



GREWIN INDUSTRIAL GROUP CO.,LTD.

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GW-IN200-4

**Full automatic double
station
internal winding machine**

GREWIN INDUSTRIAL GROUP CO.,LTD.

Add: The fourth floor A-A3 zone aviation business area,Dongli Distr,Tianjin,China.



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SPECIFICATION

Winding number	4	Counting accuary	0.5turns
Model	GW-IN200-4	Line accuary	0.01mm
Max speed	600rpm/min	Control number	5 Axis Yaskawa Servo Control
Optimum winding diameter	0.05mm-1.2mm	Machine power	11KW
Line accuracy	0.01mm	Work pressure	0.4-0.7Mpa
Stator slot number	2,3,4,6,8,9,12.....	Input power	AC380V 50/60HZ
Applicable stator inner diameter	≥10mm	Machine weight	1000KGS
Applicable stator outside diameter	≤120mm	Overall dimensions	1500*1200*1950MM
Apply iron core stack height	≤100mm		

1 General requirements for equipment

1.1. Purpose:

Used for winding assembly of the inner stator of Party A's brushless motor

1.2. Project scope:

Stand-alone equipment Key works.

1.3. Supply content

NO	NAME	QUANTITY	MARK
1.3.1	4 station internal winding machine	1set	Complete supporting equipment
1.3.2	120 stator mould	4 pcs	Special molds for non-standard equipment (With the same outer diameter, the stack height of the stator can be adjusted.)
Mark:			

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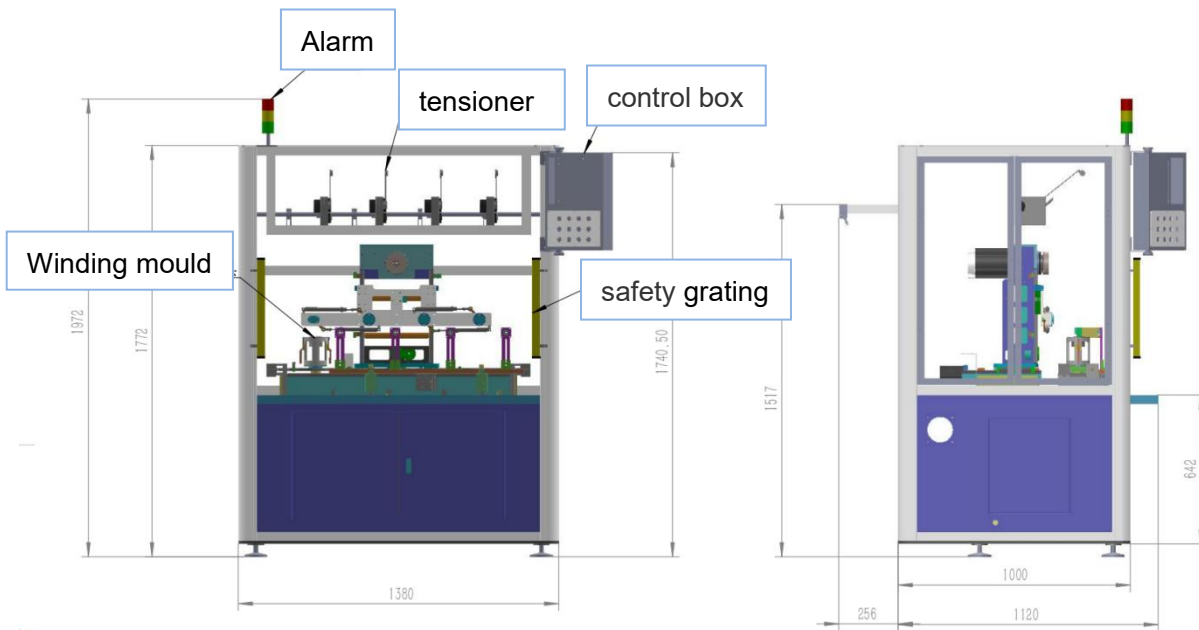
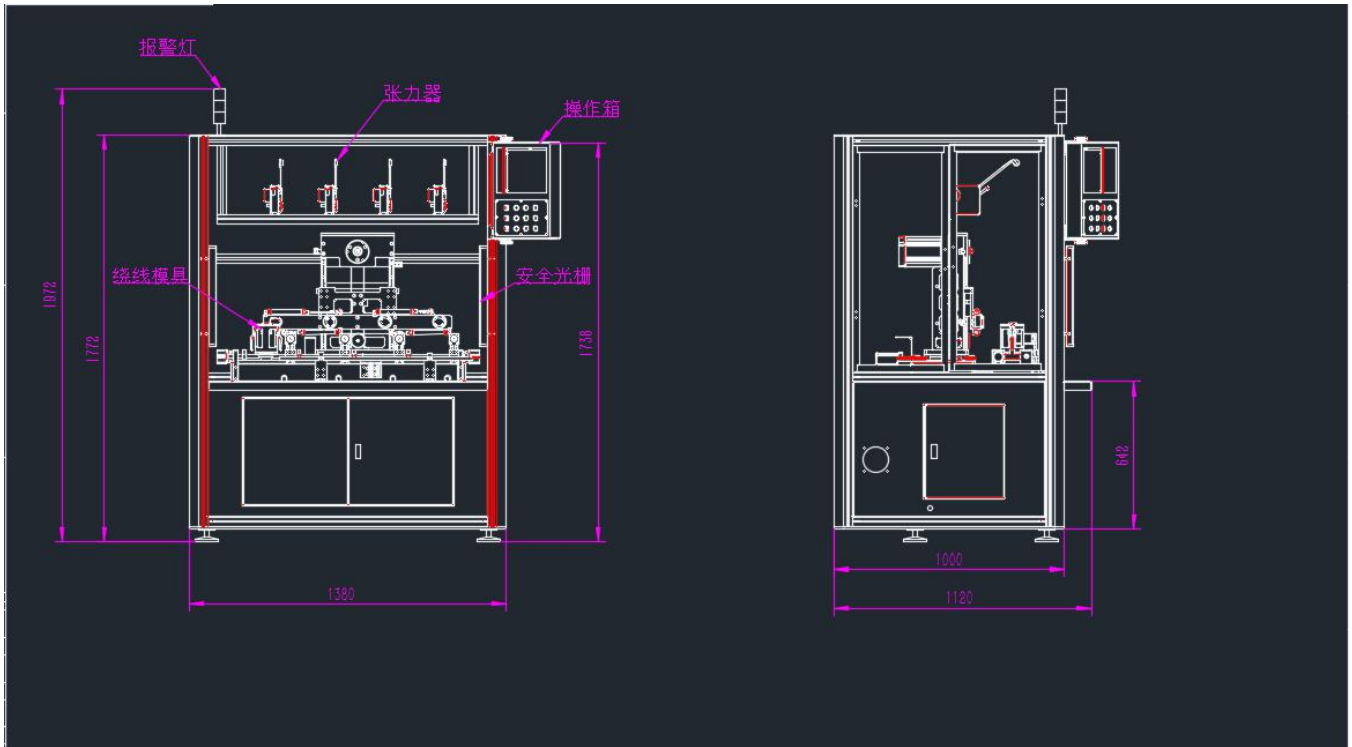


