

## TGCA (120~630A) Series AC Contactor

### 1 Overview



TGCA (120 ~ 630A) full series AC contactor is primarily used in AC 50Hz (or 60 Hz) power system with the rated operating voltage up to 690V, the rated operating voltage of 380V/400V under the AC-3 use category, and with the rated operating voltage up to 630A. Under the AC-3 use category at 380V/400V, it can be used to start and control the AC motor frequently, and to connect and disconnect the circuit remotely, and can be combined with the appropriate thermal overload relay to form an electromagnetic starter.

### 2 Type Designation

**TGCA - 120 22 AC110 50Hz**

Coil power frequency: 50Hz, 50/60Hz

Coil voltage:

120-225A: AC110 AC127 AC220 AC380

265-630A: AC/DC: 110~127V

AC/DC: 220~240V

AC/DC: 380~415V

Aux. contact:

22: 2 normally open + 2 normally closed

31: 3 normally open + 1 normally closed

13: 1 normally open + 3 normally closed

40: 4 normally open + 0 normally closed

04: 0 normally open + 4 normally closed

Rated current:

120/160/185/225/265/330/400/500/630

Product model: TGCA

### 3 Main Parameters

Rated operating current	120A/160A/185A/225A/265A/330A/400A/500A/630A
Rated insulation voltage $U_i$	1000V
Number of poles	Three-poles
AC coil (225 frame)	110/127/220/380V (50Hz)
AC/DC universal wide voltage coil	110~127V, 220~240V, 380~415V (50/60Hz)
Accessories	Top aux., side aux., air delay head, dust cover
Certification	CE/CB

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### 4 Product Highlights

4.1 With the volume reduced by 20%~40% by comparing with the similar products on the market, save the space in the cabinet



TGCA  
Compact



CJ20  
Wide 20%



CJX2F  
Wider 40%

4.2 400, 630 shell frame DC coil holding, with low power consumption, no noise, and energy saving and mute

### 5 Conditions and Installation Conditions

5.1 Ambient air temperature: The ultimate operating temperature is  $-35^{\circ}\text{C}\sim+70^{\circ}\text{C}$ , the normal operating temperature is  $-5^{\circ}\text{C}\sim+40^{\circ}\text{C}$ , and the mean temperature within 24h does not higher than  $+35^{\circ}\text{C}$ . The derating shall be considered if out of the normal working range; the table below gives the correction coefficients for different rated operating currents when the working ambient temperature exceeds  $+40^{\circ}\text{C}$  but the rated operating voltage is unchanged;

Ambient temperature $^{\circ}\text{C}$	40	50	60	70
Correction factor	1	0.875	0.75	0.625

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5.2 Humidity: The relative humidity of the air does not exceed 50% when the maximum temperature is +70°C, and a higher relative humidity can be allowed at lower temperatures, such as 90% at +20°C. Special measures should be taken for condensation occasionally occurred due to temperature changes;

5.3 Altitude: The altitude at the installation site does not exceed 2000m; the table below gives the correction coefficients for the rated impulse withstand voltage and rated operating current when the altitude exceeds 2000m and the rated operating voltage remains unchanged;

Altitude (m)	2000	3000	4000
Rated impulse withstand voltage correction factor	1	0.88	0.78
Rated operating current correction factor	1	0.92	0.90

5.4 Pollution degree: 3;

5.5 Installation category (overvoltage category): Class III;

5.6 protection grade: The enclosure protection grade of the main circuit of contactor is IP00, and the enclosure protection grade of the control circuit and auxiliary circuit is IP20;

5.7 Installed in a place where there is no severe shaking, shock and vibration without conductive dust and rain and snow invasion. The inclination between the mounting surface and the vertical surface is not greater than  $\pm 5^\circ$ ;

5.8 The applicable temperature range during transportation and storage is -25°C to +55°C, and up to +70°C in a short time (24h). The storage place should be ventilated and dry free from rain and snow invasion and direct sunlight.

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### 6 Main Circuit Parameters and Performance Indicators

Model		TGCA-120	TGCA-160	TGCA-185	TGCA-225	
Rated working current (A)	220V/230V	AC-3	120	160	185	225
		AC-4			160	185
	380V/400V	AC-3	120	160	185	225
		AC-4			160	185
	660V/690V	AC-3	86	107	107	118
		AC-4				107
Conventional heating current (A)		200		275		
Rated insulation voltage (V)		1000				
Rated impulse withstand voltage (kV)		12				
Rated making capacity		Rated making current: $10 \times I_e(\text{AC-3})$ or $12 \times I_e(\text{AC-4})$				
Rated breaking capacity		Rated breaking current: $8 \times I_e(\text{AC-3})$ or $10 \times I_e(\text{AC-4})$				
Rated limit short-circuit current $I_q$ (kA)		50				
Power of controlled 3-phase motor (kW)	220V/230V	37	45	55	63	
	380V/400V	55	75	90	110	
	660V/690V	80	100	100	110	
Electrical life ( $\times 10^4$ times) 400V	AC-3	130		120		
	AC-4	1.5			1	
Flashover distance (mm)	380V/400V	15				
	660V/690V	35				
Mechanical life (10,000 times)		1000				
Model and rated current of matched fuse		gG224		gG315		
Matched thermal overload relay		JRS2-135 Stand-alone installation	JRS2-180 Stand-alone installation		JRS2-400 Stand-alone installation	
Coil power (50Hz)	Pull-in VA	500				
	Hold VA	50				
Action range	Pull-in voltage	(85% ~ 110%) $U_s$				
	Release voltage	(20% ~ 75%) $U_s$				

