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Risenric



SHANGHAI RISENTRIC ELECTRIC CO.,LTD


MNS Low Voltage Switchgear » Instruction Manual

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■ CONTENTS

I /	01/02	Company Profile
	03/04	Customers Served
	05/06	Product Description、 Technical Specifications
	07/08	Structure and Components

II /	09/12	Model Type
------	-------	------------

III /	13/14	Installation and Wiring
	13/14	Commissioning and Acceptance
	13/14	Operation
	13/14	Maintenance (Recommendations)
	15/16	Common Faults and Troubleshooting
	15/16	Packing and Accompanying Documents
	15/16	Ordering Information

ABOUT RISENTRIC

Shanghai Risentric Electric Co., Ltd. specializes in the research, development, and manufacture of high- and low-voltage complete switchgear, box-type substations, power transformers, and other power transmission and distribution equipment.

COMPANY PROFILE



Shanghai Risentric Electric Co., Ltd., established in 2005, is a national high-tech enterprise specializing in intelligent power transmission and distribution as well as industrial electrical control. The company has been certified to ISO 9001 Quality Management System, ISO 14001 Environmental Management System, and ISO 45001 Occupational Health and Safety Management System, and has been awarded multiple qualifications including “Specialized and Innovative Enterprise.”

All products are designed and manufactured in strict accordance with IEC standards and relevant national regulations. Many products have obtained mandatory certifications such as CCC and CQC, as well as CE certification, ensuring high levels of safety, reliability, and international applicability.

Risentric possesses comprehensive capabilities covering research and development, manufacturing, system integration, and engineering implementation. Its product portfolio includes high- and low-voltage complete switchgear, European- and American-style box-type substations, power transformers, industrial automation control systems, photovoltaic equipment, and related electrical components. These products are widely applied in industries such as power generation, metallurgy, chemical processing, petroleum, transportation, construction, and municipal engineering, continuously delivering stable and reliable products and professional services to customers.

To ensure product quality and manufacturing excellence, the company has introduced advanced flexible production lines from both domestic and international sources, equipped with CNC turret punching machines, CNC bending machines, CNC shearing machines, CNC laser cutting machines, and CNC busbar processing centers, enabling lean manufacturing and full-process quality control.

While continuously strengthening its presence in the domestic market, Risentric actively expands its international business and is committed to becoming a trusted global partner for power transmission, distribution, and industrial electrical solutions.

Technological innovation, quality first, integrity-based service, and win-win cooperation are the core business philosophies of Risentric. The company sincerely welcomes customers worldwide to cooperate and achieve shared success.



HONORS AND QUALIFICATIONS



OUR PARTNERS



Customer service



Technical Achievements

To Realize Automation World With High-advanced Technology

MNS Low-Voltage Switchgear



PRODUCT INTRODUCTION

The MNS (GHD) type low-voltage combined distribution switchgear is suitable for AC systems with a frequency of 50 – 60 Hz and a rated operating voltage of 660 V and below. It is used for the control of power generation, transmission, distribution, power conversion, and power consumption.

In addition to general land-based applications, this equipment, after appropriate treatment, is also suitable for use on offshore oil drilling and production platforms as well as in nuclear power plants.

Environmental Conditions

- Ambient air temperature: Not higher than +50 ° C and not lower than -5 ° C.

The 24-hour average temperature shall not exceed +35 ° C.

- Atmospheric conditions: The air shall be clean. The relative humidity shall not exceed 50% at +40 ° C. Higher relative humidity is permitted at lower temperatures, for example 90% at +20 ° C. However, consideration shall be given to the possibility of moderate condensation occurring occasionally due to temperature variations.

- Altitude: Not exceeding 2000 m above sea level.

- Transportation and storage conditions: The equipment is suitable for transportation and storage at temperatures ranging from -25 ° C to +55 ° C. For short periods (not exceeding 24 hours), temperatures up to +70 ° C are permissible. Under these temperature limits, the equipment shall not suffer any irreversible damage and shall be capable of normal operation under rated service conditions.

Technical Specifications

NO.	Name	GB7251.1-2005 Low-voltage switchgear and controlgear assemblies (TTA)	
		IEC 60439 "Low-voltage switchgear and controlgear assemblies"	
1	Overvoltage category	IV III	
2	Pollution level	3	
3	Rated operating voltage(Ue)(V)	400/660	
4	Rated insulation voltage(Ui)(V)	660/1000	
5	Rated frequency(Hz)	50(60)	
6	Rated current	≤5000A	
7	Horizontal busbar	Rated short-time withstand current (Icw) (kA)	50,65,80(1s effective value)
8		Rated peak withstand current(Ipk)(kA)	105,140,176(0.1sMAX)
9	Vertical busbar	Rated maximum operating current	≤1000A
10		Rated short-time withstand current	50kA
11		Rated peak withstand current	105kA
12	Enclosure protection rating	IP30 IP40(Special Note)	