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2.Appearance and dimensions



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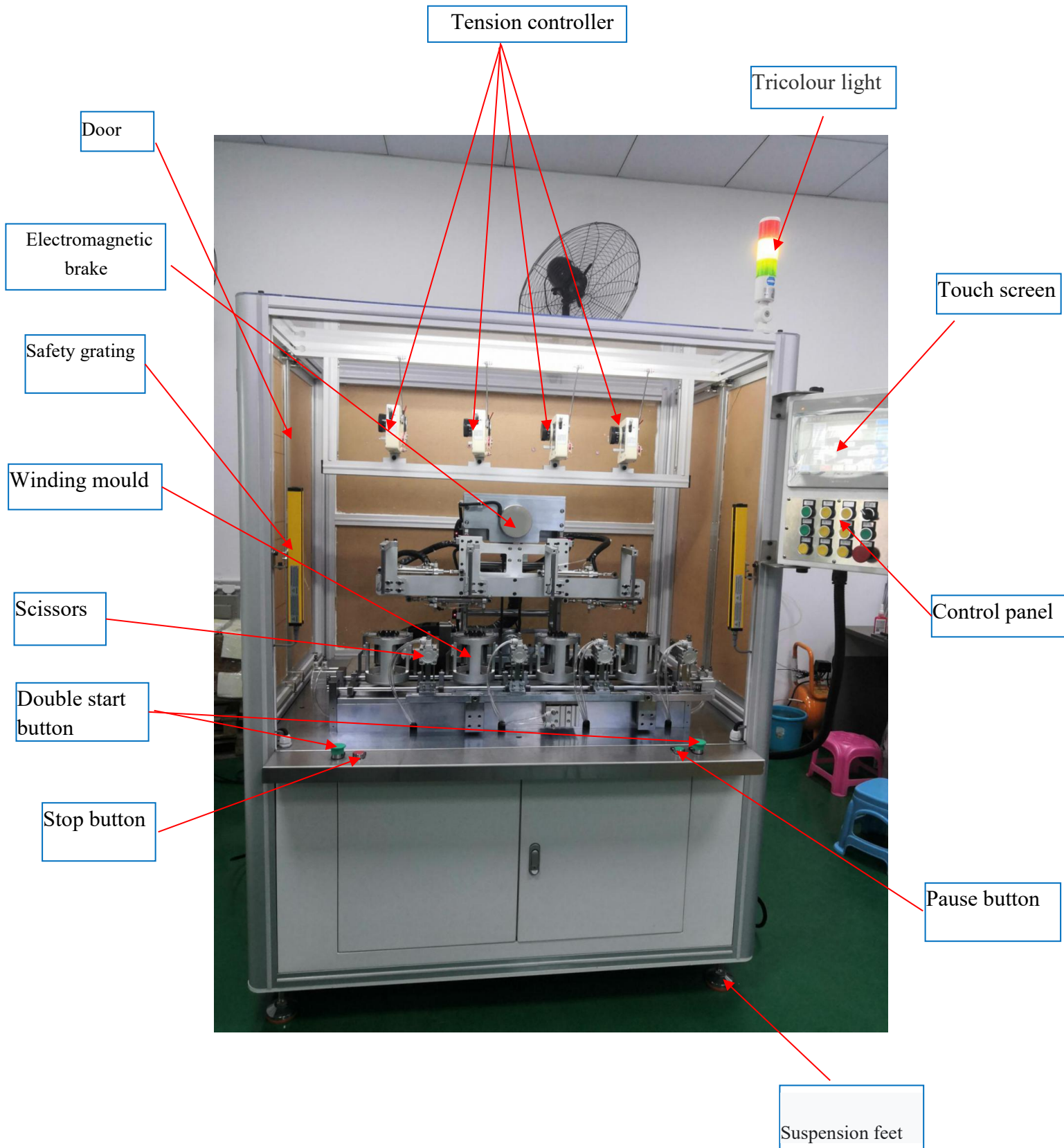
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3. Technical requirements for stator winding

