



TGCZ

Series High-voltage DC Contactor

TGCZ Series High-voltage DC Contactor

1 Overview

The TGCZ series high-voltage DC contactor (hereinafter referred to as a contactor) has a contact cavity that is packaged and brazed with ceramics without arc leakage and fire and explosion; the arc extinguishing chamber of the contact is filled with inert gas to prevent contact oxidation, and the contact resistance works stably and reliably to cool the electric arc and reduce contact ablation when the contact is broken. The contactor is primarily used in DC loads, and in circuits with the rated operating voltage up to 1500V and the rated operating current up to 1000A to remotely turn on and turn off the circuit, and it is widely used in new energy vehicles, hybrid vehicles, battery charging systems, fuel cells, solar energy systems, renewable energy storage, and general industrial equipment.

2 Type Designation

TG	CZ	□	-	□	□	/	□	□	□	□	□	□
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪		

TGCZ Series High-voltage DC Contactor

①	Enterprise code	
②	DC contactors	
③	Product code:	C: Charging piles P: Photovoltaic, energy storage Q: Vehicles
④	Rated current:	150: 150A 200: 200A 250: 250A 300: 300A 400: 400A 500: 500A 600: 600A 800: 800A 1000: 1000A
⑤	Rated operating voltage:	D: 750VDC; M: 1000VDC H: DC1500V
⑥	Coil spec.:	12: DC12V 24: DC24V K: 9~36V (wide voltage)
⑦	Contact form:	F: Normally open type with an auxiliary contact; Default: No auxiliary contacts
⑧	Coil and aux. contact lead-out method:	C: Connector; L: Lead-out wire
⑨	Load lead-out method:	5: Female thread
⑩	Installation method:	Default: Vertical installation; Y: Horizontal installation
⑪	Feature number: (XXX);	it may be any number or letter; it can be provided or not according to customer requirements

3 Normal Working Environment

- 3.1 Temperature: Normal operating temperature: -25°C ~ +70°C
 Allowable limit operating temperature: -40°C ~ +80°C
 Storage temperature: 85°C max
- 3.2 Humidity: 5% ~ 85% RH (no icing and condensation)
- 3.3 Air pressure: 86kPa ~ 106kPa

TGCZ Series High-voltage DC Contactor

4 Main Technical Parameters

Table 1

TGCZC-150 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 150A and below)			
Rated operating current	150A			
Withstand current	150A	Long term		
	200A	10min		
	300A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	1000A x 300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ (Initial value)			
Electrical life	10,000 times			
Coil parameters (at 23 ℃ and below)				
Rated oerating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ (1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	295g			
Outline dimensions	80×51×73.1mm			

TGCZ Series High-voltage DC Contactor

Table 2

TGCZC-200 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 200A and below)			
Rated operating current	200A			
Withstand current	200A	Long term		
	300A	10min		
	400A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	1000A x 300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ (Initial value)			
Electrical life	10000 times			
Coil parameters (at 23 ℃ and below)				
Rated oerating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	295g			
Outline dimensions	80×51×73.1mm			

TGCZ Series High-voltage DC Contactor

Table 3

TGCZC-250 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 250A and below)			
Rated operating current	250A			
Withstand current	250A	Long term		
	320A	10min		
	500A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	295g			
Outline dimensions	80×51×73.1mm			

TGCZ Series High-voltage DC Contactor

Table 4

TGCZC-300 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 300A and below)			
Rated operating current	300A			
Withstand current	300A	Long term		
	450A	5min		
	600A	90s		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	295g			
Outline dimensions	80×51×73.1mm			

TGCZ Series High-voltage DC Contactor

Table 5

TGCZP-250 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 150A and below)			
Rated operating current	150A			
Withstand current	150A	Long term		
	180A	2h		
	320A	2min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	1200A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	320g			
Outline dimensions	89×43×83.5mm			

TGCZ Series High-voltage DC Contactor

Table 6

TGCZP-200 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 200A and below)			
Rated operating current	200A			
Withstand current	200A	Long term		
	250A	15min		
	320A	5min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	320g			
Outline dimensions	89×43×83.5mm			

