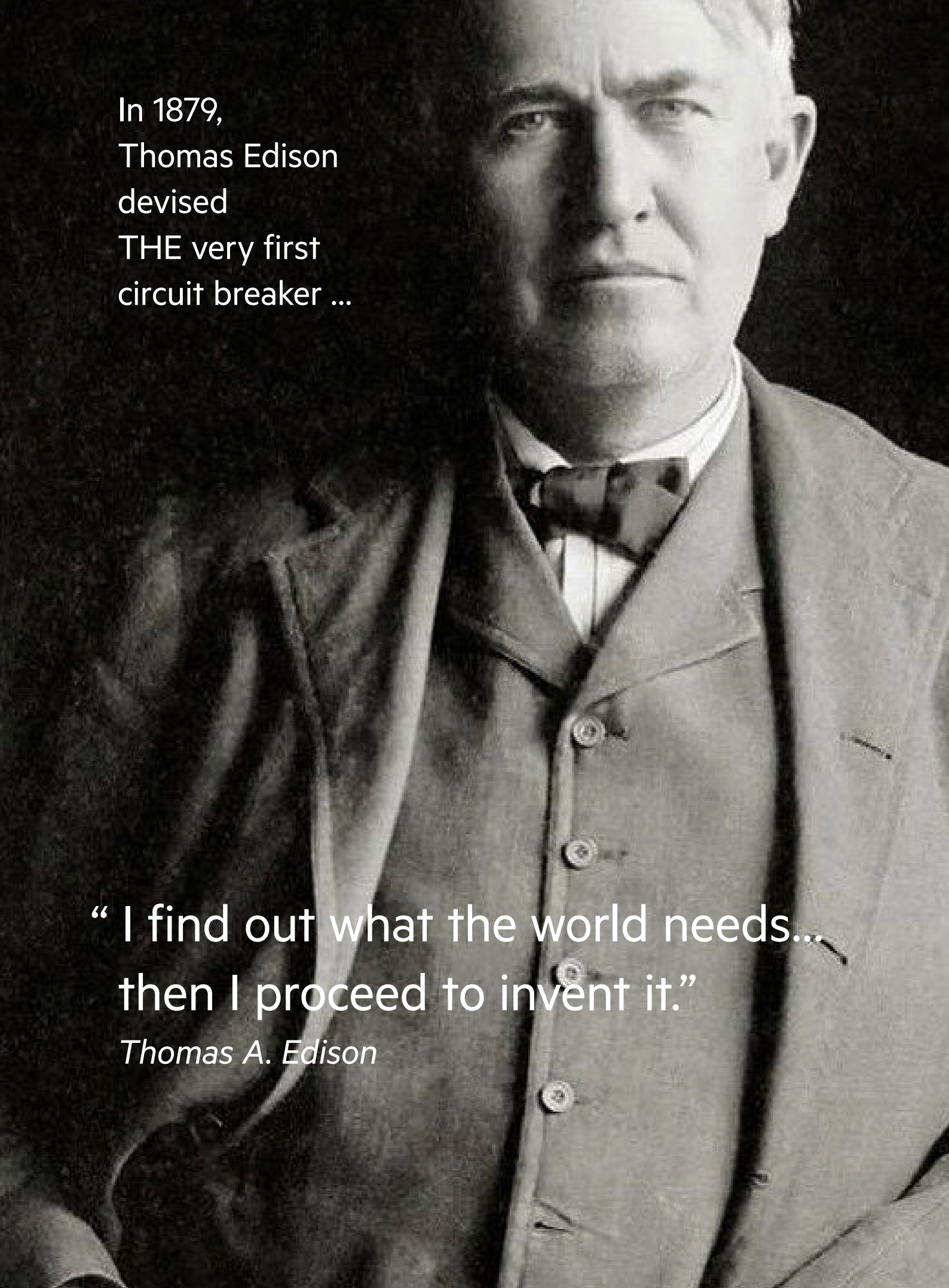
SecoVac

Medium Voltage
Vacuum Contactor

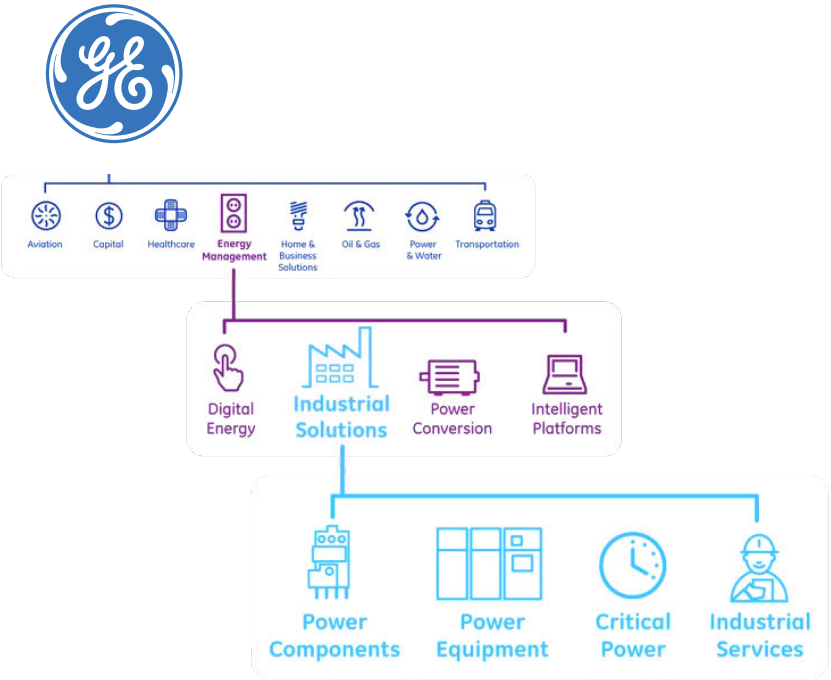
GEIS



In 1879,
Thomas Edison
devised
THE very first
circuit breaker ...

