TGC1 (120 ~ 630A) Series AC Contactor

1 Overview

TGC1 (120 ~ 630A) full series AC contactor is primarily used in the AC 50Hz (or 60Hz) power system with the rated working voltage up to 690V and the rated working current up to 630A when the rated working voltage 380V under the AC-3 usage category. When used in the AC motor that is started and controlled frequently under the 400V(380V) AC-3 usage category, it can be suitable for remotely power on/off the circuit. This series can form an electromagnetic starter with an appropriate thermal overload relay.

Standard: IEC60947-4-1

Certificates: CE

2 Type Designation

TGC1 - 120 22 AC110 50Hz

- 50Hz — Coil power frequency: 50Hz, 50/60Hz
- AC110 — Coil voltage:
  - 120-225A: AC110 AC127 AC220 AC380
  - 265-630A: AC/DC: 110~127V
  - AC/DC: 220~240V
  - AC/DC: 380~415V
- 22 — Aux. contact:
  - 22: 2 NO + 2 NC
  - 31: 3 NO + 1 NC
  - 13: 1 NO + 3 NC
  - 40: 4 NO
  - 04: 4 NC
- 120 — Rated current:
  - 120/160/185/225/265/330/400/500/630
- TGC1 - Product model

3 Main Parameters

Rated working current	120A/160A/185A/225A/265A/330A/400A/500A/630A
Rated insulation voltage Ui	1000V
Number of poles	Three-pole
AC coil (225 shell frame)	110/127/220/380V (50Hz)
AC and DC general wide-voltage coil	110~127V, 220~240V, 380~415V (50/60Hz)
Accessories	Top assist, side assist, air delay head, dust cover
Certification	CE

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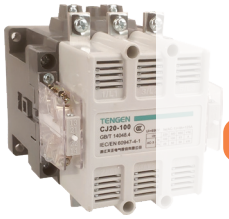
4 Product Highlights

4.1 The size is smaller 20% ~ 40% than that of the similar product on the market, saving space in cabinet.

TGC1

Compact



CJ20

Wide 20%

CJX2F

Wider 40%

4.2 400 and 630 shell frame DC coil holding features with low power consumption, noiseless, and energy saving and silence.

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5 Conditions and Installation Conditions

5.1 Ambient air temperature: The limit working temperature is ranged -35℃~+70℃, the normal working temperature is ranged -5℃~+40℃, and the mean temperature within 24h is not higher than +35℃. Derating is considered if working out of the normal working range; the table below gives the correction factors for different working currents when the ambient temperature exceeds +40℃ with the rated working voltage unchanged;

Ambient temperature ℃	40	50	60	70
Correction factor	1	0.875	0.75	0.625

5.2 Relative humidity: The relative air humidity does not exceed 50% at the maximum temperature +40℃, and a higher relative humidity is allowed at a lower temperature, such as up to 90% at +20℃. Special measures are taken for condensation occurred occasionally due to temperature changes;

5.3 Altitude: The altitude shall not exceed 2,000 meters at the installation site; the table below gives the correction factors for rated impulse withstand voltage and rated working current with the rated working voltage unchanged;

Altitude (m)	2000	3000	4000
Correction factor for rated impulse withstand voltage	1	0.88	0.78
Correction factor for rated working current	1	0.92	0.90

5.4 Pollution degree: 3

5.5 Installation category: Class III

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

5.7 There is no obvious shaking, impact or vibration, conductive dust and rain and snow immersion. The inclination between the mounting plane and the vertical plane is not greater than ±5°

5.8 The appropriate transport and storage temperature is ranged -25℃~+55℃, and can be up to +70℃ within a short time (24h); the storage place shall be well-ventilated and dry free from rain and snow immersion and sun shining

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6 Technical Parameters

Model			TGC1-120	TGC1-160	TGC1-185	TGC1-225
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 capaicty			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	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	120		120	
		AC-4	1.5			1
Flashover distance (mm)		380V/400V	15			
		660V/690V	35			
Mechanical life ($\times 10^3$ times)			600			
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%) Us			
		Release voltage	(20% ~ 75%) Us			

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Table, continued

Model			TGC1-265	TGC1-330	TGC1-400	TGC1-500	TGC1-630
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 capaicty			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 ($\times 10^4$ times) 400V		AC-3	80			80	
		AC-4	1.2		1	0.6	
Flashover distance (mm)		380V/400V	15		20		
		660V/690V	35		40		
Mechanical life ($\times 10^3$ 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	(85% ~ 110%)Us				
		Release voltage	(10% ~ 75%)Us				