TGCZ Series High-voltage DC Contactor

Table 7

TGCZP-250 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 250A and below)			
Rated operating current	250A			
Withstand current	250A	Long term		
	375A	5min		
	500A	30s		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	320g			
Outline dimensions	89×43×83.5mm			

TGCZ Series High-voltage DC Contactor

Table 8

TGCZP-300 Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 300A and below)			
Rated operating current	300A			
Withstand current	300A	Long term		
	450A	5min		
	600A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
9 ~ 36	≤9	≥1	46	2.5
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	320g			
Outline dimensions	89×43×83.5mm			

TGCZ Series High-voltage DC Contactor

Table 9

TGCZP-400Contact parameters				
Contact form	1H			
Main contact resistance	≤0.2mΩ (at the initial state, 400A and below)			
Rated operating current	400A			
Withstand current	400A	Long term		
	500A	3min		
	2000A	20s		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	48	4
24	≤18	≥2		
9 ~ 36	≤9	≥1		
Performance parameters				
Pull-in time	≤50ms			
Release time	≤20ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	785g			
Outline dimensions	104×52×104mm			

TGCZ Series High-voltage DC Contactor

Table 10

TGCZP-500Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 500A and below)			
Rated operating current	500A			
Withstand current	500A	Long term		
	600A	10min		
	750A	1min		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	48	4
24	≤18	≥2		
9 ~ 36	≤9	≥1		
Performance parameters				
Pull-in time	≤50ms			
Release time	≤20ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	785g			
Outline dimensions	104×52×104mm			

TGCZ Series High-voltage DC Contactor

Table 11

TGCZP-600Contact parameters				
Contact form	1H			
Main contact resistance	≤0.1mΩ (at the initial state, 600A and below)			
Rated operating current	600A			
Withstand current	600A	Long term		
	720A	10min		
	1000A	100s		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	48	4
24	≤18	≥2		
9 ~ 36	≤9	≥1		
Performance parameters				
Pull-in time	≤50ms			
Release time	≤20ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	785g			
Outline dimensions	104×52×104mm			

TGCZ Series High-voltage DC Contactor

Table 12

TGCZP-800Contact parameters				
Contact form	1H			
Main contact resistance	≤0.15mΩ (at the initial state, 800A and below)			
Rated operating current	800A			
Withstand current	800A	Long term		
	960A	5min		
	2000A	30s		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×750VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	48	4
24	≤18	≥2		
9 ~ 36	≤9	≥1		
Performance parameters				
Pull-in time	≤50ms			
Release time	≤30ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	1040g			
Outline dimensions	104×75×105mm			

TGCZ Series High-voltage DC Contactor

Table 13

TGCZP-1000Contact parameters				
Contact form	1H			
Main contact resistance	≤0.15mΩ (at the initial state, 1000A and below)			
Rated operating current	1000A			
Withstand current	1000A	Long term		
	1500A	2min		
	2000A	1min		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×750VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Aux. contact parameters				
Contact form	1H			
Rated load	0.1A、12V			
Contact resistance	≤100mΩ(Initial value)			
Electrical life	10000 times			
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	48	4
24	≤18	≥2		
9 ~ 36	≤9	≥1		
Performance parameters				
Pull-in time	≤50ms			
Release time	≤30ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	1040g			
Outline dimensions	104×75×105mm			

TGCZ Series High-voltage DC Contactor

Table 14

TGCZQ-150Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 150A and below)			
Rated operating current	150A			
Withstand current	150A	Long term		
	200A	10min		
	320A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	1000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	260g			
Outline dimensions	78.7×36×72mm			

TGCZ Series High-voltage DC Contactor

Table 15

TGCZQ-200Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 200A and below)			
Rated operating current	200A			
Withstand current	200A	Long term		
	250A	10min		
	320A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	1000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	260g			
Outline dimensions	78.7×36×72mm			

TGCZ Series High-voltage DC Contactor

Table 16

TGCZQ-250Contact parameters				
Contact form	1H			
Main contact resistance	≤0.3mΩ (at the initial state, 250A and below)			
Rated operating current	250A			
Withstand current	250A	Long term		
	375A	5min		
	500A	30s		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	365g			
Outline dimensions	88.3×42.5×74.5mm			

