71	82	102	117
	400	2	45	40	51	58	72	83
	700	3.6	65	28	35	40	50	58
	1,000	5.3	85	21	27	31	38	44
	2,000	10.6	100	18	23	26	33	38

Note: 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).

Contactors - Technical Data

DC - Utilization Category for CWM9-105 Contactors

Utilization Category DC-1 (L/R ≤ 1ms)

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
U_e	Poles in series	Maximum operational current I_e (A)										
≤ 24 V	1	18	18	18	25	32	40	50	65	65	80	80
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 48 V	1	15	15	15	20	25	35	45	55	55	70	70
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 60 V	1	12	12	12	18	18	32	40	50	50	65	65
	2	25	25	32	45	60	60	90	110	110	140	140
	3	25	25	32	45	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 125 V	1	6	6	6	8	8	8	16	16	16	16	16
	2	18	18	18	25	45	45	80	90	90	110	110
	3	25	25	25	32	60	60	90	110	110	140	140
	4	25	25	32	-							
≤ 220 V	1	0.8	0.8	0.8	0.8	1	1	2	2	2	2	2
	2	7.5	7.5	7.5	8	8	8	20	20	20	20	20
	3	25	25	25	32	50	50	90	110	110	140	140
	4	25	25	32	-							
≤ 440 V	1	0.4	0.4	0.4	0.4	0.5	0.5	0.8	0.8	0.8	0.8	0.8
	2	0.8	0.8	0.8	0.8	1	1	2	2	2	2	2
	3	8	8	8	10	10	10	15	15	15	15	15
	4	15	15	15	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	0.4	0.4	0.4	0.4	0.5	0.5	1	1	1	1	1
	3	4	4	4	5	5	5	7.5	7.5	7.5	7.5	7.5
	4	8	8	10	-							

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

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
U_e	Poles in series	Maximum operational current Ie (A)										
≤ 24 V	1	12	12	12	18	25	32	40	50	50	65	65
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 48 V	1	9	9	9	12	18	20	30	35	35	45	45
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 60 V	1	7.5	7.5	7.5	10	15	15	25	30	30	35	35
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 125 V	1	2	2	2	2	3	3	3	3	3	3	3
	2	10	10	12	18	25	32	50	60	60	85	85
	3	15	15	18	25	32	40	65	80	80	105	105
	4	15	15	18	-							
≤ 220 V	1	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.8	0.8
	2	2	2	2	2	2	2	7	7	7	7	7
	3	12	12	12	18	25	32	50	65	65	95	95
	4	12	15	18	-							
≤ 440 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	0.3	0.3	0.3	0.3	0.5	0.5	1	1	1	1	1
	3	1.5	1.5	1.5	1.5	3	3	3	3	3	3	3
	4	1.5	6	6	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	0.8	0.8	0.8	0.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	4	1	2.5	2.5	-							

Contactors - Technical Data

DC - Utilization Category for CWM9-105 Contactors

Utilization Category DC-5 (L/R ≤ 15ms)

Reference code		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
U_e	Poles in series	Maximum operational current Ie (A)										
≤ 24 V	1	12	12	12	18	25	32	40	50	50	65	65
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 48 V	1	9	9	9	12	18	20	30	35	35	45	45
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 60 V	1	7.5	7.5	7.5	10	15	15	25	30	30	35	35
	2	18	18	18	25	40	40	65	80	80	105	105
	3	18	18	18	25	40	40	65	80	80	105	105
	4	18	18	18	-							
≤ 125 V	1	0.8	0.8	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	2	5	5	5	5	5	5	50	60	60	80	80
	3	15	15	15	20	25	32	60	70	70	95	95
	4	15	15	18	-							
≤ 220 V	1	-	-	-	-	-	-	0.5	0.5	0.5	0.5	0.5
	2	0.8	0.8	0.8	0.8	0.8	0.8	3	3	3	4	4
	3	3	3	3	3	3	3	7	7	7	7	7
	4	10	10	10	-							
≤ 440 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	0.4	0.5	0.5	0.5	0.7	0.7	1	1	1	1	1
	4	1.5	2	2	-							
≤ 600 V	1	-	-	-	-	-	-	-	-	-	-	-
	2	-	-	-	-	-	-	-	-	-	-	-
	3	-	-	-	-	-	-	-	-	-	-	-
	4	0.5	0.75	0.75	-							

Utilization Category DC-1 (L/R ≤ 1ms)

Reference code		CWM112	CWM150	CWM180	CWM250	CWM300
U_e	Poles in series	Maximum operational current I_e (A)				
≤ 24 V	1	160	160	200	300	300
	2	180	225	225	350	410
	3	180	225	225	350	410
≤ 110 V	1	18	18	18	33	33
	2	112	150	170	250	280
	3	180	225	225	350	410
≤ 220 V	1	-	-	-	-	-
	2	90	120	140	200	220
	3	180	225	225	350	410
≤ 440 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	85	105	105	165	195

Contactors - Technical Data

DC - Utilization Category for CWM9-105 Contactors

Utilization Category DC-3 / DC-5 (L/R ≤ 15ms)

Reference code		CWM112	CWM150	CWM180	CWM250	CWM300
U_e	Poles in series	Maximum operational current I_e (A)				
≤ 24 V	1	112	112	180	250	250
	2	112	150	180	250	300
	3	112	150	180	250	300
≤ 110 V	1	18	18	18	33	33
	2	80	95	105	185	205
	3	112	150	180	250	300
≤ 220 V	1	-	-	-	-	-
	2	55	55	65	70	80
	3	80	120	150	200	200
≤ 440 V	1	-	-	-	-	-
	2	-	-	-	-	-
	3	27	40	50	67	67

Utilization Category DC-1 (L/R ≤ 1ms)

Reference code		CWM400	CWM500	CWM630	CWM800
U_e	Poles in series	Maximum operational current I_e (A)			
≤ 24 V	2	400	580	630	800
	3	400	580	630	800
≤ 48 V	2	240	580	630	800
	3	400	580	630	800
≤ 110 V	2	200	520	630	630
	3	400	580	630	800
≤ 220 V	2	200	450	630	630
	3	300	580	630	800

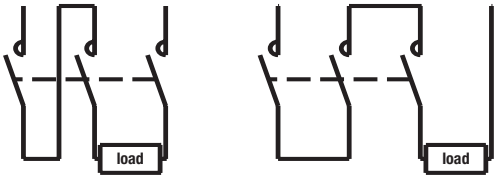
Utilization Category DC-2 / DC-4 (L/R ≤ 15ms)

Utilisation category		CWM400	CWM500	CWM630	CWM800
U_e	Poles in series	Maximum operational current I_e (A)			
≤ 24 V	2	400	580	630	800
	3	400	580	630	800
≤ 48 V	2	200	580	630	630
	3	280	580	630	630
≤ 110 V	2	150	500	630	630
	3	200	550	630	630
≤ 220 V	2	90	480	630	630
	3	150	500	630	630

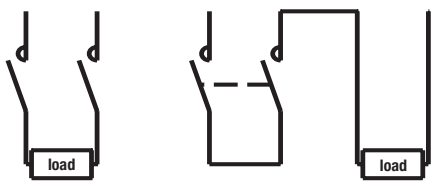
1 poles in series



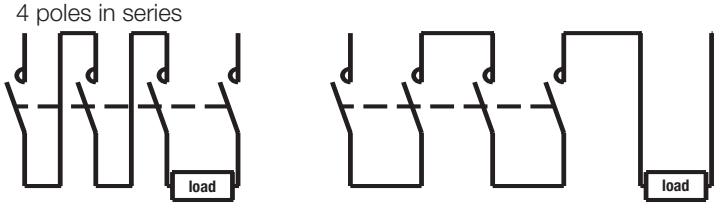
3 poles in series



2 poles in series

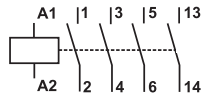
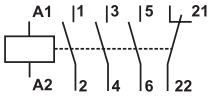
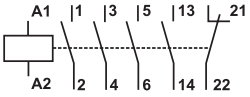
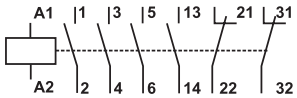
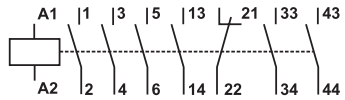
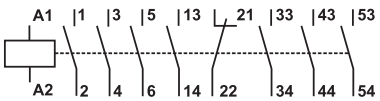


4 poles in series



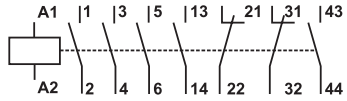
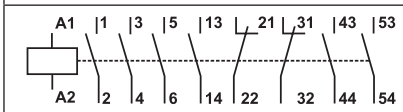
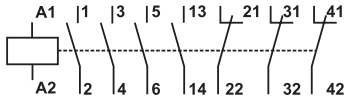
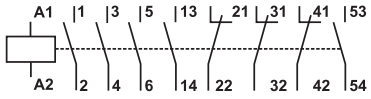
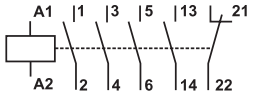
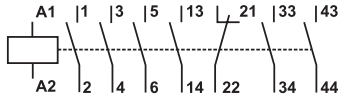
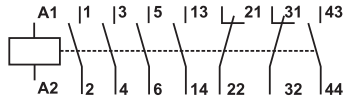
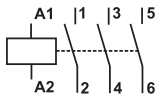
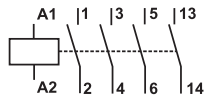
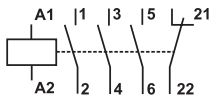
Contactors - Technical Data

Terminal Markings to EN 50012

	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
Without auxiliary contact blocks					
	10E	1	0	CWM9-10 CWM12-10 CWM18-10	-
	01E	0	1	CWM9-01 CWM12-01 CWM18-01	-
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	11E	1	1	CWM9-10 CWM12-10 CWM18-10	+ BCXMF01
	21E	2	1	CWM9-10 CWM12-10 CWM18-10	+ BCXMF10 + BCXMF01
	12E	1	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BXCMF01
	31E	3	1	CWM9-10 CWM12-10 CWM18-10	+ 2 BXCMF10 + BCXMF01
	41E	4	1	CWM9-10 CWM12-10 CWM18-10	+ 3 BXCMF10 + BCXMF01

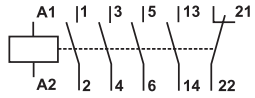
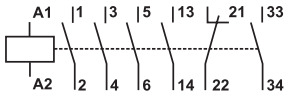
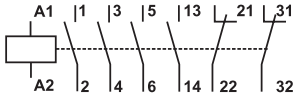
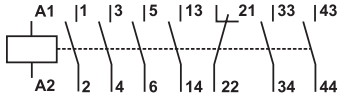
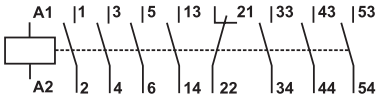
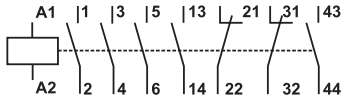
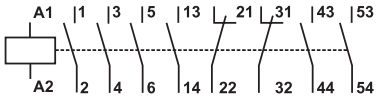
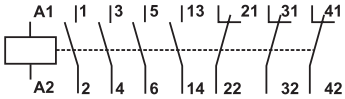
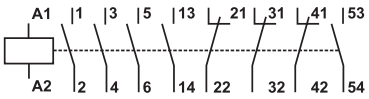
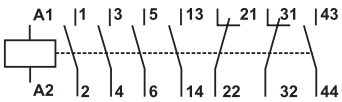
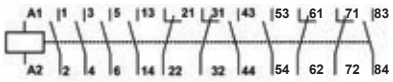
Contactors - Technical Data

Terminal Markings to EN 50012

	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	22E	2	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BXCMF01 + BCXMF10
	32E	3	2	CWM9-10 CWM12-10 CWM18-10	+ 2 BXCMF01 + 2 BXCMF10
	13E	1	3	CWM9-10 CWM12-10 CWM18-10	+ 3 BXCMF01
	23E	2	3	CWM9-10 CWM12-10 CWM18-10	+ 3 BXCMF01 + BCXMF10
Side mounting auxiliary contact blocks each with two contacts					
	11E	1	1	CWM25-00 to CWM105-00	+ BCXML11
	31E	3	1	CWM25-00 to CWM105-00	+ BCXML11 + BCXML20
	22E	2	2	CWM25-00 to CWM105-00	+ 1 BCXML11 + 1 BCXMRL11
Without auxiliary contact blocks					
	-	0	0	CWM25-00 to CWM105-00	-
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	10E	1	0	CWM25-00 to CWM105-00	+ BCXMF10
	01E	0	1	CWM25-00 to CWM105-00	+ BCXMF01

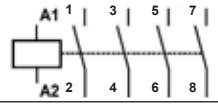
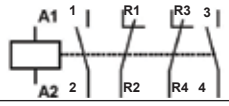
Contactors - Technical Data

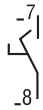
Terminal Markings to EN 50012

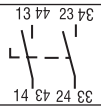
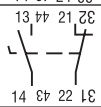
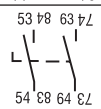
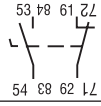
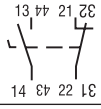
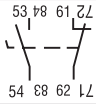
	Distinctive number and version of combination	NO	NC	Reference code	Additional auxiliary contact blocks
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01					
	11E	1	1	CWM25-00 to CWM105-00	+ BCXMF10 + BCXMF01
	21E	2	1	CWM25-00 to CWM105-00	+ 2 BCXMF10 + BCXMF01
	12E	1	2	CWM25-00 to CWM105-00	+ BCXMF10 + 2 BXCMF01
	31E	3	1	CWM25-00 to CWM105-00	+ 3 BXCMF10 + BCXMF01
	41E	4	1	CWM50-00 to CWM105-00	+ 4 BXCMF10 + BCXMF01
	22E	2	2	CWM25-00 to CWM105-00	+ 2 BXCMF01 + 2 BCXMF10
	32E	3	2	CWM50-00 to CWM105-00	+ 2 BXCMF01 + 3 BCXMF10
	13E	1	3	CWM25-00 to CWM105-00	+ BCXMF10 + 3 BXCMF01
	23E	2	3	CWM50-00 to CWM105-00	+ 3 BXCMF01 + 2 BCXMF10
Contactors without auxiliary contact blocks + Side mounting auxiliary contact blocks each with two contacts					
	22	2	2	CWM112 to CWM800	+ 2 BCXML11
	44	4	4	CWM112 to CWM800	+ 2 BCXML11 + 2 BCXMRL11