“ I find out what the world needs...
then I proceed to invent it.”
Thomas A. Edison

The “GE Businesses” in 2017



The Proven Technology & Product Lines

SecoVac VCB

MEX ACB

MPACT ACB

Elfa Series MCB/RCBO

SecoGear MV Switchgear

MLS LV Switchgear

WaveCast Transformer

GEIS-Continue the GE Legacy

- Spun off of ***GE Industrial Solutions'*** China Business in December 2019
- A key platform for GE's medium and low voltage Electrical distribution & Control (ED&C) product lines: China for China and China for the World
  - Cast Coil Transformers Center of Excellence
  - Global ACB (400-6400A, 100KA), IEC/UL/GB Standard
  - Medium Voltage Equipment and Breaker: IEC, NEMA, GB
  - GE "Global Star Facility"
  - China Technology Center: NPI, Value Engineering
- Leading Technologies
  - Critical Power: ATS, Paralleling Switchgear, APF, SVG
  - New Electrification applications: EV Charging, PCM Energy Storage System
  - Microgrid: Multisource Power Supply, Integrated Energy Center, Ipv6 Compatible Gateway

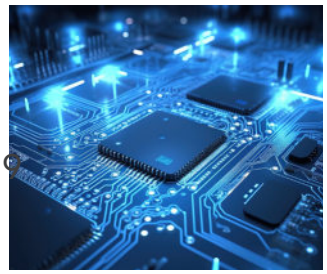
The Evolution of Business and Brand

Note: GEIS brand is also used in China

Our Products: From Component to System

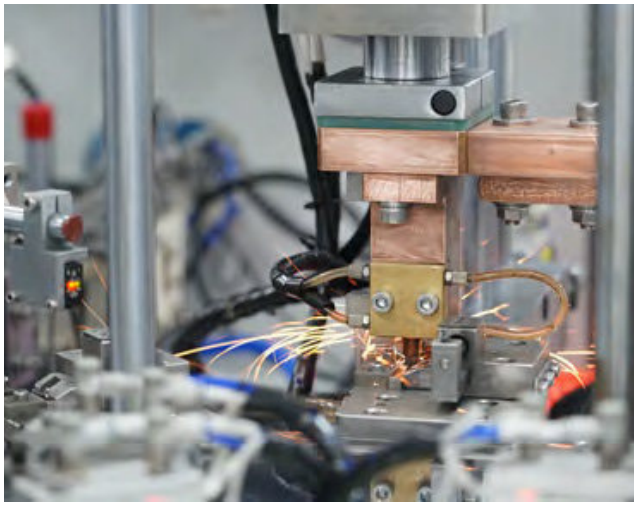
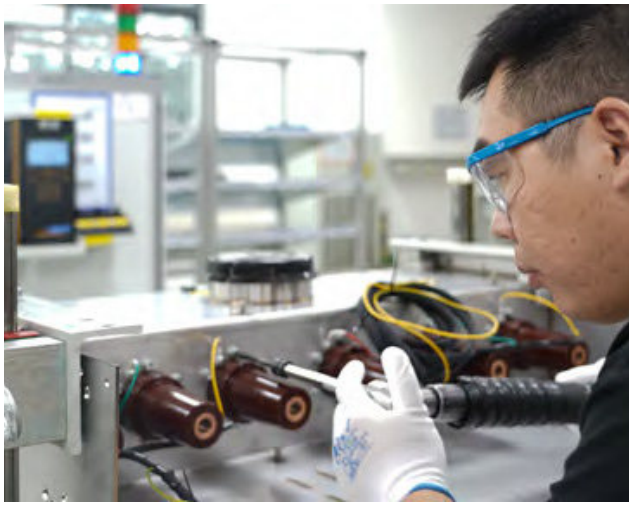
200K+ SKUs & Customized Solution · China, USA, Latin America, SEA, Gulf Region

Electrical Components	Equipment & System	Critical Power	Energy Decarbonization
Innovative technologies for an energy-efficient electrical infrastructure	End-to-end electrical solutions to meet our customer's needs	Power technologies and network solutions for data center & telecom industries	New Electrification Storage Technology
• Structured standard products • Electrical control & distribution • Circuit breakers, modular components, • distributor flow goods • Plug& Play Upgrade kits	• Engineered or configured assemblies • Medium- and low-voltage switchgear, • MV Breakers & Contactors for Industrial Applications • Control equipment, Pwr Transformers, busway & package solutions	• Automatic Transfer Switches • Power Compensation: Active and Reactive • Pallbearing Switchgear, Micro Grid BMS, DC Power Supply	• EV Charging technology: Charger, Platform, Optimization Technology • Distributed Energy Storage technology: PCM Thermal Bank, Control System

