Contactors

CWM Series - IEC Standard Contactors

Control circuit ratings - AC Coil

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Rated Insulation Voltage Ui												
Acc. IEC; VDE 0660	[V]	1000										
Acc. UL; CSA	[V]	600										
Rated Operating Voltage Ue												
Acc. IEC; VDE 0660	[V]	690										
Acc. UL; CSA	[V]	600										
Standard Voltages 60Hz	[V]	24...600										
Coil Operating limits												
Monofrequency coils xUc	[V]					0.85...1.1						-
Pick-up xUc	[V]	0.4...0.76				0.5...0.76		0.5...0.76				-
Drop-out xUc	[V]	0.25...0.65				0.3...0.65		0.25...0.6				-
Operating Time												
Coil energization - N.O.	[ms]	8...20				10...19		15...30				-
Coil de-energization - N.O.	[ms]	6...13				5...25		9...15				-
Coil Consumption												
Single coils												
Sealed	[VA]	4...7.2				6.6...12.5		13.1....19.1				-
Inrush	[VA]	70				98		255				-
Thermal Power Dissipation												
60Hz	[W]	2.6				4.3		8.0				-
Power Factor												
Closed	Cos phi	0.28				0.34		0.32				-
Opened	Cos phi	0.85				0.69		0.54				-
Stranded / Solid [AWG] (UL / CSA)		2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10

Control circuit ratings - DC Coil

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Rated Insulation Voltage Ui												
Acc. IEC; VDE 0660	[V]	1000										
Acc. UL; CSA	[V]	600										
Standard Voltages	[V]	12...440				24...240		24...240				
Coil Operating limits												
Pick-up xUc	[V]	0.4...0.7				0.85...1.1		0.7...0.8				
Drop-out xUc	[V]	0.15...0.4				0.45...0.75		0.4...0.6				
						0.15...0.45						
Operating Time												
Coil energization - N.O.	[ms]	35...45				40...55		50...60				
Coil de-energization - N.O.	[ms]	7...12				30...65		55...60				
Coil Consumption												
Sealed	[W]	3.8...9.0				6		6.5				
Inrush	[W]	3.8...9.0				240		340				
Stranded / Solid (UL / CSA)	[AWG]	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10	2x12-10

IEC Contactors - CWM Series

TYPE		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660	[V]	1000							
Acc. UL; CSA	[V]	600							
Rated Operating Voltage Ue									
Acc. IEC; VDE 0660	[V]	690							
Acc. UL; CSA	[V]	600							
Standard Voltages 50Hz; 60Hz; DC	[V]	24…600							
Coil Operating limits									
xUc	[V]	0.65…1.1				0.85...1.1			
Pick-up xUc	[V]	0.70...0.85				0.77...0.83			
Drop-out xUc	[V]	0.40...0.60				0.48...0.53			
Operating Time									
Coil energization - N.O.	[ms]	60…70	60…70	60…70	60…70	60…70	64…68	66…70	66…70
Coil de-energization - N.O.	[ms]	13…17	13…17	13…17	13…17	13…17	43…47	45…49	45…49
Coil Consumption									
Sealed AC	[VA]	14.8	14.8	14.1	14.1	14.1	14	17	29
Inrush AC	[VA]	213	213	214	229	229	571	1000	1000
Sealed DC	[VA]	2.4	2.4	2.4	2.5	2.5	14	17	29
Inrush DC	[VA]	166	166	154	171	171	571	1000	1000
Thermal Power Dissipation									
AC	[W]	3.9	3.9	3.8	3.7	3.7	4.7	4.9	5.3
DC	[W]	2.4	2.4	2.4	2.5	2.5	5.0	6.3	7.8