Contactors - Technical Data

Terminal Markings to EN 50012

	Configuration	Power contacts		Reference code
		NO	NC	
4 pole contactors				
	-	4	0	CWM9-00-40♦ CWM12-00-40♦ CWM18-00-40♦
	-	2	2	CWM9-00-22♦ CWM12-00-22♦ CWM18-00-22♦

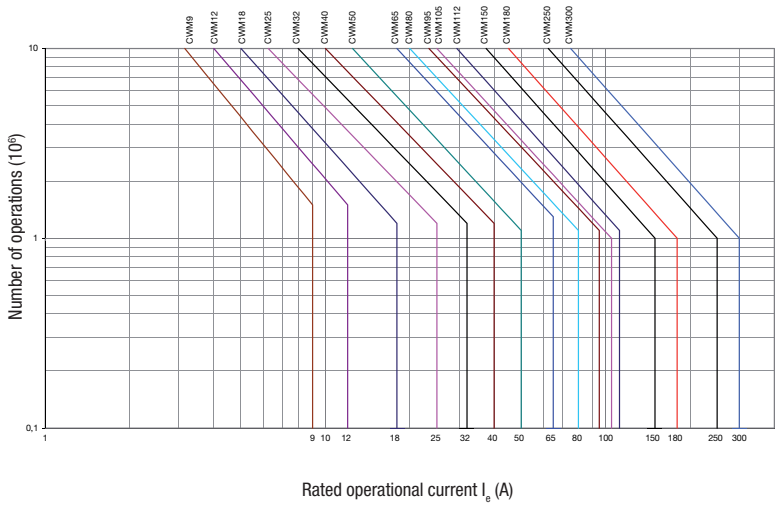
	Configuration	Auxiliary contacts		Reference code
		NO	NC	
Front mounting auxiliary contact blocks BCXMF10 or BCXMF01				
	10	1	0	BCXMF10
	01	0	1	BCXMF01
	10	1	0	BCXMFA10
	01	0	1	BCXMFR01

	Configuration	Auxiliary contacts		Reference code
		NO	NC	
Side mounting auxiliary contact blocks each with two contacts				
	20	2	0	BCXML20
	11	1	1	BCXML11
	20	2	0	BCXMRL20
	11	1	1	BCXMRL11
	11	1	1	BCXML11 CWM800
	11			BCXMRL11 CWM800
Electrical and mechanical interlock for contactors				
	02	0	2	BLIM.02

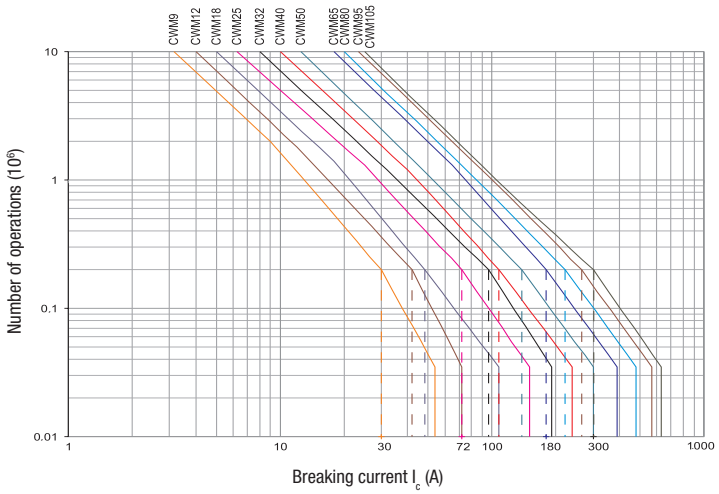
Contactors - Technical Data

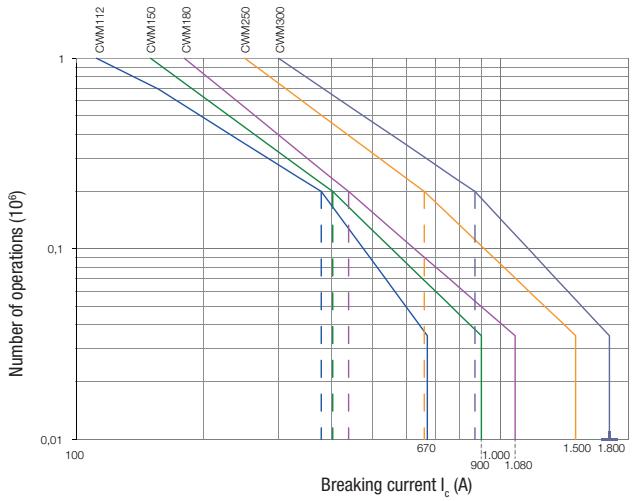
Electrical Lifespan

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



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

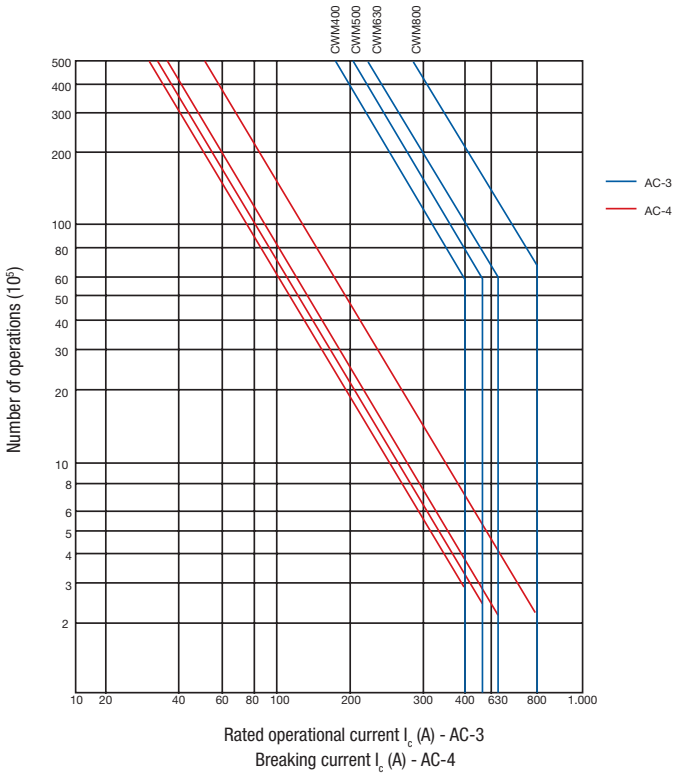




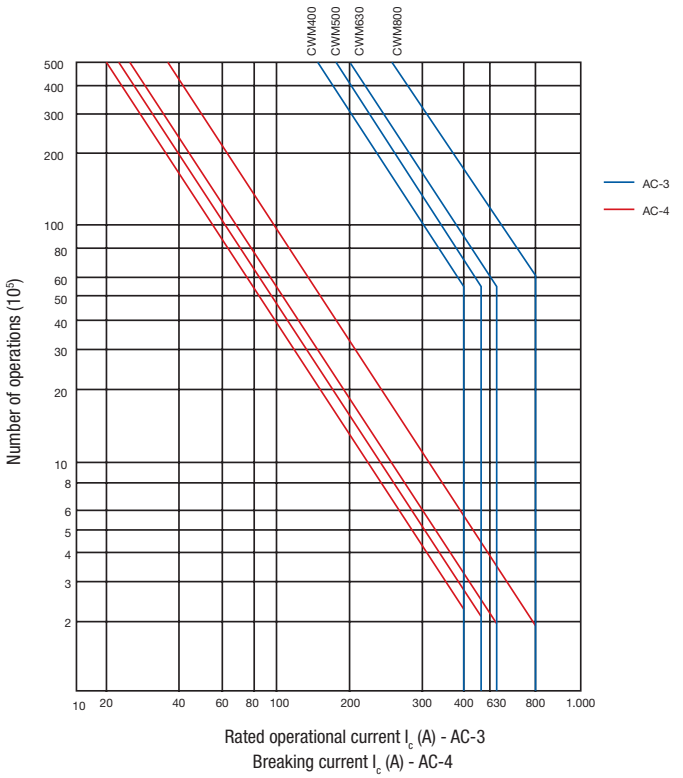
Contactors - Technical Data

Electrical Lifespan

$U_e \leq$ 220-240 V ac



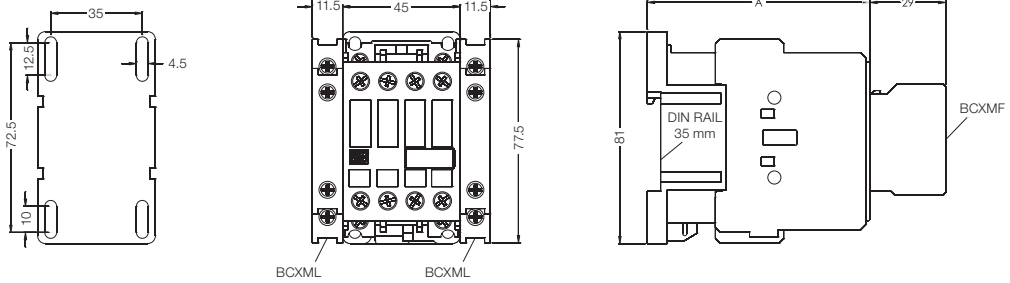
$U_e \leq$ 380-440 V ac



Contactors - Dimensions (mm)