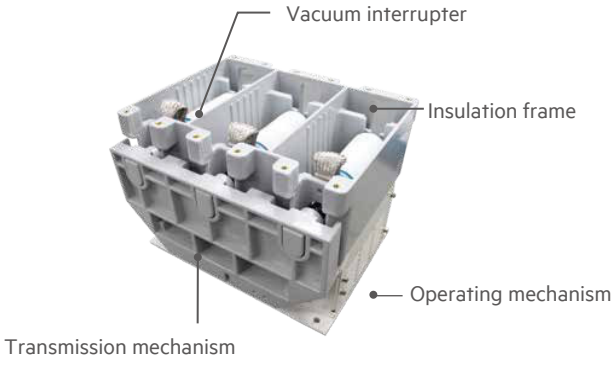

Our Factory

GEIS headquarter was GE's Shanghai Operation hub, once a GE "Global Star" facility. The factory is upgraded to the latest MES system.

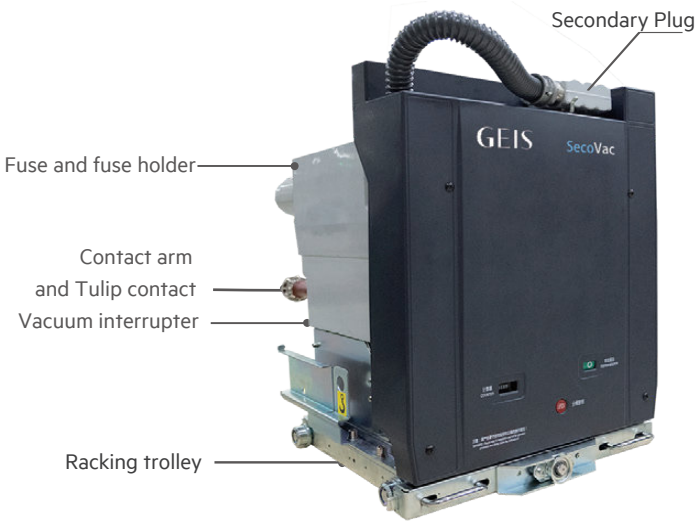



Brochure Content

Description



Fixed Type



Withdrawable Type

Product Overview

SecoVac medium voltage vacuum contactor has a new generation electromagnetic operating mechanism and a high- performance vacuum interrupter, providing excellent electrical and mechanical performances.

The product conforms to GB.DL,IEC related standards and can be applied to rated voltage 12kV and below,and three-phase AC system with rated frequency 50/60Hz ,especially suitable for the control and protection of motor, transformer, capacitor bank and other electrical equipment, and other needs for frequent start-stop or switching.

With its high reliability and excellent performance, SecoVac medium voltage vacuum contactors are widely used in power, industrial and mining enterprises, petrochemical, paper making,metallurgy and other fields in need of electrical equipment control and protection.

Product Features

- Excellent insulation performance to ensure personal and equipment safety
- Based on the rated current of 400A, providing optional mechanical and electrical hold modes, with a mechanical life up to 1 million operations
- Flexible to mount for both withdrawable and fixed types, meeting the requirements of miniaturized switchgears
- Modular design, unique and novel; Rich expansion function, easy to control from afar
- The application of galvanizing process with strong anti-corrosion performance ensures the normal use of the handcar in various harsh environments
- Provided with silver-plated spring contact fingers in the base groove, ensuring electrical and thermal stability

Description

Quick Model Selection

CR193	-7.2	M	/M	80	-50
Product Series CR193 vacuum contactor	Voltage level	Holding mode	Protection method	Current of fuse	Breaking current
	7.2-7.2kV	M: Mechanical retention	M: Motor protection	6.3 、10~355A	50kA
	12-12kV	E: Electrical retention	T: Transformer protection		
			None: No fuse		

Product Standard

IEC 60470	《High-voltage alternating current contactors and contactor-based motor-starters 》
IEC 60694	《Common specifications for high-voltage switchgear and controlgear standards》
IEC 60632-1	《High-voltage motor starters Part1:Direct-on-line(full voltage) a. c. starters》
IEC 60282-1	《High-voltage fuses Part 1: Current-limiting fuses》
IEC 60071-1	《Insulation co-ordination. Part 1 : Definitions, principles and rules》

Fuses size and Impactor type shall comply with DIN 43625 and BS 2692 standards. Fuse electrical properties shall comply with IEC 60282 standard.

Environmental Data

- **The conditions of temperature**
  - -The ambient air temperature does not exceed 40 ℃
  - -The minimum ambient air temperature is -25 ℃
  - -The average value of ambient air temperature measured over a period of 24 h, does not exceed 35 ℃
- **The conditions of humidity（25℃）**
  - -the average value of the relative humidity, measured over a period of 24 h, does not exceed 95%
  - -the average value of the relative humidity, measured over a period of one month, does not exceed 90%;
  - -the average value of the water vapour pressure, over a period of 24h, does not exceed 2.2kPa
  - -the average value of the water vapour pressure, over a period of one month, does not exceed 1.8 kPa.
- **The conditions of earthquake intensity**
  - -no more than 8 degree.
- **The conditions of altitude**
  - -The altitude does not exceed 1000m
  - -We can also offer the product which can exceed
  - -1000m altitude, buyer need to check with the manu facture frstly when placing order
- **Others**
  - -Storing place should be free from condensation, fre, explosion, chemical corrosion, severe dirty and heavy shakes condition.
  - -The ambient air is not signifcantly polluted by dust, smoke, corrosive and/or fammable gases, vapors or salt. EMI should not exceed 1.6kV in the secondary system.