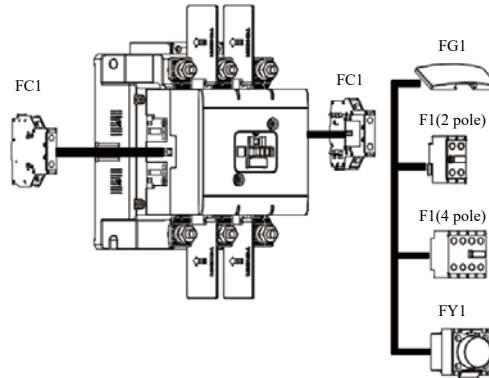
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Table, continued

型号		TGCA-265	TGCA-330	TGCA-400	TGCA-500	TGCA-630	
Rated working current (A)	220V/230V	AC-3	265	330	400	500	630
		AC-4			330		500
	380V/400V	AC-3	265	330	400	500	630
		AC-4			330		500
	660V/690V	AC-3	170	235	303	353	400
		AC-4	137	170	235	303	353
Conventional heating current (A)		315	380	450	630	700	
Rated insulation voltage (V)		1000					
Rated impulse withstand voltage (kV)		12					
Rated making capacity		Rated making current: 10×Ie(AC-3) or 12×Ie(AC-4)					
Rated breaking capacity		Rated breaking current: 8×Ie(AC-3) or 10×Ie(AC-4)					
Rated limit short-circuit current Iq (kA)		50					
Power of controlled 3-phase motor (kW)	220V/230V	75	90	132	160	200	
	380V/400V	132	160	200	250	335	
	660V/690V	160	200	300	335	350	
Electrical life (×10 <sup>4</sup> times) 400V	AC-3	100			90		
	AC-4	1.2		1	0.6		
Flashover distance (mm)	380V/400V	15		20			
	660V/690V	35		40			
Mechanical life (×10 <sup>3</sup> times)		600					
Model and rated current of matched fuse		gG400		gG500	gG630	gG800	
Matched thermal overload relay		JRS2-400 Stand-alone installation			JRS2-630 Stand-alone installation		
Coil power (50Hz)	Pull-in VA	700			800		
	Hold VA	20			20		
Action range	Pull-in voltage	(75% ~ 110%)Us					
	Release voltage	(10% ~ 75%)Us					

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### 7 Accessories Installation Diagram

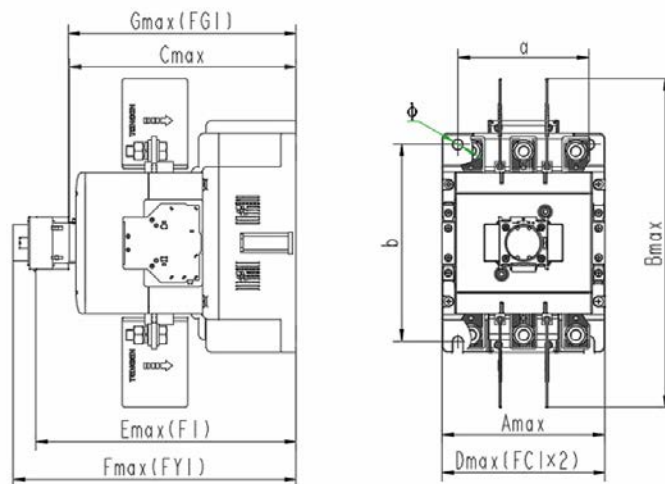


Code	Name
FC1	Side assist
F1	Top assist
FY1	Delay head
FG1	Dust cover
To be developed	Mechanical interlock

The standard insulation spacer coils of all specifications can satisfy the upper and lower wiring requirements for more convenient connection.

Conventional heating current $I_{th}$	10A
Rated insulation voltage $U_i$ (V)	690
Control capacity of auxiliary contact	AC-15:1.6A/220V, 0.95A/380V; DC -13:0.15A/220V
Rated impulse withstand voltage $U_{mip}$ (kV)	6
Wiring capacity (N.m)	0.8(M3.5)

### 8 Outline and Installation Dimensions



Unit: mm

Spec. & Model	Amax	Bmax	Cmax	Dmax	Emax	Fmax	Gmax	a	b	$\phi$
TGCA-120 ~ 225	121	282	167	125	201	220	169	96±0.5	134±0.8	7
TGCA-265 ~ 400	150	300	208	151	241	261	210	120±0.5	180±0.8	9
TGCA-500 ~ 630	165	313	226	166	263	284	228	130±0.5	180±0.8	9

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### 9 Product Wiring Capacity

Product specification			TGCA-120~225	TGCA-265~400	TGCA-500~630
Main circuit	Copper wire	Qty.	1/2	1/2	1/2
		Sectional area mm <sup>2</sup>	10 ~ 150	50 ~ 240	50 ~ 240
	Copper busbar	Qty.	2	2	2
		Size mm	25×3	30×5	40×5
	Fastening screw size and tightening torque N.m		M10 14N.m		
Control and auxiliary circuit	Non-prefabricated terminal soft (hard) wire	1 wire mm <sup>2</sup>	1 ~ 4		
		2 wires mm <sup>2</sup>	1 ~ 4		
	Prefabricated terminal	1 wire mm <sup>2</sup>	1 ~ 4		
		2 wires mm <sup>2</sup>	1 ~ 2.5		
	Fastening screw size and tightening torque N.m		M3.5 0.8N.m		