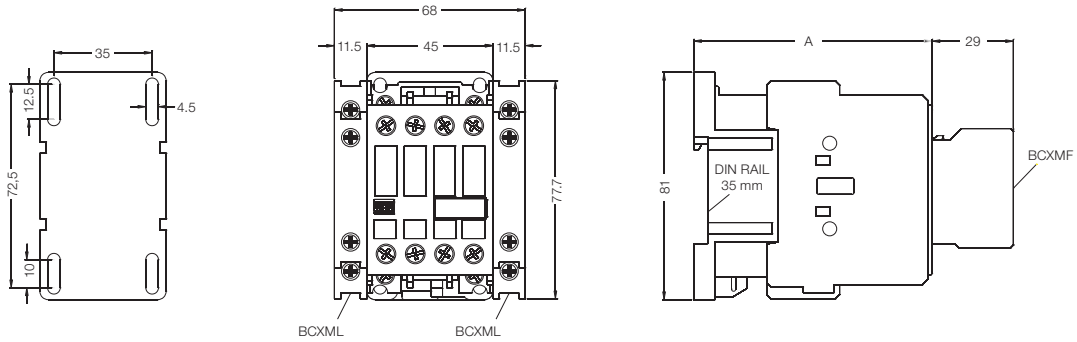
CWM9, CWM12 and CWM18

Coil	
AC	DC
A = 87	A = 115



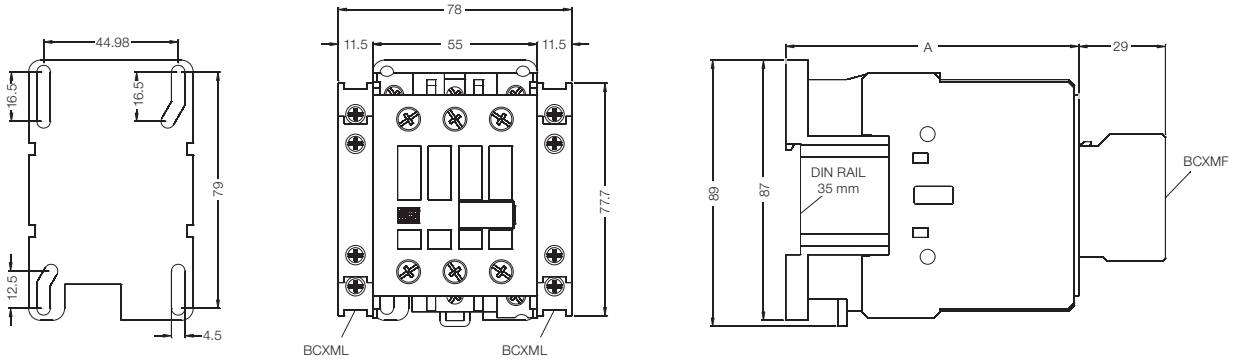
CWM25

Coil	
AC	DC
A = 87	A = 117



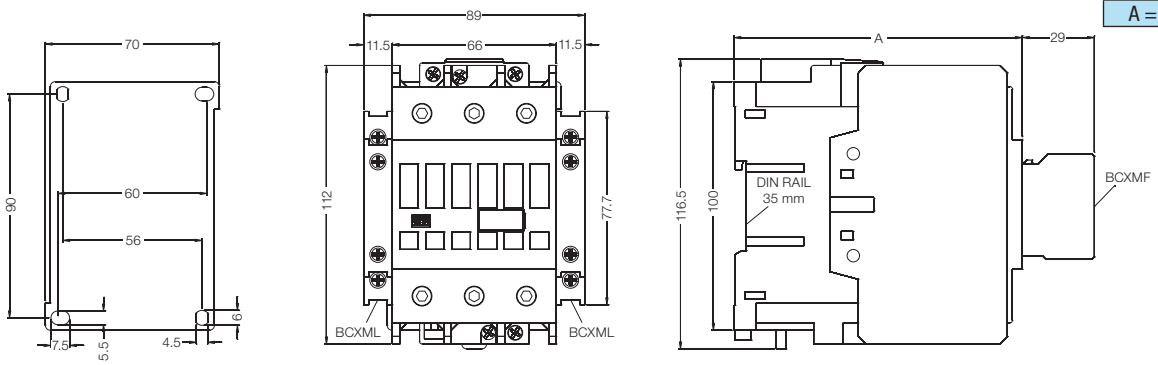
CWM32 and CWM40

Coil	
AC	DC
A = 98	A = 118



CWM50, CWM65 and CWM80

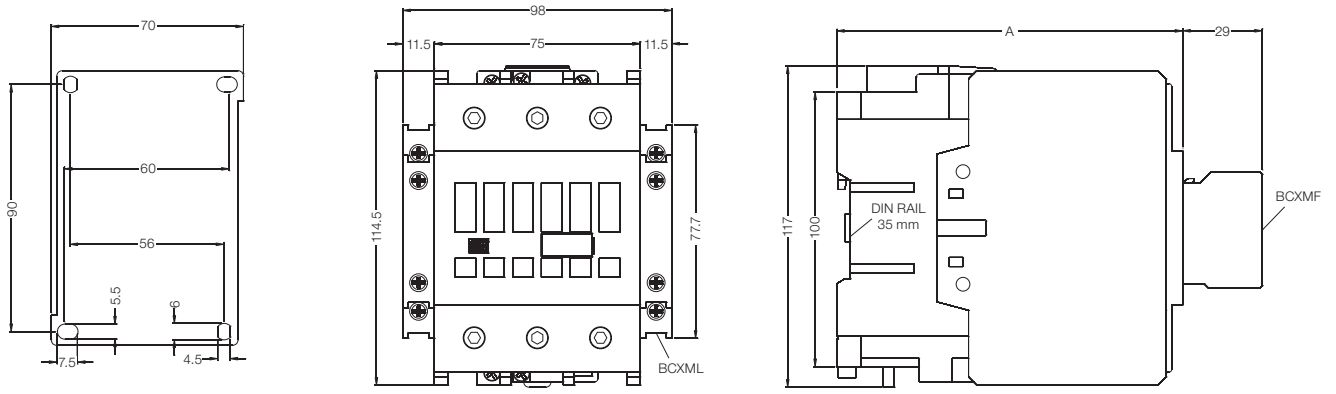
Coil	
AC	DC
A = 116	A = 116



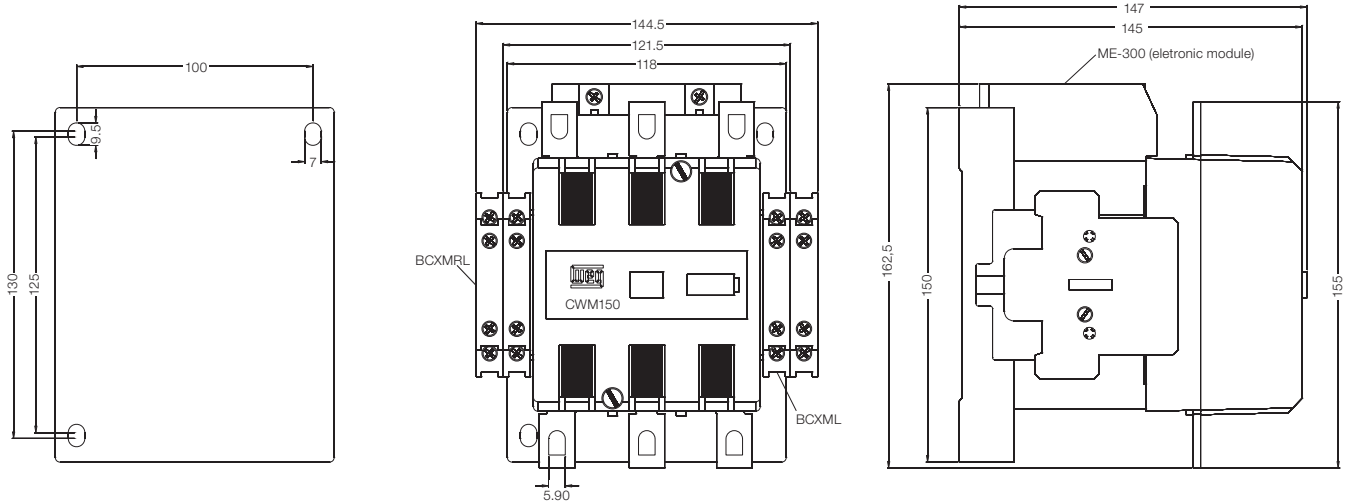
Contactors - Dimensions (mm)

CWM95 and CWM105

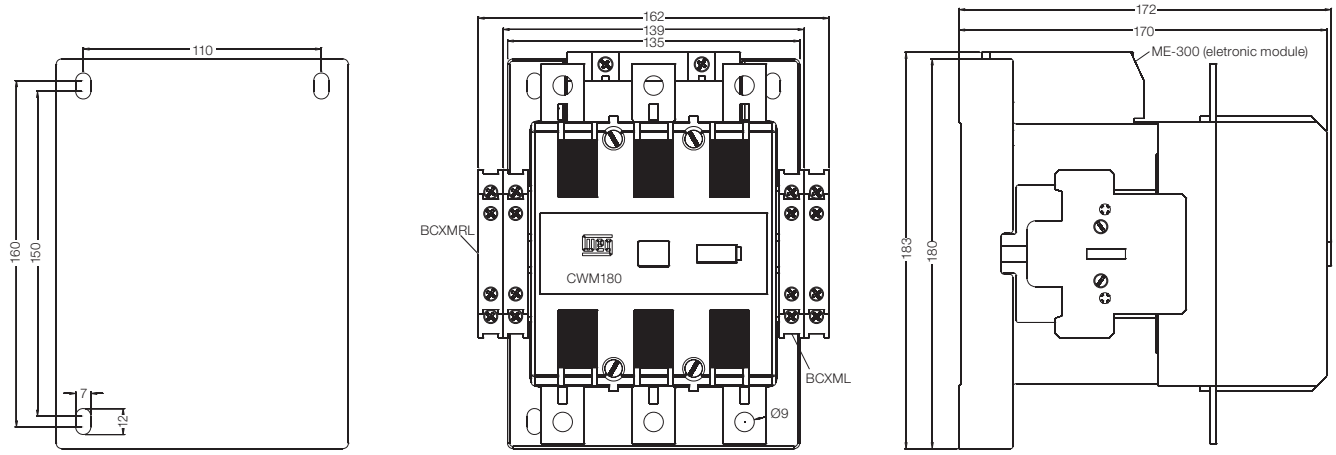
Coil	
AC	DC
A = 126	A = 126



CWM112 and CWM150

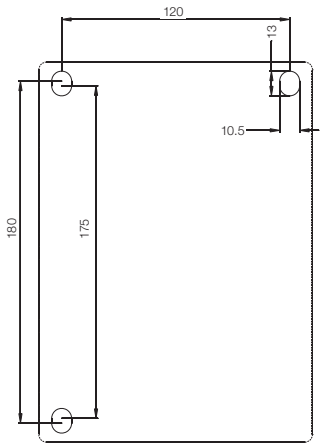


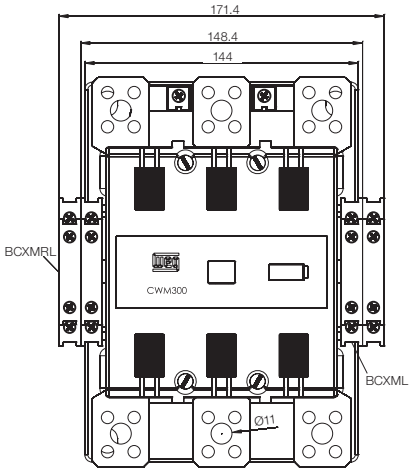
CWM180

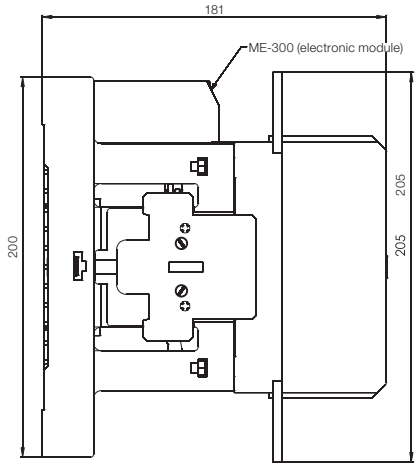


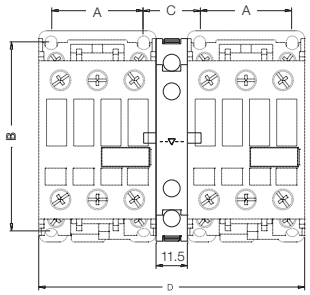
Contactors - Dimensions (mm)

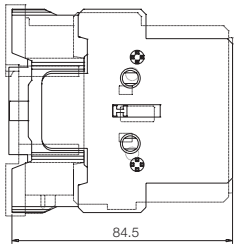
CWM250 and CWM300





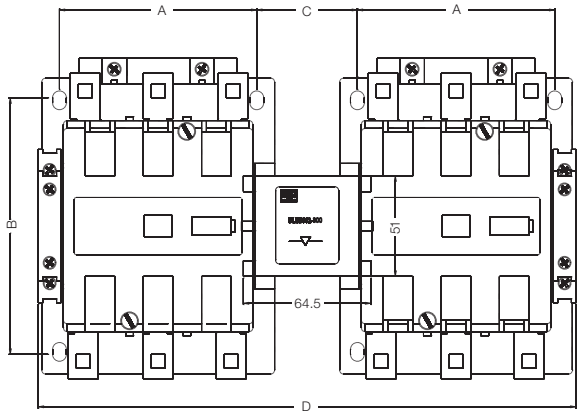






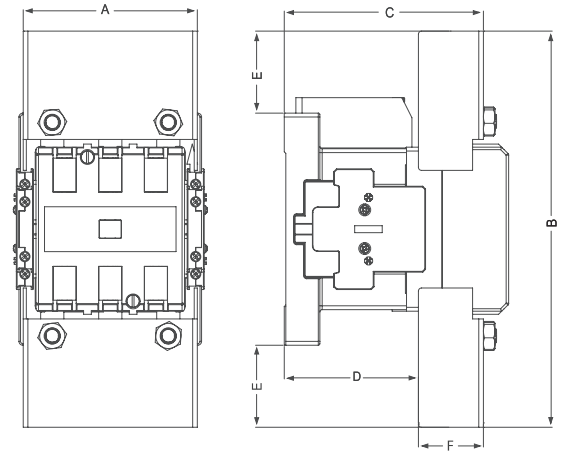
Models	A	B	C	D
CWM9...25	35	72.5	22	102
CWM32...40	45	79	22	122
CWM50...80	57	90	21	144
CWM95...105	57	90	29.8	153

BLIM112-300



Models	A	B	C	D
CWM112...150	100	130	51	272.5
CWM180	110	160	58.5	303.5
CWM250...300	120	180	57	325.4

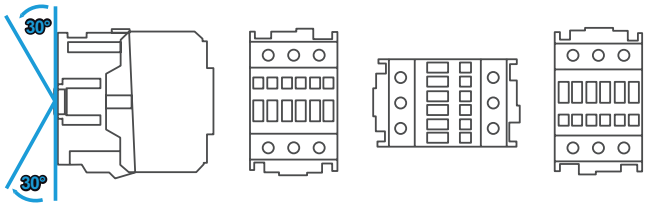
BMP CWM112...300



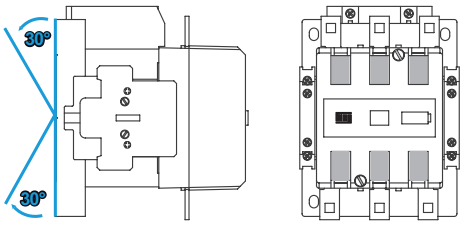
	BMP CWM150 + CWM112/150	BMP CWM180 + CWM180	BMP CWM300 + CWM250/300
A	112.5	127.5	148.5
B	256	290.4	320.8
C	128	137.7	146
D	86	90.7	84
E	53	55.2	60.5
F	42	47	62

Mounting Position

CWM9...105

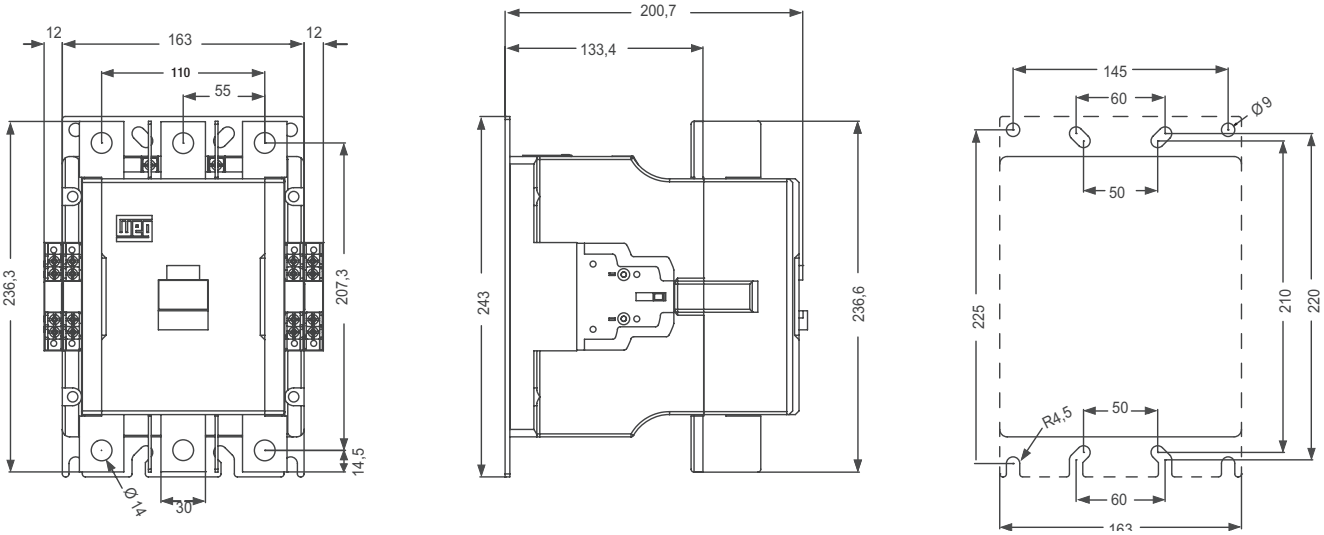


CWM112...300

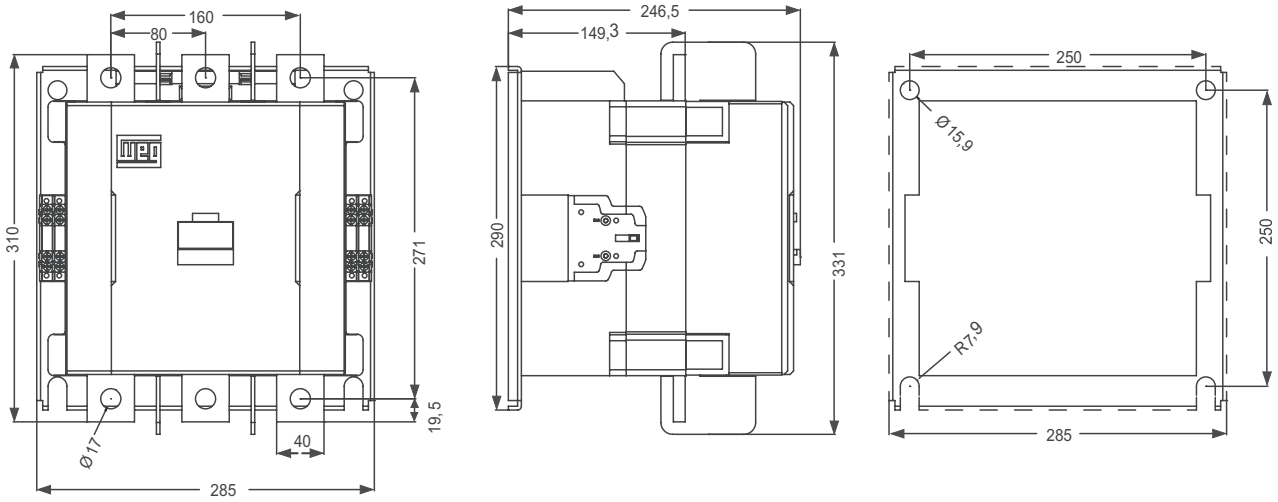


Contactors - Dimensions (mm)