Technical Parameter

Vacuum contactor

Rated voltage		kV	7.2	12
Rated insulation level	Lightning impulse withstand voltage (peak)	kV	60	75
	Power frequency wthstand voltage (1 min)		32	42
Rated frequency		Hz	50/60	50/60
Rated current		A	400	400
Rated breaking current		kA	4	4
Rated closing current		kA	4	4
Limit breaking current		kA	4.5	4.5
Rated short-time withstand current (4s)		kA	4	4
Overload withstand current (1s)		kA	8	8
Maximum rated peak withstand current		kA	10	10
Rated mode of operation			Long duty system	Long-term work schedule
Ways to keep		class	Mechanical hold electrical hold	Mechanical hold electrical hold
Mechanical life		Ten thousand times	30	30
Electrical Life	Rated current	Ten thousand times	100	100
	AC-3		25	25
	AC-4		1	1

Vacuum contactor —fuse combination

Rated voltage		kV	7.2	12
Rated insulation level	Lightning impulse withstand voltage (peak)	kV	60	75
	Power frequency wthstand voltage (1 min)		32	42
Rated frequency		Hz	50/60	50/60
Motor protection current rating	(Depends on the fuse)	A	25~355	6.3~224
Transformer protection rated current	(Depends on the fuse)	A	6.3~224	6.3~224
Rated short circuit breaking current		kA	50	50
Rated handover current		A	≤ 3200	≤ 3200
Mechanical life		Ten thousand times	100*	100*
Electrical Life	Rated current	Ten thousand times	100	100
	AC-3		25	25
	AC-4		1	1

*For the mechanical endurance of mechanical holding: replace a new mechanical lock every 300,000 times

Technical Parameter

Mechanical characteristics

Interphase center distance		mm	150 ±0.5
Contact opening		mm	6±1
Overstroke		mm	2.5 ±0.5
Average closing speed	Electromagnetic mechanism	m/s	0.2 ~0.4
Average opening speed	Electromagnetic mechanism	m/s	0.4~1
Closing time	Mechanical hold	ms	≤ 100 、 ≤ 180*
	Electrical holding		≤ 150
Opening time	Mechanical hold	ms	≤ 70 、 ≤ 160*
	Electrical hold		≤ 100
Closing bounce time		ms	Contactor ≤ 2 Combined ≤ 3
Three-phase switching synchronization		ms	≤ 2
Circuit resistance per phase		μΩ	Contactor ≤ 150 Combined ≤ 200
Weight		kg	Contactor ：35 Combined： 88

* The value is a value tha includes the operating time of the closing relay and the opening relay

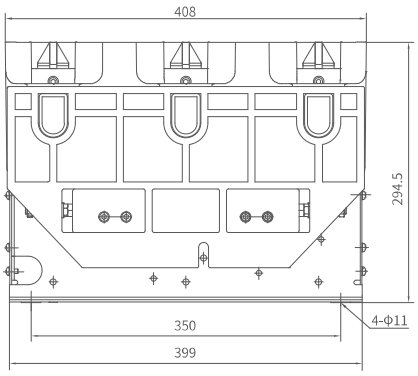
Operating mechanism

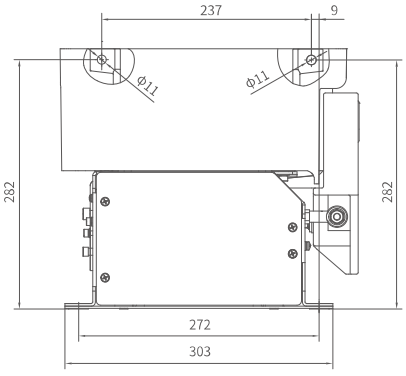
Rated operating voltage, curent (mechanical hold)	AC/DC220V	Closing current 4.5A	Opening current 6A
	AC/DC110V	Closing current 9A	Opening current 12A
Rated operating voltage, current (electric hold)	AC/DC220V	Closing current 4.5A	Opening current 0.5A
	AC/DC110V	Closing current 9A	Opening current 1A