Contactors

CWM Series - IEC Standard Contactors

Power Contacts

TYPE			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Standard UL/CSA Ratings													
Rated Operating Voltage		[V]	600										
AC-1 (General Purpose)		[A]	25	25	32	32	60	60	90	110	110	140	140
Switching Motor Loads													
Full Voltage - 50/60Hz													
1-phase	115V	[A]	9.8	13.8	16	24	34	34	56	56	80	80	100
	230V	[A]	10	12	17	28	28	28	40	50	68	68	88
	115V	[HP]	1/2	3/4	1	2	3	3	5	5	7-1/2	7-1/2	10
	230V	[HP]	1-1/2	2	3	5	5	7 1/2	10	10	15	15	20
3-phase	200V	[A]	11	11	17.5	25	32.2	32.2	48.3	62.1	62.1	78.2	92
	230V	[A]	9.6	9.6	15.2	22	28	42	42	54	68	80	104
	460V	[A]	7.6	11	14	21	27	40	52	65	65	77	96
	575V	[A]	9	11	17	17	27	27	41	52	62	77	77
	200V	[HP]	3	3	5	7-1/2	10	10	15	20	20	25	30
	230V	[HP]	3	3	5	7-1/2	10	15	15	20	25	30	40
	460V	[HP]	5	7-1/2	10	15	20	30	40	50	50	60	75
	575V	[HP]	7-1/2	10	15	15	25	25	40	50	60	75	75
Short Circuit Rating	600V	[kA]	5	5	5	5	5	5	10	10	10	10	10
Standard IEC Ratings (IEC EN 60947)													
Rated Operating Voltage		[V]	690						1000				
Rated Thermal Current Ith		[A]	25	25	32	45	60	60	90	110	110	140	140
Switching Motor Loads													
AC-3 - 50/60Hz													
3-phase	220-240V	[A]	9	12	18	25	32	40	50	65	80	95	105
	380-400V	[A]	9	12	18	25	32	40	50	65	80	95	105
	415-440V	[A]	9	12	18	25	32	40	50	65	80	95	105
	500V	[A]	7.5	10.5	14	19	24	32	38	55	63	79	85
	660-690V	[A]	7	9	13	15	22	25	34	44	48	60	80
	220-240V	[kW]	2.2	3	4	7.5	9	11	15	18.5	22	25	30
	380-400V	[kW]	4	5.5	7.5	11	15	18.5	22	30	37	45	55
	415-440V	[kW]	4	5.5	7.5	11	15	22	25	37	45	50	55
	500V	[kW]	5.5	7.5	10	15	18.5	25	30	40	45	55	65
	660-690V	[kW]	5.5	7.5	10	15	18.5	30	35	45	45	55	65
Maximum Switching Rate													
	AC-1	[ops/hr]	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
	AC-3	[ops/hr]	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	600	600
	no load	[ops/hr]	9,000	9,000	9,000	9,000	9,000	9,000	5,000	5,000	5,000	5,000	5,000
AC-4													
200,000 operations;	<= 690V	[A]	5	7	8	12	16	18.5	23	30	37	44	50
50/60Hz	220-230V	[kW]	1.1	1.5	1.5	3	4	4.5	5.5	7.5	9.2	11	12.5
		[HP]	1.5	2	2	4	5.4	6	7.5	10	12.5	15	17
	380-400V	[kW]	2.2	3	3.7	5.5	7.5	9.2	11	15	18.5	22	22
		[HP]	3	4	5	7.5	10	12.5	15	20	25	30	30
	415-440V	[kW]	2.2	3.7	4.5	5.5	9.2	11	11	15	22	22	30
		[HP]	3	5	6	7.5	12.5	15	15	20	30	30	40
	500V	[kW]	3	4	5.5	7.5	10	11	15	18.5	22	25	30
		[HP]	4	5.4	7.5	10	13	15	20	25	30	33	40
	660-690V	[kW]	3	4.5	5.5	7.5	11	12.5	15	20	25	30	33
		[HP]	4	6	7.5	10	15	17	20	27	33	40	45

Power Contacts continued

Power Contacts cont.

