

WCL CONTACTORS AND WRL THERMAL OVERLOAD RELAYS

1

CONTACTOR

Overview

WCL9 ...45 Contactors and WRL27-1D Thermal Overload Relays



- 1 - WCL9...45 Contactors
- 2 - WBCFL front mounting auxiliary contact blocks
- 3 - WBCLL side mounting auxiliary contact block
- 4 - WBLIML mechanical interlock blocks

- 5 - WBAM surge suppressor blocks
- 6 - WBFL27-1D individual screw or DIN rail 35 mm mounting base
- 7 - WRL27-1D overload relays

Overview

WCL50 ... 95 Contactors and WRL67-2D Thermal Overload Relays



- 1 - WCL50...95 Contactors
- 2 - WBCFL front mounting auxiliary contact blocks
- 3 - WBCLL side mounting auxiliary contact block
- 4 - WBLIML mechanical interlock blocks

- 5 - WBAM surge suppressor blocks
- 6 - WBFL67-2D individual screw or DIN rail 35 mm mounting base
- 7 - WRL67-2D Overload relays

Overview

WLC110 Contactor and WRL117-1D Thermal Overload Relays

1

CONTACTOR



- 1 - WCL110 Contactors
- 2 - WBCFL front mounting auxiliary contact blocks
- 3 - WBCLL side mounting auxiliary contact block
- 4 - WBLIML mechanical interlock blocks

- 5 - WBAM surge suppressor blocks
- 6 - WBFL117-1D individual screw or DIN rail 35 mm mounting base
- 7 - WRL117-1D Overload relays

WCL Contactors

Selection Table



1 CONTACTOR

I _e AC-3 440 V (A)	I _{th} AC-1 440 V (A)	Power ¹⁾ AC-3 (kW / cv)			Integrated auxiliary contacts	Auxiliary contacts supplied separately	Reference to fill the control voltage in	Ref.No.	Weight (kg)
		220 V 230 V	380 V 400 V	415 V 440 V					
9	25	2.2 / 3	4 / 5.4	4.5 / 6	1NO	-	WCL9-10-30 ♦	W605000	0.360
					1NC	-	WCL9-01-30 ♦	W605001	0.360
12	25	3 / 4	5.5 / 7.5	6.5 / 8.7	1NO	-	WCL12-10-30 ♦	W605002	0.360
					1NC	-	WCL12-01-30 ♦	W605003	0.360
18	25	4.5 / 6	7.5 / 10	9.2 / 12.5	1NO	-	WCL18-10-30 ♦	W605004	0.360
					1NC	-	WCL18-01-30 ♦	W605005	0.360
25	32	6.5 / 8.7	12 / 16.8	12 / 16.8	1NO	-	WCL25-10-30 ♦	W605006	0.360
					1NC	-	WCL25-01-30 ♦	W605007	0.360
32	45	9.2 / 12.5	15 / 20	15 / 20	-	-	WCL32-00-30 ♦	W605008	0.330
					-	1NO + 1NC	WCL32-11-30 ♦	W605009	0.360
40	50	11 / 15	18.5 / 25	22 / 30	-	-	WCL40-00-30 ♦	W605010	0.620
					-	1NO + 1NC	WCL40-11-30 ♦	W605011	0.650
45	50	11 / 15	22 / 30	22 / 30	-	-	WCL45-00-30 ♦	W605012	0.620
					-	1NO + 1NC	WCL45-11-30 ♦	W605013	0.650
50	90	15 / 20	25 / 34	30 / 40	-	-	WCL50-00-30 ♦	W605014	1.020
					-	1NO + 1NC	WCL50-11-30 ♦	W605015	1.050
65	110	18.5 / 25	30 / 40	37 / 50	-	-	WCL65-00-30 ♦	W605016	1.030
					-	1NO + 1NC	WCL65-11-30 ♦	W605017	1.060
80	110	22 / 30	40 / 54	45 / 60	-	-	WCL80-00-30 ♦	W605018	1.030
					-	1NO + 1NC	WCL80-11-30 ♦	W605019	1.060
95	110	25 / 34	45 / 60	55 / 75	-	-	WCL95-00-30 ♦	W605020	1.030
					-	1NO + 1NC	WCL95-11-30 ♦	W605021	1.060
110	140	30 / 40	55 / 75	59 / 79	-	-	WCL110-00-30 ♦	W605022	1.320
					-	1NO + 1NC	WCL110-11-30 ♦	W605023	1.350

Replace "♦" by the control voltage code²⁾.

Alternating Current

Code	D02	D07	D13	D23	D25	D33	D34	D35	D36
V (50/60 Hz)	24	48	110	220	240	380	400	415	440

IEC/EN 60947





Notes: 1) Orientative values considering three-phase motor - IV pole - 60 Hz - 1,800 rpm;
2) Other voltages on request.