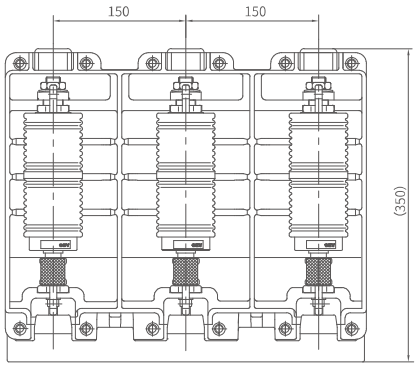
*

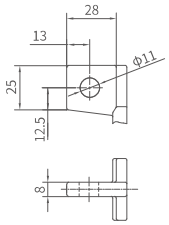
Installation Dimension

Fixed

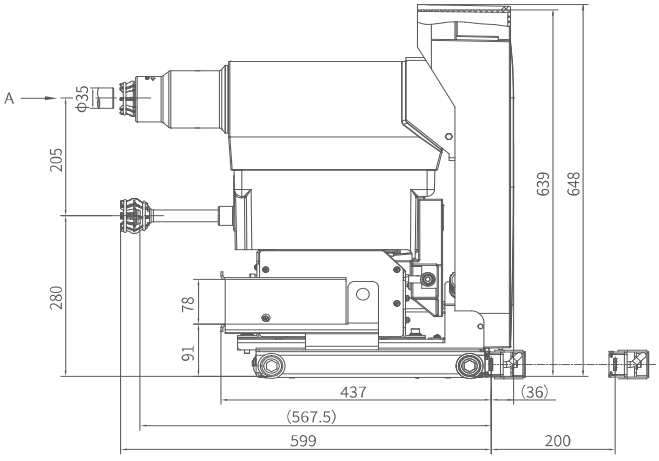


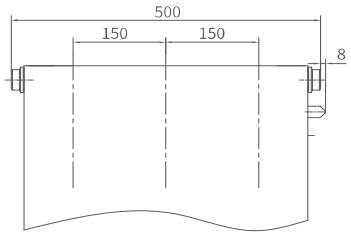


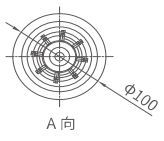




Withdrawable



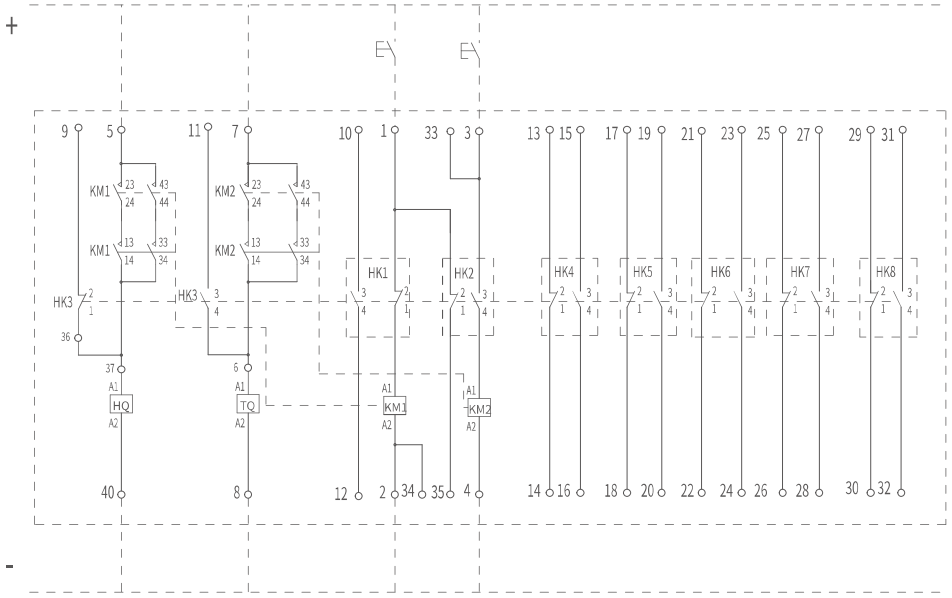




Electrical Connection Diagram

Fixed contactor, DC, mechanical holding

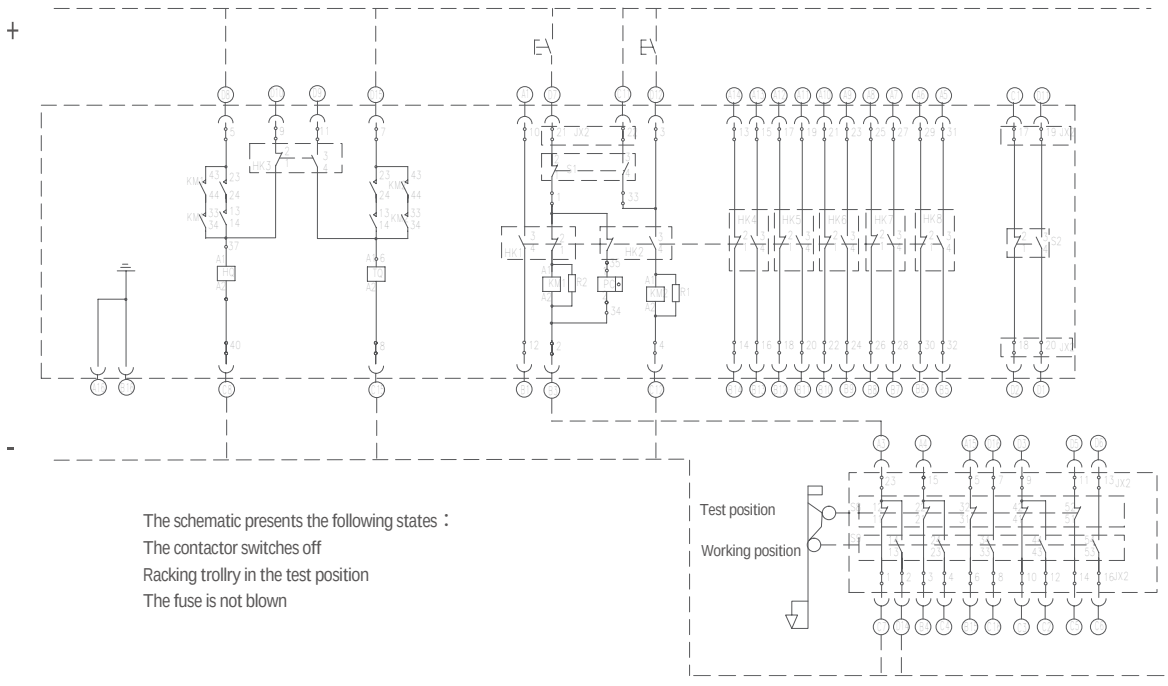
Closing coil	Opening coil	Closing circcuit	Opening circuit	Auxiliary circuit