Type			CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Breaking Capacity	Ue=400V	[A]	250	250	250	450	450	920	920	920	920	1050	1050
	Ue=500V	[A]	250	250	250	320	450	920	920	920	920	1050	1050
	Ue=690V	[A]	130	130	130	170	205	780	780	780	780	950	950
Impedance per Pole		[mW]	2.41	2.41	2.35	1.65	1.28	0.95	0.85	0.86	0.86	0.76	0.76
Power Dissipation per Pole													
	AC-1	[W]	1.47	1.47	2.46	3.34	4.6	3.42	6.86	10.40	10.40	14.89	14.89
	AC-3	[W]	0.19	0.34	0.78	1.03	1.31	1.52	2.12	3.63	5.5	6.86	8.37
Short Time Current Icw													
	1 sec.	[A]	455	455	570	630	1010	1265	1580	2530	2530	3300	3300
	5 sec.	[A]	205	205	254	280	450	450	710	1130	1130	1485	1485
	10 sec.	[A]	144	144	180	200	320	400	500	800	800	1050	1050
	30 sec.	[A]	85	85	104	115	185	230	290	460	460	600	600
	1 min.	[A]	60	60	74	80	130	165	205	325	325	430	430
	3 min.	[A]	35	35	46	50	90	100	120	185	185	250	250
	Rec. time	[min.]	10	10	10	10	10	10	10	10	10	10	10
Short Circuit Coordination													
Acc. to IEC													
Coordination Type “1”	gL/gG	[A]	50	50	63	63	100	125	200	200	200	250	250
Coordination Type “2”	gL/gG	[A]	25	35	35	50	63	80	100	125	125	160	200
Acc. to UL/CSA	J Type	[A]	25	35	40	45	60	70	100	125	125	150	200

Built-in Auxiliary Contacts

TYPE			CWM9	CWM12	CWM18
Rated Insulation Voltage Ui					
Acc. IEC; VDE 0660		[V]	1000		
Acc. UL; CSA		[V]	600		
Rated Operating Voltage Ue					
Acc. IEC; VDE 0660		[V]	690		
Acc. UL; CSA		[V]	600		
Rated Thermal Current Ith <=55ºC		[A]	20		
Rated Operating Current Ie					
Acc. IEC 60947-5-1 / AC-15	110-127V	[A]	10		
	220-240V	[A]	10		
	380-400V	[A]	6		
	415-450V	[A]	5		
	500V	[A]	4		
	660-690V	[A]	2		
Acc. UL; CSA			A600		
Rated Operating Current Ie					
Acc. IEC 60947-5-1 / DC-13	24V	[A]	6		
	48V	[A]	4		
	110V	[A]	2		
	220V	[A]	0.7		
	440V	[A]	0.7		
Acc. UL; CSA			P600		
Making Capacity Im					
AC-15 / AC-11	Ue <= 690V 50/60Hz	[A]	250		
DC-13 / DC-11	Ue <= 440Vdc	[A]	250		
Breaking Capacity Ic					
AC-15 / AC-11	Ue <= 400V 50/60Hz	[A]	250		
DC-13 / DC-11	Ue <=220Vdc	[A]	2		
Short Circuit Protection with Fuses					
Acc. IEC 60947-5-1 - gL/gG		[A]	10		
Minimum Switching Capacity		[V/mA]	17/5		
Electrical Endurance		Million ops.	1		
Mechanical Endurance		Million ops.	10		
Guaranteed Non-Overlap Time		[ms]	1.5		
Insulation Resistance		[MOhm]	>10		

Contactors

CWM Series - IEC Standard Contactors

Power Contacts cont.

TYPE	Units		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
NEMA Ratings										
Rated Operating Voltage		[V]	600							
AC-1 (General Purpose)		[A]	170	170	200	300	400	450	660	900
Switching Motor Loads										
Full Voltage - 50/60Hz										
1-phase	115V	[A]	-	-	-	-	-	-	-	-
	230V	[A]	-	-	-	-	-	-	-	-
	115V	[HP]	-	-	-	-	-	-	-	-
	230V	[HP]	-	-	-	-	-	-	-	-
3-phase	200V	[A]	120	150	177	221	285	359	414	552
	230V	[A]	130	154	192	248	312	360	480	772
	460V	[A]	124	156	180	240	302	361	477	-
	575V	[A]	99	144	192	242	336	289	382	-
	200V	[HP]	40	50	60	75	100	125	150	200
	230V	[HP]	50	60	75	100	125	150	200	300
	460V	[HP]	100	125	150	200	250	300	400	600
	575V	[HP]	100	150	200	250	350	300	400	600
Short Circuit Rating	600V	[kA]	10	10	10	18	18	18	30	30
Standard IEC Ratings (IEC/EN 60947)										
Rated Operating Voltage		[V]	1000							
Rated Thermal Current Ith		[A]	180	225	225	350	350	450	660	900
Switching Motor Loads										
AC-3 - 50/60Hz										
3-phase	220-240V	[A]	112	150	180	250	300	400	630	800
	380-400V	[A]	112	150	180	250	300	400	630	800
	415-440V	[A]	112	150	180	250	300	400	630	800
	500V	[A]	95	130	155	220	265	350	500	720
	660-690V	[A]	82	110	135	185	220	300	420	630
	220-240V	[kW]	30	45	55	75	90	110	185	220
	380-400V	[kW]	55	75	90	132	160	220	330	450
	415-440V	[kW]	55	90	110	150	185	220	370	500
	500V	[kW]	55	90	110	160	200	220	330	500
	660-690V	[kW]	75	110	110	160	200	260	400	560
Maximum Switching Rate										
	AC-1	[ops/hr]	600	600	600	600	600	500	500	500
	AC-3	[ops/hr]	600	600	600	600	600	500	500	500
	no load	[ops/hr]	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