TGCZ Series High-voltage DC Contactor

Table 17

TGCZQ-300Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 300A and below)			
Rated operating current	300A			
Withstand current	300A	Long term		
	450A	3min		
	600A	1min		
Short circuit current	6000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤30ms			
Release time	≤10ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	365g			
Outline dimensions	88.3×42.5×74.5mm			

TGCZ Series High-voltage DC Contactor

Table 18

TGCZQ-400Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 400A and below)			
Rated operating current	400A			
Withstand current	400A	Long term		
	500A	3min		
	2000A	10s		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤50ms			
Release time	≤20ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	740g			
Outline dimensions	95.8×48.2×93mm			

TGCZ Series High-voltage DC Contactor

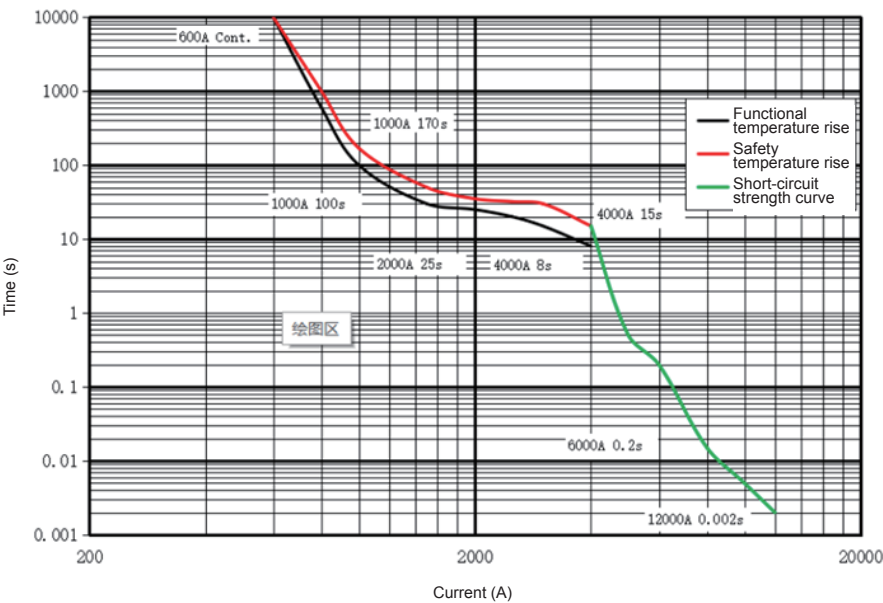
Table 19

TGCZQ-500Contact parameters				
Contact form	1H			
Main contact resistance	≤0.5mΩ (at the initial state, 500A and below)			
Rated operating current	500A			
Withstand current	500A	Long term		
	600A	3min		
	2000A	10s		
Short circuit current	8000A 5ms (Primary)			
Rated operating voltage	1500VDC			
Max. breaking current	2000A×300VDC (Primary)			
Mechanical life	2×10 ⁵ times			
Electrical life	100A×1000VDC: 6×10 ³ times		50A×1500VDC: 6×10 ³ times	
Coil parameters (at 23℃ and below)				
Rated operating voltage (VDC)	Pull-in voltage (VDC)	Release voltage (VDC)	Starting power (W)	Holding power (W)
12	≤9	≥1	6	
24	≤18	≥2	6	
Performance parameters				
Pull-in time	≤50ms			
Release time	≤20ms			
Bounce time	≤5ms			
Insulation resistance	1000MΩ(1 KVDC and below)			
Dielectric withstand voltage	Between open contacts	4000VAC 1min		
	Between contact and coil	4000VAC 1min		
Impact	Functional impact resistance	196m/s ²		
	Destructive impact resistance	490m/s ²		
Vibration	10Hz ~ 500Hz 49m/s ²			
Weight	740g			
Outline dimensions	95.8×48.2×93mm			