The schematic shows the following state:The contactor is switched on

Withdrawable contactor - fuse combination, DC, mechanical holding

Ground circuit	Closing coil	Opening coil	Closingcircuit	Opening circuit	Auxiliary circuit	Fuse status indicating

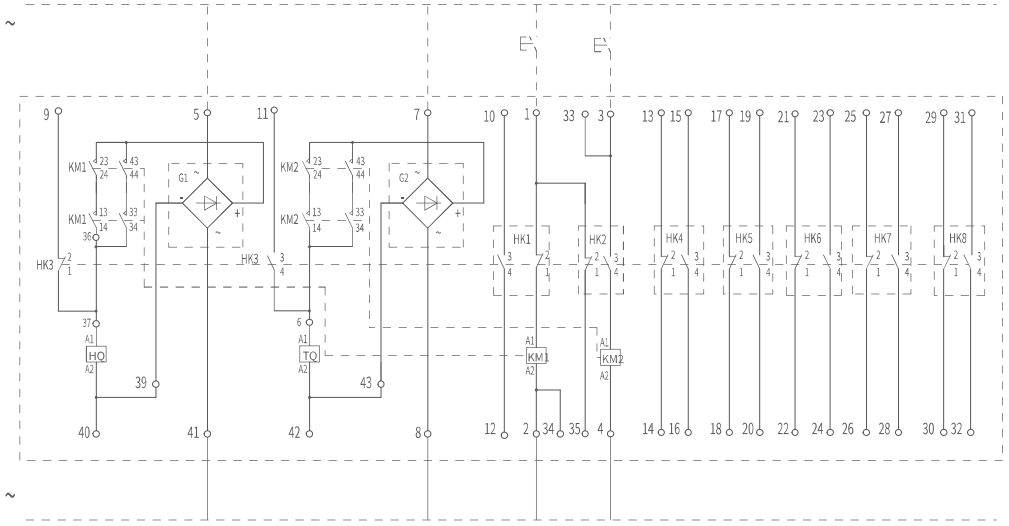


The schematic presents the following states：
The contactor switches off
Racking trollry in the test position
The fuse is not blown

Electrical Connection Diagram

Fixed contactor, AC, mechanical holding

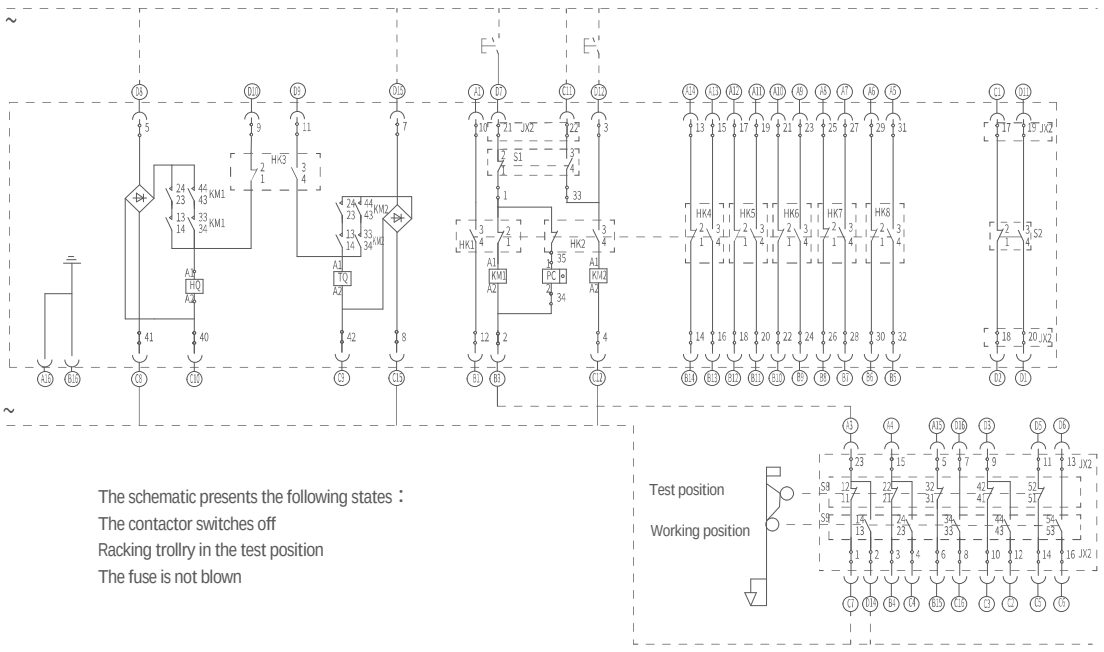
Closing coil	Opening coil	Closing circcuit	Opening circuit	Auxiliary circuit



The schematic shows the following state:The contactor is switched on

Withdrawable contactor - fuse combination, AC, mechanical holding

Ground circuit	Closing coil	Opening coil	Closing circcuit	Opening circuit	Auxiliary circuit	Fuse status indicating