Power Contact cont.

TYPE			CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM500	CWM630	CWM800
AC-4	**Voltage**	**Units**									
200,000 operations;	<= 690V	[A]	50	55	58	100	130	-	-	-	-
	220-230V	[kW]	18.5	20	22	37	45	90	-	110	185
		[HP]	25	27	30	50	60	125	-	150	250
	380-400V	[kW]	30	33	37	55	75	150	-	220	330
		[HP]	40	44	50	75	100	200	-	300	450
50/60Hz	415-440V	[kW]	37	40	45	63	80	185	-	220	370
		[HP]	50	54	60	84	107	250	-	300	500
	500V	[kW]	40	45	50	75	90	-	-	-	-
		[HP]	54	60	67	100	121	-	-	-	-
	660-690V	[kW]	45	50	55	90	100	-	-	-	-
Maximum Switching Rate		[HP]	600	67	75	121	133	-	-	-	-
		[ops/hr]	150	150	150	150	150	-	-	-	-
Making Capacity		[A]	1430	1820	2100	2600	3000	-	-	-	-
Breaking Capacity											
	Ue<=400V	[A]	1290	1350	1400	2000	-	4000	-	6300	8000
	Ue=500V	[A]	1290	1350	1400	2000	-	4000		6300	8000
Impedance per pole		[mW]	0.5	0.5	0.45	0.3	0.3	-	-	-	-
Power Dissipation per Pole											
	AC-1	[W]	16	25	21.6	35	45.7	-	-	-	-
	AC-3	[W]	6.2	11.1	13.8	17.9	25.7	-	-	-	-
Short Time Current Icw											
	1 sec.	[A]	3165	3763	4649	4427	-	-	-	-	-
	5 sec.	[A]	1820	2164	2673	2546	-	-	-	-	-
	10 sec.	[A]	1430	1700	2100	2000	-	-	-	-	-
	30 sec.	[A]	826	980	1212	1155	-	-	-	-	-
0°≤ 104°F	1 min.	[A]	584	694	857	816	-	-	-	-	-
	3 min.	[A]	337	401	495	471	-	-	-	-	-
	Recovery time	[min.]	10	10	10	10	10	-	-	-	-
Short Circuit Coordination											
Acc. to IEC											
Coordination type “1”	gL/gG	[A]	315	355	355	500	630	630	-	800	1000
Coordination type “2”	gL/gG	[A]	224	250	250	400	500	-	-	-	-
Acc. to UL/CSA	J Type	[A]	250	350	400	500	700	700	-	900	1100