STRUCTURE AND COMPONENTS

PRODUCT STRUCTURE OVERVIEW



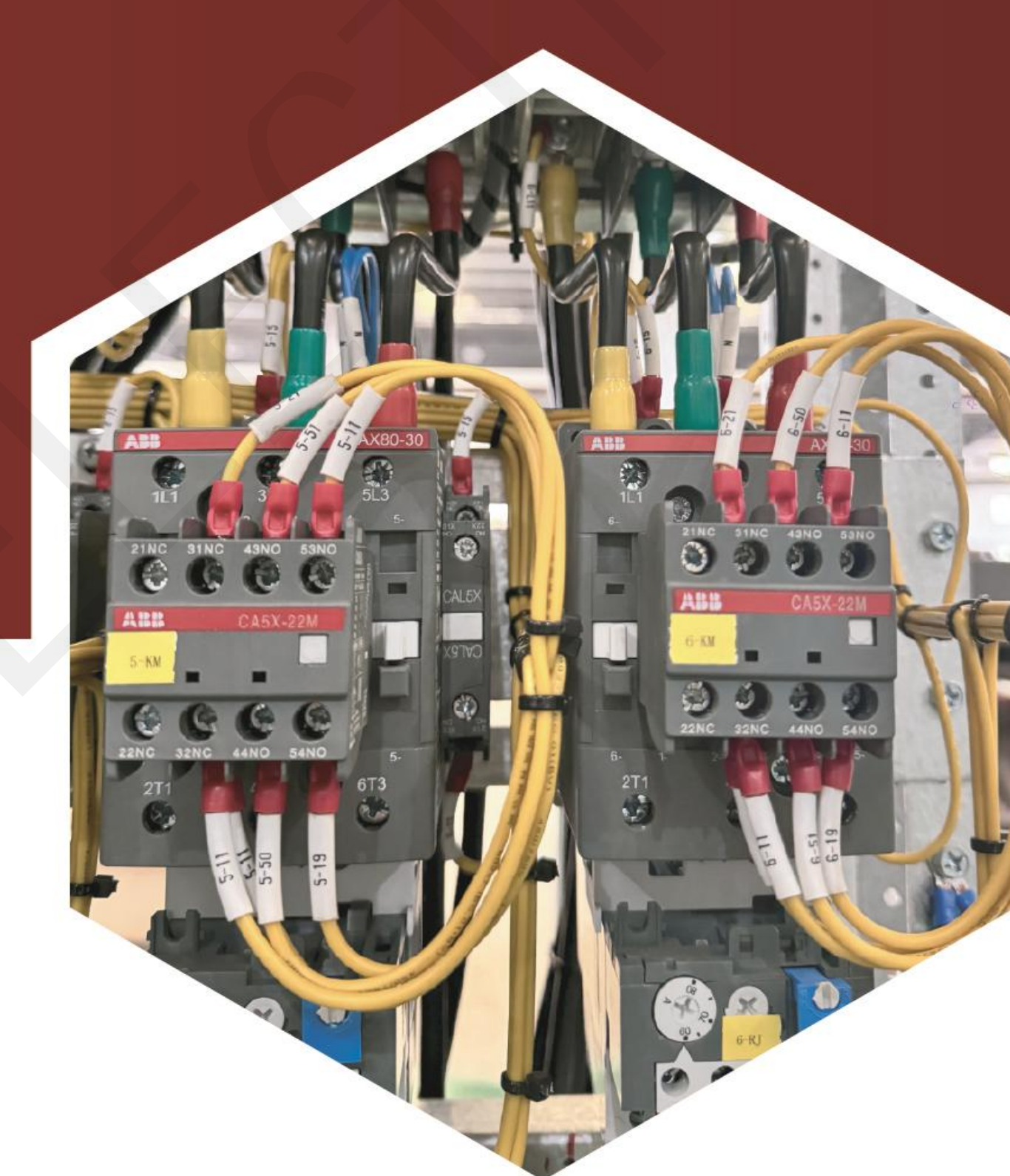
Molded Case Circuit Breaker (MCCB)

Enclosed in a molded plastic housing, it is suitable for medium- and low-voltage circuits and provides both overload and short-circuit protection. With a compact and moderate size, it is widely used in distribution cabinets and end-user power distribution.



Air Circuit Breaker (ACB)

Featuring a modular frame structure, it offers high current capacity and high protection accuracy. It is suitable for high-voltage and high-power main circuits, and is used for switching and protection of main feeders in power distribution systems.