CWM400 [1)]



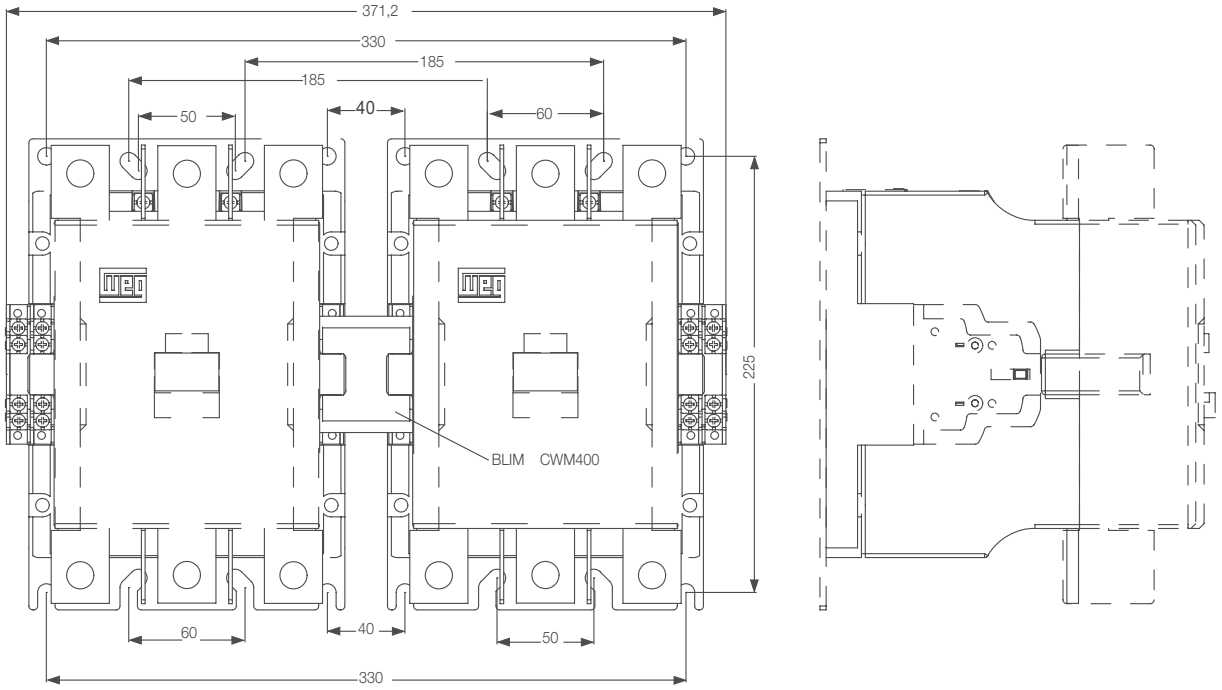
CWM500, CWM630 and CWM800 [1)]



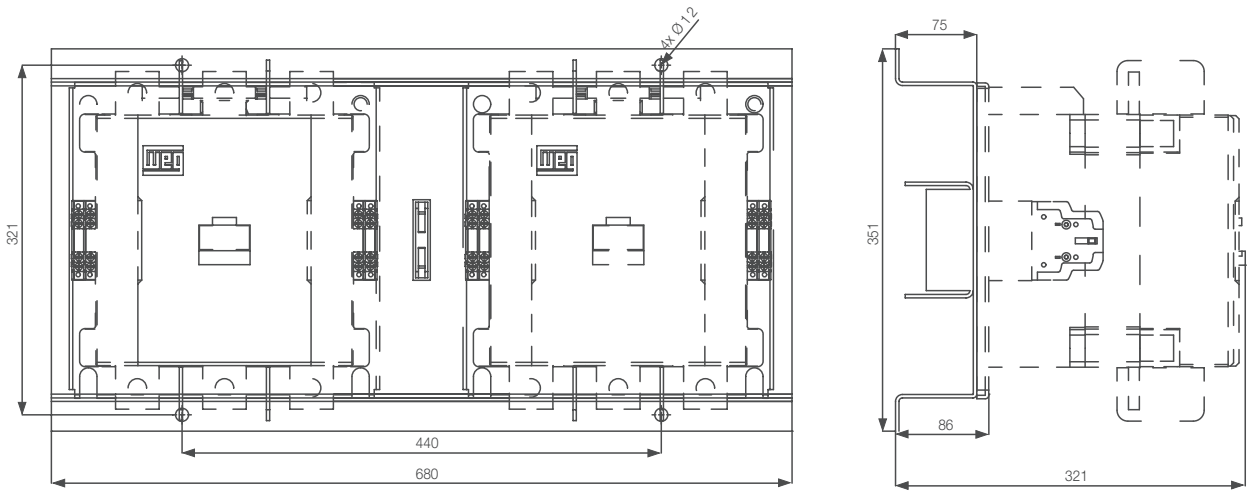
Note: 1) Dimensions for CWM400 to CWM800 4-pole versions on request.

Contactors - Dimensions (mm)

BLIM CWM400



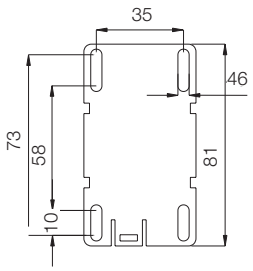
BLIM CWM800

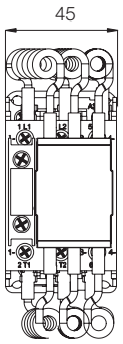


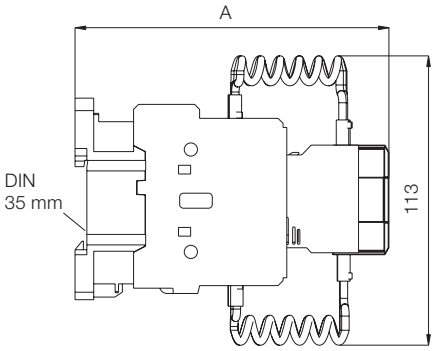
Contactors for Switching of Capacitors

Contactors - Dimensions (mm)

CWMC9 to CWMC25

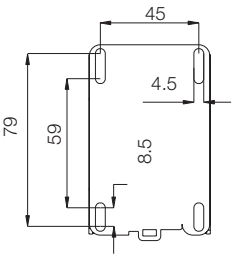


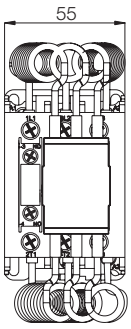


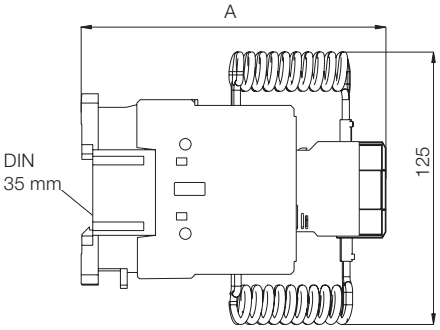


Coil	
AC	DC
A = 129	A = 159

CWMC32

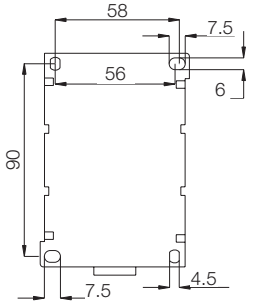


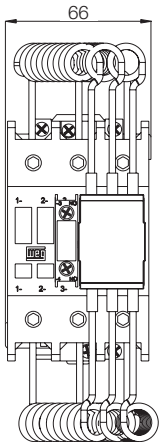


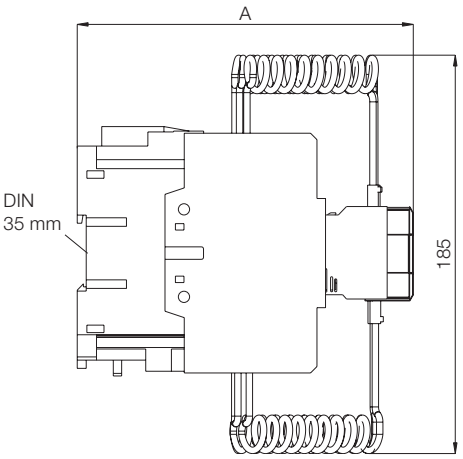


Coil	
AC	DC
A = 140	A = 160

CWMC50 and CWMC65

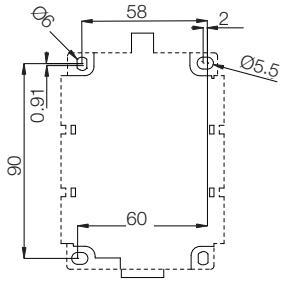


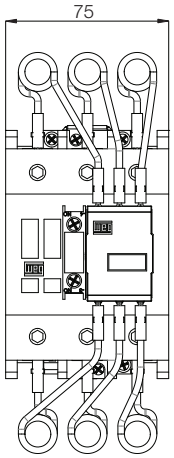


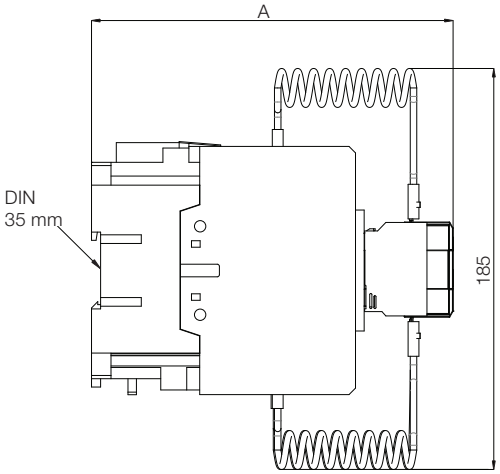


Coil	
AC	DC
A = 158	A = 158

CWMC80



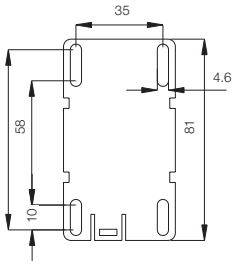


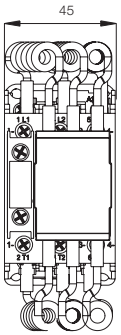


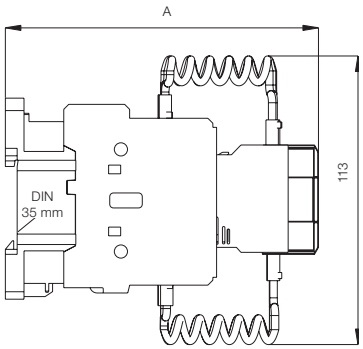
Coil	
AC	DC
A=167	A=167

Contactors - Dimensions (mm)

CWMC25

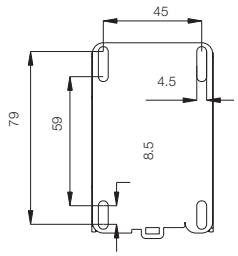


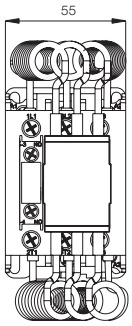


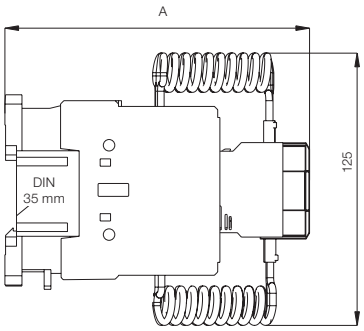


Coil	
CA	CC
A=129	A=159

CWMC32

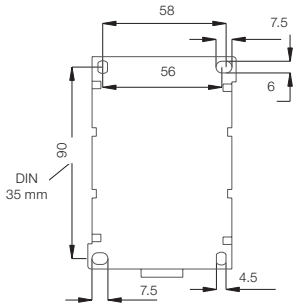


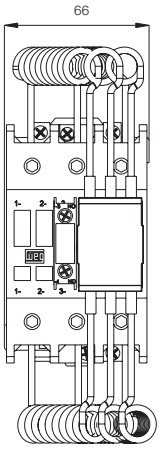


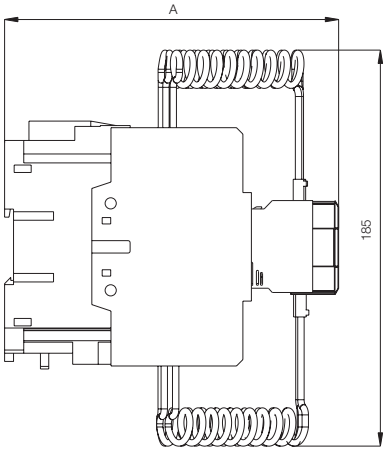


Coil	
CA	CC
A=140	A=160

CWMC50 and CWMC65

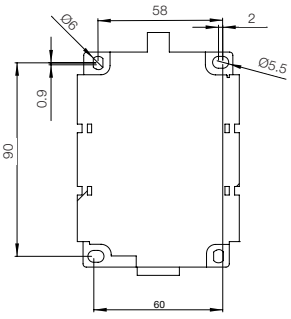


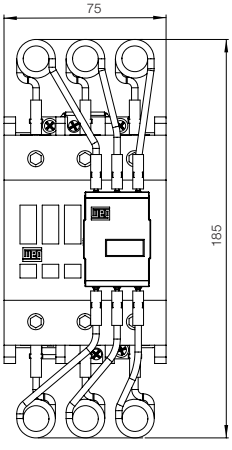


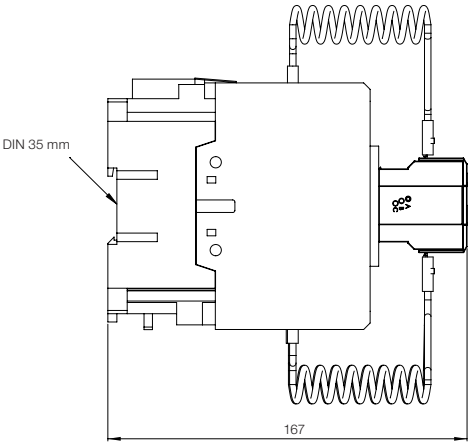


Coil	
CA	CC
A=158	A=158

CWMC80







RW - Thermal Overload Relays

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.



Certifications

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 81.

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 (√3 / 3) x 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.