WCL Contactors

Accessories




Auxiliary Contact Blocks

Illustrative picture	For use with	Mounting	Maximum number of auxiliary contacts per contactor	Auxiliary contacts	Reference	Ref.No.	Weight (kg)
	WCL9...110	Front	WCL9...32 = 4 contacts WCL40...110 = 6 contacts	1NO	WBCFL10	W605024	0.016
				1NC	WBCFL01	W605025	
	Side	2NO		WBCLL20	W605026	0.055	
		1NO + 1NC		WBCLL11	W605027		

Mechanical Interlock

Illustrative picture	For use with	Mounting	Functionality	Auxiliary contacts	Reference	Ref.No.	Weight (kg)
	WCL9...110	Side	Prevents simultaneous activation	N/D	WBLIML	W605028	0.055
			Prevents simultaneous activation and allows electrical interlock	1NC + 1NC	WBLIML.02	W605029	

Surge Suppressor

Illustrative picture	For use with	Type	Diagram	Voltage	Item	Ref.No.	Weight (kg)
	WCL9...45	RC (Resistor + Capacitor)		24...48 V 50/60 Hz	WBAMRC4 D53	W605030	0.015
				50...127 V 50/60 Hz	WBAMRC5 D55	W605031	
				130...250 V 50/60 Hz	WBAMRC6 D63	W605032	
	WCL50...110			24...48 V 50/60 Hz	WBAMRC7 D53	W605033	
				50...127 V 50/60 Hz	WBAMRC8 D55	W605034	
				130...250 V 50/60 Hz	WBAMRC9 D63	W605035	
	WCL9...110	Varistor		270...380 V 50/60 Hz	WBAMV1 D68	W605036	
				400...510 V 50/60 Hz	WBAMV2 D73	W605037	

Spare Parts

Contact sets		For use with	AC Coil	
Item	Ref.No.		Reference to fill the control voltage in	Item
SPWCL9-3P	W605038	WCL9	WBRL-32 ♦	On request
SPWCL12-3P	W605039	WCL12		
SPWCL18-3P	W605040	WCL18		
SPWCL25-3P	W605041	WCL25		
SPWCL32-3P	W605042	WCL32		
SPWCL40-3P	W605043	WCL40	WBRL-45 ♦	On request
SPWCL45-3P	W605044	WCL45		
SPWCL50-3P	W605045	WCL50		
SPWCL65-3P	W605046	WCL65	WBRL-110 ♦	On request
SPWCL80-3P	W605047	WCL80		
SPWCL95-3P	W605048	WCL95		
SPWCL110-3P	W605049	WCL110		

WCL Contactors

Technical Data

Basic Data

Models	WCL9	WCL12	WCL18	WCL25	WCL32	WCL40	WCL45	WCL50	WCL65	WCL80	WCL95	WCL110
Compliance with the standards	IEC/EN 60947-1, IEC/EN 60947-4											
Rated insulation voltage U _i IEC/EN 60947-4-1, VDE 0660(V)	690						1,000					
Rated impulse withstand voltage U _{imp} (IEC/EN 60947-1) (kV)	6						8					
Mechanical life AC Coil (millions of operations)	8						5					
Electrical life I _e AC-3 (millions of operations)	1			0.8			0.9			0.8		
Maximum number of cycles	1,200 operations/h											
Degree of protection (IEC/EM 60529)	Main terminals						IP10					
	Coil and auxiliary contacts											
Mounting	Screws or DIN rail 35 mm (EN 50022)											
Coil connection points	4						3					
Resistance to vibrations (IEC/EN 60068-2-6)	Open contactor (g)		3		4.5		7		4.5		5	
	Closed contactor (g)		6		5		9		9		7	
Resistance to mechanical shocks (½senoide = 11ms IEC/EN60068-2-27)	Open contactor (g)		8		7		6		6		6	
	Closed contactor (g)		12		10		10		10		10	
Ambient temperature	Operation											
	Storage											
Maximum operation altitude without modification in the rated values ¹⁾	3,000 m											

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

Control Circuit - Alternate Current (AC)

Models	WCL9 - WCL32	WCL40 - WCL45	WCL50 - WCL110
Rated insulation voltage U _i (V)	690		1,000
Standard voltages at 50/60 Hz (V)	24-600		
Control voltage limits			
Coil operation limits (xU _s)	0.85-1.1		
Average consumption	1.0 x U _s and cold coil		
Coil 50/60 Hz	Closed magnetic circuit (VA)		18.5 / 16.1 (50 / 60 Hz)
	Closing of the magnetic circuit (VA)		296 / 255 (50 / 60 Hz)
Operation average time	Closing of the NO contact (ms)		15...30
	Opening of the NO contact (ms)		9...15