AC Contactor

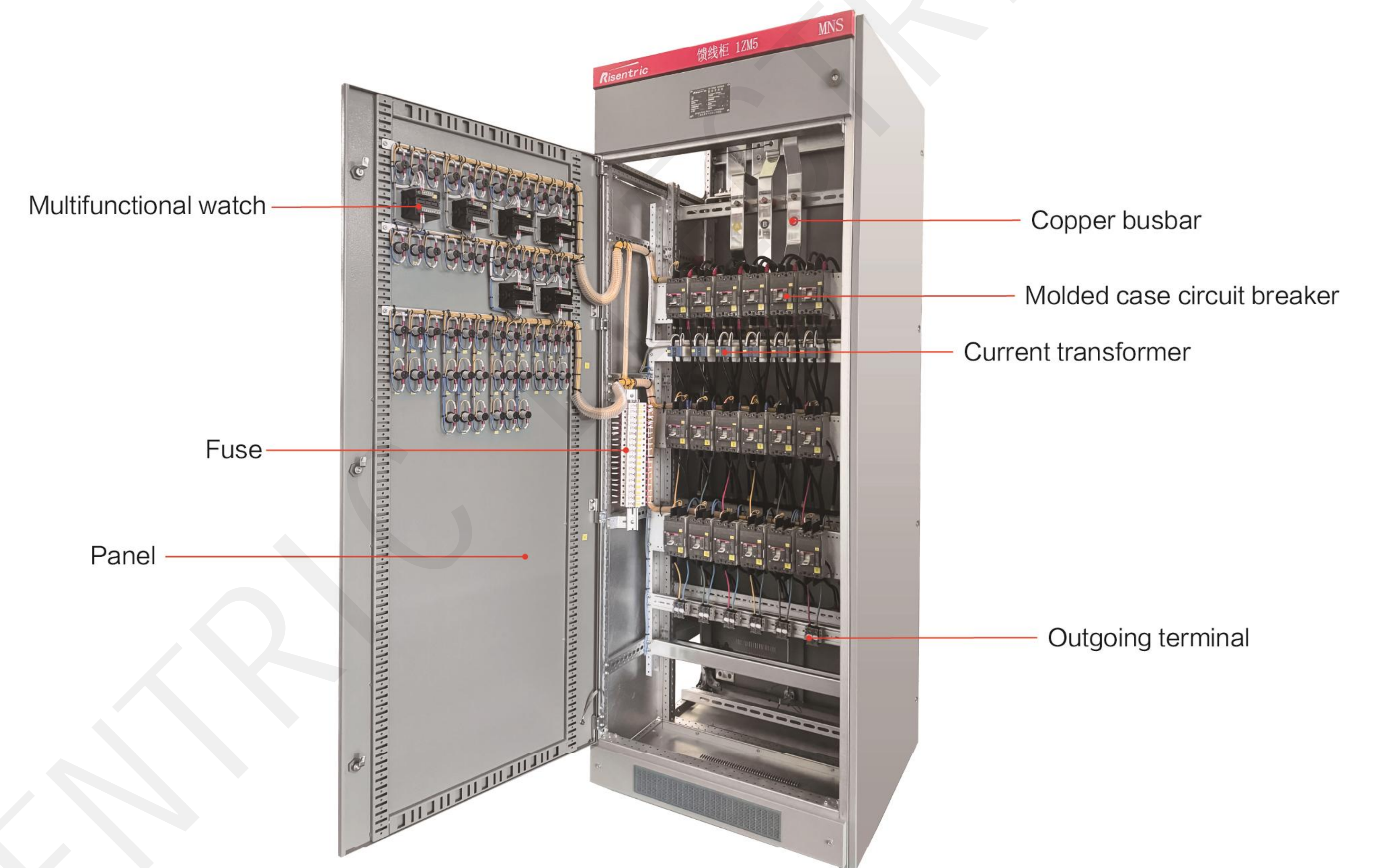
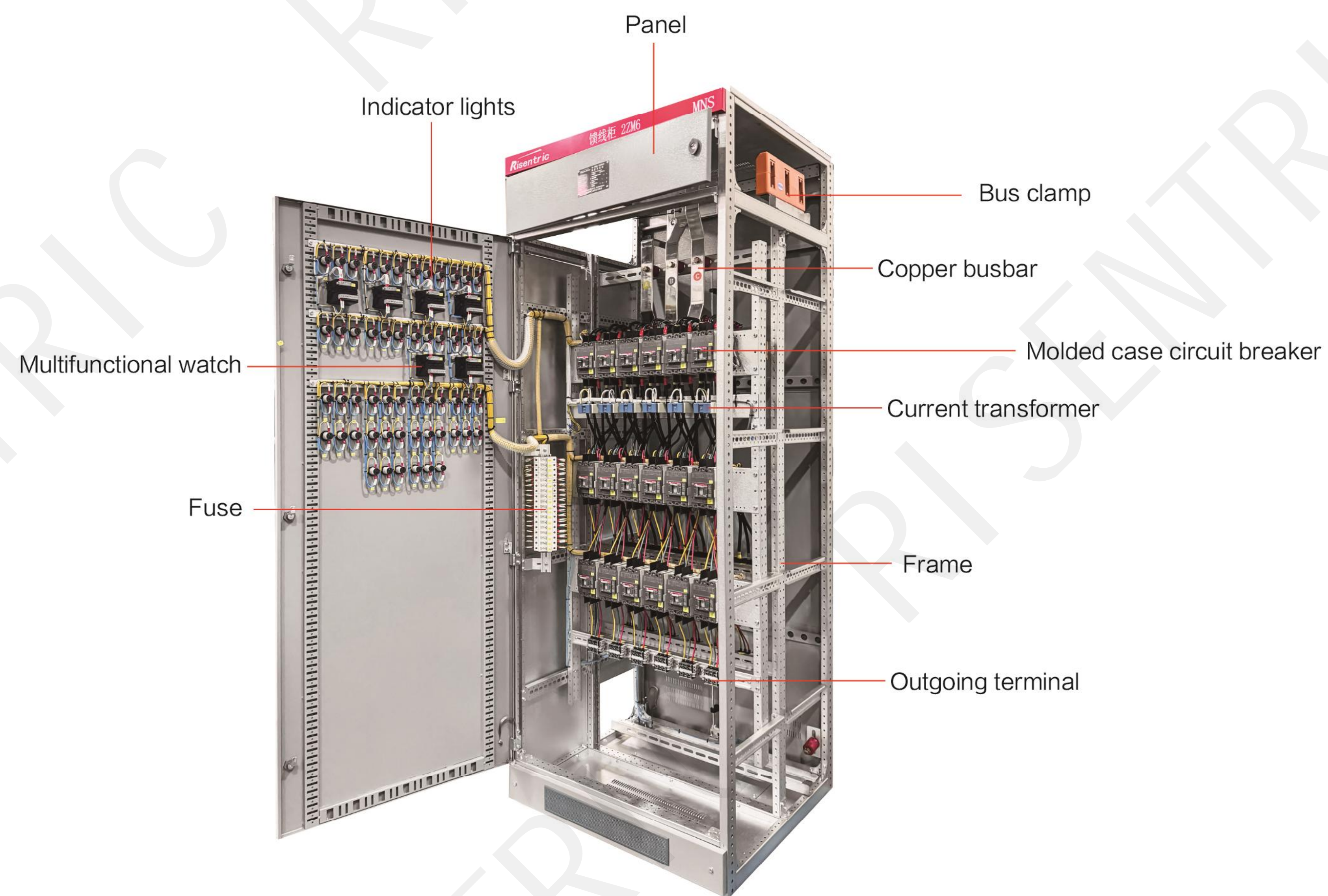
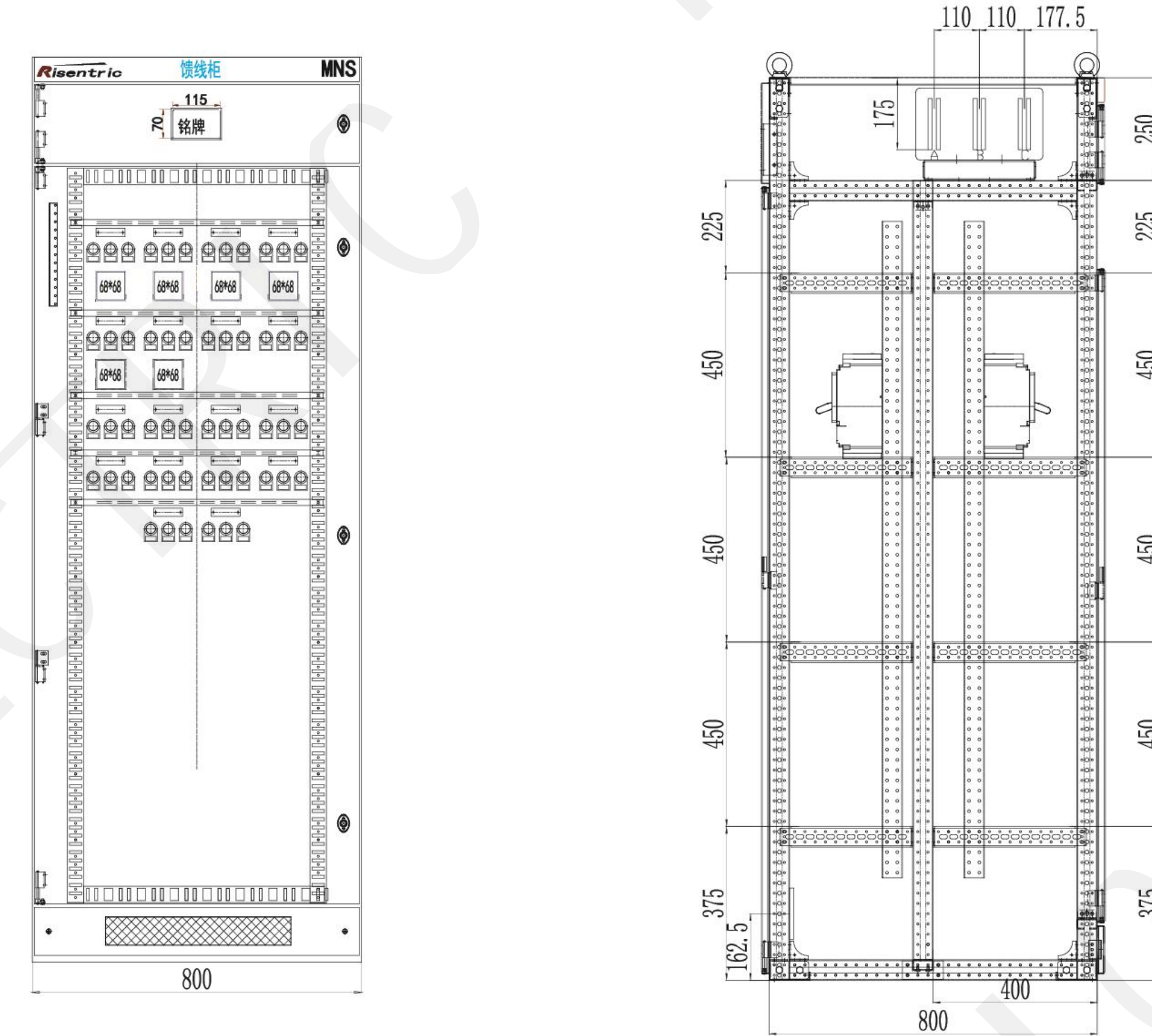
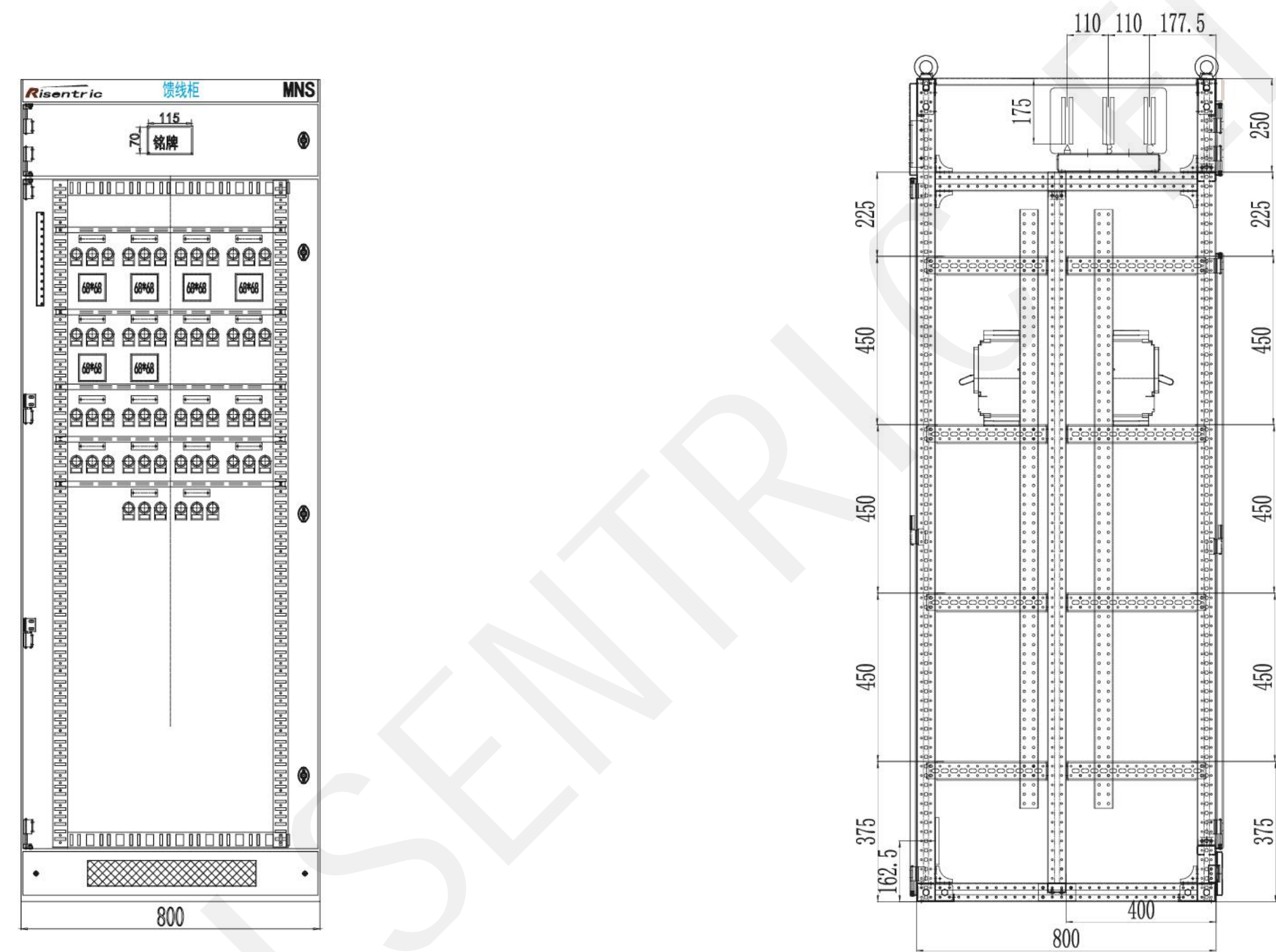
Designed specifically for switching AC circuits on and off, it does not provide overload protection. It is commonly used in conjunction with relays and circuit breakers, and is widely applied in motor control and equipment start/stop control.