RW - Thermal Overload Relays

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 2,000 m, the values for the current and voltage shown in the table below should be applied:

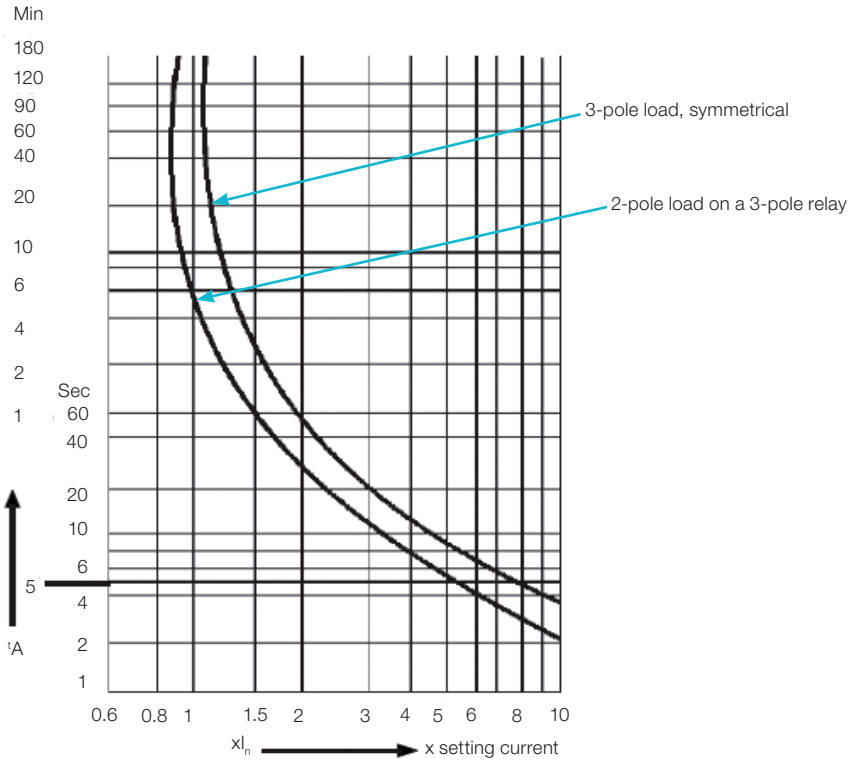
Altitude above sea level (m)	Adjustment factor on the current setting	Maximum operational voltage Ue (V)
2,000	1.00 x I_n	690
3,000	1.05 x I_n	550
4,000	1.08 x I_n	480
5,000	1.12 x I_n	420

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.



RW - Thermal Overload Relays

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.

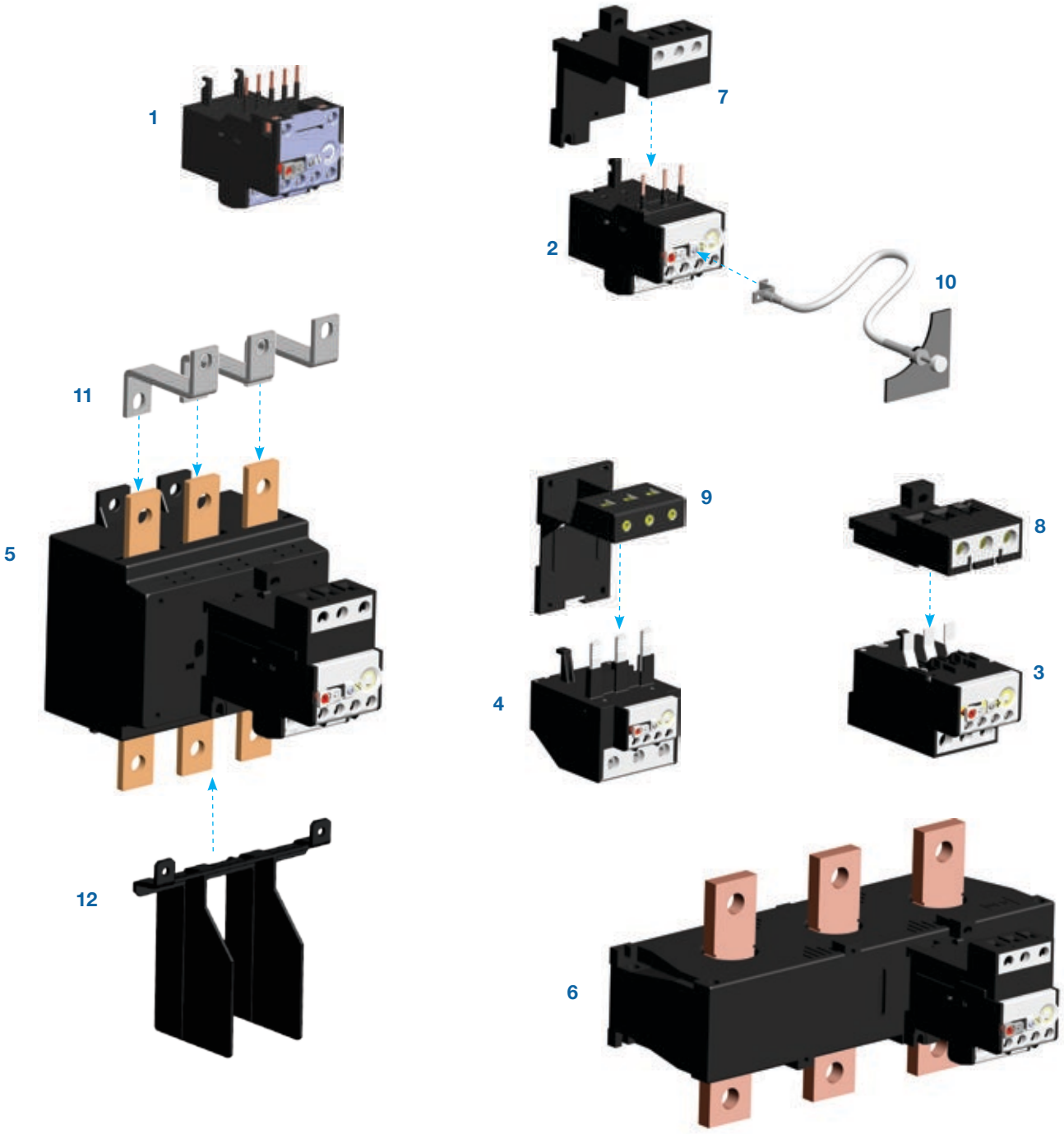
Recovery Time

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.

RW17...RW407 Thermal Overload Relays - Overview



1 - RW17-1D (direct mounting on CWC07...16 contactors) and RW17-2D (direct mounting on CWC025 contactor)
2 - RW27-1D (direct mounting on CWM9...40 contactors)
3 - RW67 (direct mounting on CWM40...80 contactors)
4 - RW117-1D (direct mounting on CWM95/105 contactors)[1)]
5 - RW317 (for CWM112...300 and CWM400 contactors)
6 - RW407 (for CWM500...800 contactors)
7 - BF27 kit for separate mounting of RW27-1D on DIN 35 mm rail
8 - BF67 kit for separate mounting of RW6 on DIN 35 mm rail
9 - BF117D kit for separate mounting of RW117-1D on DIN 35 mm rail[1)]
10 - Cable for external reset of overload relays ERC_RW (RW17...407)
11 - GA connector links for connection between CWM contactors and RW overload relays
12 - Phase barrier IBRW317 (RW317)

Note: 1) RW117-D + BF117D = RW117-2D.

RW17...RW407 Thermal Overload Relays - Overview

- Thermal overload relays
- Phase-failure sensitivity according to IEC 60947-4-1
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation
- Hand/Auto/Reset button



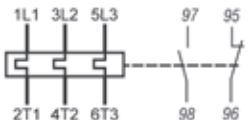
For use with	Setting range of overload release Ir (A)	Mounting on contactor	Circuit diagram	Fuse gL-gG [1] A	Reference code	Weight kg
CWC07...16	0.28...0.4	Direct mounting	1L1 3L2 5L3 97 95 2T1 4T2 6T3 98 96	2	RW17-1D3-D004	0.15
	0.4...0.63			2	RW17-1D3-C063	
	0.56...0.8			2	RW17-1D3-D008	
	0.8...1.2			4	RW17-1D3-D012	
	1.2...1.8			6	RW17-1D3-D018	
	1.8...2.8			6	RW17-1D3-D028	
	2.8...4.0			10	RW17-1D3-U004	
	4.0...6.3			16	RW17-1D3-D063	
	5.6...8.0			20	RW17-1D3-U008	
	7.0...10			25	RW17-1D3-U010	
	8.0...12.5			25	RW17-1D3-D125	
	10.0...15.0			35	RW17-1D3-U015	
	11.0...17.0			35	RW17-1D3-U017	
CWC025	7...10			25	RW17-2D3-U010	0.15
	8...12.5			25	RW17-2D3-D125	
	10...15			35	RW17-2D3-U015	
	11...17			35	RW17-2D3-U017	
	15...23			50	RW17-2D3-U023	
	22...32			63	RW17-2D3-U032	
CWM9...CWM32	0.28...0.4		1L1 3L2 5L3 97 95 2T1 4T2 6T3 98 96	2	RW27-1D3-D004	0.147
	0.4...0.63			2	RW27-1D3-C063	
	0.56...0.8			2	RW27-1D3-D008	
	0.8...1.2			4	RW27-1D3-D012	
	1.2...1.8			6	RW27-1D3-D018	
	1.8...2.8			6	RW27-1D3-D028	
	2.8...4.0			10	RW27-1D3-U004	
	4.0...6.3			16	RW27-1D3-D063	
	5.6...8.0			20	RW27-1D3-U008	
	7.0...10			25	RW27-1D3-U010	
	8.0...12.5			25	RW27-1D3-D125	
	10...15			35	RW27-1D3-U015	
	11...17			35	RW27-1D3-U017	
	15...23			50	RW27-1D3-U023	
	22...32			63	RW27-1D3-U032	
CWM32 / CWM40	25...40		1L1 3L2 5L3 97 95 2T1 4T2 6T3 98 96	80	RW67-1D3-U040	0.300
	32...50			100	RW67-1D3-U050	
CWM50...CWM80	25...40			100	RW67-2D3-U040	0.310
	40...57			100	RW67-2D3-U057	
	50...63			100	RW67-2D3-U063	
	57...70			125	RW67-2D3-U070	
	63...80			125	RW67-2D3-U080	
CWM95 / CWM105	75...97			200	RW117-1D3-U097	0.520
	90...112			250	RW117-1D3-U112	
CWM112	63...80	Separate mounting		200	RW117-2D3-U080	0.550
	75...97			200	RW117-2D3-U097	
	90...112			250	RW117-2D3-U112	
CWM150...CWM250	100...150			315	RW317-1D3-U150	2.3
	140...215			355	RW317-1D3-U215	
	200...310			500	RW317-1D3-U310	

Note: 1) Type 2 coordination.

- Thermal overload relays
- Phase-failure sensitivity according to IEC 60947-4-1
- Tripping class 10
- Auxiliary contacts 1NO + 1NC
- Temperature compensation
- Hand/Auto/Reset button



RW17...RW407 Thermal Overload Relays - Overview

For use with	Setting range of overload release Ir (A)	Mounting on contactor	Circuit diagram	Fuse gL-gG [1] A	Reference code	Weight kg
CWM300	275...420	Separate mounting		700	RW317-1D3-U420	2.3
CWM400 / CWM500						
CWM400...800	400...600			1.000	RW407-1D3-U600	3.12
	560...840			1.250	RW407-1D3-U840	

Overload Relays - Accessories

Mounting Kit

Illustrative picture	Description	For use with	Reference code	Weight (kg)
	Enables overload to be mounted directly to a panel via screws or DIN rail	RW27-1D	BF27D	0.050
		RW67-1D RW67-2D	BF67-1D BF67-2D	0.095
		RW117-1D	BF117D	0.110

Connector Links for Connection Between CWM Contactors and RW Overload Relays

Illustrative picture	Overload relay	Contactors	Reference code	Weight (kg)
	RW117-2D	CWM112	GA117D	0.135
	RW317	CWM150	GA317-1D	0.250
		CWM180	GA317-2D	0.270
		CWM250 / CWM300	GA317-3D	0.630
		CWM400	GA317-10D	0.500
	RW407[2]	CWM500 ... CWM800	GA407-1D	1.580

Terminal Covers for IP20 Degree of Protection (on Front)

Protected equipment	For use with contactor	Terminal cover for contactors - reference		Connector links for CWM and RW - reference	For use with overload relay	Terminal cover for overload relays	
		Line side terminals	Load side terminals			Reference code	Number of parts
Contactor + busbars + O/L relay	CWM112/150	BMP CWM150		GA117-1D	RW317	BMP RW317	2
Contactor + busbars + O/L relay	CWM180	BMP CWM180		GA117-2D	RW317	BMP RW317	2
Contactor + busbars + O/L relay	CWM250/300	BMP CWM300		GA117-3D	RW317	BMP RW317	2
Contactor + busbars + O/L relay	CWM400	BMP CWM400	BMP RW317 CWM400	GA117-10D	RW317	BMP1 RW317[1]	1
O/L relays - both sides (all 6 terminals)	-	-		-	RW317	BMP RW317	2
O/L relays - one side (3 terminals)	-	-		-	RW317	BMP1 RW317	1

External Reset for Overload Relays

Illustrative picture	Description	Flexible cable size	Reference code	Weight (kg)
	Metallic cable for external reset suitable to all models of RW overload relays. Remarks: - Required hole on panel door: Ø6.5...7 mm - Required thickness of panel door: 2 mm...4.25 mm	250 mm	ERC250RW	0.034
		375 mm	ERC375RW	0.036
		500 mm	ERC500RW	0.041

Phase Barrier

Illustrative picture	Description	For use with	Reference code	Weight (kg)
	One plastic phase barrier + screws, to be used on the overload relay line or load side. The distance between busbars of RW317 overload relays are the minimum required in order to comply with U_i =1,000 V, pollution degree 3. When the distance between cables or busbars connected to the overload relay are smaller than that, phase barriers IBRW317 should be used.	RW317	IBRW317	0.044

Notes: 1) Terminal cover for busbar protection of overload relays.
2) It is possible to connect contactors to RW407 overload relay by using GA407-1D connector links or routing contactor-to-motor cables through the Ø32 mm window available in the overload relay.