Main Contacts

Models	WCL9	WCL12	WCL18	WCL25	WCL32	WCL40	WCL45	WCL50	WCL65	WCL80	WCL95	WCL110	
Rated operational current I _e	AC-3 (U _e ≤ 440 V) (A)	9	12	18	25	32	40	45	50	65	80	95	110
	AC-4 (U _e ≤ 440 V) (A)	3.5	4.5	8	9	15.6	18.5	20	23	30	37	44	50
	AC-1 (θ ≤ 55 °C, U _e ≤ 690 V) (A)	25	25	25	32	45	50	50	90	110	110	110	140
Short circuit protection of the main contacts Fuse (gL/gG)	Coordination type 1 (A)	50	50	63	63	100	125	125	200	200	200	200	250
	Coordination type 2 (A)	25	35	35	50	63	80	80	100	125	125	125	200
Average impedance per pole (mΩ)	2.4	2.4	2.4	1.7	1.3	1.0	1.0	0.9	0.9	0.9	0.9	0.8	
Average power dissipation per pole	AC-1 (W)	1.5	1.5	2.5	3.3	4.6	4.6	4.6	6.7	10.4	10.4	14.9	
	AC-3 (W)	0.2	0.3	0.8	1.0	1.3	1.5	1.5	2.1	3.6	5.5	8.4	

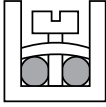
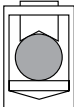
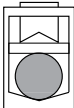
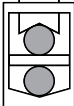
Auxiliary Contact Block

Model	WBCFL / WBCLL	
Conventional thermal current (I _{th} ≤ 55 °C) (A)	10	
Rated operational current I _e		
AC-15 (IEC/EN 60947-5-1)	110/120 V (A)	10
	220/230 V (A)	10
	380/400 V (A)	4
	660/690 V (A)	1.5
DC-13 (IEC/EN 60947-5-1)	24 V (A)	4
	48 V (A)	2
	110 V (A)	0.7
	220 V (A)	0.3
Electrical life (millions of operations)	1	
Mechanical life (millions of operations)	8	

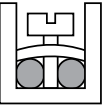
WCL Contactors

Technical Data

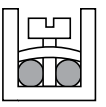
Terminal Capacity and Tightening Torque - Power Circuit

Models		WCL9-25	WCL32	WCL40-45	WCL50-95	WCL110
Mounting system screw type		M3.5 Slot / Phillips	M4 Slot / Phillips	M4 Slot / Phillips	Hexagonal 4 mm	Hexagonal 4 mm
Conductor cross-section						
Flexible conductor without terminal(mm ²)		1x 1...6 2x 1...2.5 2x 2.5...6	1x 2.5...10 2x 2.5...10	-	-	-
Flexible conductor with terminal (mm ²)		1x 0.5...4 2x 0.5...2.5	1x 1...6.0 2x 1...2.5 2x 2.5...4	-	-	-
Solid wire (mm ²)		1x 0.5...6 2x 0.5...2.5 2x 2.5...6	1x 1...10 2x 1...2.5 2x 2.5...10	-	-	-
Torque (Nm)		1...1.5	1.6...2.5	-	-	-
Connection of the conductors on top - bottom not used						
Flexible conductor without terminal(mm ²)		-	-	1...10	1.5...35	2.5...50
Flexible conductor with terminal (mm ²)		-	-	0.75...10	1...35	1.5...50
Solid wire (mm ²)		-	-	0.75...10	1...35	1.5...50
Torque (Nm)		-	-	2...2.5	4..6	5...6.5
Connection of the conductors on bottom - top not used						
Flexible conductor without terminal (mm ²)		-	-	1.5...10	6...35	6...35
Flexible conductor with terminal (mm ²)		-	-	1...10	2.5...35	4...35
Solid wire (mm ²)		-	-	1...10	2.5...35	4...35
Torque (Nm)		-	-	2...2.5	4..6	5...6.5
2-conductor connection						
First conductor/top						
Flexible conductor without terminal(mm ²)		-	-	1...10	1.5...35	2.5...50
Flexible conductor with terminal (mm ²)		-	-	0.75...10	1...25	1.5...50
Solid wire (mm ²)		-	-	0.75...10	1...35	1.5...50
Second conductor/bottom						
Flexible conductor without terminal(mm ²)		-	-	1.5...10	6...35	6...35
Flexible conductor with terminal (mm ²)		-	-	1...10	2.5...25	4...35
Solid wire (mm ²)		-	-	1...10	2.5...35	4...35
Torque (Nm)	-	-	2...2.5	4..6	5...6.5	