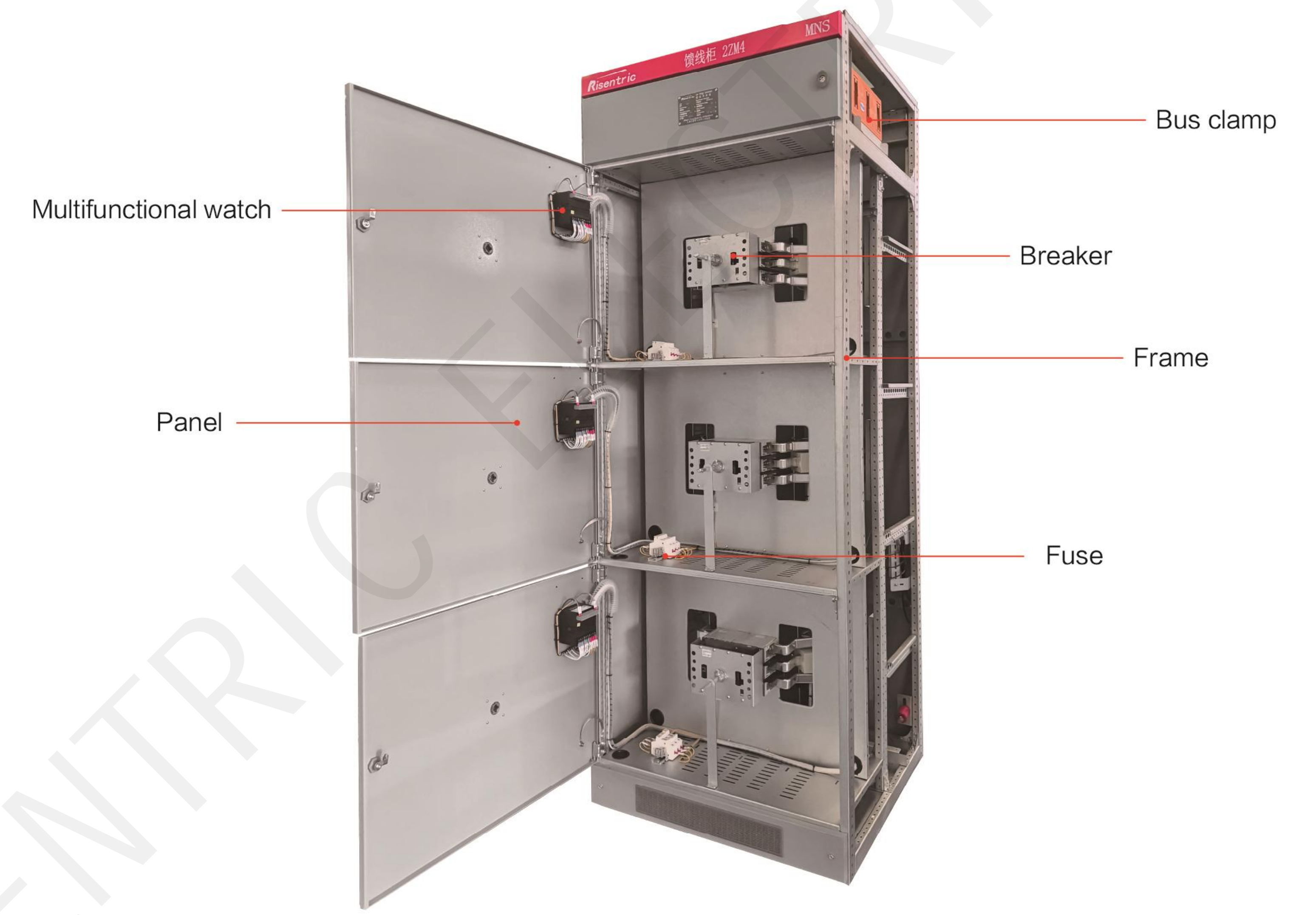
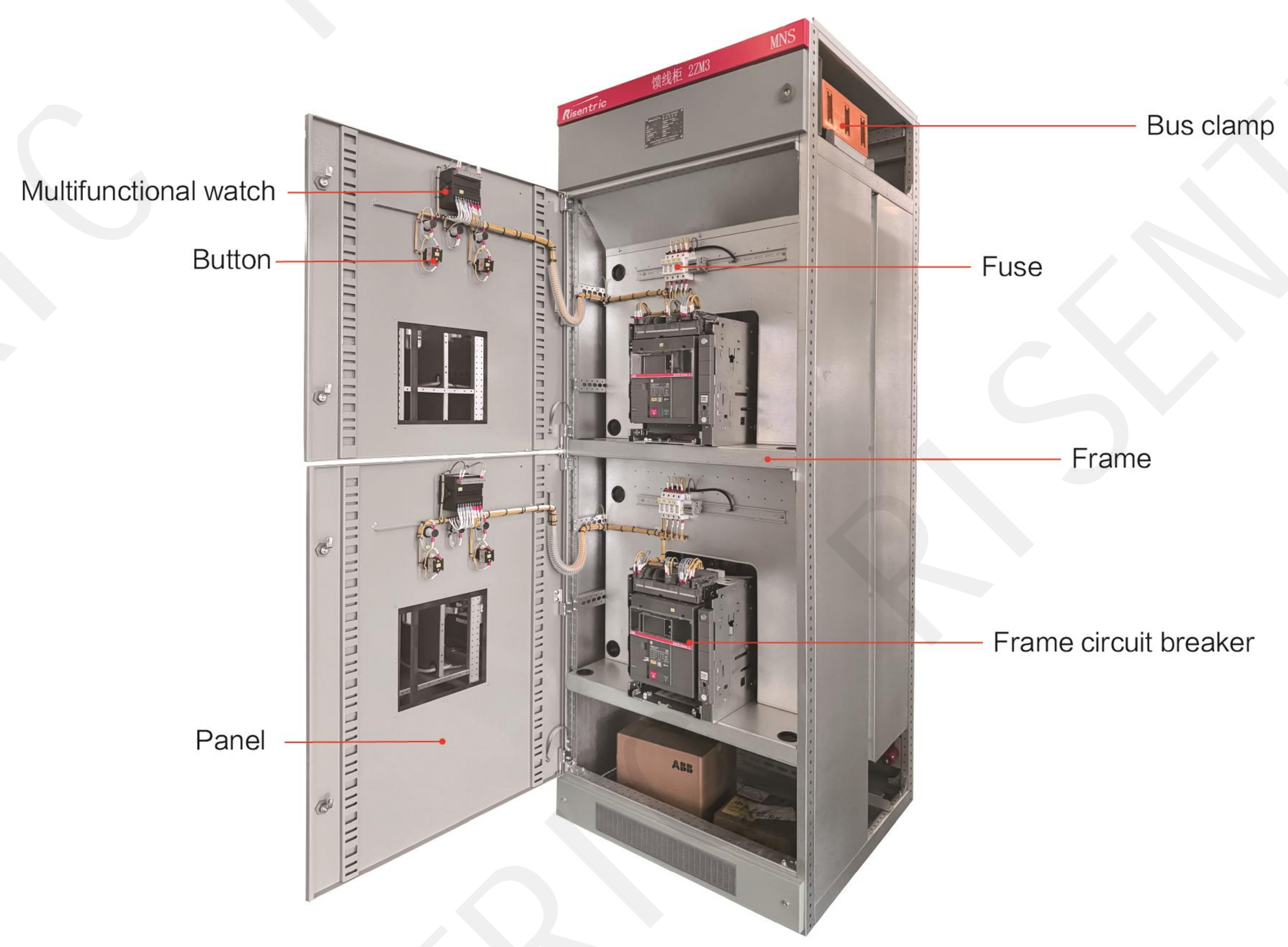
