



RADE KONCAR CONTACTOR **CNN90**
90A/45kW (AC3, 400V/50Hz); 105A(AC1)

Contactor type			CNN 90	
Mechanical endurance	make/brake operations	x10 ⁶	5	
Insulation rating		V	1000	
Permissible ambient temperature		°C	from -25 to +55	
Consumption of electromagnet in cold state with Un				
AC operated	closing	VA	204	
	P.F.		0,54	
	closed	VA	16	
	P.F.		0,26	
DC operated	closing	W	200	
	closed	W	3,5	
Coil voltage tolerances			0.85-1.1Un	
duration of making and breaking				
(values are also valid for voltages of electromagnet from 0.8 to 1.1 Un for each in cold and warm state).				
Total breaking time is addition of opening time and duration of electric zrc.				
AC operated	closing time	ms	9 to 35	
	opening time	ms	9 to 15	
	duration of electric arc	ms	10 to 15	
DC operated	closing time	ms	20 to 50	
	opening time	ms	120 to 150	
	duration of electric arc	ms	10 to 15	
Frequency of switching operations				
without thermal relay				
utilization category	AC1	s/h	1000	
	AC2, AC3	s/h	600	
	AC4	s/h	200	
		s/h	15	
with thermal relay				
Resistivity to shocks	(square shock)	g/ms	9.6/5 and 5.2/10	
Short-circuit protection				
contactors without overload relays				
Main circuit				
With fuse links				
acc. To IEC 60947-4-1	Type of coord. "1" gl/gG	A	160	
DIN VDE 0660 Part 102	Type of coord. "2"	A	80	
Sizes of connection conductors				
for contact without thermal relay				
main circuit	Rigid solid	mm ²		
		standed	mm ² 25-70	
	multi-wire conductor with cable shoe	mm ²	-	
		standed with cable lug	mm ² 25-50	
	flatbar	mm	-	
		protective conductor with cable lug	mm ²	-
	Screw	Screw head		M8
		Tightening torque	Nm	4-4.5
		auxiliary circuit	single-wire conductor	mm ²
	multi-wire conductor with cable shoe		mm ²	0.75-1.5
Screw			M3.5	
Screw head			PZ2	
Tightening torque	Nm		0,8	

Loadability of auxiliary contacts

Rated continuous current I_{th} ; 35C		A	16
AC			
rated operational current $I_e/AC15$	230V	A	6
	400V	A	4
	500V	A	2,5
	690V	A	2,5
DC			
rated operational current $I_e/DC1$; L/R $\leq 1ms$	24V	A	10
	110V	A	3,2
	220V	A	0,9
	440V	A	0,33
	600V	A	0,22
rated operational current $I_e/DC13$	for 24V	A	10
	110V	A	1,8
	220V	A	0,9
	440V	A	0,27
	600V	A	0,18

Load carrying capacity of the main contacts

rated continuous current I_{th} ; 35C		A	135
AC1 utilization category			
rated current $I_e/AC1$		A	105
AC2 and AC3 utilization categories	for 230V	kW	26
(slip-ring and cage motors at 50Hz)	400V	kW	45
	690V	kW	67

AC4 utilization category

(electrical endurance of contacts:120.000)			
rated current	$I_e/AC4$	A	34
ratings of squirrel-cage motors at 50Hz for	230V	kW	8.7/10.4
	400V	kW	17/18
	500V	kW	21/24
	690V	kW	20/30

Load carrying capacity of contactors at

switching on and off of a.c. capacitors	I_e	A	
(electrical endurance amounts to 0.1 million switching operations)			
ratings of individual capacitors at 50 Hz for	230V	kvar	-
through one pole	400V	kvar	-
	500V	kvar	-
	690V	kvar	-
ratings of capacitor banks			
(minimum inductive reactance between two capacitors			
switched on in parallel amounts to $6\mu H$; 50 Hz	for 230V	kvar	-
	400V	kvar	-
	500V	kvar	-
	690V	kvar	-

Application in stator circuit of motor

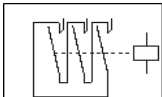
intermittent operation AC2			
stator current at duty factor in intermittent periodic duty	20%	A	135
	40%	A	110
	60%	A	100
	80%	A	90

Application in rotor circuit of motor

intermittent operation			
rotor current at duty factor in intermittent periodic duty	10%	A	193
	20%	A	193
	40%	A	173
	60%	A	158
	80%	A	138
continuous operation		A	138
permissible voltage of motionless rotor			
	starting	V	1800
	regulation	V	880
	counter current breaking	V	750

Loadability by direct current

DC1 utilization category, non-inductive loads $LR \leq 1 ms$			
rated operational current I_e			
through one pole	for 24 V	A	90
	60 V	A	75
	110 V	A	12
	220 V	A	2,5
	440 V	A	0,6
	600 V	A	0,48
through three poles connected in series	for 24 V	A	100
	60 V	A	100



	110 V	A	100
	220 V	A	100
	440 V	A	6
	600 V	A	3,4
utilization categories DC3 to DC5 series and shunt motors ($L/R \leq 15$ ms)			
rated operational current I_e through one pole	for 24 V	A	6
	60 V	A	3
	110 V	A	1,25
	220 V	A	0,35
	440 V	A	0,15
	600 V	A	0,1
through three poles connected in series	for 24 V	A	90
	60 V	A	90
	110 V	A	90
	220 V	A	3,8
	440 V	A	0,7
	600 V	A	0,4

