



RADE KONCAR CONTACTOR **CNN70**  
65A/33kW (AC3, 400V/50Hz); 90A(AC1)

Contactor type			CNN 70		
<b>Mechanical endurance</b>	make/brake operations		x10 <sup>6</sup>	5	
<b>Insulation rating</b>			V	1000	
<b>Permissible ambient temperature</b>			°C	from -25 to +55	
<b>Consumption of electromagnet in cold state with Un</b>					
AC operated	closing		VA	155	
	P.F.			0,6	
	closed		VA	12	
	P.F.			0,29	
DC operated	closing		W	90	
	closed		W	3,5	
<b>Coil voltage tolerances</b>				0.85-1.1Un	
<b>duration of making and breaking</b>					
(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 arc.					
AC operated	closing time		ms	10 to 24	
	opening time		ms	7 to 10	
	duration of electric arc		ms	10 to 15	
DC operated	closing time		ms	15 to 40	
	opening time		ms	100 to 120	
	duration of electric arc		ms	10 to 15	
<b>Frequency of switching operations</b>					
without thermal relay					
	utilization category	AC1	s/h	1000	
		AC2, AC3	s/h	750	
		AC4	s/h	250	
with thermal relay					
			s/h	15	
<b>Resistivity to shocks</b> (square shock)				9.25 and 5.4/10	
<b>Short-circuit protection</b>					
contactors without overload relays					
<b>Main circuit</b>					
With fuse links					
acc. To IEC 60947-4-1	Type of coord. "1"	gl/gG	A	125	
DIN VDE 0660 Part 102	Type of coord. "2"		A	63	
<b>Sizes of connection conductors</b>					
for contact without thermal relay					
main circuit	Rigid solid		mm <sup>2</sup>	1x6-50	
		standed	mm <sup>2</sup>	2x6-25	
	multi-wire conductor with cable shoe		mm <sup>2</sup>	1x6-35	
		standed with cable lug	mm <sup>2</sup>	2x6-16	
	flatbar		mm	-	
		protective conductor with cable lug		mm <sup>2</sup>	-
	auxiliary circuit	Screw			M6
		Screw head			PZ2
		Tightening torque	Nm		3-4
	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	

**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	125
AC1 utilization category			
rated current $I_e/AC1$		A	90
<b>AC2 and AC3 utilization categories</b>	for 230V	kW	18,5
(slip-ring and cage motors at 50Hz)	<b>400V</b>	<b>kW</b>	<b>33</b>
	690V	kW	37

**AC4 utilization category**

(electrical endurance of contacts:120.000)			
rated current	$I_e/AC4$	A	30
ratings of squirrel-cage motors at 50Hz for	230V	kW	8,5
	<b>400V</b>	<b>kW</b>	<b>15,1</b>
	500V	kW	18,4
	690V	kW	24,3

**Load carrying capacity of contactors at**

<b>switching on and off of a.c. capacitors</b>	$I_e$	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**

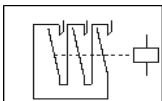
intermittent operation AC2			
stator current at duty factor in intermittent periodic duty	20%	A	103
	40%	A	98
	60%	A	87
	80%	A	80

**Application in rotor circuit of motor**

intermittent operation			
rotor current at duty factor in intermittent periodic duty	10%	A	163
	20%	A	163
	40%	A	155
	60%	A	138
	80%	A	127
continuous operation		A	127
permissible voltage of motionless rotor			
	starting	V	1500
	regulation	V	750
	counter current breaking	V	660

**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	70
	60 V	A	30
	110 V	A	6
	220 V	A	1,2
	440 V	A	0,48
	600 V	A	0,35
through three poles connected in series	for 24 V	A	70
	60 V	A	70



	110 V	A	70
	220 V	A	70
	440 V	A	3
	600 V	A	1
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	5
	60 V	A	2
	110 V	A	0,75
	220 V	A	0,2
	440 V	A	0,1
	600 V	A	0,08
through three poles connected in series	for 24 V	A	70
	60 V	A	70
	110 V	A	70
	220 V	A	3,5
	440 V	A	0,6
	600 V	A	0,35