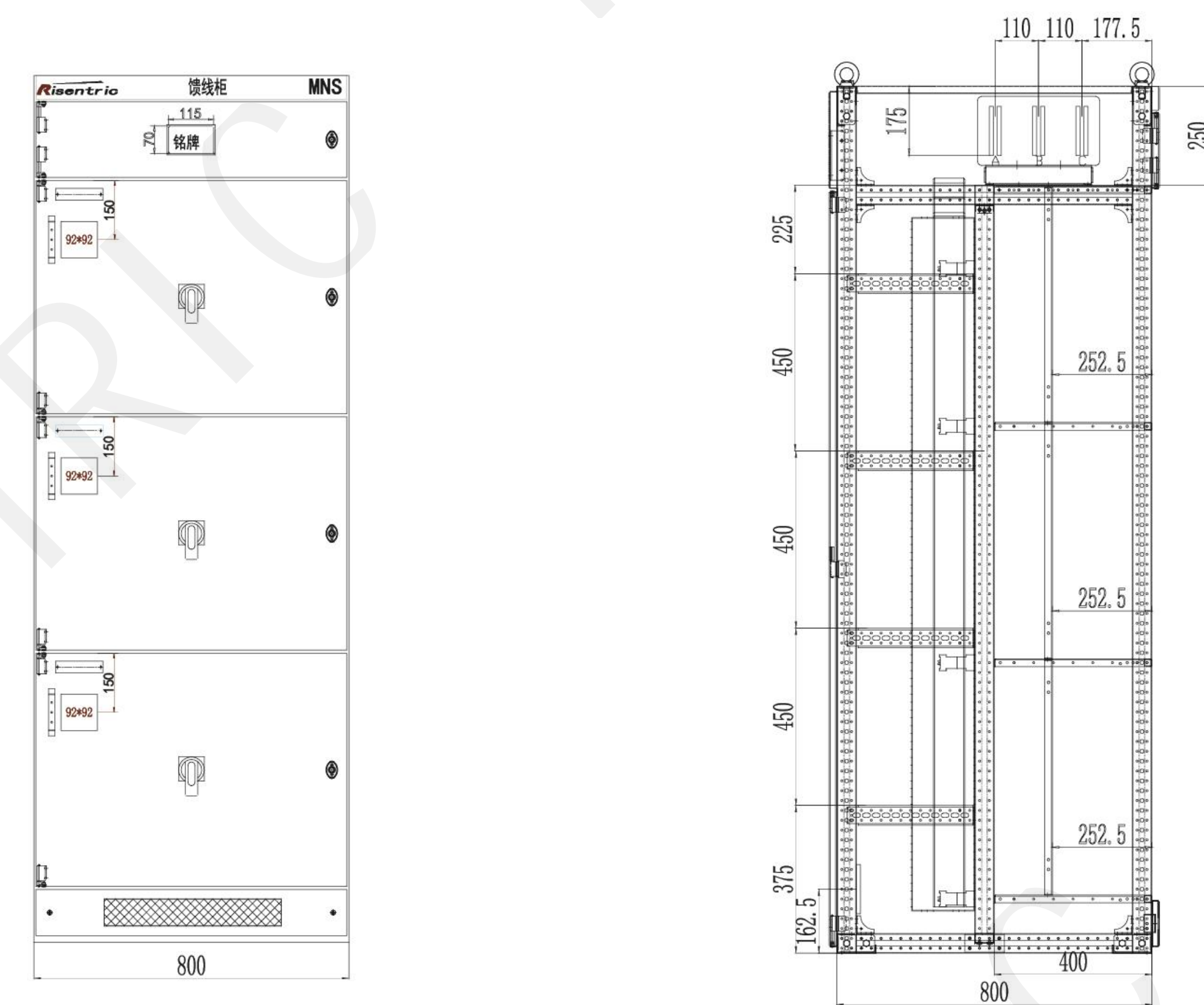
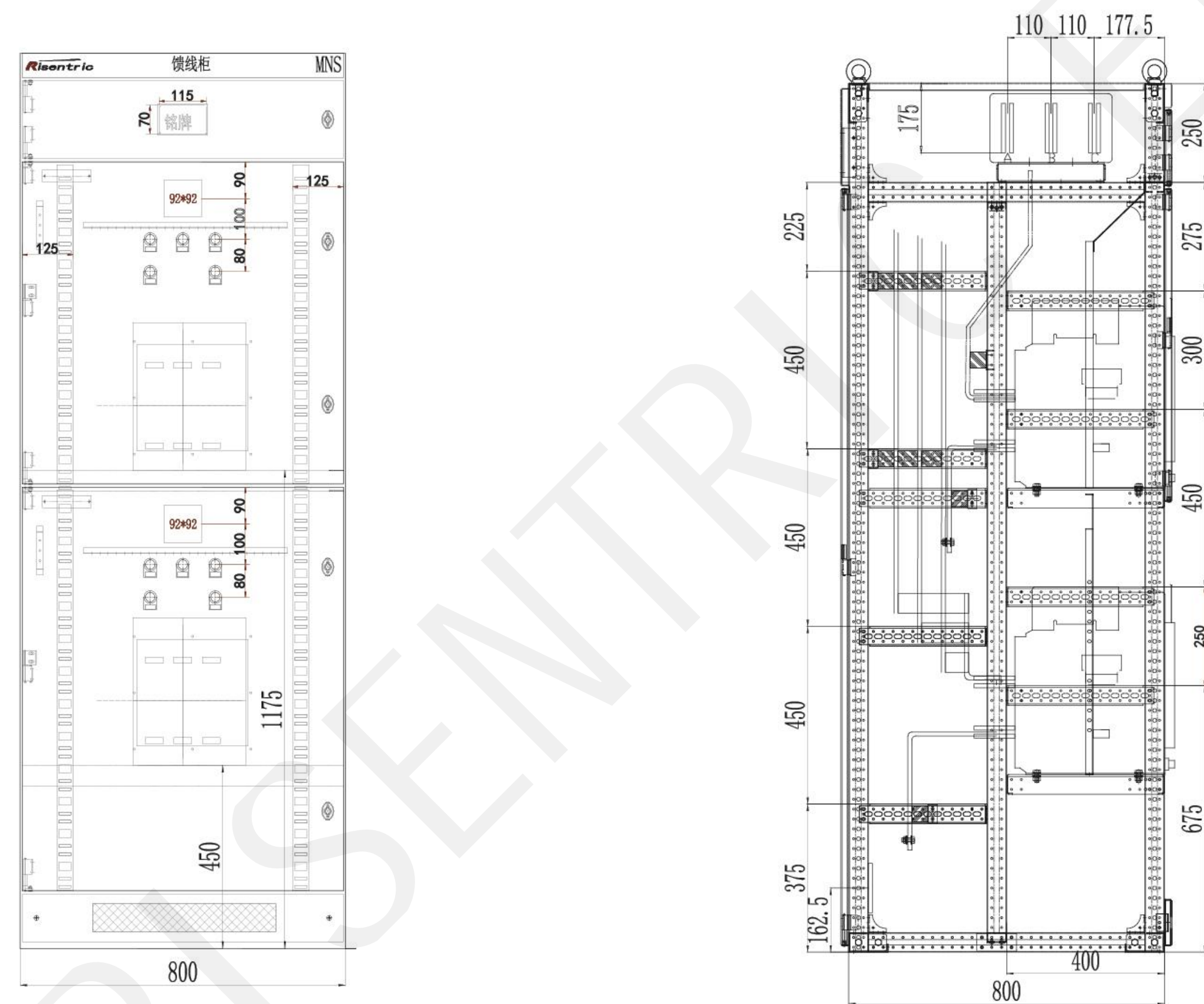