Overload Relays - Technical Data

General Data and Main Contacts

Reference code			RW17	RW27	RW67	RW117	RW317	RW407
Standards			IEC 60947 / UL 508					
Setting current		(A)	0.28...17	0.28...32	25...80	75...112	100...420	400...840
Tripping class			10					
Temperature compensation			Continuous					
Rated insulation voltage U_i (pollution degree 3)	IEC 60947	(V)	690				1,000	
	UL/CSA	(V)	600					
Rated impulse withstand voltage U_{imp}		(kV)	6				8	
Rated operational frequency		(Hz)	0...400					
Degree of protection Protection against direct contact from the front when actuated by a perpendicular test finger (IEC 536)			IP 20 Finger and back-of-hand proof					
Ambient temperature Operating temperature Storage temperature			-25 °C to +60 °C -40 °C to +70 °C					
Climating proof IEC 60 068-2-3 IEC 60 068-2-30			Damp heat. constant Damp heat. constant					
Current heat loss Lower value of setting range Higher value of setting range		(W) (W)	0.9 1.4	0.9 1.7	1.5 4.7	2.3 4.7	1 1.9	

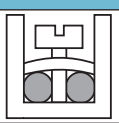
Auxiliary Contacts

Models			RW17	RW27	RW67	RW117	RW317	RW407
Standards			IEC 60 947-4-1 and UL 508					
Rated insulation voltage Ui (pollution degree 3)	IEC	(V)	690					
	UL, CSA	(V)	600					
Rated operational voltage Ue	IEC	(V)	690					
	UL, CSA	(V)	600					
Rated thermal current Ith (θ ≤55 °C)		(A)	6					
Rated operational current Ie								
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

Reference			RW17	RW27	RW67	RW117	RW317		RW407
Current setting		(A)	0.28...17	0.28...32	25...80	75...112	100...215	200...420	400...840
Cable size (75 °C / Cu cable)									
Flexible cable	1 cable	(mm^2)	1,5...10		6,0...35	25...35	35...120	95...150	-
	2 cables	(mm^2)			-	-			
Cable with terminal or rigid cable	1 cable	(mm^2)	1,5...6,0		6,0...35	25...35	35...120	95...150	-
	2 cables	(mm^2)			-	-			
Busbar		(mm^2)	-				Max 2x (25x5)		Max 2x (60x10)
Tightening torque		(N.m)	2,3		4,0	6,0	16,0	26,0	26,0
UL cable size (75 °C - Cu cable)		AWG	16...8		10...3	6...1/0	3–300 kcmil	3/0 – 600 kcmil	2x 600 kcmil 2x (1/4"x2")
Tightening torque (UL)		(lb.in)	20		35	53	141	230	230

Terminal Capacity and Tightening Torque - Auxiliary Contacts

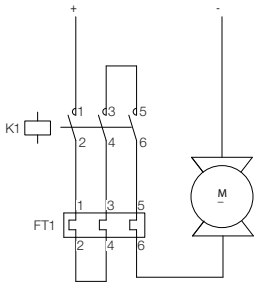
Models		RW17	RW27	RW67	RW117	RW317	RW407
Type of screws		M3.5 x 10 Philips					
Cable size (75 °C / Cu cable)							
Cable with or without terminal	(mm^2)		2 x 1...2.5				
AWG-wire			16...12				
Tightening torque	(N.m / lb.in)		1.5 / 13				

Overload Relays - Technical Data

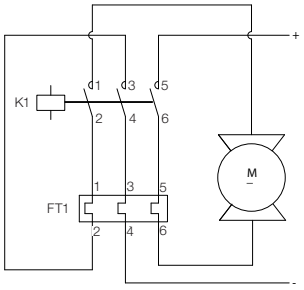
Diagrams

Motor Protection - Direct Current

1-pole

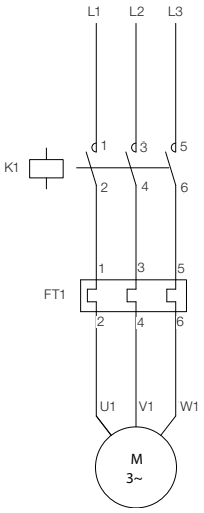


2-poles

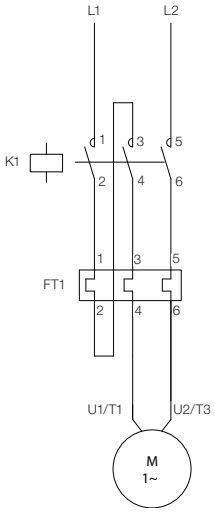


Motor Protection - Alternate Current

3-poles

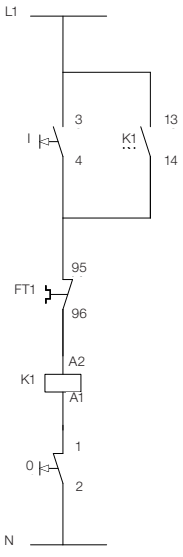


2-poles

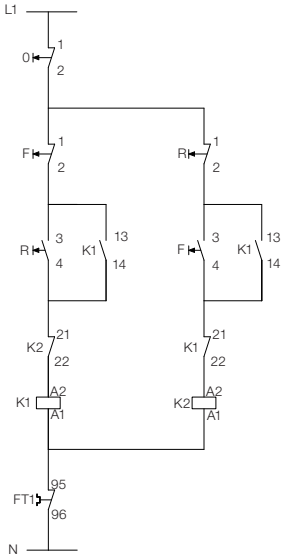


Conection Suggestion - Contactor + Overload Relay

Direct On Line Starter (1 Direction of Rotation)

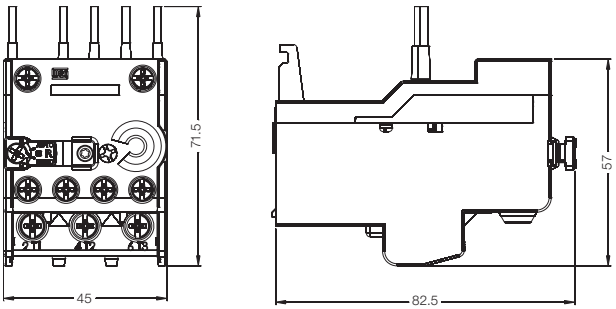


Direct On Line Starter (2 Directions of Rotation)

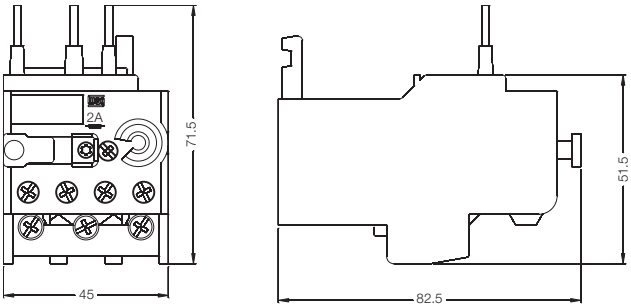


Overload Relays - Dimensions (mm)

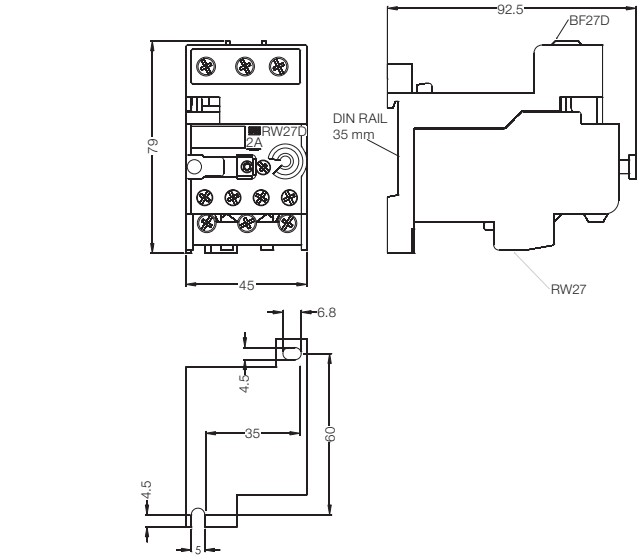
RW17-1D / RW17-2D



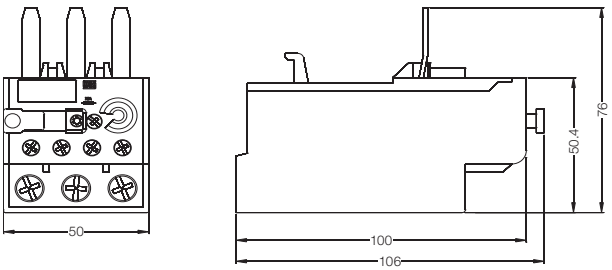
RW27-1D



RW27-1D + BF27

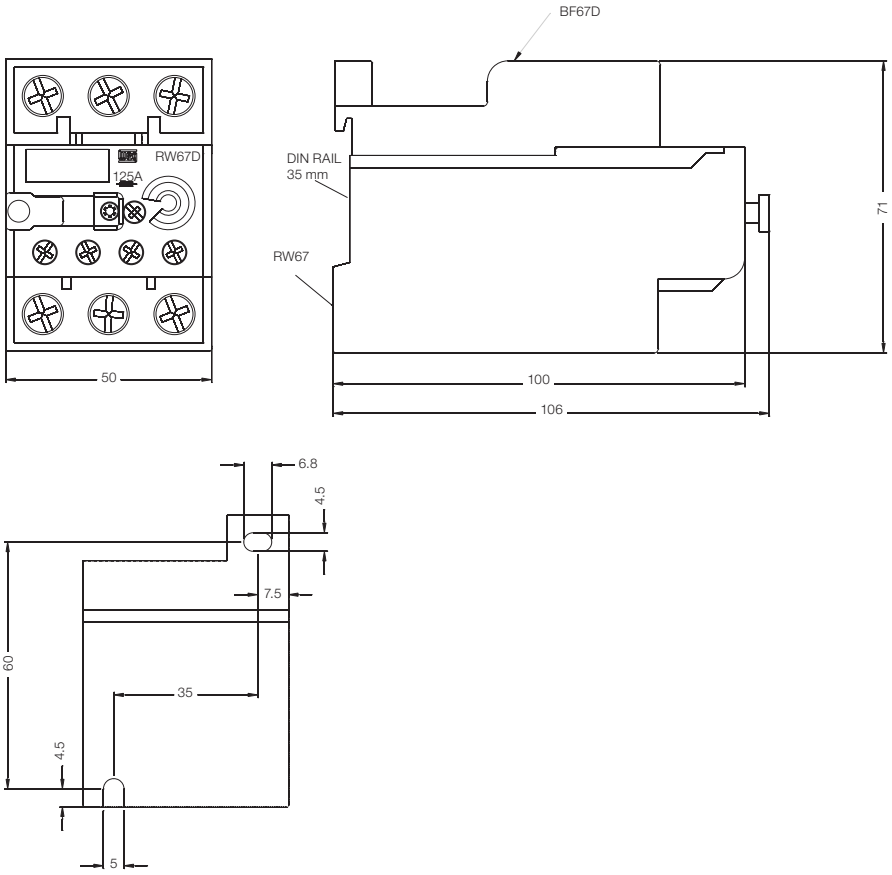


RW67-1D / RW67-2D

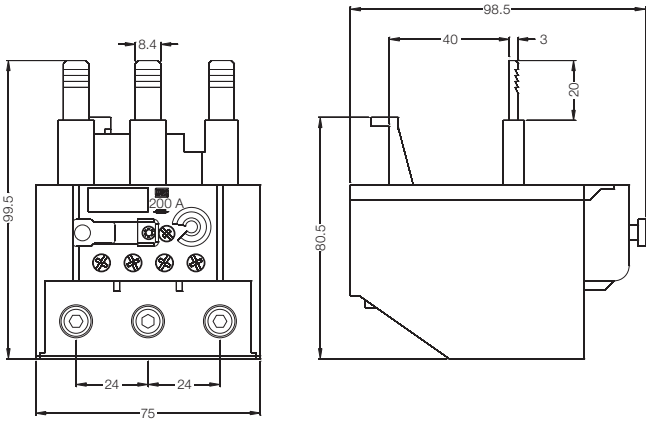


Overload Relays - Dimensions (mm)

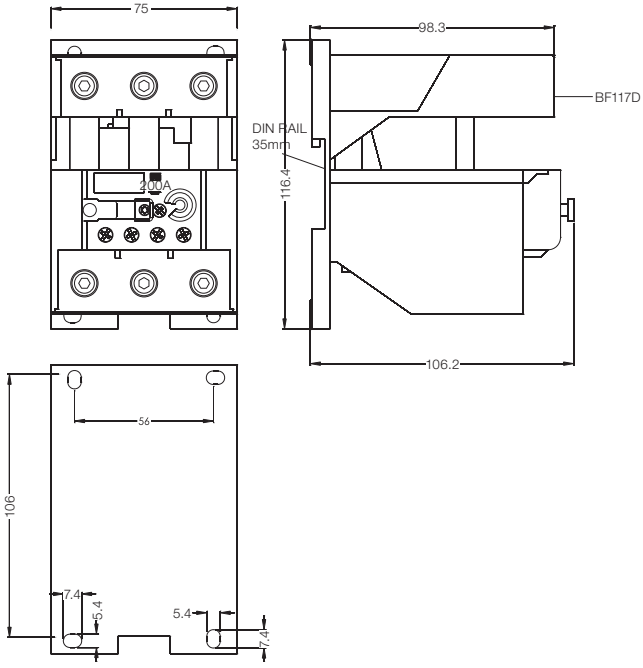
RW67-1D + BF67 / RW67-2D + BF67



RW117-1D

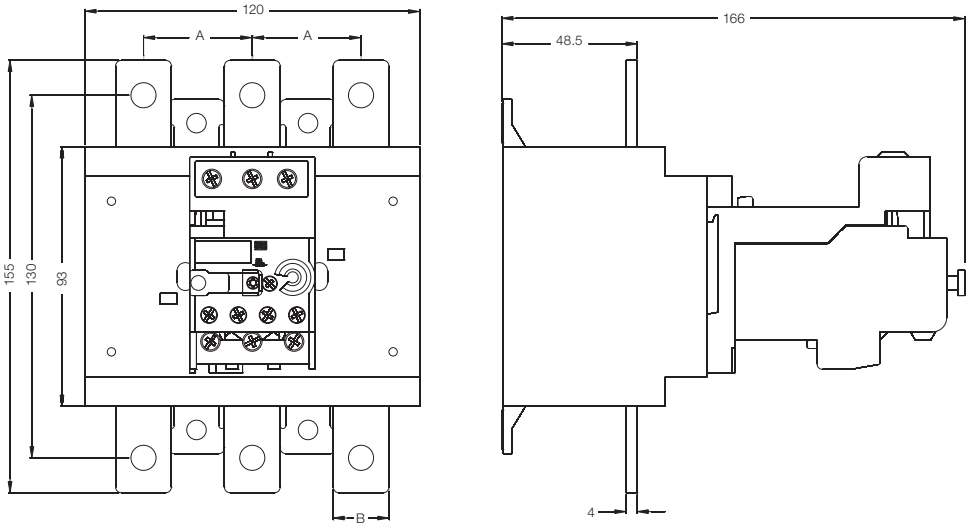


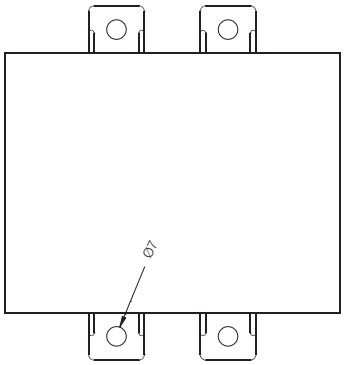
RW117-1D + BF117 / RW117-2D



Overload Relays - Dimensions (mm)

