

TECHNICAL INFORMATION

CAPACITOR CONTACTORS type CNNK 2,5 - CNNK 7,5

In conformity with: IEC 60947-1, IEC 60947-4

Special contactors for power factor correction

Choice criteria

The contactor during the closing transition is influenced by electrical currents with high frequencies and high amplitudes. The frequencies of these currents have ranges between 1 and 10kHz and the amplitudes must have values lower than the maximum permissible peak current $I \leq 100$ times the nominal rms current of the switched capacitor.

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Type designation	CNNK 2,5 10 CNNK 2,5 01	CNNK 5 10 CNNK 5 01	CNNK 7,5 00 CNNK 7,5 11
Capacitor rating at operating voltage 230V kVAr 400-440V kVAr 50/60Hz 500-550V kVAr 660-690V kVAr	1,4 2,5 3 3,7	2,8 5 5,5 7,5	4 7,5 9 11
Rated operational current $I_e/AC-6b$ et 400 V A	3,6	7,2	11
Insulation rating U_i V	690		
Permissible ambient temperature °C	- 25 to + 55		
Rated impuls withstand voltage U_{imp} kV	8		
Consumption of electromagnet in cold state with U_n AC operated			
closing p.f. VA	62		
closed p.f. VA	0,75 7 0,3		
Coil voltage tolerances	0,85 - 1,1 U_n		
Degree of protection	IP 20		
Maximum permissible fuse ratings main circuit gL/gG A auxilliary circuit A	20 16	25 20	40 25
Frequency of switching operations s/h	240		
Electrical endurance min.	150.000	120.000	100.000
Sizes of connecting conductors - main circuit			
multi-wire conductor mm ²	1,5-6	1,5-6	2,5-10
multi-wire conductor with cable shoe mm ²	1,5-6	1,5-6	2,5-10
Terminal screw	M4	M4	M4
Screw head	PZ2	PZ2	PZ2
Tightening torque Nm	1,2	1,2	1,4
- auxiliary circuit			
multi-wire conductor mm ²	1-2,5		
multi-wire conductor with cable shoe mm ²	0,75-1,5		
Terminal screw	M3,5		
Screw head	PZ2		
Tightening torque Nm	0,8		
Loadability of auxiliary contacts rated continuous current I_{th} ; 35°C A AC rated operational current $I_e/AC15$			
for 230V A	10		
400V A	6		
500V A	4		
690V A	2		
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TECHNICAL INFORMATION

CAPACITOR CONTACTORS type CNNK 10 - CNNK 30

In conformity with: IEC 60947-1, IEC 60947-4

Special contactors for power factor correction

Main characteristics

These contactors are equipment with early - make contacts. This special type of contact has the purpose of connecting for a very brief interval, 2-3 ms, during the contactor closing, resistances which limit the connecting current of the capacitors. These resistances are then excluded when the closing operation is complete and the current capacity is conveyed to the main contacts.

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Type designation	CNNK 10 20 CNNK 10 11 CNNK 10 02	CNNK 12 20 CNNK 12 11 CNNK 12 02	CNNK 15 20 CNNK 15 11 CNNK 15 02	CNNK 20 10 CNNK 20 01	CNNK 25E 10 CNNK 25E 01	CNNK 25 10 CNNK 25 01	CNNK 30 10 CNNK 30 01	
Capacitor rating 230V kVAr at operating voltage 400-440V kVAr 50/60Hz 500-550V kVAr 660-690V kVAr	5 10 12.5 15	6.7 12.5 15 18	8.5 15 18 22	11 20 24 30	14 25 30 35	14 25 30 35	20 30 35 40	
Rated operational current Ie/AC-6b et 400 V A	14	18	22	29	36	36	44	
Insulation rating Ui V	690							
Permissible ambient temperature °C	- 25 to + 55							
Rated impuls withstand voltage Uimp kV	8							
Consumption of electromagnet in cold state with Un AC operated								
closing VA					65			
p.f.					0,75			
closed VA					8			
p.f.					0,3			
Coil voltage tolerances	0,85 - 1,1 Un							
Degree of protection	IP 20							
Maximum permissible fuse ratings main circuit gL/gG A auxiliary circuit A	25 16	35 16	50 16	50 16	63 16	63 16	80 16	
Frequency of switching operations s/h	240			120				
Electrical endurance min.	200.000			150.000	100.000			
Sizes of connecting conductors - main circuit								
multi-wire conductor mm ²	1.5-6	1.5-6	1.5-6	2.5-10	2.5-10	6-25	6-25	
multi-wire conductor with cable shoe mm ²								
Terminal screw	M4	M4	M4	M4	M4	M5	M5	
Screw head	PZ2	PZ2	PZ2	PZ2	PZ2	Hexagon socket		
Tightening torque Nm	1,2	1,2	1,2	1,4	1,6	2	2	
- auxiliary circuit								
multi-wire conductor mm ²	1-2,5							
multi-wire conductor with cable shoe mm ²	0,75-1,5							
Terminal screw	M3,5							
Screw head	PZ2							
Tightening torque Nm	0,8							
Loadability of auxiliary contacts rated continuous current 35°C A AC rated operational current Ie/AC15 for 230V A 400V A 500V A 690V A				10				
				6				
				4				
				2				
				1				