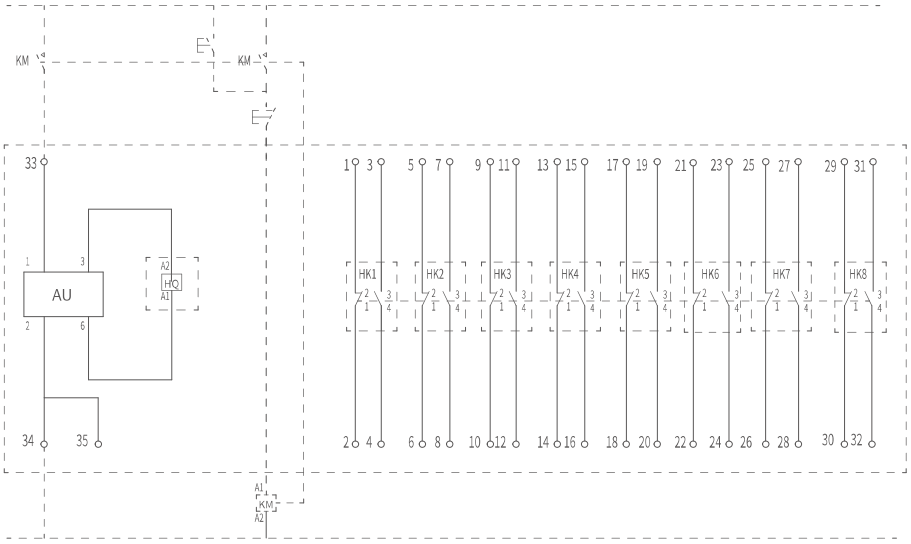


The schematic presents the following states：
The contactor switches off
Racking trollry in the test position
The fuse is not blown

Electrical Connection Diagram

Fixed contactor, AC/DC, electrical holding

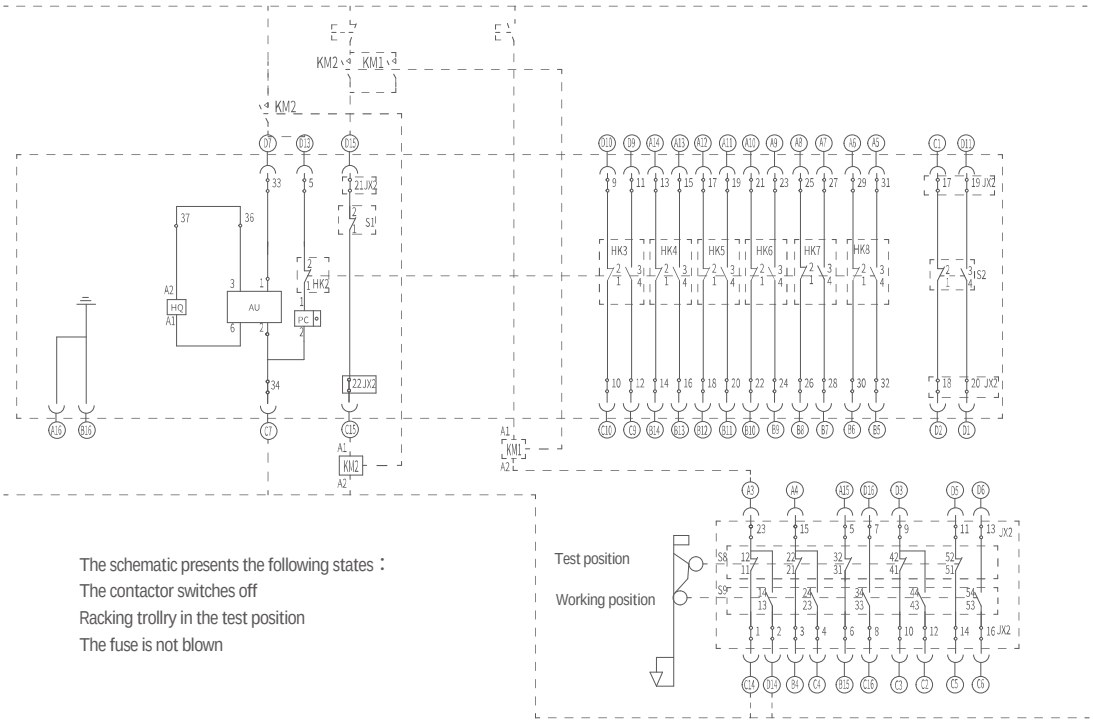
Closing coil	Closing /Opening circuit	Auxiliary circuit



The schematic shows the following state:The contactor is switched on

Withdrawable contactor - fuse combination, AC/DC, electrical holding

Ground circuit	Closing coil	Closing /Opening circuit	Auxiliary circuit	Fuse status indicating



The schematic presents the following states：
The contactor switches off
Racking trollry in the test position
The fuse is not blown

Fuse Type

High voltage current limiting fuses for motor protection

Specification sheet for motor protection fuses

Rated voltage (kV)	Fuse model number	Rated current *(A)	Rated maximum breaking current (kA)
7.2	XRNM1-7.2	25~315	50
	WKNDO-7.2M	355	50
12	XRNM1-12	25~200	50
	WKNDO-12M	224	50

* The specific specification of the rated current of the fuse is referred to the attached table of the outline dimension drawing of the fuse

Calculation for selection of fuses

The rated current of the fuse for direct starting shall be used according to the following formula.