Contactors

CWM Series - IEC Standard Contactors

General Ratings

TYPE		CWM9	CWM12	CWM18	CWM25	CWM32	CWM40	CWM50	CWM65	CWM80	CWM95	CWM105
Standards	Units	Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102										
Rated Insulation Voltage Ui												
Acc. IEC; VDE 0660	[V]	1000										
Acc. UL; CSA	[V]	600										
Rated Impulse Voltage Uimp		6						8				
Acc. IEC60947-1	[kV]											
Rated Operating Frequency	[Hz]	25…400										
Degree of Protection		IP20			Protection against direct contact Acc. VDE 0160 - Part. 100							
Main terminals					IP10							
Coil terminals												
Auxiliary terminals												
Ambient Temperature												
Storage		-55 to +80oC (-67 to +176oF)										
Operating		-25 to +55oC (-13 to +131oF)										
Altitude												
Up to 1,500m		Nominal values										
		See graphic on page 174										
Pollution Degree		3										
Climatic Withstand		According to IEC 60680-2										
Mounting		35mm rail Acc. DIN EN 50 022										
Vibration Resistance (5 to 200 Hz)												
Contactor open	[g]	3	3	3	7.5	8	8	4.5	4.5	4.5	5	5
Contactor closed at Uc	[g]	6	6	6	8	12	12	9	9	9	7	7
Mechanical Endurance												
AC Coil	Million ops.	10										
Electrical Endurance AC-3	Million ops.	1.8	1.6	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1
Shock Resistance (1/2 sin wave = 11ms)												
Contactor open	[g]	8	8	8	8	7	7	6	6	6	6	6
Contactor closed at Uc	[g]	12	12	12	12	12	12	10	10	10	10	10
Weight	[kg]	0.30	0.30	0.30	0.30	0.52	0.54	1.11	1.12	1.13	1.45	1.47
AC Coil	[lb]	0.65	0.65	0.65	0.65	1.15	1.19	2.44	2.47	2.49	3.20	3.24
Terminal Capacity		Cross/Slotted Combination						Allen Head				
Fine - Stranded with sleeve	Top [mm2]	2x0.5-2.5	2x0.5-2.5	2x0.5-2.5	2x1-2.5	0.75-16	0.75-16	1-35	1-35	1-35	1.5-50	1.5-50
	Bottom [mm2]	or 2x2.5-6	or 2x2.5-6	or 2x2.5-6	or 2x2.5-10	1.0-16	1.0-16	2.5-35	2.5-35	2.5-35	4-35	4-35
Coarse - Stranded / Solid	Top [mm2]	2x1-2.5	2x1-2.5	2x1-2.5	2x1-2.5	1-16	1-16	1.5-35	1.5-35	1.5-35	2.5-50	2.5-50
	Bottom [mm2]	or 2x2.5-6	or 2x2.5-6	or 2x2.5-6	or 2x2.5-10	1.5-16	1.5-16	6-35	6-35	6-35	6-35	6-35
Stranded / Solid (UL / CSA)	Top [AWG]	2x20-12	2x20-12	2x20-12	2x18-12	18-6	18-6	16-2	16-2	16-2	16-1	16-1
	Bottom [AWG]	or 2x12-10	or 2x12-10	or 2x12-10	or 2x12-8	16-6	16-6	14-2	14-2	14-2	10-2	10-2
Drive Size		Screwdriver - Philips #2						5/32" (4mm.)				
Tightening Torque	lb-in (Nm)	8.9...15 (1...1.7)	8.9...15 (1...1.7)	8.9...15 (1...1.7)	14.2...26.6 (1.6...3)	22.1...35..4 (2.5...4)	22.1...35..4 (2.5...4)	35.4...53.1 (4...6)	35.4...53.1 (4...6)	35.4...53.1 (4...6)	44.3...57.5 (5...6.5)	44.3...57.5 (5...6.5)

General Ratings

TYPE		CWM112	CWM150	CWM180	CWM250	CWM300	CWM400	CWM630	CWM800
Standards Units		Devices according to International Standards IEC 60947-1 / 60947-4-1, European Standards EN 60947-1 / 60947-4-1, Underwriters Laboratories - UL 508; CSA C.22.2/14; VDE 0660/102							
Rated Insulation Voltage Ui									
Acc. IEC; VDE 0660	[V]	1000							
Acc. UL; CSA	[V]	600							
Rated Impulse Voltage Uimp									
Acc. IEC60947-1	[kV]	8							
Rated Operating Frequency	[Hz]	25…400							
Degree of protection		Protection against direct contact acc. VDE 0160 - Part. 100							
Main terminals		IP00							
Coil terminals		IP20							
Auxiliary terminals		IP20							
Ambient Temperature									
Storage		-55 to +80ºC (-67 to +176ºF)							
Operating		-25 to +55ºC (-13 to +131ºF)							
Altitude									
Up to 1,500m		Nominal values							
Other altitudes		See graphic on page 174					up to 2000m		
Pollution Degree		3							
Climatic withstand		According to IEC 68-2							
Mounting		Screw to panel							
Vibration Resistance (5 to 200 Hz)									
Contactor open	[g]	4							
Contactor closed at Uc	[g]	4							
Mechanical Endurance									
AC Coil	Million ops.	10					5		
Electrical Endurance AC-3	Million ops.	1.1	1.1	1.0	1.0	1.0	0.5		
Shock Resistance (1/2 sin wave = 11ms)									
Contactor open	[g]	3							
Contactor closed at Uc	[g]	3							
Weight									
AC/DC Coil	[kg]	2.54	2.54	4.04	6.14	6.14	9.2	22.4	22.4
	[lb]	5.60	5.60	8.91	13.54	13.54	20	49	49
Terminal Capacity									
Fine - Stranded with sleeve	[mm2]	2 x (25-70)		2 x (50-120)	2 x (50-150)		1 x 150	1 x 240	1 x 240
AWG wires with end sleeve		1 x 300 or 2 x 107			1 x 500 or 2 x 300		Nº2 30×5	Nº2 50×5	Nº2 60×5
Busbars	[mm]	2 x (15 x 3)		2 x (20 x 3)	2 x (30 x 5)		-	-	-
Tightening Torque	lb-in (Nm)	47.8-53.1(5.4-6)		123.9-141.6 (14-16)	203.6-230.1 (23-26)		203.6 (23)	504.5 (57)	504.5 (57)