TECHNICAL INFORMATION

CAPACITOR CONTACTORS type CNNK 40 - CNKM 75

In conformity with: IEC 60947-1, IEC 60947-4

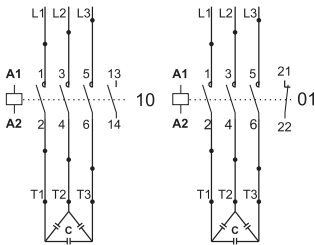
Special contactors for power factor correction

Type designation	CNNK 40 10 CNNK 40 01	CNNK 50 10 CNNK 50 01	CNNK 60 10 CNNK 60 01	CNKM 60 22	CNKM 75 22
Capacitor rating at operating voltage	25	29	32	34	38
230V kVAr					
400-440V kVAr	40	50	60	60	75
50/60Hz					
500-550V kVAr	50	60	70	75	88
660-690V kVAr	58	70	80	92	100
Rated operational current I_e/AC-6b et 400 V	A	58	72	87	108
Insulation rating U _i	V 1000				
Permissible ambient temperature	°C - 25 to + 55				
Rated impuls withstand voltage U _{imp}	kV 8				
Consumption of electromagnet in cold state with U _n AC operated					
closing VA		155		310	
p.f.		0,6		0,5	
closed VA		12		26	
p.f.		0,29		0,24	
Coil voltage tolerances	0,85 - 1,1 U _n				
Degree of protection	IP 20			IP 00 or IP 20	
Maximum permissible fuse ratings					
main circuit gL/gG A	100	125	160	160	160
auxilliary circuit A	16	16	16	16	16
Frequency of switching operations	s/h 100				
Electrical endurance	min. 100.000				75.000
Sizes of connecting conductors - main circuit					
multi-wire conductor mm ²	16-35	16-35	16-50	2x35 or 1x50 (for ST*)	
multi-wire conductor with cable shoe mm ²				35-50 (with IP 20) 50	
				50-70 (without IP 20)	
Terminal screw	M6			M6 (with IP 20)	
Screw head	PZ2			M8 (without IP 20)	
Tightening torque Nm	3 - 4			3,5	
- auxiliary circuit					
multi-wire conductor mm ²	1-2,5				
multi-wire conductor with cable shoe mm ²	0,75-1,5				
Terminal screw	M3,5				
Screw head	PZ2				
Tightening torque Nm	0,8				
Loadability of auxiliary contacts rated continuous current I _{th} ; 35°C A	16				
AC rated operational current I _e /AC15 I _{th} ; for 230V A	10				
400V A	6				
500V A	4				
690V A	2				

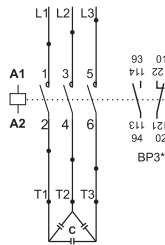
ST - Main conductors with box terminal max. 1x50mm² or 2x35mm²

CONNECTION DIAGRAMS AND TERMINAL MARKINGS FOR SINGLE COMPENSATION

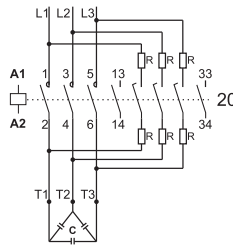
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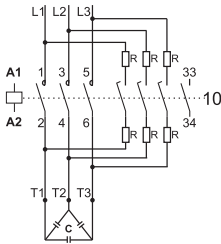
CANNK 2.5, CANNK 5



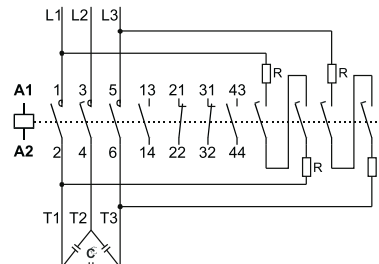
CANNK 7,5 00
CANNK 7,5 11*



CANNK 10, CANNK 12, CANNK 15



CANNK 20, CANNK 25, CANNK 25E,
CANNK 30, CANNK 40, CANNK 50, CANNK 60



CNKM 60 22; CNKM 75 22

VERY IMPORTANT NOTES:

For single compensation air coils or 3 - phase reactors (coils with magnetic core and air gap) are not necessary.

When the contactor is used for group compensation it's recommendable to use appropriate 3-phase filter circuit reactors (coils with magnetic core and air gap). This will reduce the value of higher harmonics and will prevent resonant current to prevail.

At single compensation the power of selected contactor is according to capacitor rated power.

At group and central compensation, when reactors are not in use, one step higher rating of the contactor is recommendable.



Before switch the contactor in the circuit, capacitor must be discharged (the voltage at the terminals must be < 50 V).

During exploitation, current value must not exceed the declared values.

CONNECTION DIAGRAM FOR GROUP (CENTRAL) COMPENSATION

380/400 V / 50Hz

