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雷诺尔

Shanghai RENLE
Science&Technology Co., Ltd.

Shanghai RENLE Science & Technology Co., Ltd

No.188 Building 1, Lane 3968, Chengbei Road, Jiading District,
Shanghai, 201807, P.R. China

Tel: +86-21-3953 8058, 5996 6666

Fax: +86-21-3953 8129

E-mail: info@renle.eu

RENLE Europe GmbH

Wendemuthstraße 5

22041 Hamburg

Germany

Tel: +49 40-2508 415

Fax: +49 40-5009 7043

<http://www.renle.eu>

National toll free service

Hotline: +86 800-8200-785

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雷诺尔公众服务号

RENLE

Professional manufacturer of
Smart Grid · New Energy · Electric Drive

MV/HV
SOLID SOFT STARTER

SUMMARY OF A SERIES
OF PRODUCT



Technical innovation benefits the world

Stock Code : 833586



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Shanghai RENLE
Science&Technology Co., Ltd.

Professional Manufacturer of Intelligent Grid and New Energy

Shanghai RENLE Science&Technology Co., Ltd.



Shanghai RENLE Science & Technology Co., Ltd is located in the High & New Technology Industrial Park of Jiading District, Shanghai, China. The company covers a total area of 100,000 square meters, including 85,000 square meters of workshops. Its products include HV/LV motor soft starter, HV/ LV frequency inverter, intelligent electricals, new-energy electricals, HV/LV complete equipment for electric power transmission distribution and so on. Its products are widely used in electric power, metallurgy, petroleum chemistry, military industry, mining, chemical industry, construction, light industry, pharmaceuticals, municipal construction, textile printing and dyeing, papermaking, rubber and plastic, electrified railway construction and other industries. Its products sell well in many countries and regions of the world.

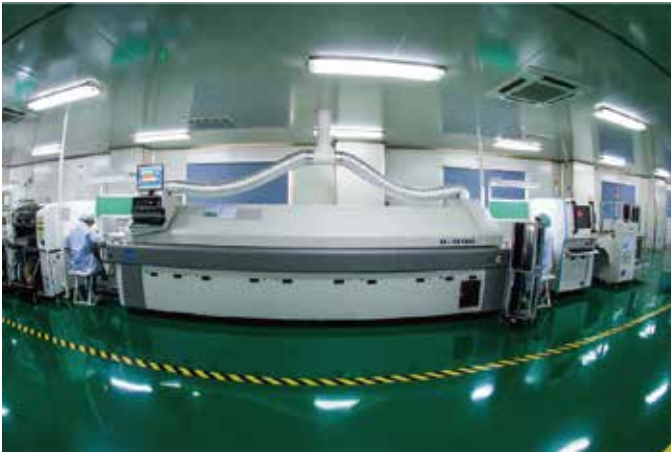
The company products are used in many projects, such as Expo 2010 Shanghai China, 2008 Beijing Olympic Games, Yangshan Deepwater Port Project of Shanghai International Shipping Center, Shanghai Pudong Airport, Shanghai Hongqiao Airport, the Three Gorges Project, Gansu Satellite Launching Center, South-to-North Water Diversion Project, West-to-East Natural Gas Transmission Project, China National Petroleum Corp., SINOPEC, Double Coin Holdings, Shandong Linglong Tyre and other national key supporting projects. Its premium products and excellent after-sales service are favored by the clients.





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Shanghai RENLE
Science&Technology Co., Ltd.



Renle always lays emphasis on quality control so as to attain perfection. The company has passed the certification of ISO9001 Quality Management System, ISO 14001 Environment System, OHSAS 18001 Occupational Health and Safety Management System, CE, TUV, GOST and national CCC etc. RENLE has been continuously introducing internationally advanced production and test equipment to establish laboratories and provide R&D experiment base to domestic universities and colleges. The company, paying much attention to independent innovation, has established powerful new product R&D technical center. The technical level of the center proves to be internationally advanced and domestically leading according to the retrieval results at Shanghai Science & Technology.

The company shall keep developing products of energy-saving, efficiency, precision and humane. With the specialized and unique control technology, advanced and applicable innovative products, and deep-integrated solutions, the company helps clients in realizing economic transformation, industry upgrading and speedy internalization. With its high-qualified products, the company aims to be the world-renowned specialized manufacture of intelligent electrical equipment.



Catalogue



P07-P09

RNMZ Handcart Series
MV/ HV Solid Soft-Starting Device



P10-P12

RNMV-E Type (Handcart)
MV/ HV Solid Soft Starter



P13-P17

RNMV-E Type (Regular)
MV/ HV Solid Soft Starter



P13-P17

RNMV-KY Type (Ordinary Mining Type)
MV/ HV Solid Soft Starter



P18-P21

RNMV-G Type
MV/ HV Solid Soft Starter

● Introduction of MV/HV Solid Soft Starter

As an intelligent control device with international advanced level, MV/HV solid soft starter conducts an intelligent control of HV electrical equipment in smooth starting, parking, safety protection and monitoring. Its products include RNMZ handcart series MV/HV solid soft-starting device, RNMV -E Type MV/ HV Solid Soft Starter, RNMV -G MV/ HV Solid Soft Starter, RNMV -KY Ordinary Mine Type MV/ HV Solid Soft Starter and others.

● Electrical Features

A qualified controlling system passed through the strict test of Electro Magnetic Compatibility, processes with a high anti-electromagnetic interference performance; has fully independent intellectual properties in soft starter controlling technology; is capable of providing free service for users in upgrading software control systems to ensure an advance place of its products and technology.

Negative feedback function: it adopts the dynamic fuzzy control concept to automatically adjust motor 's starting time and torque according to the size of load torques, realizing smooth acceleration in motor. When motor speed reaches the rated working level, the bypass contactor shall automatically pull in, which solves an unmatched problem between man-made starting curve and load torque curve. Also known as a unique feature in MV/HV solid soft starter cabinet of our company compared to domestic peers.

Strong load adaptability, and has 3 ways of starting and controlling mode:

Current-limiting start: In starting, the current shall accelerate to a limited value, until the motor runs in full speed;

Voltage ramp start: a voltage ramp with current limiting function according to factory defaults shall be used in most occasions. The original value of torque shall be set to the one happens to drive the load before a smooth increase in voltage. The motor gets a smooth rise to full-speed operation in limited ramp time and starting current.

Pulse kick-start: it is mainly used in heavy load.

An option between free parking and soft parking: it can be used in many parking occasions, for example, erase a water hammer effect of the pump to meet special needs;

Text display function: a wide choice of all kinds of working conditions and languages displayed in LCD screen, both programming and faults shall be explanatory noted for easy operation.

System communication function: it has inbuilt communication ports. It enables the RS-485 and multipoint communication (an option between the communication protocol Modbus and Profibus) in remote terminals communicate directly with the upper PC machine to realize telecontrol, remote message and other functions.

● Implementation of standards

- GB 311, 1-1997 Insulation coordination for high voltage transmission and distribution equipment
- GB3906-2006 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5 kV
- GB/T 13422-1992 Semiconductor converters—Electrical test methods
- GB/T 3859.1-1993 Semiconductor convertors—Specification of basic requirements
- GB/T 3859, 2-1993 Semiconductor convertors—Application guide
- GB 4208-2008 Degrees of protection provided by enclosure (IP code)
- IEC 60298 Alternating-current metal-enclosed switchgear and controlgear for rated voltages of 1kV ~ 52 kV
- IEC 60470 High-voltage alternating current contactors
- IEC 61000 Electromagnetic compatibility (EMC)
- JB/Z102 Special environment condition—Technical requirements of high-voltage apparatuses for plateau
- GB/T 11022-1989 Common specifications for high-voltage switchgear and controlgear standards

Implementation of standards of RNMV-KY Ordinary Mining HV Soft-Start Controller

- GB/T 12173-2008 Mining electrical apparatus for nonhazardous area
- JB/T 10251-2001 AC Power & Electronic Motor Soft Starters
- GB/T 3859, 1-1993 Semiconductor convertors-Specification of basic requirements
- GB/T 3797-2005 Electrical control assemblies
- DLT 593-2006 Common specifications for high-voltage switchgear and controlgear standards
- DLT 404-2007 Alternating-current metal-enclosed switchgear and controlgear for rated voltages above 3.6kV and up to and including 40.5 kV
- GB/T 14808-2001 High-voltage alternating current contactors and contactor-based motor starters
- GB 1207-2006 Inductive voltage transformers
- GB 1208-2006 Current transformer

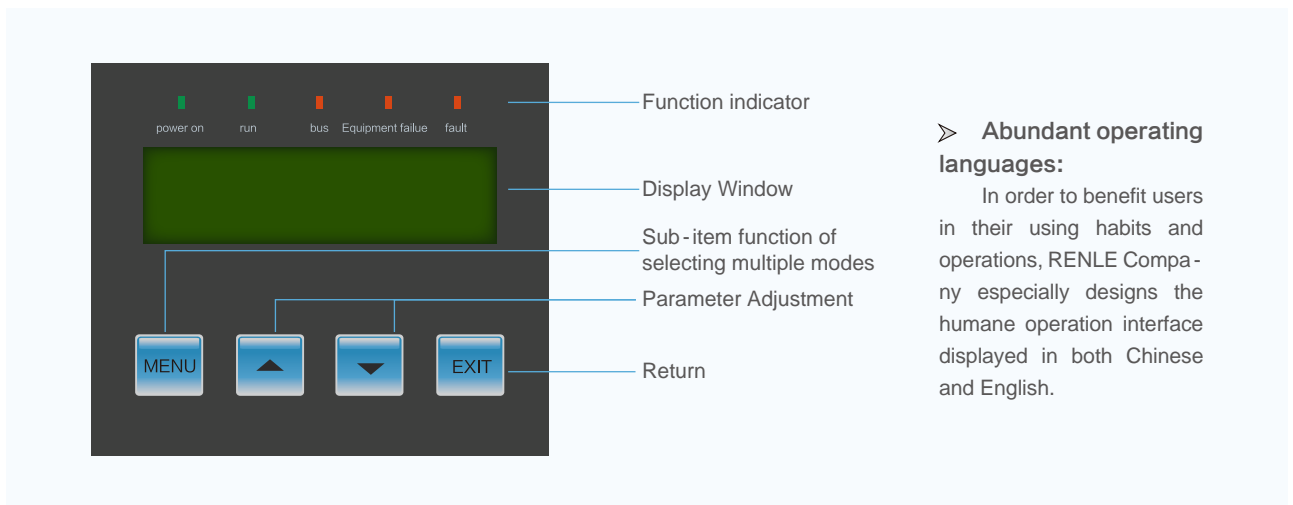
● Applications

It is widely used in the squirrel-cage AC asynchronous and synchronous motors of power system, machinery manufacturing, cement production, metallurgy, mining, oil extraction, chemical industry, water treatment and others. It is used for MV/ HV motor start, control, protect and soft-stop as three phase voltage of 3KV~10KV.

● Service Environment (Industry Standard and Environment Parameters)

- Ambient air temperature: no more than +50 °C, and the average temperature in 24 hours shall be no higher than +45 °C and no lower than -20 °C. With clean air and a relative humidity of no more than 50% in the highest temperature of +50 °C, and a relative higher humidity in lower temperature, for example, 90% of humidity in an no condensation environment of +20 °C.
- An altitude of no more than 2000m, otherwise an extra agreement shall be made.
- It shall be used in places of no fire, explosion, heavy dust, chemical corrosion or violent shocks;
- The soft starting device shall be delivered and stored in the following temperature: -25 °C ~+55 °C, no more than +70 °C in less than 24 hours. (If the above conditions of use failed to be satisfied, the user shall negotiate with the manufacturer.)

● Human-machine Interface



Operation Interface	
LCD display	A LCD operation interface displayed in both Chinese and English
Keyboard	4 Touch buttons used for programming and parameter setting
Status display	5 LED lights of power display, starting operation, bus, device fault and motor fault
Serial Interface	
Communication protocol	A choice between Modbus and Profibus
Communication Port	RS-485
Function	Observe the running status, control the motor start and stop, etc.

● Technical index

Main technical indexes in unique function	
Load type	Three-phased squirrel-cage AC asynchronous and synchronous motors
AC voltage	3kV, 3.3kV, 6kV, 6.6kV, 10kV AC -15%~+10%
Insulation voltage	Line voltage: 3000V, 6000V, 10000V
	Insulation voltage: 18000V, 25000V, 42000V
Overload capacity	Continuity: 125% of controller nominal value
	Overload: 500% 60 Seconds
Frequency	50Hz/60Hz ± 2Hz Auto choice
Main circuit Components	(12 SCRS, 18SCRS OR 30SCRS Depends on the models)
SCR Peak reverse voltage	13000V~32500V(Decided by model)
Phase sequence	RNMV is allowed to operate under any phase and sequence
Instantaneous overvoltage protection	dv/dt Absorb network
Cooling	Natural cooling
Bypass	It has the bypass vacuum contactor which can directly start capacity. When the rated current is over 450A, fixed vacuum circuit breaker shall be adopted.
Ambient Conditions	Cabinet temperature: 0 ~50 (32 ~122); Base temperature 0 ~50 , (-20 ~50 an option of a heater)
	Altitude of no more than 2000 meters, a relative humidity of 5%-95%; reduced capacity shall be adopted for the altitude of over 2000 meters.
Control way	The user provides 2 or 3 line of 220 VAC or 220VDC, 1000VA.
Auxiliary relay	C-type dry relay, 5-10A 250V, one programmable interlock relay, one bypass relay, one fault output
	Relay
Motor Protection	
Current	Two-phase timing, inverse-time limit over-current protection (limiting time quick-acting relay, limited to Type G, over-current)
	Two-phase negative sequence timing, inverse-time over-current protection (negative sequence limiting time quick-acting relay, limited to Type G, negative sequence over-current)
Overload	Motor shaft lock protection & Overload alarm
Temperature	Protection from the temperature relay (Over temperature & temperature rise)
Protection for soft-start	
Temperature	Protection for the SCR components; it shall trip when the temperature is higher than 85 .
Protection for over-time starting	It shall trip when the starting time is more than 120 seconds.
Input Phase Loss	Any one loss in the three-phase power shall cause motor failure and alarm.
Starting times in an hour	No than 6 times of starting in an hour; minimum starting interval: 5 minutes

RNMZ Handcart Series

MV/ HV Solid Soft Starter



● Product Overview

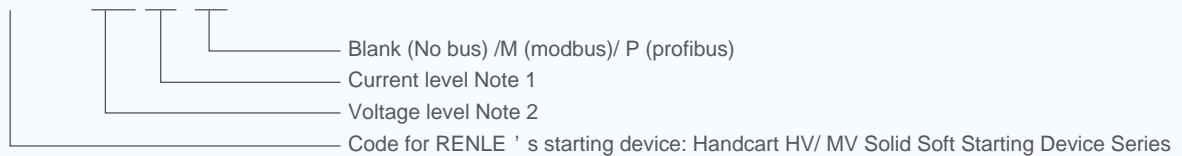
A complete RNMZ includes power module, control module, thyristor module, motor protection module, communication module and so on.

The control core of RNMZ series product is microprocessor (CPU), which starts and protects the motor.

CPU controls the SCR to conduct phase angle trigger control, lowering the voltage on motor, then controls the voltage on motor and increases the motor torque of the smooth current until motor runs in full speed. The above way of starting can lower the inrush current of motor, reducing the impact on power grid and motor itself. Meanwhile, it also reduces the mechanical impacts on motor loading device, prolonging device service life and reducing motor breakdown.

● Model Explanation

RNMZ — □ □ — □

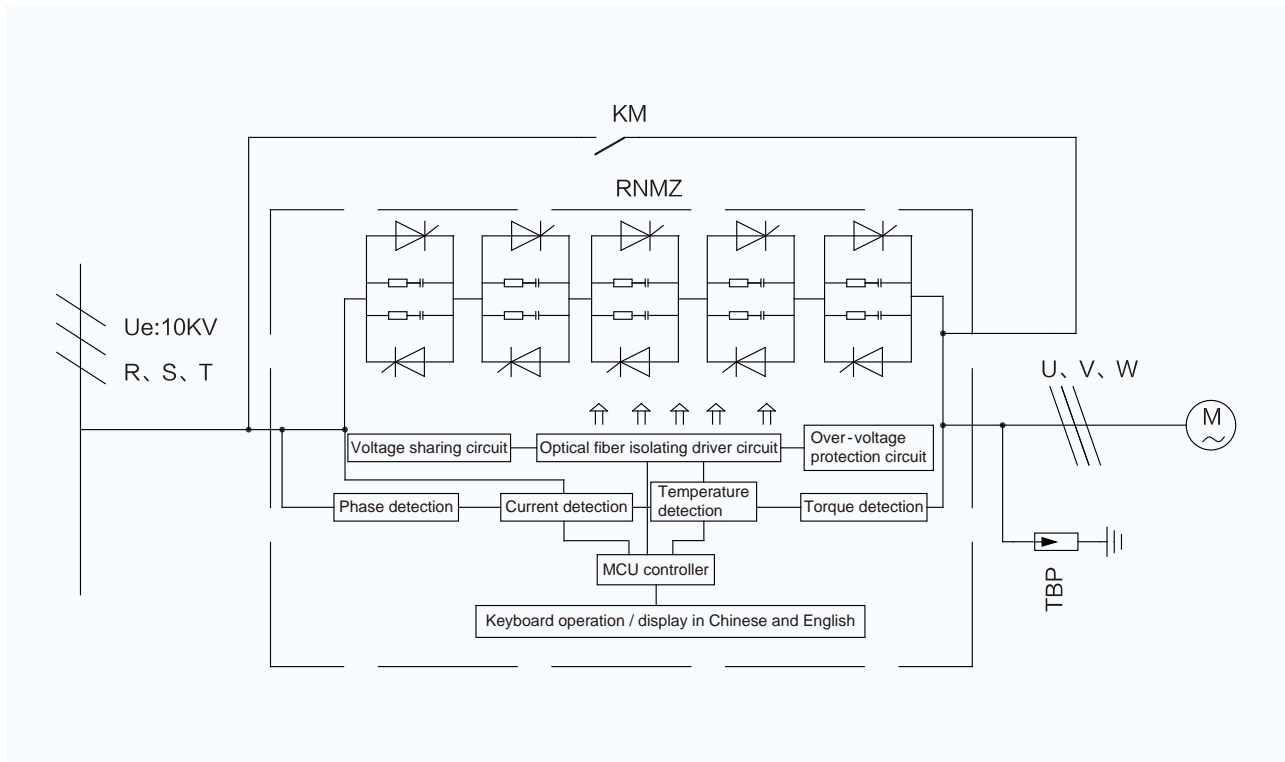


Remark:

Soft starting device current level: 120A, 230A, 370A

Soft starting device voltage level: (- 15% - +10%)

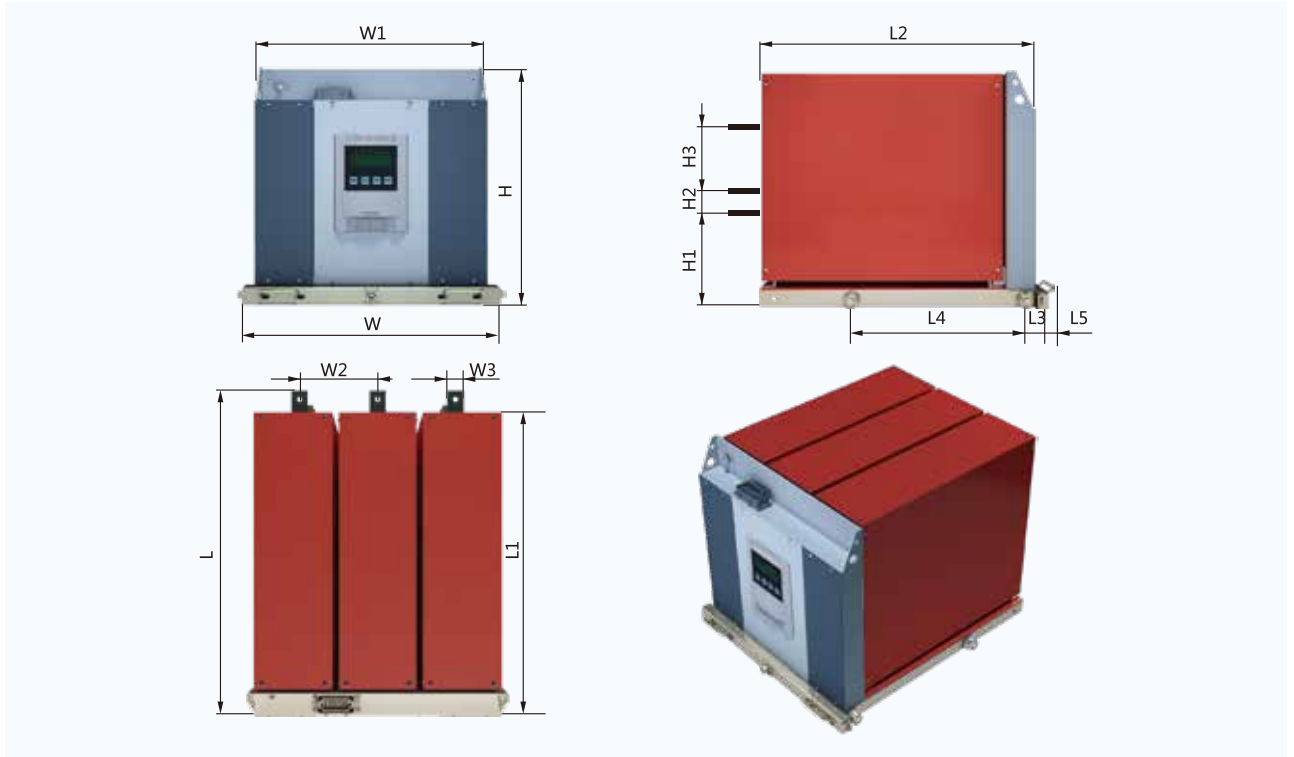
Nominal value	30	33	60	66	100
Application range	3KV	3.3KV	6KV	6.6KV	10KV



● Structure Features

- **1. Structure:** the device adopts an integrated design of power unit and control unit, a perfect match with handcart circuit breaker in operation way, is small in size and equipped with a unique locking mechanism. The cabinet body of HV KYN28 is ready for use by connecting the three phase input copper row, three phase output copper row and bypass contactor. And the part of soft starting device is an independent module, is easy for installation and use by adopting the heavy load linker in secondary control lines.
- **2. Drive**
Drive power supply: it adopts an advanced current type high-frequency power supply - - this power supply has various protection functions, stable output voltage, small ripple, high isolation voltage and other features.
Trigger unit: it adopts the thyristor high-frequency trigger power unit developed by our company, which keeps high consistency in conduction time of each thyristor, improves device stability and reduces failure rate of the thyristor.
- **3. Sampling:** the most advanced electronic sampling method (EVT and ECT) is adopted for both voltage and current sampling, which replaces the high voltage transformer, avoids the over-voltage harm caused by the resonance of the voltage transformer (PT), and realizes the photoelectric isolation.
- **4. Performance:** due to the change of power component structure, the motor starts more smoothly, reducing the harmonic quantity and causing lesser the interference to the power grid.
- **5. Protection:** both overvoltage protection with thyristor in series and circuit with capacitance-resistance absorption, adopt the double dv/dt principle, causing a better absorption of the instantaneous voltage.
- **6. Reliability:** the trigger mode of the driving power supply and power unit has been changed. The main circuit and the control circuit are completely isolated by optical fiber, which avoids not only the electromagnetic interference of the strong electric part, but also the damage caused by the breakdown of the high voltage to the low voltage part, lowers the failure points and increases the reliability.
- **7. Test and maintenance:** the change of a power component structure makes the component lighter, more simple, easier for test and maintenance.

● Product Overview



Model	Size (mm)													
	W	W1	W2	W3	L	L1	L2	L3	L4	L5	H	H1	H2	H3
Z1	652	600	194	40	765.5	745	714.5	55	450	32.7	615	195	60	274
Z2	652	600	194	40	865.5	845	814.5	55	530	32.7	615	195	60	274

Model Selection Table for RNMZ Handcart MV/ HV Solid Soft Starting Device				
Physical Structure	Product Model	Current Level +8% (A)	Voltage Level (KV)	Maximum Adaptive Motor Power (KW)
Z1	RNMZ - 30120 - M/P	120	3	550
	RNMZ - 33120 - M/P		3.3	600
	RNMZ - 60120 - M/P		6	1150
	RNMZ - 66120 - M/P		6.6	1200
	RNMZ - 100120 - M/P		10	1850
	RNMZ - 30230 - M/P	230	3	1050
	RNMZ - 33230 - M/P		3.3	1150
	RNMZ - 60230 - M/P		6	2100
	RNMZ - 66230 - M/P		6.6	2300
	RNMZ - 100230 - M/P		10	3500
Z1	RNMZ - 30370 - M/P	370	3	1650
	RNMZ - 33370 - M/P		3.3	1850
	RNMZ - 60370 - M/P		6	3300
	RNMZ - 66370 - M/P		6.6	3600
	RNMZ - 100370 - M/P		10	5450

RNMV-E Type (Handcart)

MV/ HV Solid Soft Starter



● Product Overview

RNMV-E (handcart) MV/ HV soft starter shall be used with an inlet cabinet with a vacuum circuit breaker. As for the starting cabinet embedded HV motor protection system (Type G) and protection system with no quick-break (type E), users can choose according to their own situation.

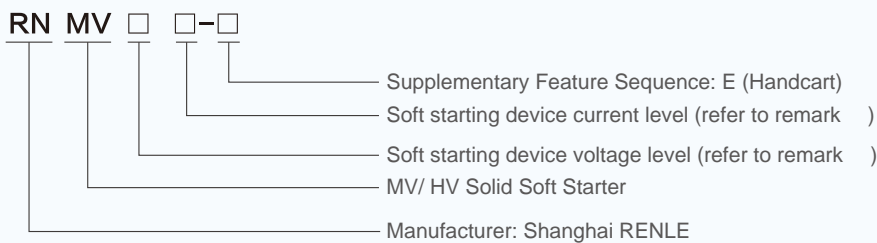
● Performance

The use of fiber parallel trigger ensures each SCR trigger at the same time, namely synchronism in the SCR trigger, making the motor start smoothly.

● Structure Features

It adopts the isolation setting of three rooms, namely the power component room, main control relay room, main circuit connection room.

● Model Explanation



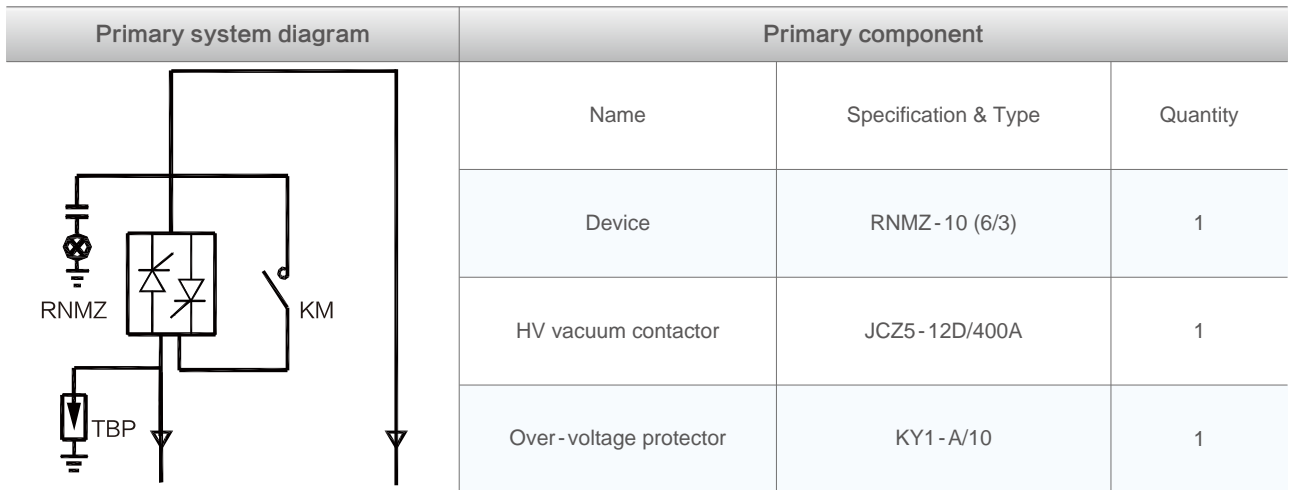
Remark:

Soft starter current level: 120, 230, 370

Soft starter voltage level: (- 15%~+10%)

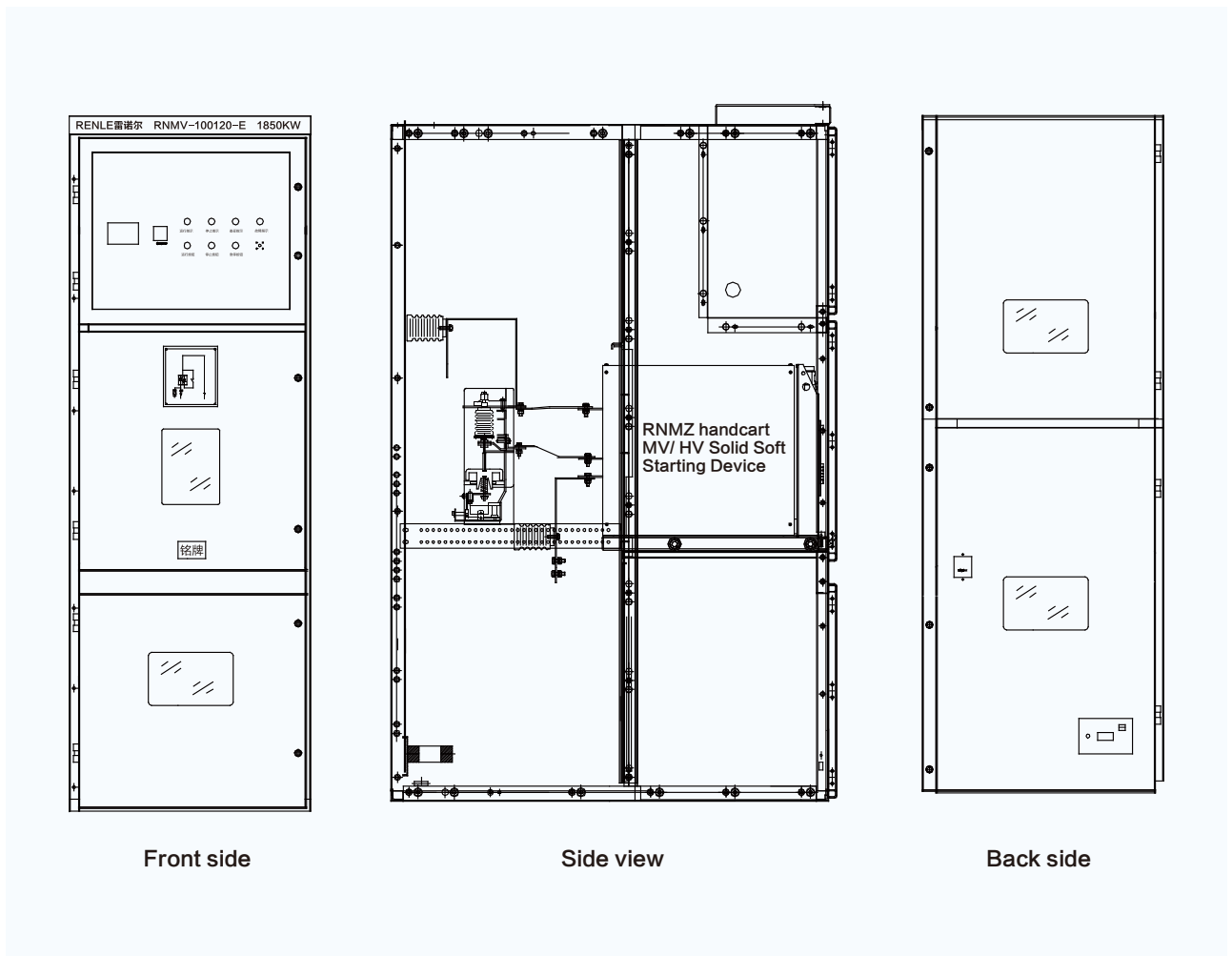
Nominal value	30	33	60	66	100
Application range	3KV	3.3KV	6KV	6.6KV	10KV

● Type E (Handcart) MV/ HV Soft Starter's Primary System Diagram

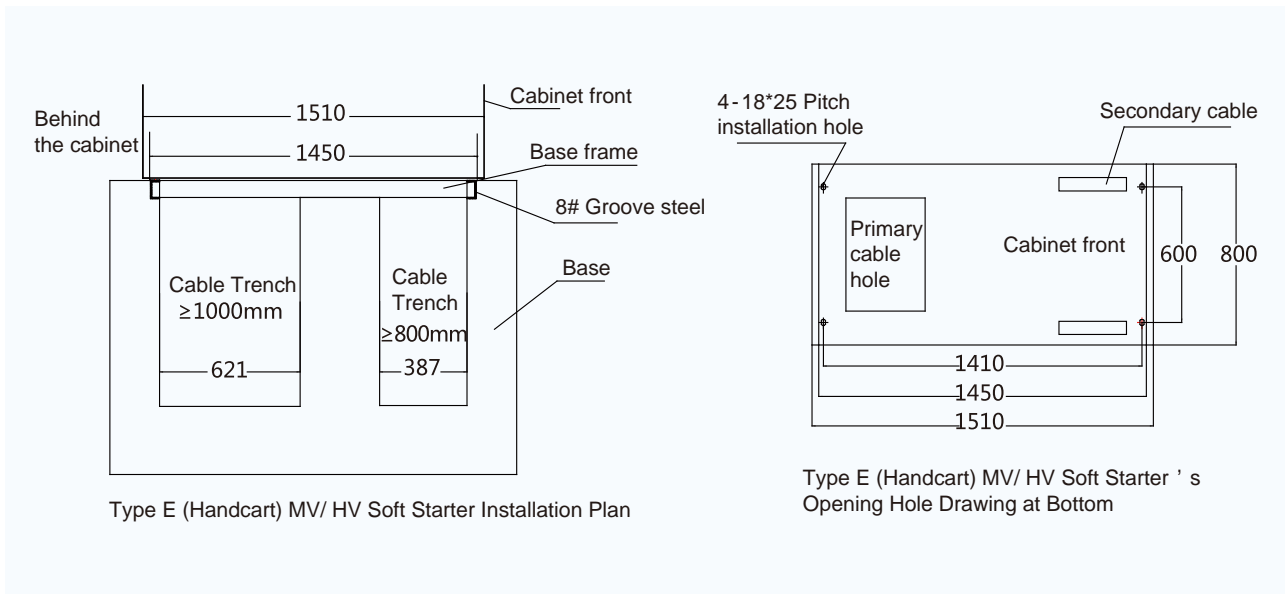


Note: An extra incoming switch cabinet shall be equipped for use.

● Product Overview



● Type E (Handcart) MV/ HV Soft Starter Installation Way



● Model Selection Table for Type E (Handcart) MV/ HV Solid Soft Starter

Current Level +8%(A)	Voltage Level (kV)	Maximum Adaptive Motor Power(kV)	Specification & Type	Size of Type E Model (H×W×D)
120	3	550	RNMV - 30120	2300*800*1510
	3.3	600	RNMV - 33120	2300*800*1510
	6	1150	RNMV - 60120	2300*800*1510
	6.6	1200	RNMV - 66120	2300*800*1510
	10	1850	RNMV - 100120	2300*800*1510
230	3	1050	RNMV - 30230	2300*800*1510
	3.3	1150	RNMV - 33230	2300*800*1510
	6	2100	RNMV - 60230	2300*800*1510
	6.6	2300	RNMV - 66230	2300*800*1510
	10	3500	RNMV - 100230	2300*800*1510
370	3	1650	RNMV - 30370	2300*800*1510
	3.3	1850	RNMV - 33370	2300*800*1510
	6	3300	RNMV - 60370	2300*800*1510
	6.6	3600	RNMV - 66370	2300*800*1510
	10	5450	RNMV - 100370	2300*800*1510

Remark:

1. Bearing capacity of the soft starter: when a motor starts, the maximum starting time permitted is 15 seconds if the starting current is 5 times of the rated current one, 40 seconds for 4 times, and 70 seconds for 3 times; otherwise, please choose the product with higher power.
2. When the motor power is higher than the motor power, we shall choose the product with higher power.
3. If the motor power is within 2000kw, a differential protection box shall be added;
4. The rated current of the soft starter shall be stated according to the rated current of user ' s motor.

RNMV MV/ HV Solid Soft Starter

(Stationary) – E (Regular)/ –KY (Ordinary Mining Type)



● Structure features

The regular type adopts the Al-Zn alloy plate, and KY type is welded by cold-roll steel sheets.

● Model Explanation



Remark:

Type E Soft Starter Current Level: 120, 240, 370, 500, 800, 1000 and etc.

Type KY Soft Starter Current Level: 120, 240, 370

Soft Starter Current Level: (-15% ~ +10%)

Nominal value	30	33	60	66	100
Application range	3KV	3.3KV	6KV	6.6KV	10KV

RNMV -KY Type Protection Level: IP54

RNMV -E Type Protection Level: IP40

● Schematic Diagram of Soft Starter

Design Cabinet Type

RNMV-E/KY Type MV/ HV (3000V - 10000V) Soft Starter shall be used with an inlet cabinet with a vacuum circuit breaker.

Soft Starter cabinet

The soft starting part is composed of bypass vacuum contactor, SCR high voltage components, RC absorption circuit, trigger circuit and controlling device.

Bypass vacuum contactor - motor finishes starting, it shall close off after bypass switching. The voltage rate chosen for soft starter of 3300V is 6 KV, 6000V~6600V is 7.2KV, and 10KV is 10KV.

RC absorption network - provides instantaneous voltage to protect circuit, reduce dv/dt impulse voltage, preventing damage to SCR components.

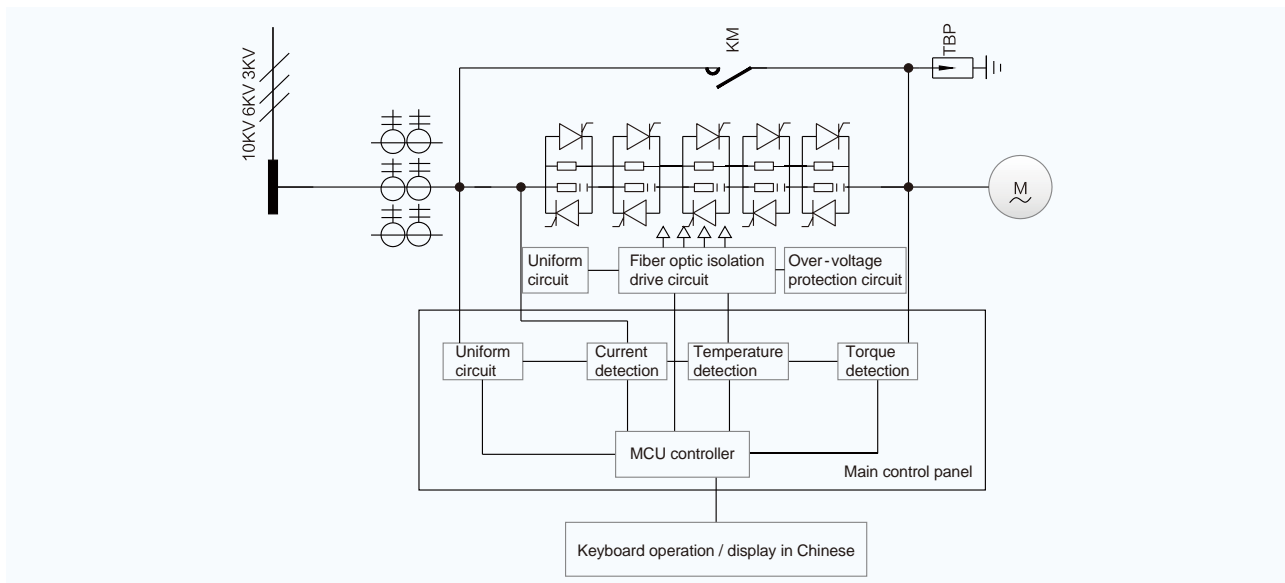
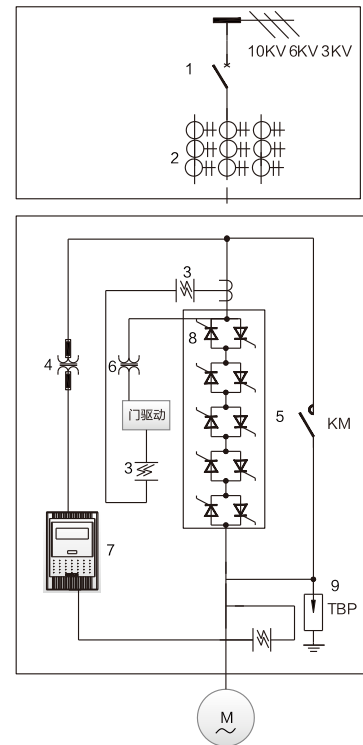
Trigger circuit- provides strong trigger pulses up to 2A to ensure the dynamic voltage equalizing of SCR in series. The trigger circuit and SCR are with high voltage, isolated from the control panel through optical fiber and transformer.

SCR high voltage components - are composed of multiple SCR in series, the number of which shall be determined by the user's motor voltage.

Notes:

1. A high voltage vacuum circuit breaker can break short circuit current under special circumstances.
2. High voltage current transformer and vacuum circuit breaker coordinate in providing motor protection.
3. The high voltage part communicates with the low voltage control part through optical fiber.
4. The inbuilt 120VAC control transformer provides the control power needed for the soft starter.
5. Bypass vacuum contactor.
6. Isolation transformer
7. Control panel
8. Silicon controlled rectifier (SCR)
9. Overvoltage absorber

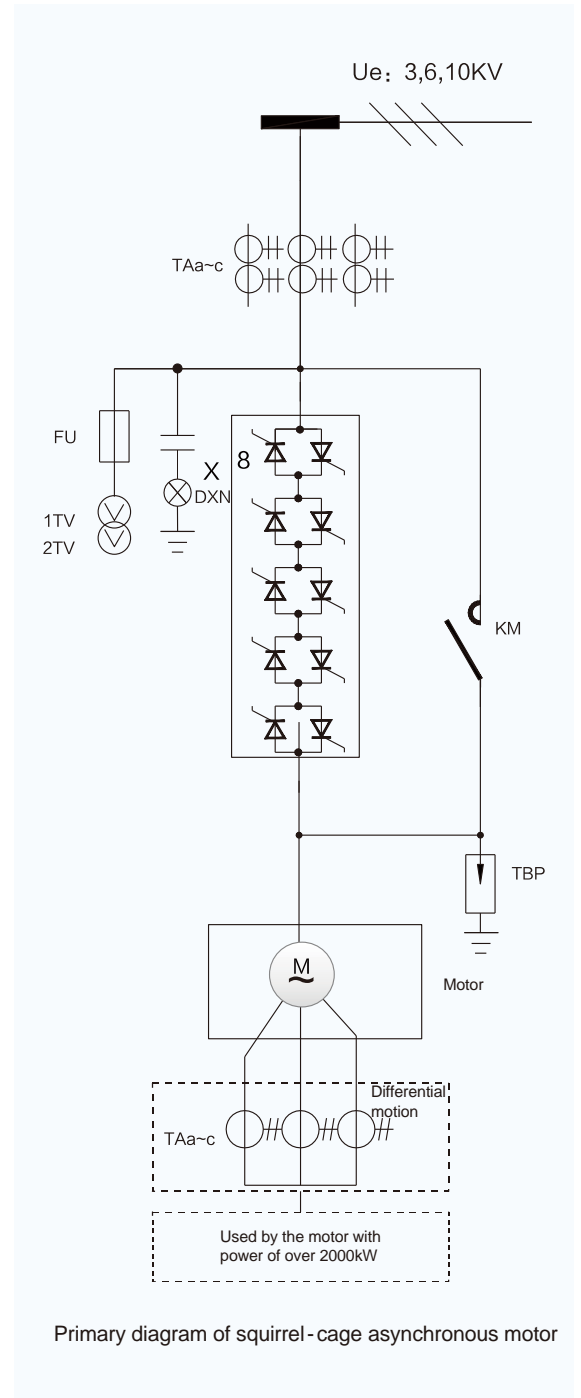
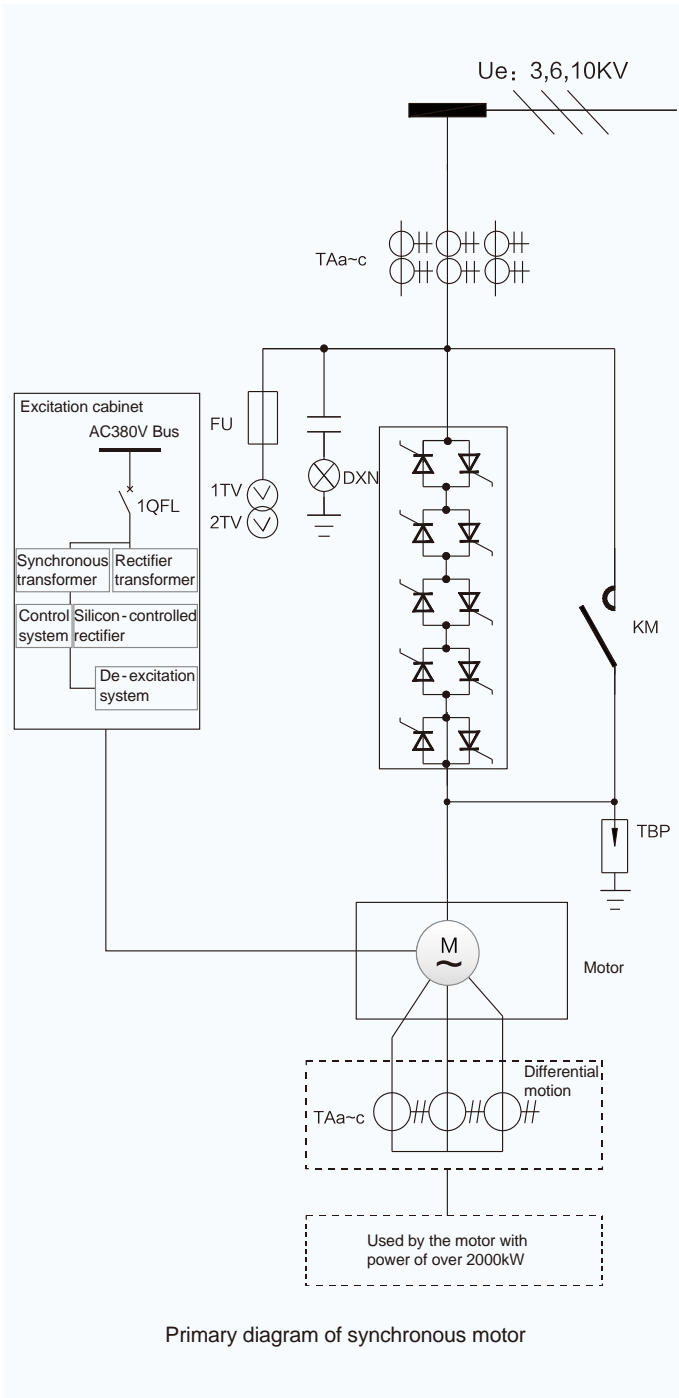
This picture applies to Type -E cabinet



The control core of RNMZ series product is microprocessor (CPU), which starts and protects the motor.

CPU controls the SCR to conduct phase angle trigger control, lowering the voltage on motor, then controls the voltage on motor and increases the motor torque of the smooth current until motor runs in full speed. The above way of starting can lower the inrush current of motor, reducing the impact on power grid and motor itself. Meanwhile, it also reduces the mechanical impacts on motor loading device, prolonging device service life and reducing motor breakdown.

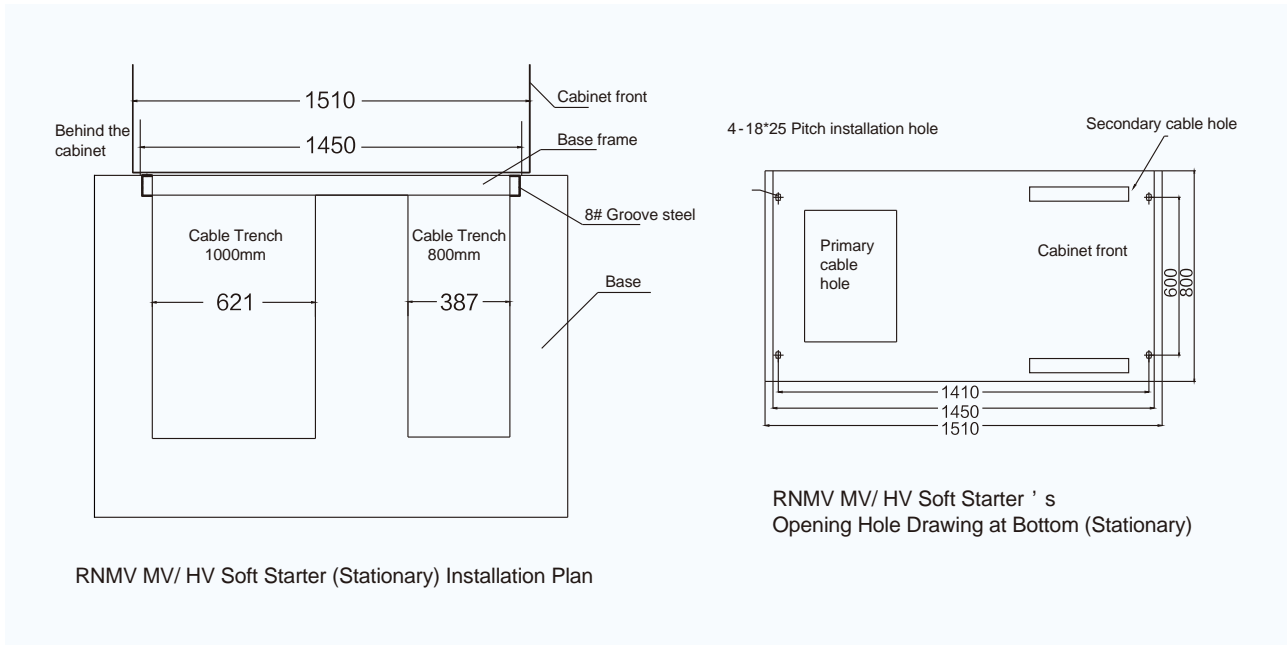
● Schematic diagram of asynchronous and synchronous motor control



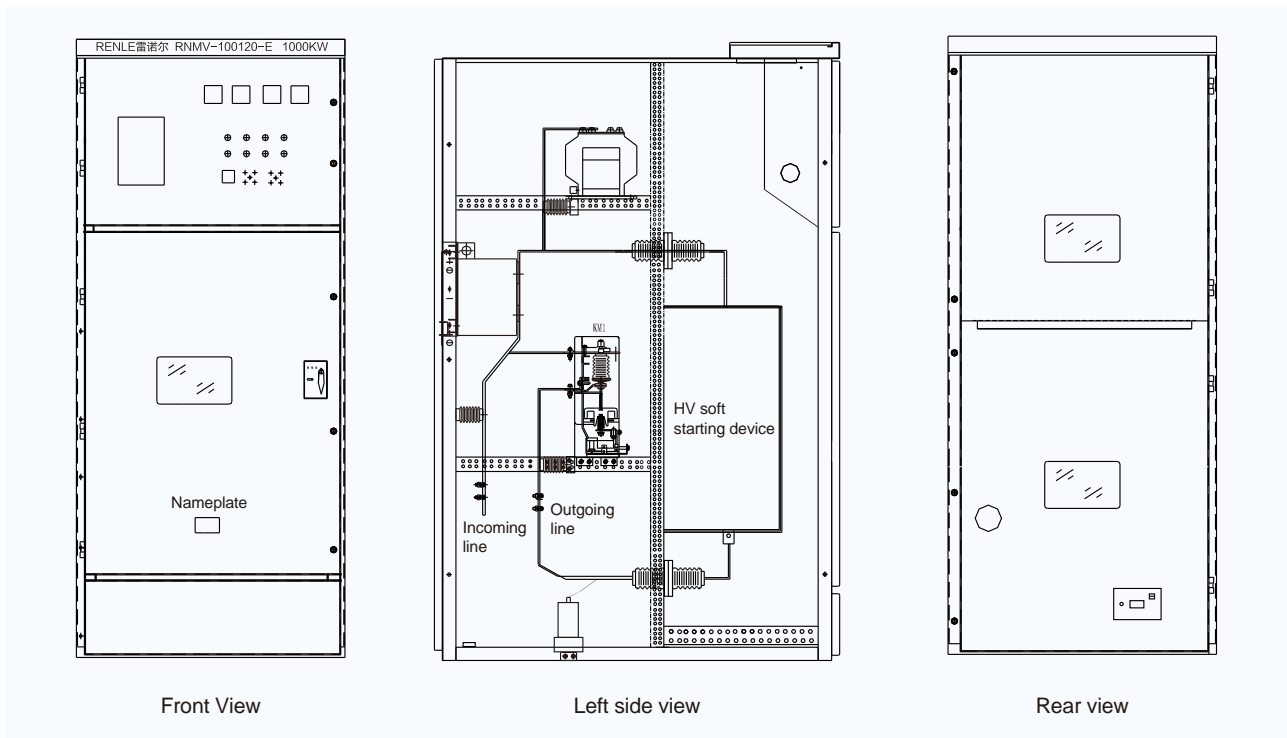
Note:

- Fuse
- Sampling voltage transformer
- Live display
- Vacuum contactor
- Current transformer
- This picture suits for squirrel-cage asynchronous motor.

● RNMV MV/ HV Soft Starter (Stationary) Installation Way



● RNMV MV/ HV Soft Starter (Stationary) Cabinet Body Schematic Diagram



● Model Selection Table for RNMV MV/ HV Soft Starter (Stationary)

Current Level +8%(A)	Voltage Level (kV)	Maximum Adaptive Motor Power(kV)	Specification & Type	Size of Type E Model (H×W×D)	Size (Wall mounting installation)(H×W×D)
120	3	550	RNMV-30120	2300*800*1500	2300*1000*1500
	3.3	600	RNMV-33120	2300*800*1500	2300*1000*1500
	6	1150	RNMV-60120	2300*800*1500	2300*1000*1500
	6.6	1200	RNMV-66120	2300*800*1500	2300*1000*1500
	10	1850	RNMV-100120	2300*800*1500	2300*1000*1500
230	3	1050	RNMV-30230	2300*800*1500	2300*1000*1500
	3.3	1150	RNMV-33230	2300*800*1500	2300*1000*1500
	6	2100	RNMV-60230	2300*800*1500	2300*1000*1500
	6.6	2300	RNMV-66230	2300*800*1500	2300*1000*1500
	10	3500	RNMV-100230	2300*800*1500	2300*1000*1500
370	3	1650	RNMV-30370	2300*800*1500	2300*1000*1500
	3.3	1850	RNMV-33370	2300*800*1500	2300*1000*1500
	6	3300	RNMV-60370	2300*800*1500	2300*1000*1500
	6.6	3600	RNMV-66370	2300*800*1500	2300*1000*1500
	10	5450	RNMV-100370	2300*800*1500	2300*1000*1500
500	3	2200	RNMV-30500	2300*1000*1500	2300*1200*1660
	3.3	2500	RNMV-33500	2300*1000*1500	2300*1200*1660
	6	4500	RNMV-60500	2300*1000*1500	2300*1200*1660
	6.6	4850	RNMV-66500	2300*1000*1500	2300*1200*1660
	10	7500	RNMV-100500	2300*1000*1500	2300*1200*1660
800	3	3500	RNMV-30800	2300*1200*1500	2300*1400*1660
	3.3	3800	RNMV-33800	2300*1200*1500	2300*1400*1660
	6	7000	RNMV-60800	2300*1200*1500	2300*1400*1660
	6.6	7800	RNMV-66800	2300*1200*1500	2300*1400*1660
	10	12000	RNMV-100800	2300*1200*1500	2300*1400*1660
1000	3	4300	RNMV-301000	2300*1200*1500	2300*1400*1660
	3.3	4500	RNMV-331000	2300*1200*1500	2300*1400*1660
	6	8800	RNMV-601000	2300*1200*1500	2300*1400*1660
	6.6	9500	RNMV-661000	2300*1200*1500	2300*1400*1660
	10	14000	RNMV-1001000	2300*1200*1500	2300*1400*1660

Remark:

1. Bearing capacity of the soft starter: when a motor starts, the maximum starting time permitted is 15 seconds if the starting current is 5 times of the rated current one, 40 seconds for 4 times, and 70 seconds for 3 times; otherwise, please choose the product with higher power.
2. When the motor power is higher than the motor power, we shall choose the product with higher power.
3. If the motor power is within 2000kw, a differential protection box shall be added;
4. For the product with over 400A, all the bypass contactor shall adopt stationary vacuum circuit breaker instead.
5. The rated current of the soft starter shall be stated according to the rated current of user ' s motor.
6. An order shall be made after negotiation for the product type of over 14000kW.

RNMV-G (Three into One)

MV/ HV Solid Soft Starter

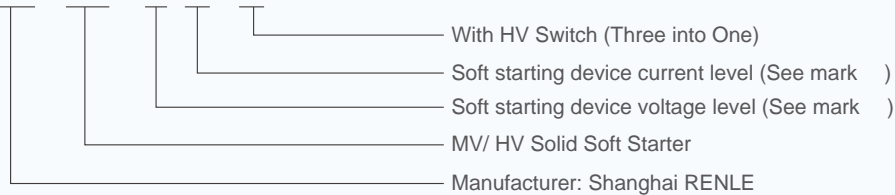


● Structure and Feature

- The whole is composed of RNMZ handcart series MV/ HV solid soft starting device, circuit breaker, integrated protector, bypass contactor.
- Protection level of shell is 1P4X;
- The cabinet body is divided into four separate rooms: busbar isolation room, relay room, circuit breaker handcart room, and soft-start room.

● Model Explanation

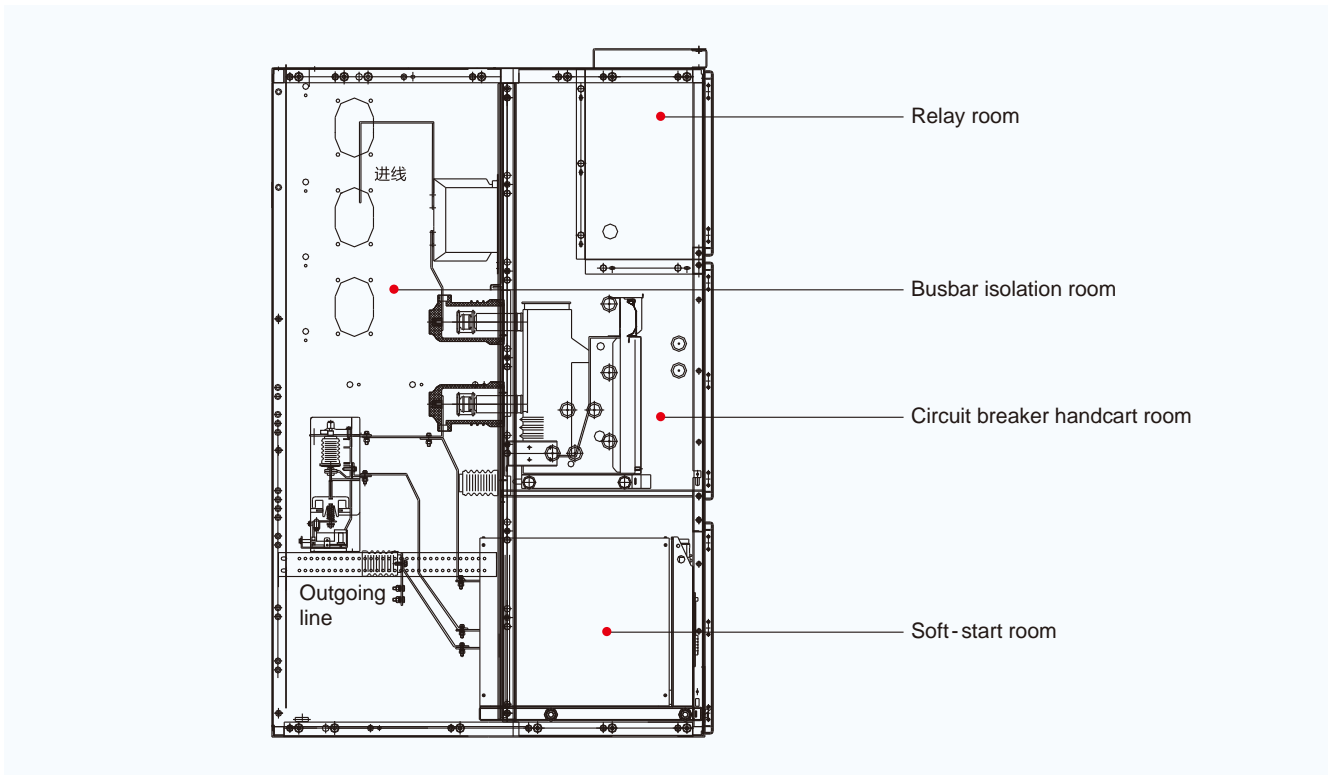
RN - MV - □ □ - G



Remark:

Soft starting device current level:120, 230,370
 Soft starting device voltage level: (- 15%~+10%)

Nominal value	30	33	60	66	100
Application range	3KV	3.3KV	6KV	6.6KV	10KV

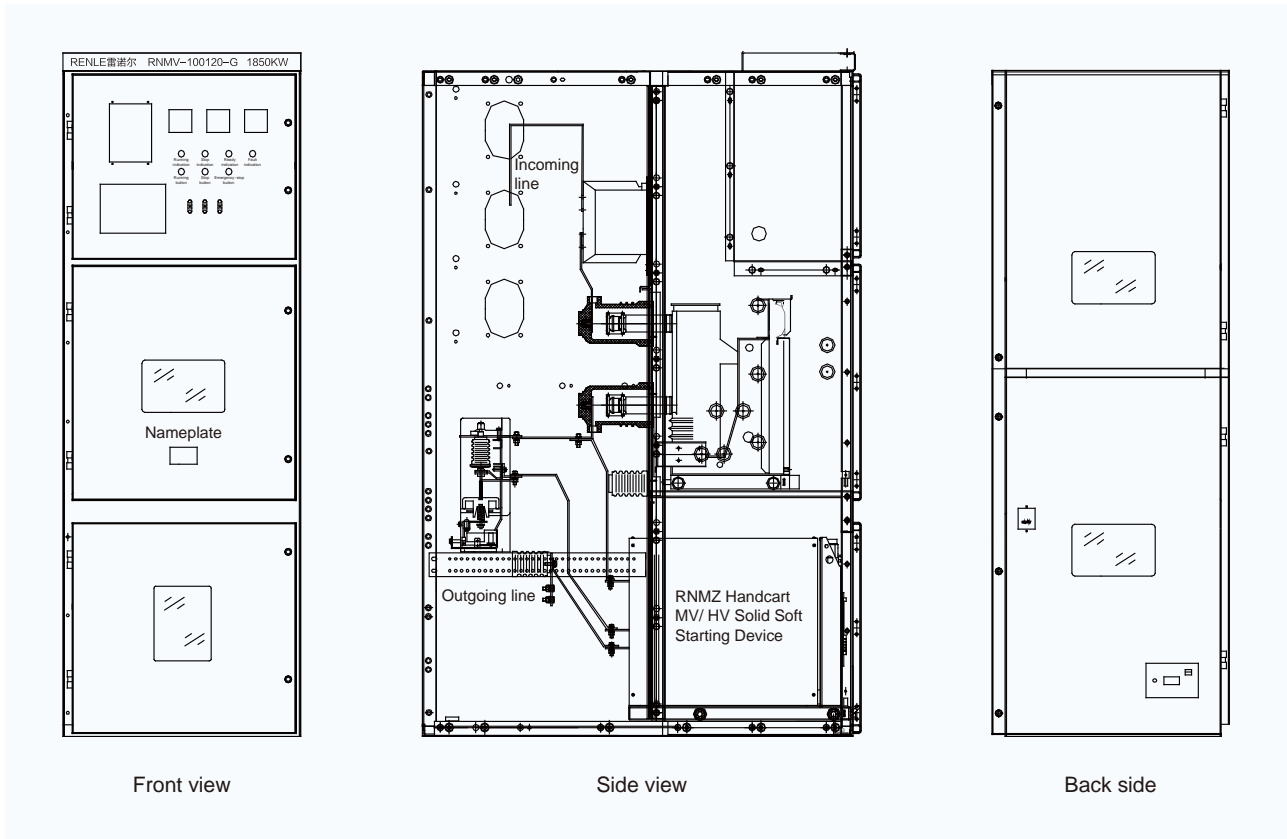


● **Type G (Handcart) MV/ HV Soft Starter' s Primary System Diagram**

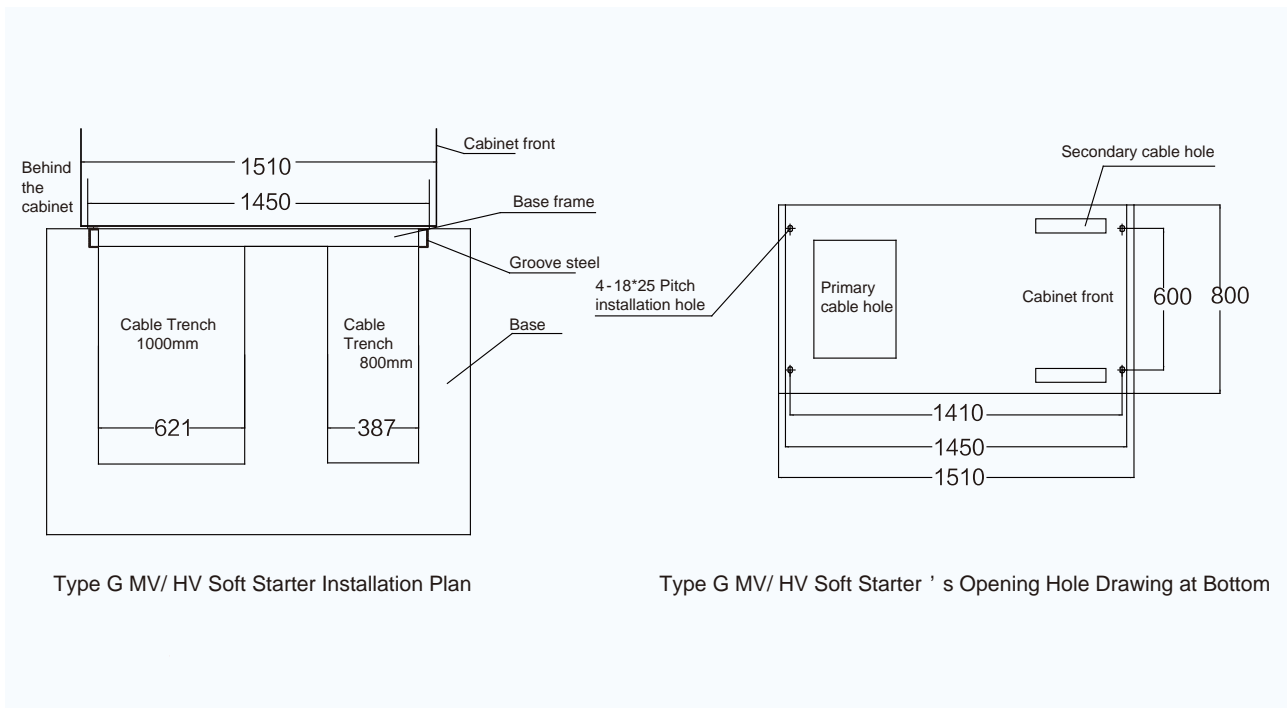
Primary system diagram	Primary component			
	Name	Specification & Type	Quantity	Manufacturer
	Device	RNMZ-10(6/3)	1	
	High voltage vacuum circuit breaker	VS1-12/630A	1	
	Current transformer	LZZBJ9-10C	3	
	HV Vacuum Contactor	JCZ5-12D/400A	1	
	Overtoltage protector	KY1-A/10	1	
	Zero sequence current transformer	LXK-Ø120	1	

Note:
Cabinets shall be combined for use.

● Type G MV/ HV Soft Starter Cabinet Body Schematic Diagram



● Type G MV/ HV Soft Starter Installation Way



● Model Selection Table for RNMV-G MV/HV Solid Soft Starter

Current Level +8%(A)	Voltage Level (kV)	Maximum Adaptive Motor Power(kV)	Specification & Type	Type G Size(kW)
120	3	550	RNMV - 30120	2300*800*1510
	3.3	600	RNMV - 33120	
	6	1150	RNMV - 60120	
	6.6	1200	RNMV - 66120	
	10	1850	RNMV - 100120	
230	3	1250	RNMV - 30230	
	3.3	1150	RNMV - 33230	
	6	2100	RNMV - 60230	
	6.6	2300	RNMV - 66230	
	10	3500	RNMV - 100230	
370	3	1650	RNMV - 30370	2300*800*1510
	3.3	1850	RNMV - 33370	
	6	3300	RNMV - 60370	
	6.6	3600	RNMV - 66370	
	10	5450	RNMV - 100370	

Remark:

1. Bearing capacity of the soft starter: when a motor starts, the maximum starting time permitted is 15 seconds if the starting current is 5 times of the rated current one, 40 seconds for 4 times, and 70 seconds for 3 times; otherwise, please choose the product with higher power.
2. When the motor power is higher than the motor power, we shall choose the product with higher power.
3. If the motor power is within 2000kw, a differential protection box shall be added;
4. The rated current of the soft starter shall be stated according to the rated current of user ' s motor.
5. The plan of Three into One shall not be used into type G products of over 370A in rated current.

National Key Projects

- Three Gorges Project
- Beijing Olympic Rowing - Canoeing Park
- Supporting Projects for the Beijing Olympic Games
- Wukesong Indoor Stadium
- Bureau of Government Offices Administration of the State Council
- CCTV (China Central Television)
- Beijing Capital International Airport
- China Second Artillery Corps Missile Base
- China Air-to-air Missile Research Centre
- LA Air Force Radar Base
- South-to-North Water Diversion
- Zhejiang Huangqunan Expressway
- Electricity Transmission from West to East China
- West-East Natural Gas Transmission
- Shanghai Maglev Rail Transit Station
- Supporting Projects for Shanghai Expo
- Shanghai Pudong International Airport
- Shanghai Auto Museum
- Extension Project for Shanghai Hongqiao Airport
- Terminal Expanded for Hohhot Baita International Airport
- Shenyang Olympic Sports Center
- Beijing Nanyuan Airport
- Yunnan 2409 Airforce Airport
- Qingdao Olympic Sports Center
- Jinan Olympic Sports Center
- Extension Projects for Chengdu Shuangliu International Airport
- Chongqing Olympic Sports Center
- New Baiyun International Airport
- Wuhan Tianhe Airport
- Shanghai Metro Line 3
- Chongqing International Conference Centre
- Shanxi Wanjiashai Yellow River Diversion Project
- Qinghai Xiaoyou Mountain Ecological Project
- Tianjin Badapian Heating Project
- Shandong Heze Yellow River Diversion & Water Supply Project
- Shanghai International Shipping Center Yangshan Deepwater Port
- Xichang Satellite Launch Center
- Guangxi Longtan Hydropower Project
- Gansu Satellite Launch Center
- Yunnan Honghe Nansha Hydropower Station
- Datang International Power Generation Co., Ltd.
- Guizhou Kailin Group Co., Ltd.
- Inner Mongolia Shenhua Group
- Jinshan Petrochemical Company
- Shanghai Baosteel Group
- Taizhou Petrochemical Company
- Anshan Iron and Steel Group
- Jilin Petrochemical Company
- Wuhan Iron and Steel Group
- Guangxi Liuzhou Chemical Industry
- Capital Iron and Steel Company
- Guangzhou Petrochemical Company
- China Great Wall Aluminum Corporation
- Luoyang Petrochemical Company
- Guangxi Pingguo Aluminum Company
- Yueyang Petrochemical Company
- Guangxi Liuzhou Iron and Steel Group
- Nanjing Petrochemical Company
- Maanshan Iron and Steel
- Beijing Yanshan Petrochemical Company
- Shanxi Zhongyang Steel
- Urumqi Petrochemical Company
- Daqing Oilfield
- Jinxi Petrochemical Company
- Shengli Oilfield
- Dushanzi Petrochemical Company
- Liahe Oilfield
- Beijing Financial Street
- Talimu Oilfield
- Panda Museum in the Chengdu Ecological Park of Giant Panda
- Karamay Oilfield
- Qingdao Beihai Shipyard
- Shaanxi Changqing Oilfield