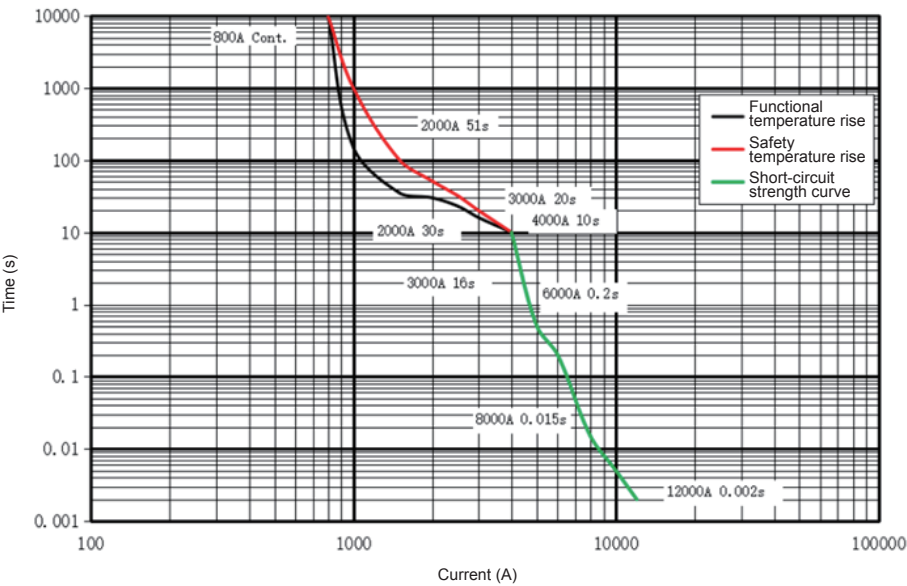
TGCZ Series High-voltage DC Contactor

5 Current Withstand Curve

5.1 TGCZP-400 current withstand curve

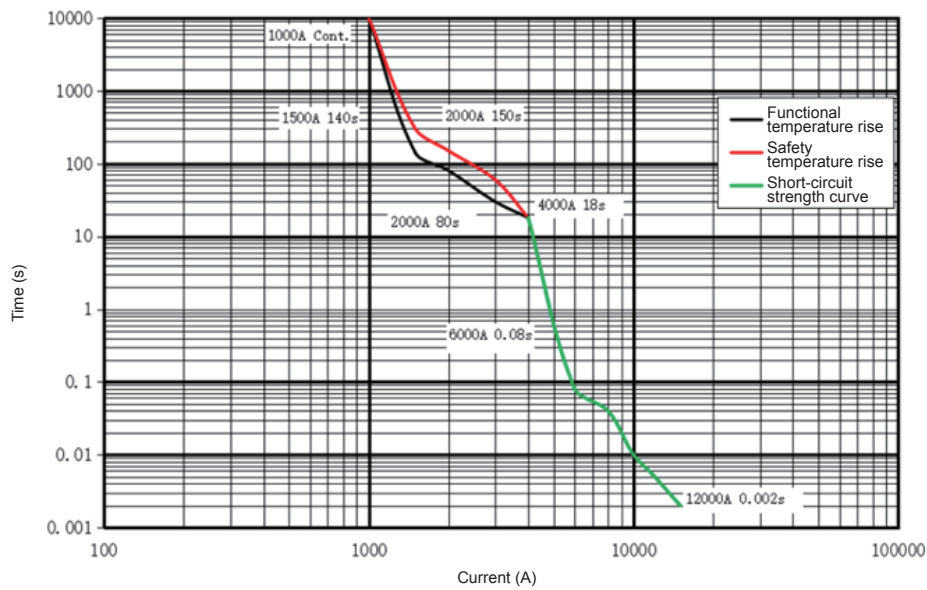


5.2 TGCZP-600 current withstand curve



TGCZ Series High-voltage DC Contactor

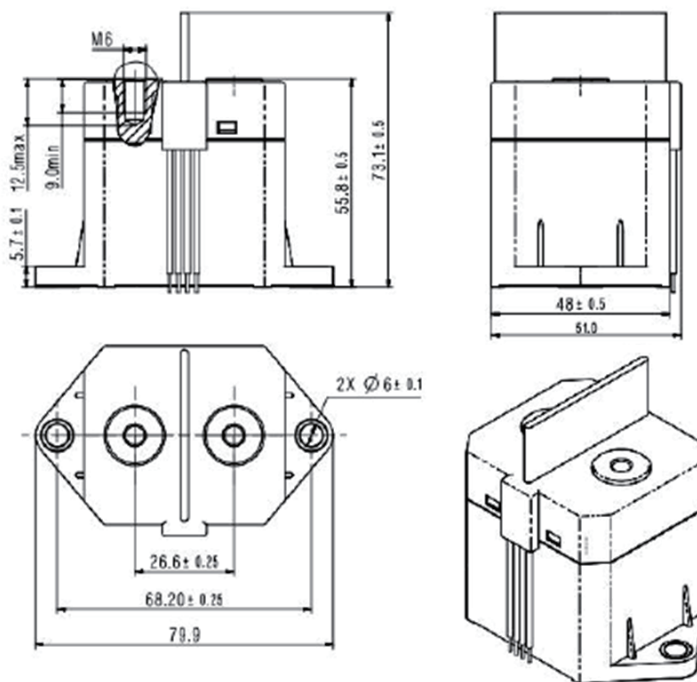
5.3 TGCZP-800 current withstand curve



6 Outline and Installation Dimensions

6.1 Outline and installation dimensions of TGCZC series products

Unit: mm



6.1.1 A1 and A2 are the load ends, and the load has no polarity (no mark on the shell)