Terminal Capacity and Tightening Torque - Control Circuit

Models		WCL9...110
Mounting system screw type		Slot / Phillips #2
Conductor cross-section		
Flexible conductor without terminal (mm ²)		1x 1...4 or 2x 1...2.5
Flexible conductor with terminal / solid wire (mm ²)		1x 0.5...4 or 2x 0.5...1.5 or 2x 1...2.5
Torque (Nm)		0.8...1.1

Terminal Capacity and Tightening Torques - Auxiliary Contact Blocks

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

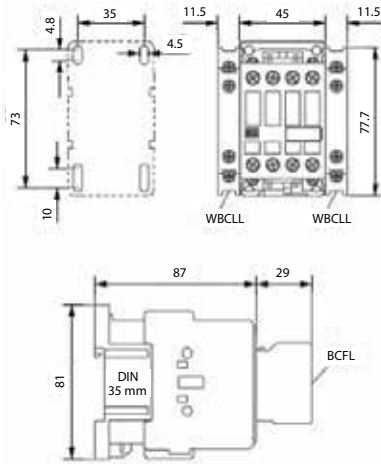
Note: 1) For altitudes 3,000...4,000 m (0.90xI_e and 0.80xU_i) and 4,000...5,000 m (0.80xI_e 0.75xU_i).

CONTACTOR 1

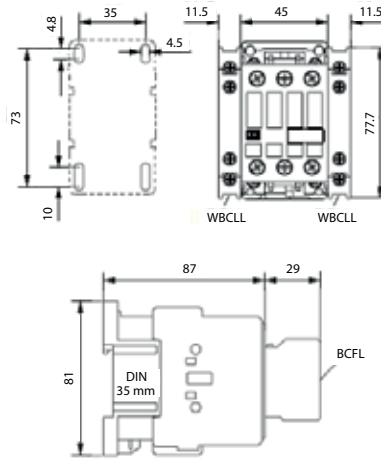
WCL Contactors

Dimensions (mm)

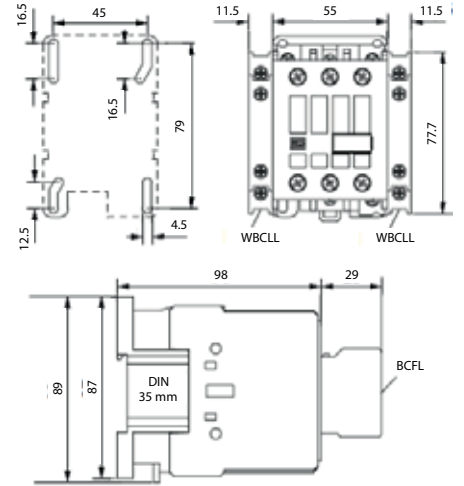
WCL9-25



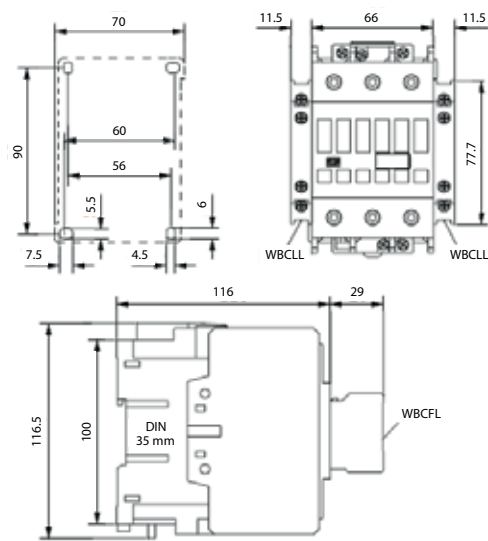
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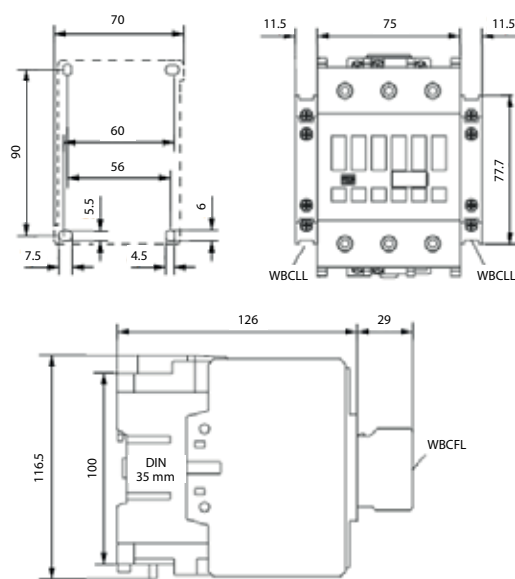
WCL40/45



WCL50-95



WCL110



CONTACTOR 1