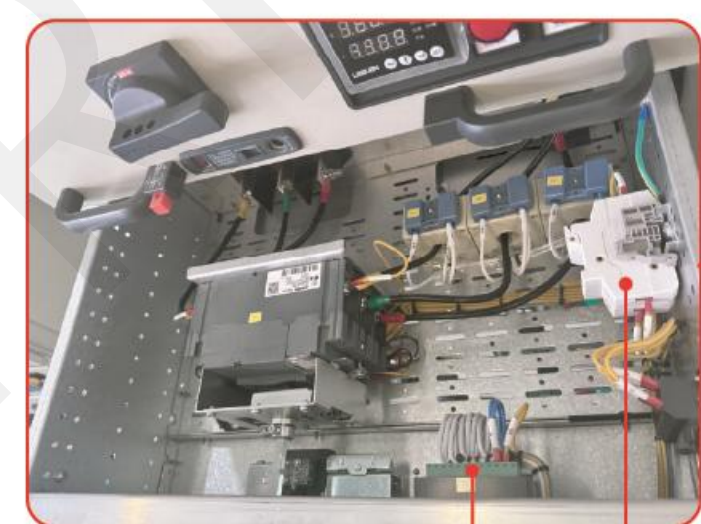
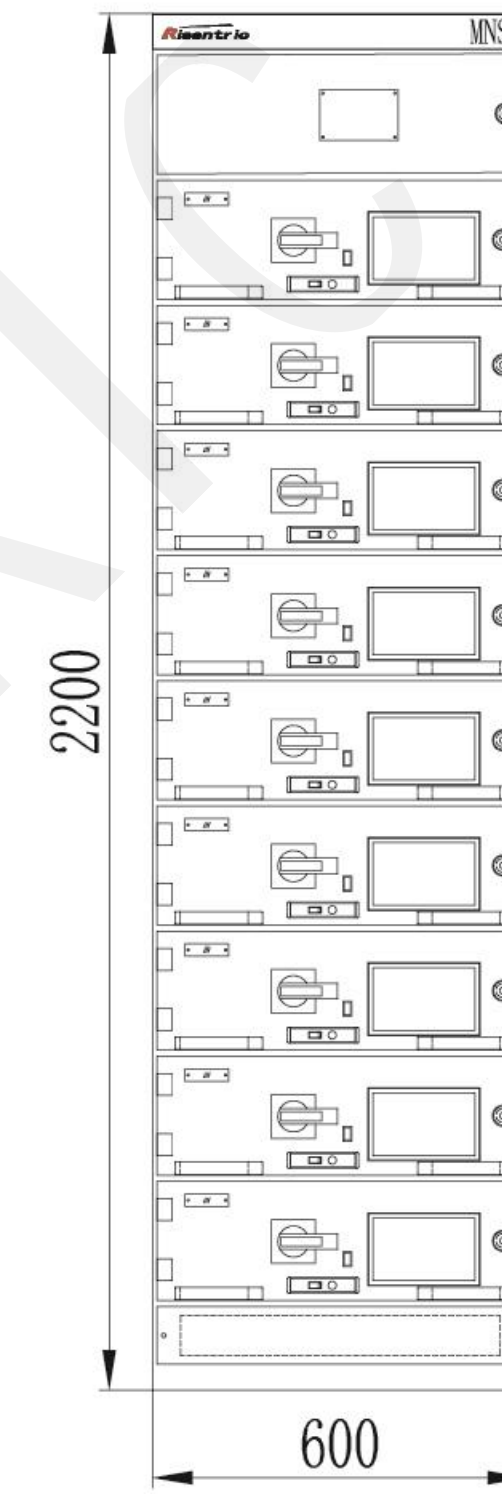
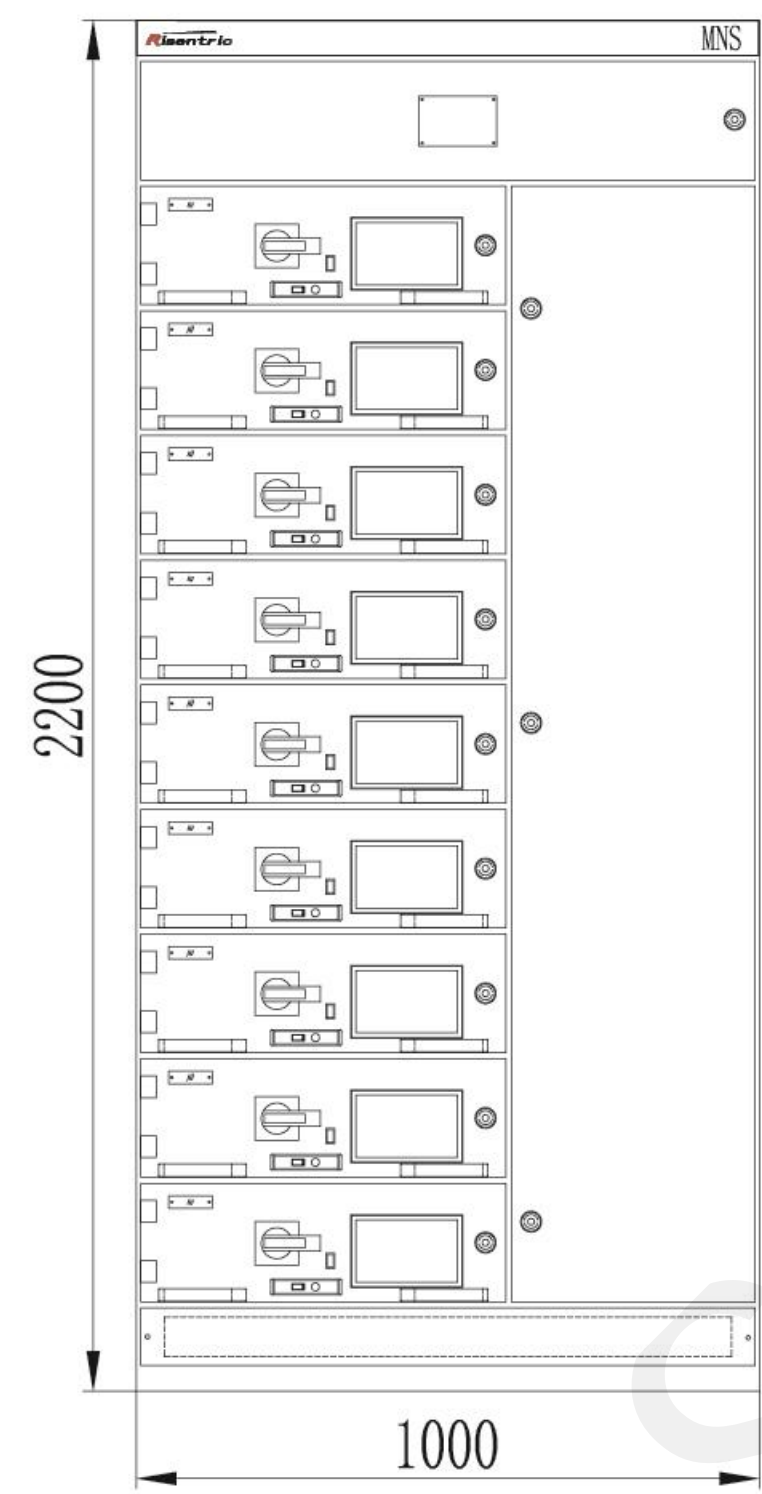
Fuse