6.1.2 +X1 (red wire) and -X2 (black wire) are the coil ends, and the coil has polarity; the line number is 20AWG, and the length is 300 ± 20mm.

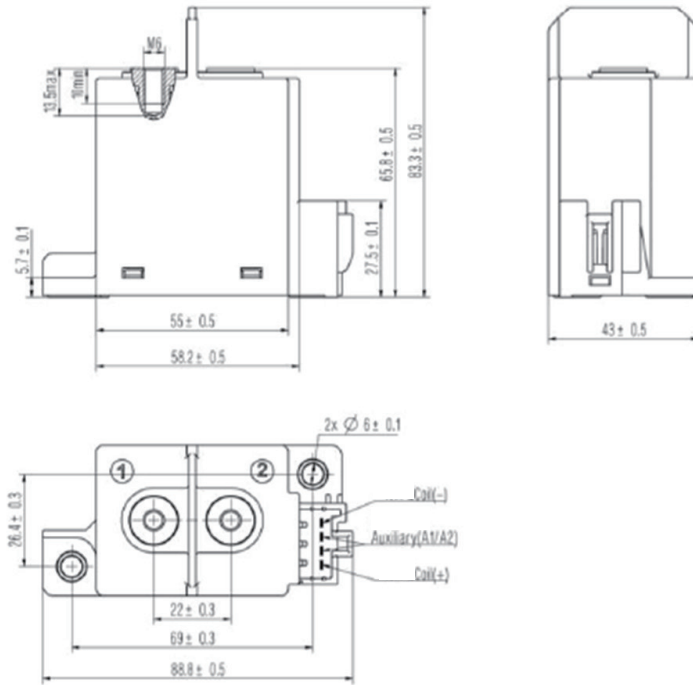
6.1.3 B1 (white wire) and B2 (white wire) are auxiliary contacts, and the aux. contact has no polarity; the line number is 20AWG, and the length is 300 ± 20mm.

TGCZ Series High-voltage DC Contactor

6.2 Outline and Installation Dimensions of TGCZP Series Products

6.2.1 TGCZP-150/200/250/300 outline and installation dimension drawings

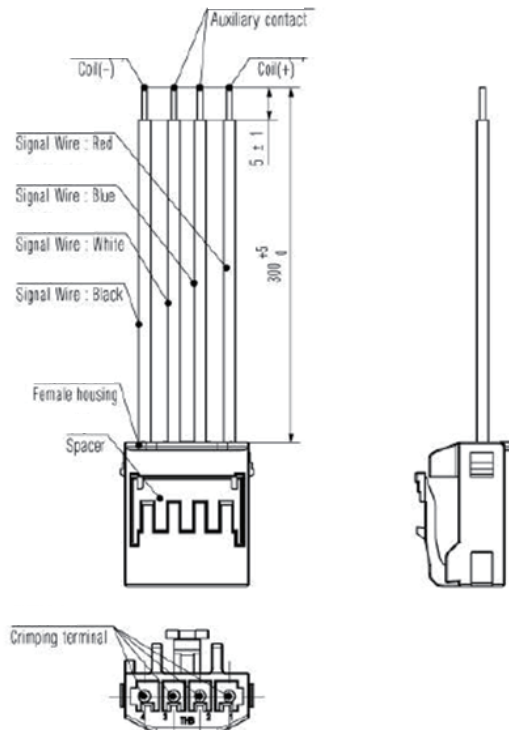
Unit: mm



Recommended connector:

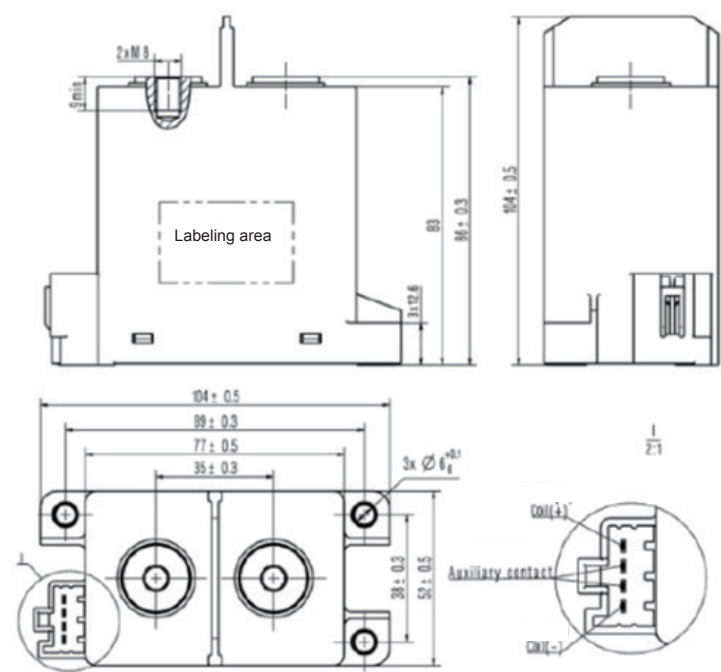
THB connector: 0488701

Yazaki connector: 7283-1044

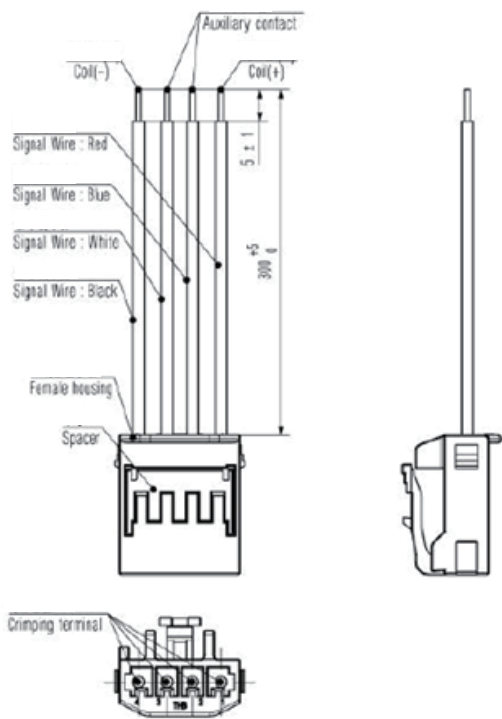


TGCZ Series High-voltage DC Contactor

6.2.2 TGCZP-400/500/600 outline and installation dimension drawings

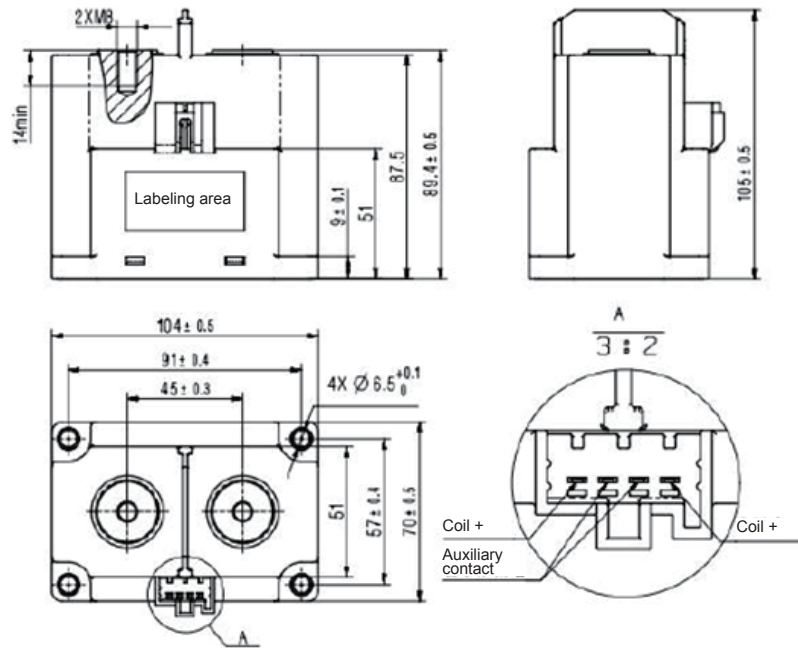


