


**RADE KONČAR MINI CONTACTOR CM1**  
 9A/4kW (AC3, 400V/50Hz); 20A(AC1)

In conformity with standard IEC 60947-4-1

<b>Contactor type</b>			<b>CM1</b>	
<b>Mechanical endurance</b>	make/brake operations		$\times 10^6$	5
<b>Insulation rating</b>			V	690
<b>Permissible ambient temperature</b>			°C	from -25 to +55
<b>Consumption of electromagnet in cold state with <math>U_n</math></b>				
AC operated	closing		VA	26
	P.F. closed		VA	4
	P.F. closed		W	0.35
DC operated	closing		W	-
	closed		W	-
<b>Coil voltage tolerances</b>			0.85-1.1 $U_n$	
<b>duration of making and breaking</b>				
(values are also valid for voltages of electromagnet from 0.8 to 1.1 $U_n$ for each in cold and warm state).				
Total breaking time is addition of opening time and duration of electric arc.				
AC operated	closing time		ms	12 to 21
	opening time		ms	9 to 18
	duration of electric arc		ms	10
<b>Frequency of switching operations</b>				
without thermal relay				
	utilization category	AC1	s/h	1200
		AC2, AC3	s/h	1000
		AC4	s/h	250
with thermal relay				
			s/h	7/5
<b>Resistivity to shocks</b> (square shock)			g/ms	and 4,2/10
<b>Short-circuit protection of</b>				
contactors without overload relays				
<b>Main circuit</b>				
With fuse links				
acc. To IEC 60947-4-1	Type of coord. "1"	gI/gG	A	20
DIN VDE 0660 Part 102	Type of coord. "2"		A	16
<b>Sizes of connecting conductors</b>				
for contact without thermal relay				
main circuit	single-wire conductors		mm <sup>2</sup>	1-2.5
	multi-wire conductor with cable shoe		mm <sup>2</sup>	0.75-1.5
	Screw			M3.5
	Screw head			PZ2
auxiliary circuit	Tightening torque		Nm	1.2
	single-wire conductor		mm <sup>2</sup>	1-2.5
	multi-wire conductor with cable shoe		mm <sup>2</sup>	0.75-1.5
	Screw			M3.5
	Screw head			PZ2
	Tightening torque		Nm	0.8
<b>Loadability of auxiliary contacts</b>				
Rated continuous current $I_{th}$ ; 40 °C			A	10
rated operational current $I_e$ /AC15	for 24V		A	6
	230V		A	6
	400V		A	4
	500V		A	2
	690V		A	1
rated operational current $I_e$ /DC13	for 24V		A	4

	110V	A	0.6
	230V	A	0.2
<b>Load carrying capacity of the main contacts</b>			
rated continuous current I <sub>th</sub>			
AC1 utilization category		A	20
rated operational current I <sub>e</sub> /AC1		A	20
<b>AC2 and AC3 utilization categories</b>			
(slip-ring and cage motors at 50Hz)	for 230V	kW	3
	<b>400V</b>	<b>kW</b>	<b>4</b>
	690V	kW	4
<b>AC4 utilization category</b> (80.000 for CM1))			
(electrical endurance of contacts:120.000)			
rated current	I <sub>e</sub> /AC4	A	4
ratings of squirrel-cage motors at 50Hz	for 230V	kW	0.75
	<b>400V</b>	<b>kW</b>	<b>1.5</b>
	500V	kW	1.5
	690V	kW	1.5
<b>Loadability by direct current</b>			
DC1 utilization category, non-inductive loads L/R1 ms			
rated operational current I <sub>e</sub>	for 24V	A	12
through one pole	48V	A	10
	110V	A	1.5
	220V	A	0.6
	440V	A	0.42
	600V	A	0.42
through three poles connected in series	for 24V	A	16
	48V	A	16
	110V	A	10
	220V	A	15
	440V	A	0.9
	600V	A	0.7
utilization category DC3 to DC5			
series and shunt motors (L/R15 ms)			
rated operational current I <sub>e</sub>	for 24V	A	7
through one pole	48V	A	4
	110V	A	1
	220V	A	-
	440V	A	-
	600V	A	-
through three poles connected in series	for 24V	A	10
	48V	A	10
	110V	A	5
	220V	A	1.2
	440V	A	0.14
	600V	A	0.14

#### Drilling plan (mm)