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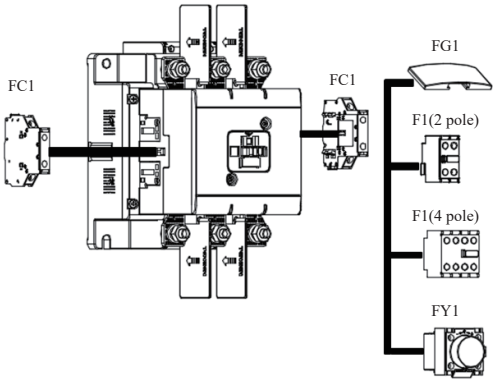
7 Accessories Installation Diagram

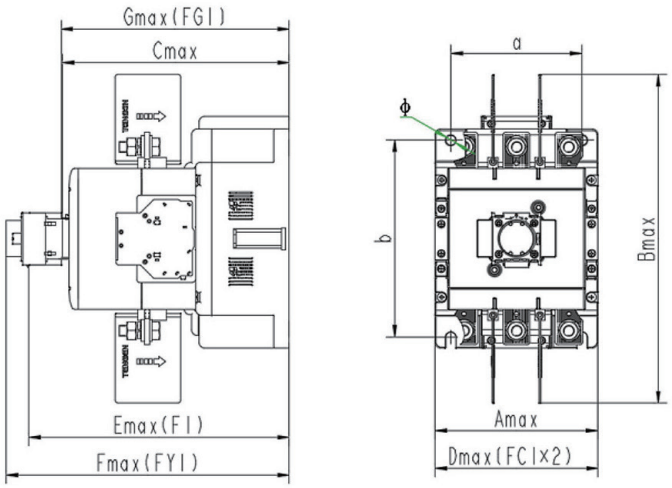


Code	Name
FC1	Side assist
F1	Top assist
FY1	Delay head
FG1	Dust cover
To be developed	Mechanical interlock

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

Conventional heating current Ith	10A
Rated insulation voltage Ui (V)	690
Control capacity of auxiliary contact	AC-15:1.6A /220V ,0.95A/380V; DC -13:0.15A/220V
Rated impulse withstand voltage Umip (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	φ
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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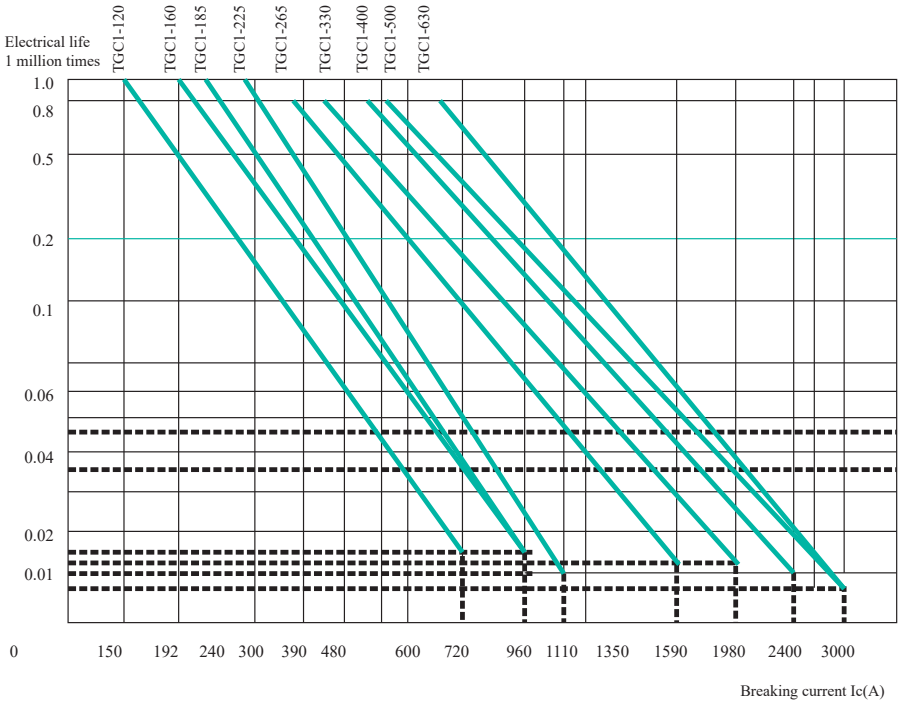
9 Product Wiring Capacity

Product sepcification			TGC1-120~225	TGC1-265~400	TGC1-500~630
Main circuit	Copper wire	Qty.	1/2	1/2	1/2
		Sectional area mm^2	10 ~ 150	50 ~ 240	50 ~ 240
	Copper busbar	Qty.	2	2	2
		Size mm	25×3	30×5	40×3
	Fastening screw size and tightening torque N.m		M10 14N.m		
Control and auxiliary circuit	Non-prefabricated terminal soft (hard) wire	1 wire mm^2	1 ~ 4		
		2 wires mm^2	1 ~ 4		
	Prefabricated terminal	1 wire mm^2	1 ~ 4		
		2 wires mm^2	1 ~ 2.5		
	Fastening screw size and tightening torque N.m		M3.5 0.8N.m		

10 Electrical life curve



AC-4 Electrical life curve