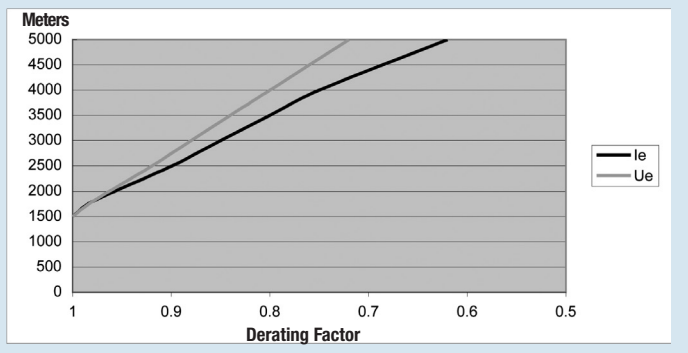
Contactors

CWM Series - IEC Standard Contactors

Auxiliary contact block ratings

TYPE			BCXMF BCXML BCXMRL BLIM.02
Rated Insulation Voltage Ui			
Acc. IEC; VDE 0660		[V]	1000
Acc. UL; CSA		[V]	600
Rated Operating Voltage Ue			
Acc. IEC; VDE 0660		[V]	690
Acc. UL; CSA		[V]	600
Rated Thermal Current Ith <=55ºC		[A]	10
Rated Operating Current Ie			
Acc. IEC 60947-5-1 / AC-15	110-127V	[A]	6
	220-240V	[A]	6
	380-400V	[A]	4
	415-450V	[A]	3.5
	500V	[A]	2.5
	660-690V	[A]	1.5
Acc. UL; CSA			A600
Rated Operating Current Ie			
Acc. IEC 60947-5-1 / DC-13	24V	[A]	4
	48V	[A]	2
	110V	[A]	0.7
	220V	[A]	0.3
	440V	[A]	0.15
Acc. UL; CSA			Q600
Making Capacity Im			
AC-15 / AC-11	Ue <= 400V 50/60Hz	[A]	90
DC-13 / DC-11	Ue <= 220Vdc	[A]	90
Breaking Capacity Ic			
AC-15 / AC-11	Ue <= 400V 50/60Hz	[A]	60
DC-13 / DC-11	Ue <= 220Vdc	[A]	0.95
Short Circuit Protection with Fuses			
Acc. IEC 60947-5-1 - gL/gG		[A]	10
Minimum Switching Capacity		[V/mA]	17/5
Electrical Endurance		Million ops.	1
Mechanical Endurance		Million ops.	10
Guaranteed Non-Overlap Time		[ms]	1.5
Insulation Resistance		[MOhm]	>10

Graphic Altitude



NOTE:
Altitude compensation in CWM Series contactors, considers a factor according to which the rated power must be reduced.

The derating of the permissible operating power for installation altitudes above 1,500 m (5,000 ft) is calculated according to:

Total derating = $\text{Derating}_{\text{current}}$ x $\text{Derating}_{\text{voltage}}$

Example: Altitude: 3,000 m (10,000 ft):

Derating current K1 = 0.85
Derating voltage K2 = 0.88

Total derating = 0.85 x 0.88 = 0.75 x HP