A protective device that interrupts the circuit by melting of the fuse element. It features fast response and is primarily used for short-circuit protection. With a simple structure, it allows easy replacement.

MODEL TYPE







Molded case circuit breaker
Fuse
Multifunctional watch



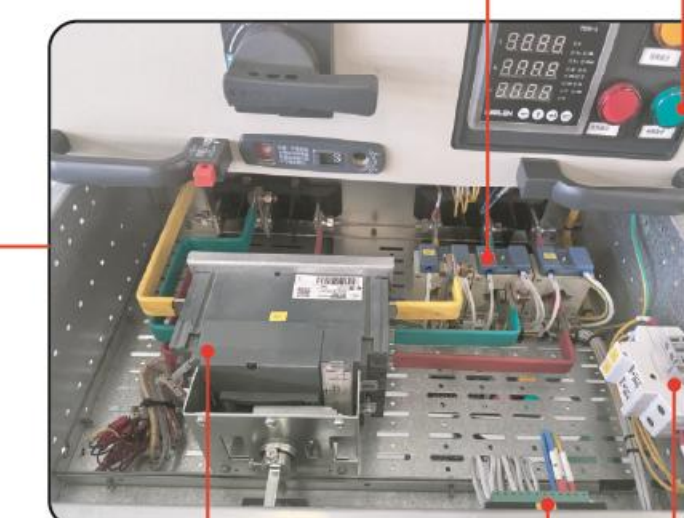
Indicator Button



Secondary Plug-out Unit



Indicator Button



Current transformer
Molded case circuit breaker
Fuse
Multifunctional watch

INSTALLATION AND WIRING

- First, confirm the installation location of the switchgear and the orientation of the operating side.

During installation, care shall be taken to avoid squeezing or damaging the door panels and their associated instruments.

- The frames of different transport units shall be assembled together.

The switchgear shall be fixed to the left side inside the cabinet using four dedicated bolts. The front or rear door panels shall be fixed with dedicated bolts on the left and right sides inside the cabinet, respectively.

- A side panel shall be installed on one end of the complete switchgear lineup, using M6 × 16 assembly bolts.

- When installing painted metal parts (such as door panels and side panels), at least one connection point shall be provided with a paint-scraping washer to ensure proper electrical continuity.

- If the vertical bolted connections are obstructed by installed components, the switchgear units may be connected together at the bottom using frame connecting members.

- Control cables shall be installed vertically in the wiring ducts inside the cabinet and connected to the corresponding terminals in accordance with the drawings.

If required, they may also be connected directly to the terminals of control circuit components.



13

Commissioning and Acceptance

- Energize the control power supply.
- Test the control, protection and monitoring devices, as well as the mechanical and electrical interlocking devices.
- Energize the main busbars (insulation test).
- Close each main circuit breaker individually.
- Check that the readings of indicating and measuring devices are correct.

Operation and Handling

- Automatic / Manual mode: Automatic mode is adopted during normal operation, with protection devices performing automatic monitoring and operation; switch to manual mode during inspection or maintenance.
- Operating procedure: When operating withdrawable / removable units, strictly follow the principle of "open before close", and proceed to the next operation only after confirming the correct position indication.
- Shutdown operation: Disconnect all functional unit switching devices first, then open the incoming circuit breaker, apply lockout and tagout (LOTO), and carry out maintenance only after voltage verification and earthing in accordance with procedures.

Maintenance (Recommendations)

- Quarterly: Clean dust from inside the cabinet and from the surfaces of components, check the status of indicator lamps and position indication windows, and perform spot checks on circuit temperature rise.
- Semi-annually: Re-tighten busbar and terminal connection bolts, check the operational flexibility of switching device mechanisms, and confirm the reliability of earthing connections.
- Annually: Carry out comprehensive functional tests and protection setting verification, inspect insulation condition and sealing performance, replace aged or damaged components, and archive maintenance records.

14



Risentric

The company is equipped with advanced flexible sheet metal processing production lines, busbar processing production lines, and state-of-the-art manufacturing and testing equipment. By adopting modern information technology, it has fully implemented the CIMS (Computer Integrated Manufacturing System) and PDM (Product Data Management) systems.

Common Faults and Troubleshooting

No.	Status	Possible Causes	Recommendation
1	The distribution room door is too small, and the switchgear cannot be moved in	The switchgear transport unit is too long	Contact the service engineer
		The distribution room door width is insufficient	Contact the service engineer
2	Cable connection unit is burned out	Insufficient clamping force of the primary plug-in contact	Replace the primary plug and cable
		Long-term overload	Adjust the load or circuit capacity
3	The internal cabinet temperature is too high	No regular maintenance	Perform regular inspection and maintenance
		Poor heat dissipation	Improve heat dissipation
		Overload or poor contact	Check the circuit operating condition
4	Indicator light is off	Harmonics	Harmonic mitigation
		Fuse element is blown	Replace the fuse element
		Wiring is loose, or terminals fall off, or disconnected	Tighten the wiring or reconnect
5	Button has no response	Indicator light is burned out	Replace the indicator light
		Button contact is damaged	Replace the button contact or the button
		Wiring is loose or disconnected	Tighten the wiring or reconnect
6	The withdrawable circuit breaker cannot be closed	Actuating component (such as contactor, etc.) is damaged	Check the circuit components
		The undervoltage coil is not energized or is damaged	Energize the undervoltage coil or replace the undervoltage coil
		The withdrawable interlock mechanism is damaged	Replace the withdrawable interlock mechanism
7	A serious accident occurs in the switchgear	Circuit breaker itself has a problem	Check the circuit breaker and replace damaged parts
		The circuit breaker was not reset after tripping	After eliminating the circuit fault, reset the circuit breaker

Packing and Accompanying Documents

- Switchgear cabinet: 1 unit (configured according to the selected size and series)
- Supplied with the cabinet: Primary and secondary wiring diagrams, certificate of conformity, factory inspection report, terminal / circuit list, component manuals, and type test report
- Accessories: Installation fasteners, spare fuses, and tool kit (configured as required)

Ordering Information

- Rated parameters: rated voltage, rated current, number of poles, short-time withstand current, degree of protection
- Cubicle configuration: series, cubicle dimensions, color, form of internal separation, type and quantity of functional units
- Component selection: models and ratings of circuit breakers, contactors, thermal overload relays, SPD, etc.
- Installation and wiring: incoming and outgoing directions, cable specifications, earthing requirements, configuration of anti-condensation devices
- Expansion requirements: arc flash detection system, intelligent power distribution management unit (PMU), communication functions, etc.
- Brand preference: specified component brands or standard configuration

100+

Over 100 professionals

20+

20 years of manufacturing experience

20000+

Factory footprint 20000 square meter

2000+

Number of satisfied customers 2000+

“ **Science, truth-seeking, and continuous improvement** ”