Iy=N.In.d

In — motor full load current

d — Synthesis coefficient as expressed

N — Ratio of starting current to full load current, usually N=6

Iy — -the current value in the starting time

Starts r/h per hour	2	4	8	16
d	1.7	1.9	2.1	2.3

High voltage current limiting fuses for transformer protection

Specification sheet of fuses for transformer protection

Rated voltage(kV)	Type of fuse	Rated current * (A)	Rated maximum breaking current (kA)
7.2	XRNT1-7.2	6.3~250	50
12	XRNT1-12	6.3~224	50

* Fuse rated current spec ific specifications refer to the attached table of fuse dimensions drawing

Reference table for selection of fuses

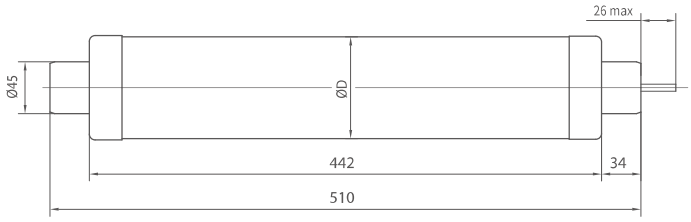
	Rated voltage (KV)	Recommended fuse specifications													
Transformmer capacity (kVA)		100	125	160	200	250	315	400	500	630	800	1000	1250	1600	2000
Fuse current(A)	7.2	20	31.5	40	5	50	6	63	80	100	125	125	160	200	
	12	16	16	20	25	25	40	50	63	63	80	100	125	160	200

Note: For the specific fuse diagram, see the fuse selection manual

Fuse Type

Fuse dimension

Plug-in type:



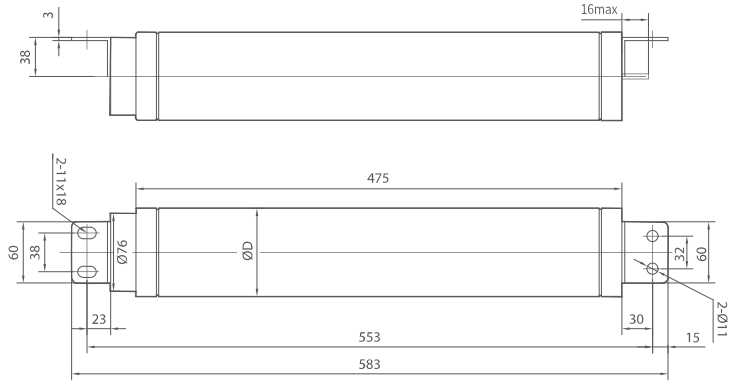
Transformer protection fuse

Model	Rated Current	ΦD
XRNT1-7.2	6.3、10、16、20、25、31.5、40	Φ51
	50、63、71、75、80	Φ67
	100、125	Φ77
	160、200、224、250	Φ87
XRNT1-12	6.3、10、16、20、25、31.5、40	Φ51
	50、63、71、75、80	Φ67
	100、125	Φ77
	160、200、224	Φ87

Motor protection fuse

Model	Rated Current	ΦD
XRNM1-7.2	25、31.5、40、50、63、80、100、125	Φ77
	160、200、224、250、315	Φ77
XRNM1-12	25、31.5、40、50、63、80、100、125	Φ77
	160、200	Φ87

Busway type



Motor protection fuse

Model	Rated Current	ΦD
WKNDO-7.2M	355	Φ86
WKNDO-12M	224	Φ86

Order Sheet

CR193 Fixed vacuum contactor

Project _____ Product _____

Order quantity _____

Rated voltage	○ 7.2kV ○ 12kV
Rated current	○ 400A
Holding mode	○ Mechanical holding ○ Electrical hold
Secondary wiring diagram	○ Fixed DC mechanical holding wiring diagram ○ Fixed AC machinery holding wiring diagram ○ Fixed AC/DC holding wiring diagram
Open/close operating voltage	○ DC110V ○ DC220V ○ AC110V ○ AC220V
Three-phase insulating cower	○ with ○ without

Special Request: _____

Signature of buyer _____ Date ____/____/____

Order Sheet

CR193 Withdrawable vacuum contactor

Project _____ Product _____

Order quantity _____

Rated voltage	◯ 7.2kV ◯ 12kV					
Rated current	◯ 400A					
Holding mode	◯ Mechanical holding ◯ Electrical hold					
Fuse type	◯ Motor protection ◯ Transformer protection					
Current (A)	◯ 6.3A ◯ 10A ◯ 16A	◯ 20A ◯ 25A ◯ 31.5A	◯ 40A ◯ 50A ◯ 63A	◯ 80A ◯ 100A ◯ 125A	◯ 160A ◯ 200A ◯ 224A	◯ 250A ◯ 315A ◯ 355A

Instructions
7.2kV motor's protection current range 25A~355A, 7.2kV transformer's protection current range 6.3A~250A
12kV motor's protection current range 25A~224A, 12kV transformer's protection current range 6.3A~224A

Grounding mode	◯ Bottom grounding ◯ Side grounding			
Secondary wiring diagram	◯ DC mechanical holding wiring diagram ◯ AC machinery wiring diagram	◯ AC/DC hold wiring diagram		
Open/close operating voltage	◯ DC110V	◯ DC220V	◯ AC110V	◯ AC220V

Special Request: _____

Signature of buyer _____ Date ____/____/____

GEIS

Website： www.geis.tech
Hotline: 400-820-5234

Version No.: