New Project ■ Change □ Lead-Free Product □

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specification certificate

MS-1500-24

client ：

Model: MS-1500-24
Version: 001
Date: 2025-12-12
Supplier: Shenzhen Mingwei Electric Power Co., Ltd

Customer reception:

sendee ：	examiner ：	examine and verify ：

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supplier ：

fiction ：	examine and verify ：	Approved: (Seal)

Company: Shenzhen Mingwei Electric Power Co., Ltd
Address：
Phone: 0755-23343631

Reference file:

1. The Specification for Technical Specification Document defines the format and text style of technical specification documents.

2. "Technical Specification Cover: Chinese and English" defines the cover format and text styles for Chinese/English versions of technical specifications.

3. "Customer Specification Acknowledgment Cover: Chinese and English" defines the format and text style for the cover of the specification document to be signed and confirmed by the customer.

file specification ：

1. This document, titled 'Product Technical Specification', establishes quantifiable technical parameters for our company's products. It serves as a critical reference for product design, development, testing, validation, and production inspection.

2. The cover of this document and technical specification can form the "Product Technical Specification", while the cover of the customer acceptance letter can form the "Customer Specification Acceptance Letter".

3. This document is stored in the Regulations\\Three-Step Files\\Directory folder on the OA system. The drafter guarantees that all relevant parties can access the latest version from this location.

■ **characteristic ：**

- The efficiency reaches 85% at full load. (230V)
- The shell is 6.6 cm high.
- 100% full load aging test
- High efficiency, long life and high reliability
- The standby power consumption is low, 3.6W.
- The working temperature can reach up to 70℃.

Protection types: short-circuit protection, overload protection, overvoltage protection, and overtemperature protection

The interior features a forced secondary air cooling system with a DC fan, providing direct airflow, operable at altitudes up to 2000 meters

specifications

product name			MS-1500-24
Output	Output groups		V1
	volts d.c		24V
	Factory-set output voltage at 25°C		23.7-24.3 (Input: 220Vac; Output: Minimum load)
	output rated current		62.5A
	output current range		0-62.5A (The power supply must not exhibit failure to start or oscillation during no-load output)
	output rating		1500W
	ripple noise Ta…is…the…ambient	0 < Ta≤50℃	peak-to-peak ≤150 mV

			-25≤Ta≤0℃	peak-to-peak ≤200 mV
	dynamic load characteristic	peak-to-peak voltage		
	Output voltage regulation range			21.5-25.5V
	Voltage regulation accuracy: -25°C to			±2% (measured at the power supply output port)
	Source adjustment rate @-25℃~50℃			±0.5%
	Load adjustment rate @-25℃~50℃			±2%
	Temperature coefficient @-25℃~50℃			±0.03%/℃
	Output startup time @25℃			≤8S (Input: 220Vac, Output: 50.0A load)
	Output hold time @25°C			≥16 mS (Input: 220 Vac, Output: 50.0 A load)
	Voltage overshoot @-25℃~50℃			<5.0%
Input	Input voltage range (Note 3)			100-240Vac
	Enter the rated voltage range (Note 3)			115/230Vac
	frequency range			47Hz~63Hz
	Start-up voltage: -25°C to 50°C			180Vac (can start at-30°C @ 200V~240V)
	Efficiency @ 25°C (Note 7)			≥85% (Input: 220Vac, Output: 50.0A load)
	Input current @25°C			<8A （220VAC）
	Initiate surge current @25°C			<50A (Input: 220Vac; Power-on in cold machine state)
	Power factor @ 25°C			No PCF is required. Users should independently evaluate the impact of input current and harmonic current on the power grid based on their system configuration.
protect function @-25~50℃	Output	Over-power protection		1800W~2100W Constant power (Test method: Continuously increase output current until protection activates; Protection mode: Constant power. During constant power operation, the power supply must not cause hazards such as ignition, smoke, or electric shock; automatically resumes after overpower is eliminated)
		overcurrent protection		75.0-87.5A constant power (test method: gradually increase the output current until the output voltage falls outside the voltage regulation accuracy range. Under constant power conditions, the power supply must not exhibit hazardous phenomena such as ignition, smoking, or electric shock. After overcurrent is eliminated, it should automatically resume normal operation.)
		short-circuit protection		A copper wire with sufficient cross-sectional area and a length of 15 cm ± 5 cm can be directly short-circuited at the power output port. This allows for long-term short-circuit operation, and the system will automatically restore normal operation after the short circuit is
work environment	Working temperature and humidity			-25℃~50℃; 20%~90% RH Non-condensation (Refer to the derating curve on page 6 for details)
	Storage temperature and humidity			-40°C to 85°C; 10% to 95% relative humidity (RH) non-condensable
	vibrate			Frequency range: 10－500 Hz, acceleration: 2 G, each frequency sweep cycle: 10 min, with 6
	lash			Acceleration of 20G, duration of 11mS, with 3 impacts along the X, Y, and Z axes respectively
	above sea level			2000m
	Three Protection Requirements			□ Moisture-resistant □ Mold-resistant □ Salt fog-resistant (optional; units without these features
Safety and Electromagnetic Compatibility Standards @25℃ (Note 5)	safety standards			GB4943/EN60950 ■Reference □Certification
	insulation strength			Input-output: 2KVac/10mA; Input-housing: 1.5KVac/10mA; Output-housing: 0.5KVDC/10mA Each test takes 1 minute.
	ground test			Test conditions: 32A/2 minutes; Ground impedance: <0.1 ohms.
	Leakage current @25°C			Input current to ground ≤3.5mA; input current to output ≤0.25mA (input: 264Vac, frequency: 63Hz)
	Insulation impedance (Note 4)			Input-output: 10M ohms; Input-to-housing: 10M ohms; Output-to-housing: 10M ohms
	electromagnetic anti-jamming capability	power frequency		EN61000-4-8 Level4
		electrostatic		EN61000-4-2 Level 4 Criterion B
		fast pulse train		EN61000-4-4 Level 4 Criterion B
		Lightning strike		EN61000-4-5 Level 4 Criterion B
		interrupt, drop		EN61000-4-11
Other	Product installation method (see Installation Method on page 7)			
	Dimensions (length*width*height)			241*125*66mm
	pack			Net weight (per unit); Quantity (per box)/Gross weight (per box)/Volume (per box length×width×height) 1300g/pcs
	splicing ear			Pin-3PIN terminal block

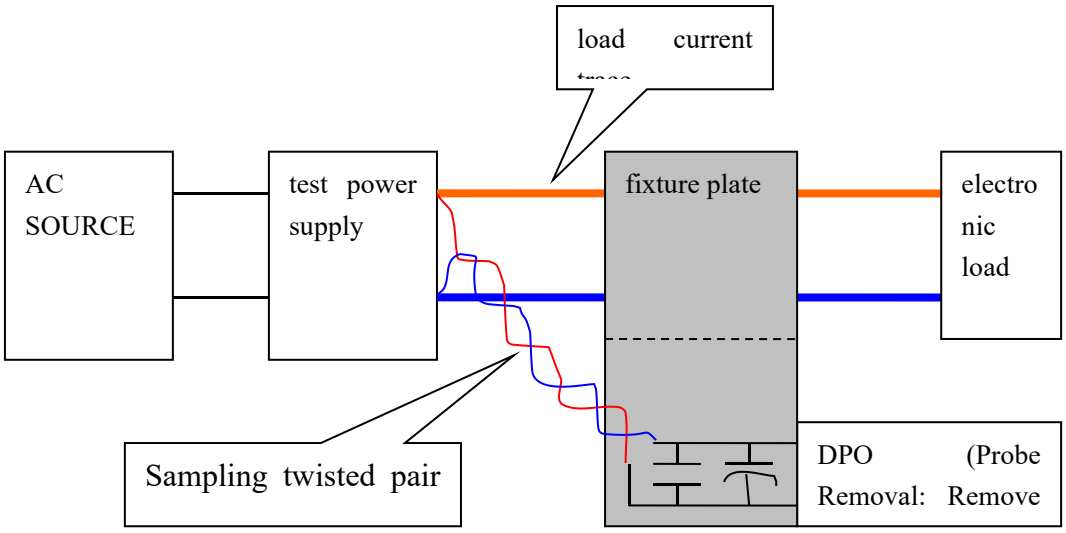
	cooling-down method	natural air cooling
reliability requirement	design MTBF	100,000 hours at 25°C, MIL-217 Method 2 Components Stress Test
	Design of the Life of Electrolytic Capacitor	>3 years (Test conditions: ambient temperature 50°C (maximum operating temperature under full load), input 220Vac, output 100% load)

explanatory note

1. This power supply is used in the industrial control industry.
2. The ripple noise test was conducted using a 12-gauge twisted pair cable, with the oscilloscope set to 20MHz bandwidth. A Tek P3010 100M probe was employed, with a 0.1uF polypropylene capacitor and a 10uF electrolytic capacitor connected in parallel at the probe end. The oscilloscope used the Sample sampling mode for data acquisition.

Output ripple and dynamic test schematic diagram:

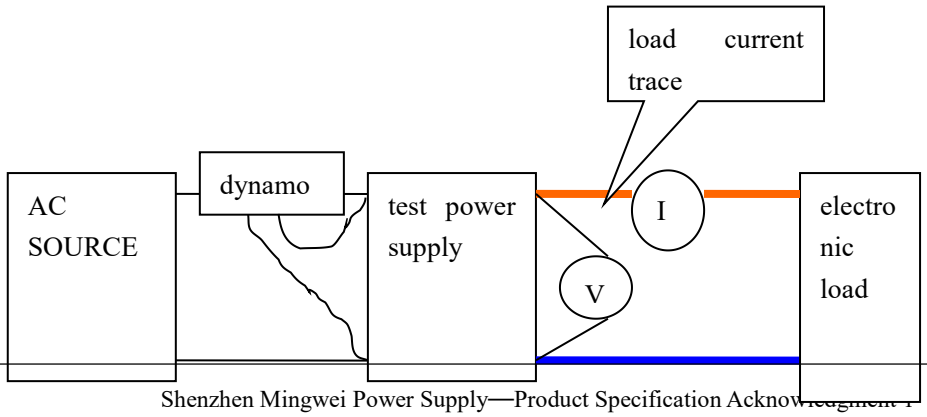
Connect the power input to AC SOURCE, and the power output to the electronic load via the fixture board. For standalone testing, use a 30cm ± 2 cm sampling line to directly sample from the power output port. Select insulated conductors of appropriate gauge based on the output current magnitude.



3. Derating should be performed under low-voltage input or high-temperature conditions. For details, refer to the derating curve.
4. Test conditions: The test voltage is 500VDC, and the test is carried out at ambient temperature of 25℃ and relative humidity of 65%RH.
5. The power supply will be integrated as a component into the final device, and users must perform EMC-related verification in conjunction with the final device. The criteria are as follows:
   A: The power supply performance must not be compromised under any circumstances.
   B: The power supply may experience performance degradation, but no reset or functional interruption is permitted under any circumstances.
   C: The system permits automatic reset during brief functional interruptions, but prohibits prolonged interruptions or manual reset.
   R: No damage to any component other than the protective device is permitted, and the specimen shall regain its performance after replacement of the damaged protective device.

6. Over-temperature protection test: Input 220Vac, output at full load. Place the power supply in a constant temperature chamber, ensuring the circulating air does not blow directly onto it. Set the chamber to operate at the power supply's maximum ambient temperature. Once the power supply stabilizes, gradually increase the chamber temperature by 5°C increments until the over-temperature protection activates.
7. Efficiency test operation method:

Connect the power input to AC SOURCE and the output to the electronic load. Use 12-gauge wire for sampling lines, and select insulated power lines with appropriate gauge based on output current. Measure voltage at the



Remarks

Calculation method of key parameters of switching power supply:

1. Source adjustment rate: After the test switch-mode power supply has stabilized for 15 minutes under rated input voltage and rated load conditions, measure and record the output voltage values V1, V0 (normal), and V2 at the lower limit of input voltage, rated input voltage (Normal), and upper limit of input voltage respectively.

Source adjustment $\frac{|V1-V0|}{V0}\times100\%$ $\frac{|V1-V0|}{V0}\times100\%$ $\frac{|V2-V0|}{V0}\times100\%$ rate $\frac{|V2-V0|}{V0}\times100\%$ = or, take the maximum.

2. Load adjustment rate: After the test switch-mode power supply has been stabilized for 15 minutes under rated input voltage and rated load conditions, the input voltage is set to the rated value. The output voltage values V1, V0 (normal), and V2 are measured under full load, half load, and no load conditions respectively.

Load adjustment $\frac{|V1-V0|}{V0}\times100\%$ $\frac{|V1-V0|}{V0}\times100\%$ $\frac{|V2-V0|}{V0}\times100\%$ rate $\frac{|V2-V0|}{V0}\times100\%$ = or, take the maximum.

3. Temperature Coefficient: The test switch-mode power supply is measured under the rated input voltage and rated load, with the output voltage values V0 (normal) at room temperature, and the output voltage values V1 and V2 at the highest and lowest temperatures respectively.

Temperature

$\frac{|V1-V0|}{V0\times\Delta T1}\times100\%$ $\frac{|V1-V0|}{V0\times\Delta T1}\times100\%$ $\frac{|V2-V0|}{V0\times\Delta T2}\times100\%$ $\frac{|V2-V0|}{V0\times\Delta T2}\times100\%$ coefficient = or, take the maximum.

△T1 = highest temperature value-room temperature; △T2 = room temperature-lowest temperature value

4. Voltage Stabilization Accuracy: The test switch-mode power supply is stabilized for 15 minutes under rated input voltage and load conditions. Under varying load and input voltage conditions, the output voltage VX with the maximum absolute deviation from the reference value V0 is measured. The reference value V0 is obtained by measuring and recording the output voltage V0 when the input voltage is at the rated level and the load is at half capacity.

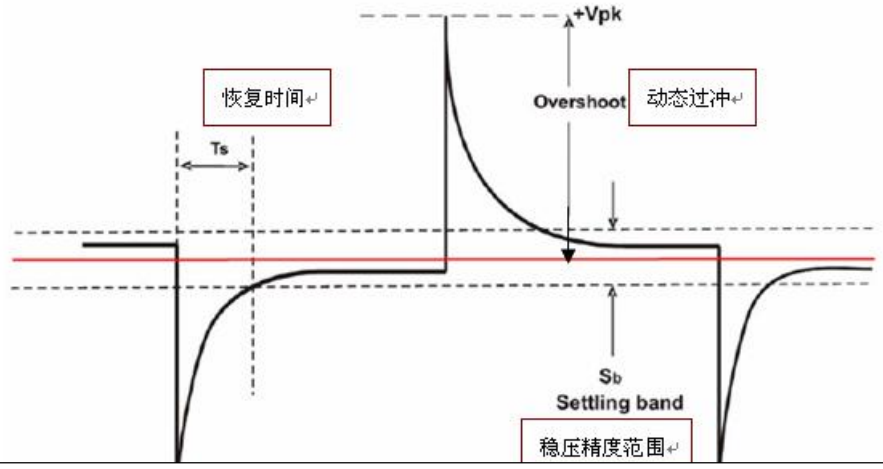
Voltage regulation $\frac{|Vx-V0|}{V0}\times100\%$ accuracy = $\frac{|Vx-V0|}{V0}\times100\%$

5. Start-up time: The time from the start-up to the voltage reaching the lower limit of the voltage regulation accuracy under the rated input and output conditions.

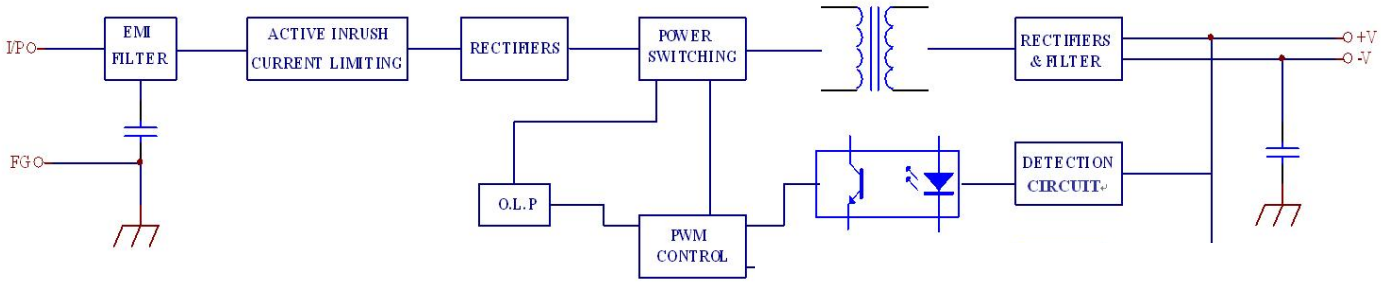
6. Holding time: The duration from power-off to the voltage dropping to the lower limit of the output voltage regulation precision under rated input and output conditions. During measurement, the power supply is fully loaded and no external capacitor is applied to the output. When measuring the power-off holding time, the AC input should be cut off at a 90-degree phase.

7. Output dynamic load characteristics

The period is T1: 2 mS; T2: 2 mS, with the current change rate di/dt being 2.5 A/uS.



■ Internal structure block diagram:

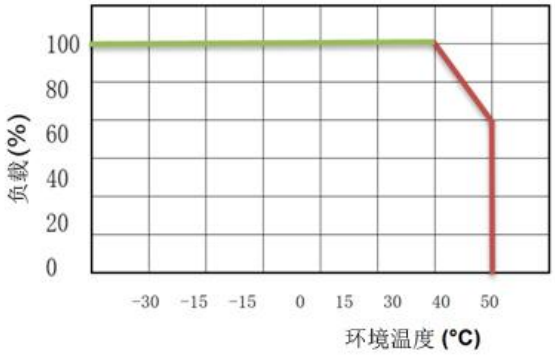


pay attention to ：

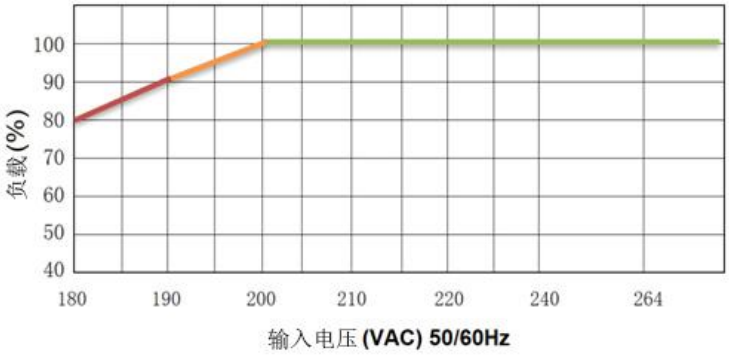
To ensure safe operation, please note the following before installation:

1. Select the correct input voltage and input/output wiring configuration. 2. Do not remove the power supply casing to avoid electric shock.

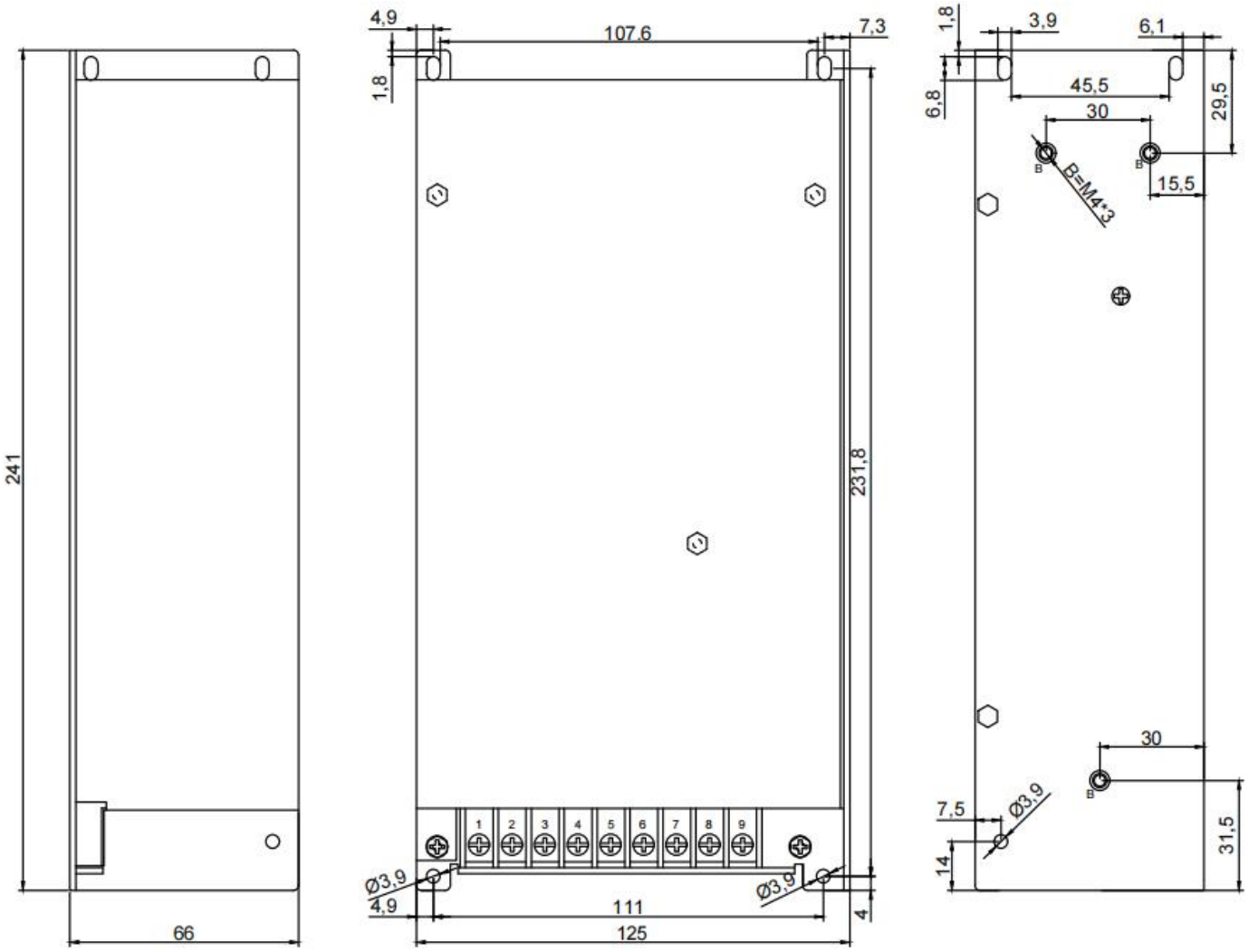
•Reduction Curve



• static characteristic curve



■ **Product installation instructions:**



引脚定义	
引脚编号	引脚功能
1脚	AC/L
2脚	AC/N
3脚	GND
4/5/6脚	DC OUTPUT-V
7/8/9脚	DC OUTPUT+V

■ Product installation and usage instructions:

1. Follow the installation instructions on page 7 during setup.

2. Before powering on and testing the system after installation, verify all connections at terminals to ensure correct input/output polarity, AC/DC polarity, positive/negative polarity, and voltage/current values. This prevents incorrect wiring and protects both the power supply and user equipment.

3. Before energizing, use a multimeter to check for short circuits in the live wire, neutral wire, and ground wire, as well as the output terminals. It is advisable to start the device under no-load conditions when energized.

4. Do not exceed the rated power output during operation to avoid compromising product reliability. For any modifications to the power supply's output parameters, customers must consult our technical department prior to use to ensure optimal performance and reliability.

5. To ensure safety and minimize interference, ensure reliable grounding (using AWG18# or larger wire).

6. To extend the power supply's lifespan, our company provides customized air duct design solutions.

7. Avoid frequent power cycling, as it may reduce the lifespan of the power supply.

9. If the power supply malfunctions, do not attempt to repair it yourself. Please contact our customer service department immediately at 0755-86051211.

■ packaging, transportation, storage:

1. Packaging:

The packaging box contains the product name, model, manufacturer's logo, quality inspection certificate from the manufacturer's quality department, and manufacturing date.

2. Transportation:

This packaging is suitable for transportation by automobile, ship, aircraft, train, etc. During transportation, it should be protected from rain and handled with civilized loading and unloading.

3. Storage:

When not in use, the product should be stored in its original packaging. The storage environment must maintain the specified temperature and relative humidity, with no corrosive gases or other products present in the warehouse. Avoid exposure to strong mechanical vibrations, impacts, or strong magnetic fields. The packaging should be placed at least 20 cm above the ground and protected from water. If stored for an extended period (over 1 year), the product must be re-inspected by a qualified professional before use.