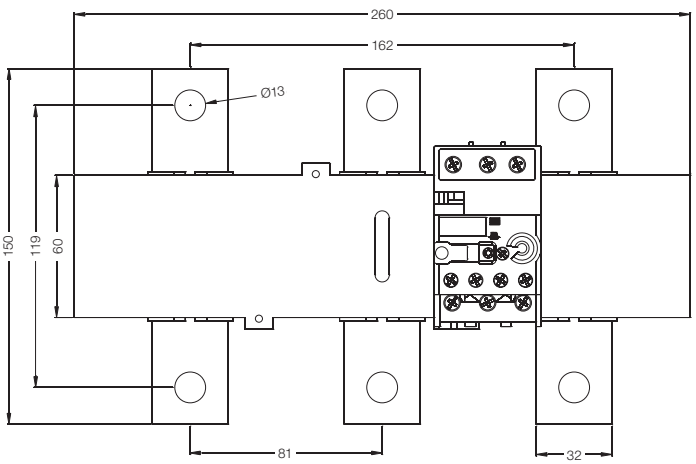
RW317-1D

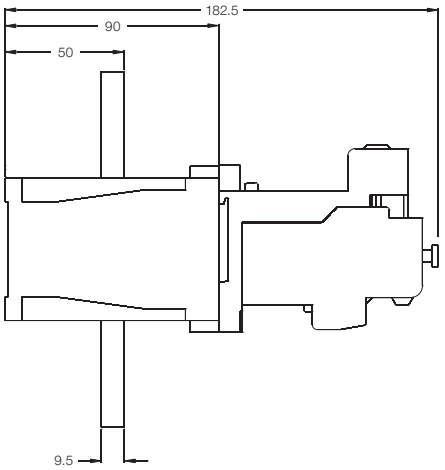


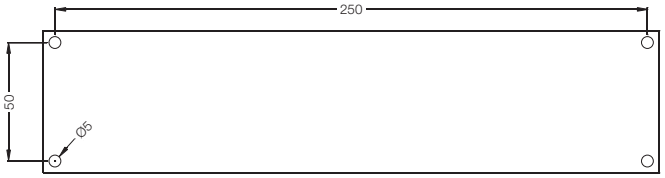


Current ranges	A	B
100...150 A	39	20
140...215 A		
200...310 A	45	25
275...420 A		

RW407-1D

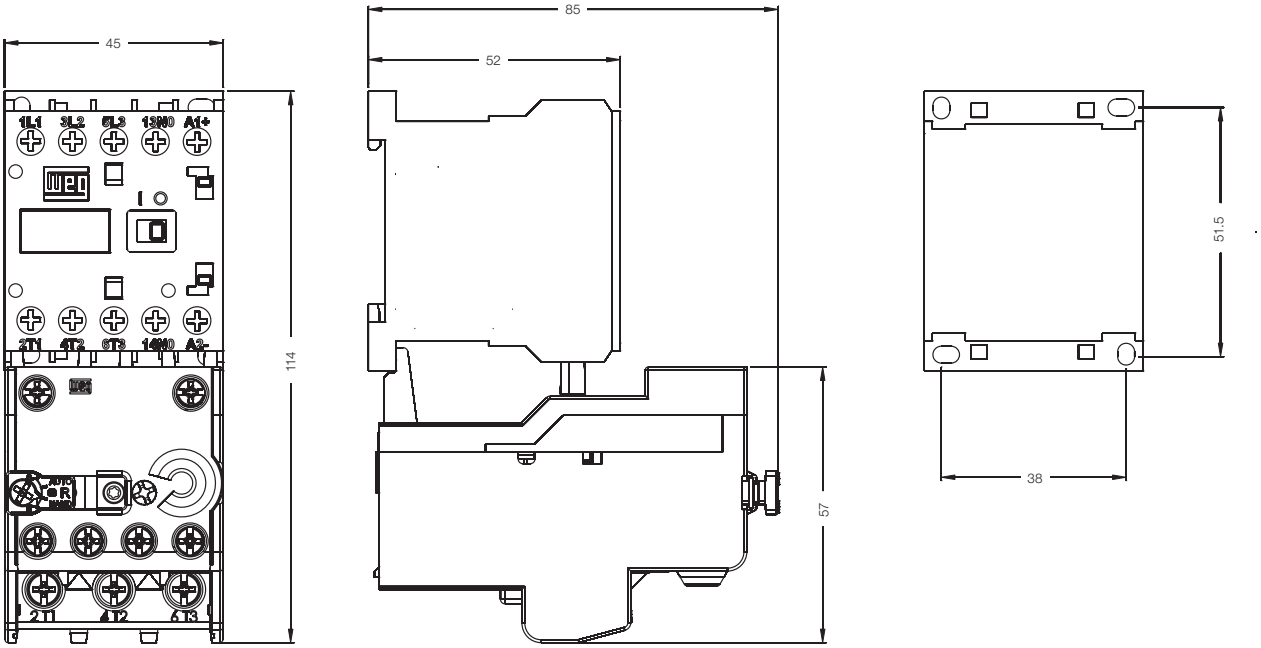




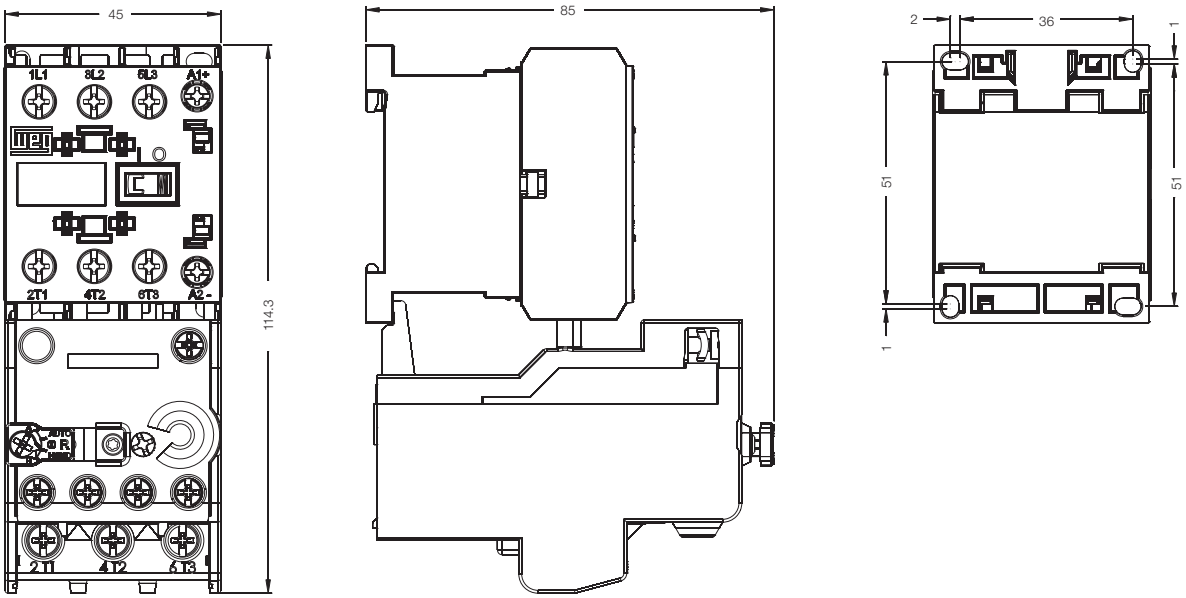


Contactors and Overload Relays - Dimensions (mm)

CWC07...16 + RW17-1D

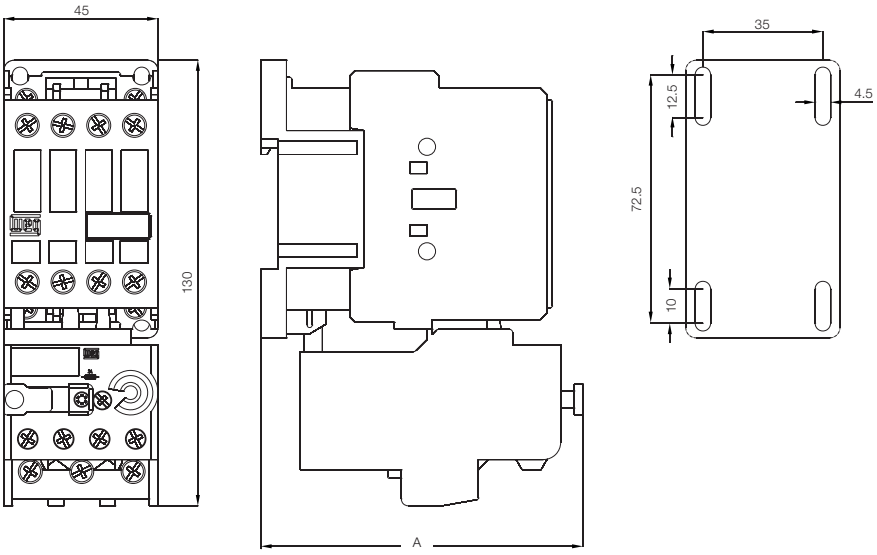


CWC025 + RW17-2D



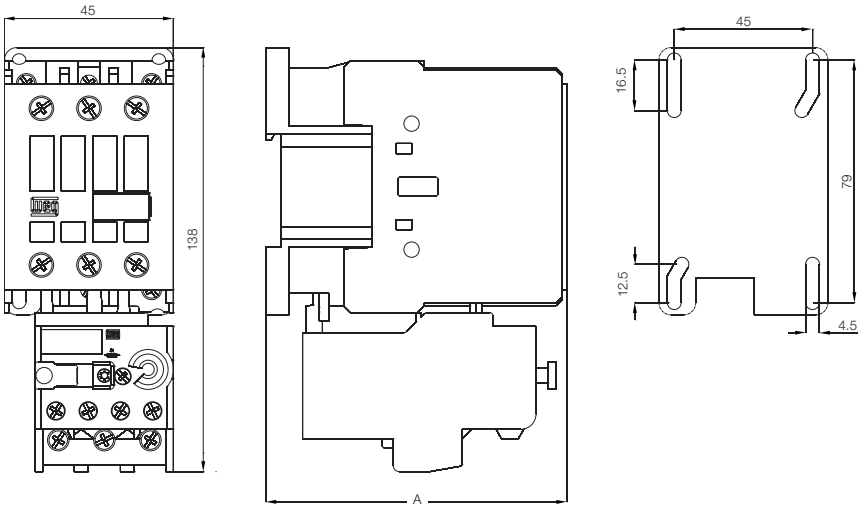
Contactors and Overload Relays - Dimensions (mm)

CWM9...25 + RW27-1D



CWM9...25	A
AC coil	94
DC coil	124

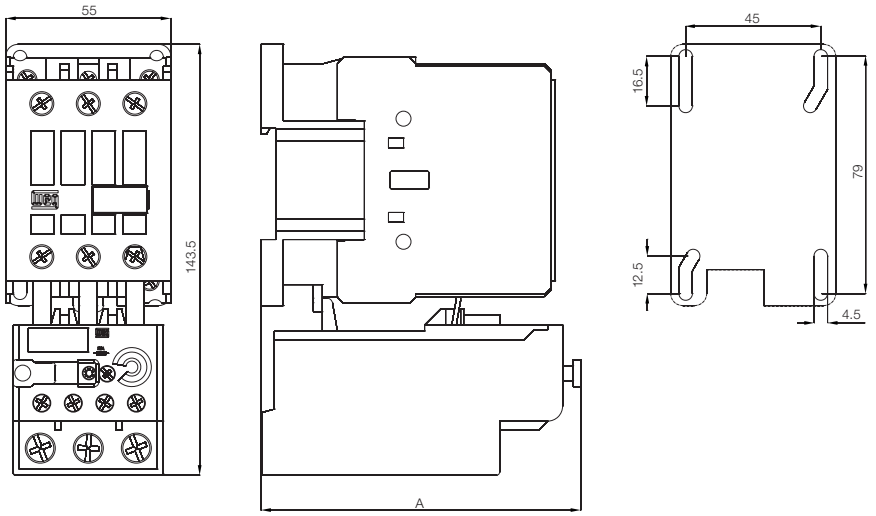
CWM32 + RW27-1D



CWM32	A
AC coil	98
DC coil	118

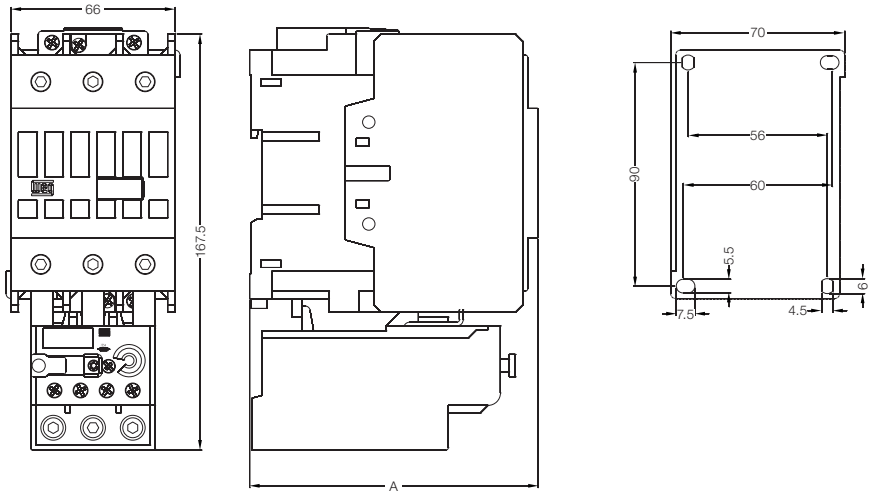
Contactors and Overload Relays - Dimensions (mm)

CWM32/40 + RW67-1D



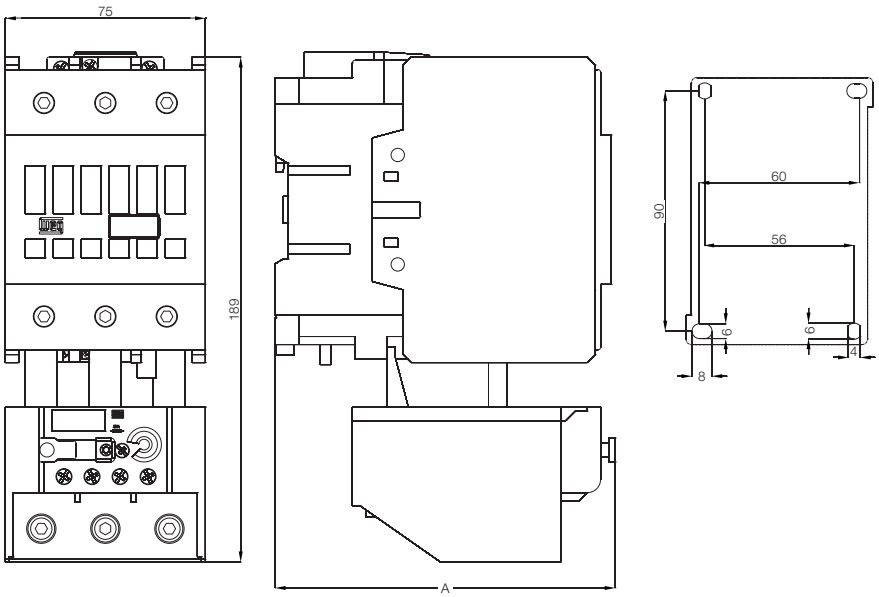
CWM32/40	A
AC coil	106.5
DC coil	126.5

CWM50...80 + RW67-2D



CWM50...80	A
AC coil	116
DC coil	116

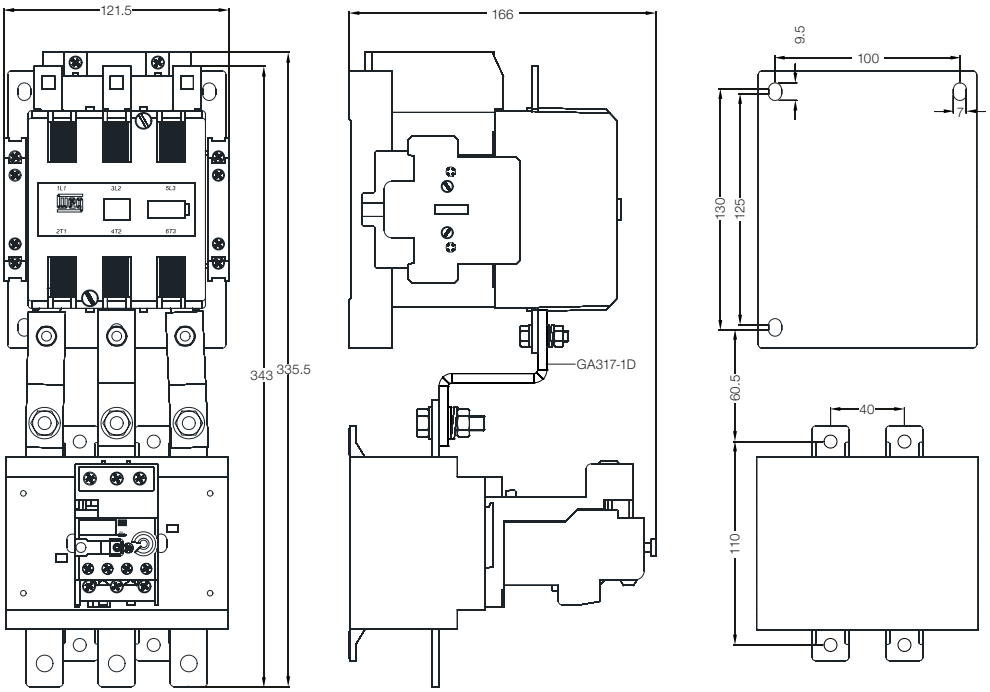
CWM95/105 + RW117-1D



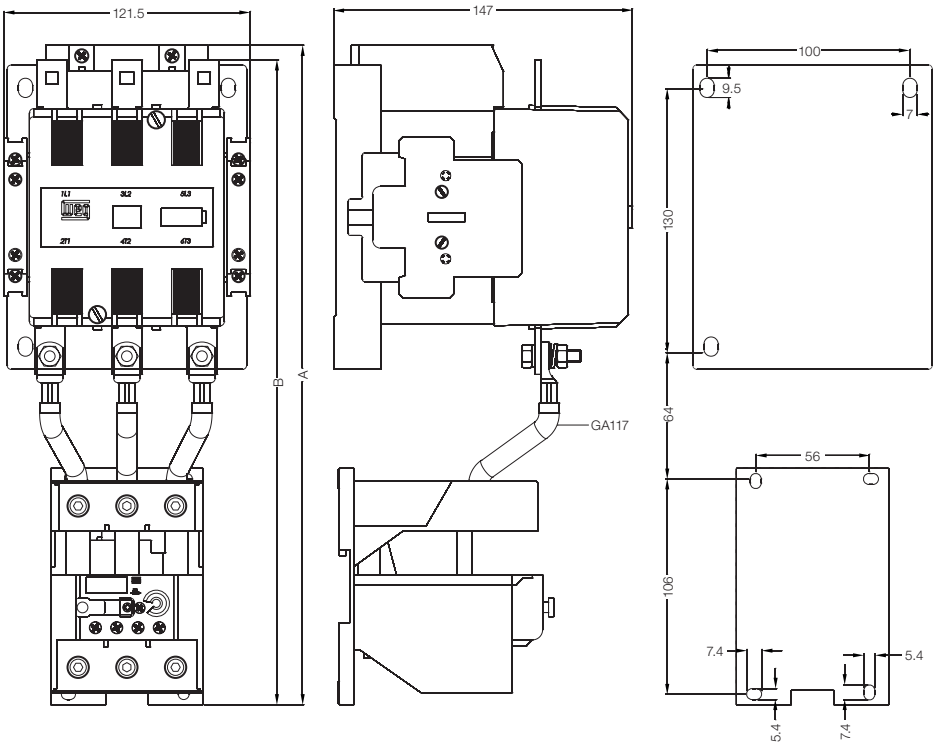
CWM95/105	A
AC coil	127.5
DC coil	127.5

Contactors and Overload Relays - Dimensions (mm)

CWM112/150 + RW317-1D



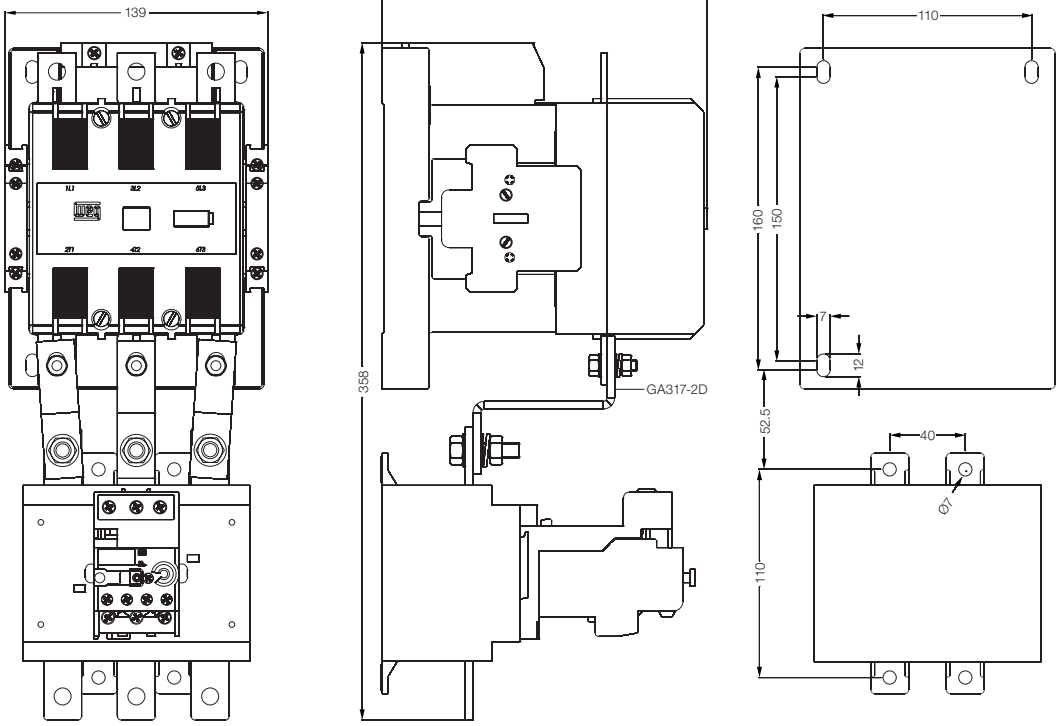
CWM112 + RW117-2D



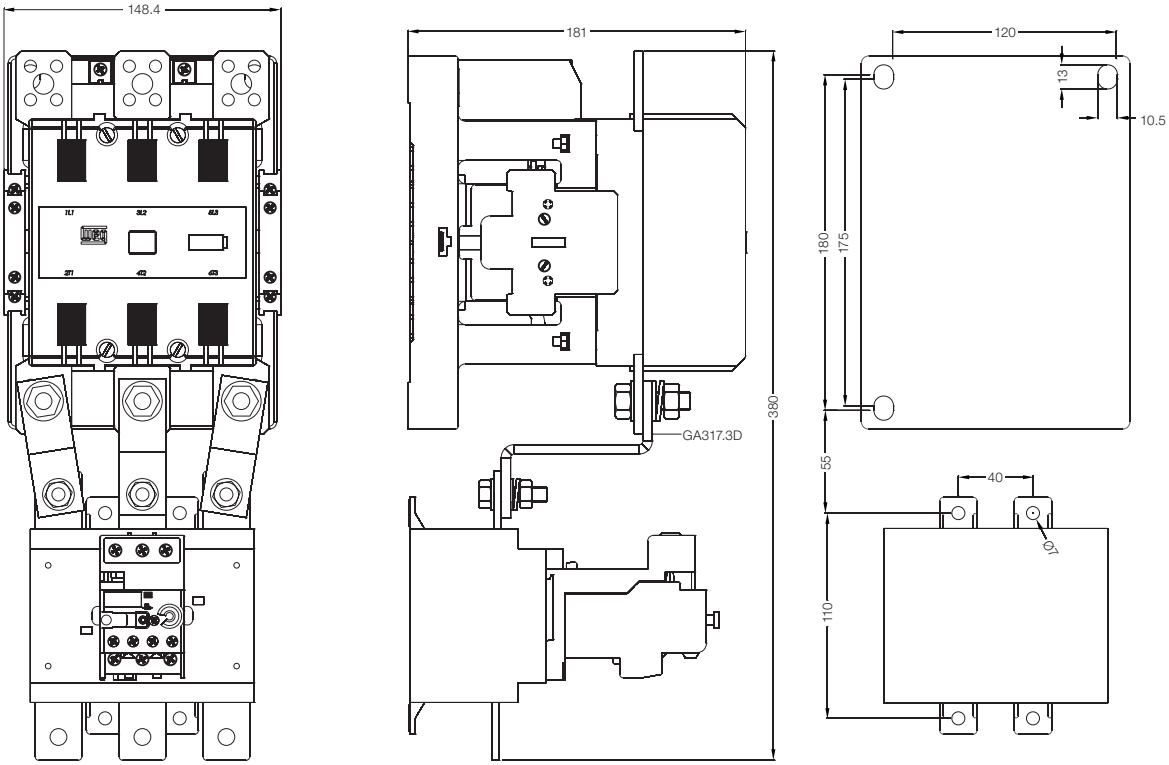
CWM/112	A	B
Standard coil	-	317.7
Electronic module	325	317.7

Contactors and Overload Relays - Dimensions (mm)

CWM180 + RW317-1D

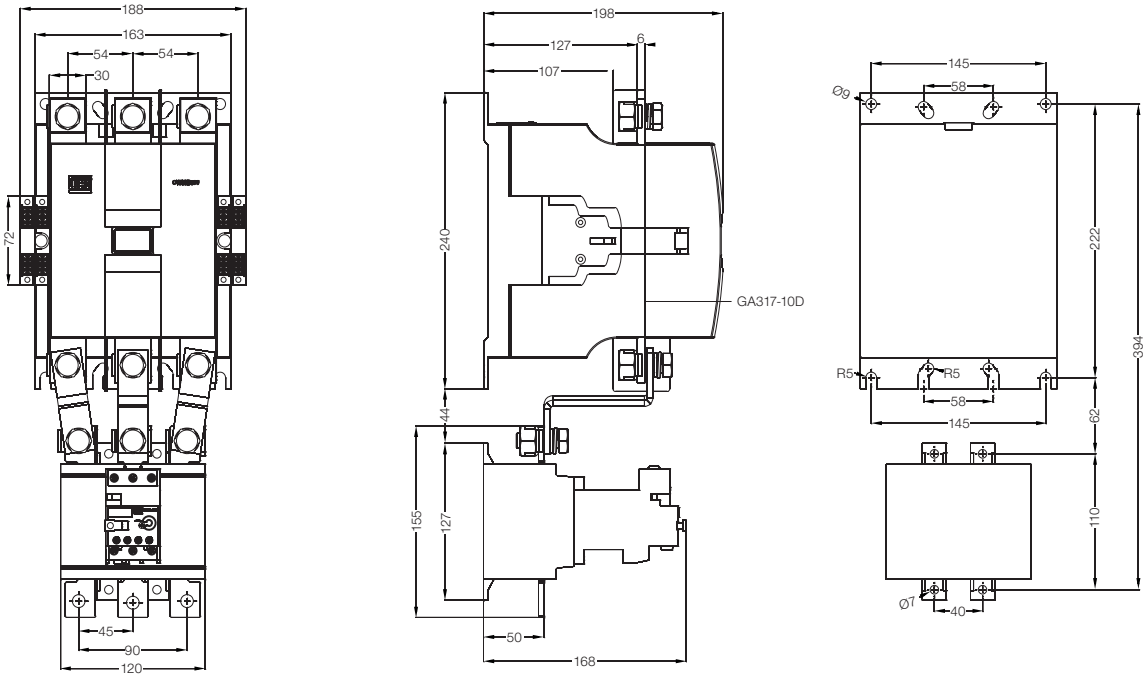


CWM250/300 + RW317-1D



Contactors and Overload Relays - Dimensions (mm)

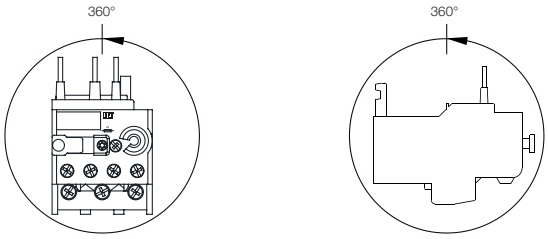
CWM400 + RW317-1D



Note: 1) Dimensions for CWM400...800 + RW407-1D under request.

Monting Position

RW17...407



Notes

Notes

Notes

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The values shown are subject to change without prior notice.