Recommended connectors:
 THB connector: 0488701
 Yazaki connector: 7283-1044



TGCZ Series High-voltage DC Contactor

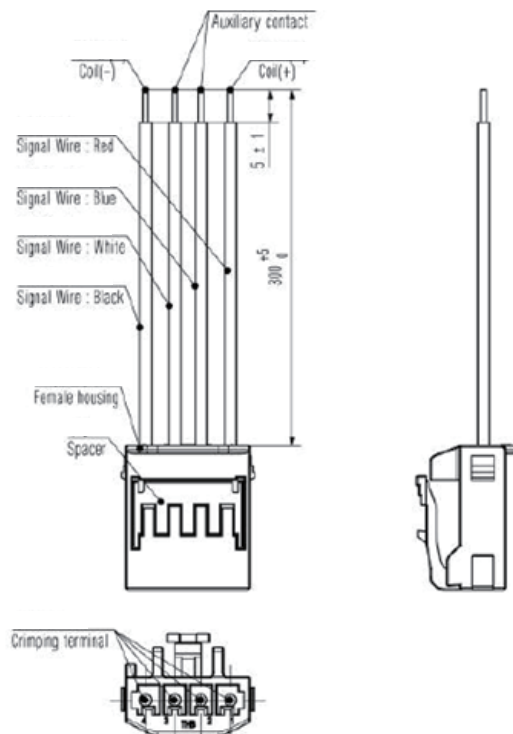
6.2.3 TGCZP-800/1000 outline and installation dimension drawings



Recommended connector:

THB connector: 0488701

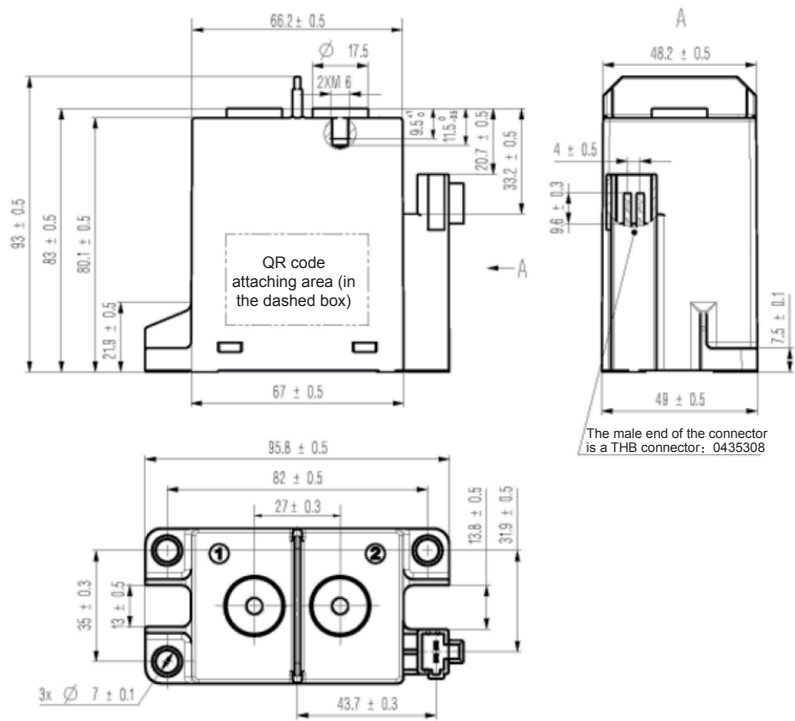
Yazaki connector: 7283-1044



TGCZ Series High-voltage DC Contactor

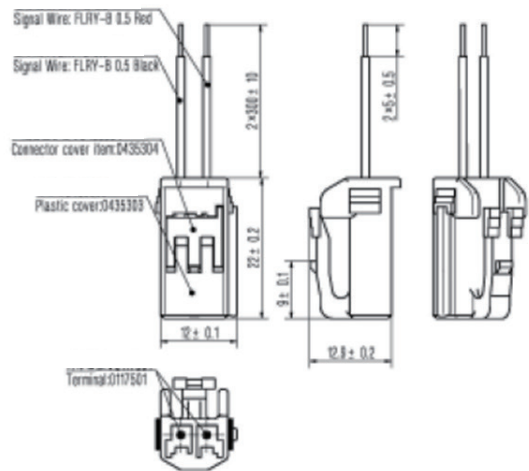
6.3 Outline and Installation Dimensions of TGCZQ Series Products

Unit: mm



Coil termination

C: connector-Tianhai:0435308



TGCZ Series High-voltage DC Contactor

7 Installation, Operation and Maintenance

7.1 Installation

7.1.1 Contactor installation: Screws of the contactor and the tightening torques are listed in Table 20;

Table 20

Frame rated current	Contactor mounting screw	Tightening torque
150	M5	3N•m ~ 5N•m
200	M5	3N•m ~ 5N•m
250	M5	3N•m ~ 5N•m
300	M5	3N•m ~ 5N•m
400	M5	3N•m ~ 5N•m
500	M5	3N•m ~ 5N•m
600	M5	3N•m ~ 5N•m
800	M6	3N•m ~ 5N•m
1000	M6	3N•m ~ 5N•m

7.1.2 The mounting screws of main circuit of contactors and their tightening torque are listed in Table 21;

Table 21

Frame rated current	Mounting screw of main circuit of contactor	Tightening torque
150	M6	6N•m ~ 8N•m
200	M6	6N•m ~ 8N•m
250	M6	6N•m ~ 8N•m
300	M6	6N•m ~ 8N•m
400	M8	8N•m ~ 10N•m
500	M8	8N•m ~ 10N•m
600	M8	8N•m ~ 10N•m
800	M8	8N•m ~ 10N•m
1000	M8	8N•m ~ 10N•m

7.2 Connections

7.2.1 It shall be used under the $L/R \leq 1\text{ms}$ conditions. When the $L/R > 1\text{ms}$ inductive load (L load) is used, the parallel surge devices are recommended. If diodes are used, please note this may reduce the life of the contactor.

7.2.2 Please note to refer to the wiring diagram indicated on the product specifications for correct connection of the lead-out end of the load. Incorrect connection may cause unexpected malfunction, abnormal heating, and fire.

TGCZ Series High-voltage DC Contactor

7.2.3 The cross-sectional area of the busbar of the main circuit is listed in Table 22.

Table 22

Rated operating current (A)	Sectional area of busbar (mm ²)
150	50
200	60
250	80
300	100
400	200
500	250
600	250
800	400
1000	600

7.2.4 During the installation of the busbar, do not apply excessive load to the terminals, otherwise it may cause an on-off failure. When power-on, please cut off the power supply of the connections such as contactor, connector, and socket in advance before the installation, maintenance, and troubleshooting.

7.3 Operation

- 7.3.1 The power of the drive circuit of the product coil must be greater than the coil power of the product, otherwise the product cannot work normally.
- 7.3.2 The power supply waveform of starting the product coil is a square wave.
- 7.3.3 It is avoided to install the product in a place where there is a strong magnetic field (near magnets or transformers), or near the radiation source.
- 7.3.4 The contact of this product is located in a sealed cavity, the cavity is filled with gas, and the leakage rate of gas in the cavity is proportional to the temperature of the cavity (the ambient temperature and the temperature rise caused by the contact being energized). Please ensure that the ambient temperature is ranged -40°C ~ 85°C.