1.1. Workpiece description

A total of 1 product workpiece stator, respectively: outer diameter × inner diameter × stack height (not including the frame)

1.120mm×86mm×28mm (The outer diameter is the same, but the stack height can be adjusted.)

3.1.1 For winding requirements, please refer to Party A's drawings. The dimensions are designed with reference to the samples provided by Party A. (Party B is only responsible for the sample size. If it is involved in a situation that is inconsistent with the sample size, Party B will not bear the corresponding responsibility, but the height can be adjusted.).

3.1.2 The test after the equipment is wound meets the salt water pinhole test requirements of Party A (3 meters not more than 1 point), and the qualified rate of finished products is 100% within the allowable range of the parameters.

4. Factory conditions

4.1. Current type and voltage

The power supply adopts three-phase four-wire system; voltage: AC380V10%; frequency 50Hz1%; power 9000W;

4.2. Compressed air:

Pressure: not less than 0.4~0.7Mpa, pipe connection; entering equipment temperature: ≈ room temperature

4.3. Safety and environmental protection

4.3.1. General requirements: The labor protection clauses for human safety, protection, occupational health, etc. comply with the relevant national and industry standards of the machine tool manufacturing country, and must not conflict with the relevant standards of the demand-side country and industry.

4.3.2. The assembly line and equipment must have a main emergency stop switch, which is eye-catching and convenient for emergency operation. The color is red.

4.3.3. The dangerous parts of the equipment must be marked with text or dangerous graphics.

4.3.4. The equipment and facilities shall meet the requirements of ergonomics and minimize the labor intensity of the operators.

4.3.5. The left, right and rear sides of the equipment are protected by aluminum alloy frame + white plexiglass door.

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5. Basic equipment requirements and functional description

51. Workers pre-install the motor stator; start the equipment to automatically complete the winding process.
- 5.2. The equipment movement adopts 5 servo motors to control precise winding, foot winding, thread passing and other actions, which are X, Y, Z, and U axes respectively, and the X and Y axes are 400W servo motors. 4000W on the Z axis. Two 2000W on the U axis.
- 5.3. Process requirements:
 - a. The equipment is stable and reliable for continuous production, the appearance is generous and beautiful, and the operation and adjustment are convenient;
 - b. Finished product technology meets customer requirements.
 - c. Equipment production cycle: (maximum winding speed 600rpm/min)) The specific other winding efficiency is determined by the line of sight diameter.
 - d. Equipment production cycle: 2min /4pcs (take 120×86×28 iron core, wire diameter 12mm, 10 slots, 30 turns per slot as an example, excluding manual loading and unloading time)
 - e. Operator: 1 person is mainly responsible for product loading and unloading and monitoring operation;
 - f. Seamless pipe + 50 # steel plate is used below the workbench, aluminum alloy frame is used for the workpanel, left, right and rear. The main moving parts are imported wear-resistant alloy steel, and the whole treatment is white rock plating. Other parts are treated with white bright silver rock plating;
 - g. Equipment safety: The monitoring panels of the console and the machine are equipped with emergency stop buttons. The servo motion limit is equipped with a travel switch to prevent the equipment from damaging the equipment by misoperation;
 - h. Hierarchical password management of the operating authority of stand-alone equipment to ensure the safety of the system.
 - i. Install the air pressure detection switch to ensure that there is no safety accident and equipment damage caused by the air pressure opening the equipment when the equipment is running.
 - j. Applicable wire diameter of the machine: single wire 0.1~1.2 mm (specifically, it needs to be determined according to the stator slot).
 - k. The machine is suitable for stator specifications: outer diameter: $\Phi 10\sim 120\text{mm}$, stack height: 10~100mm.
 - l. The machine automatically winds and arranges wires automatically (precisely arrange wires by layer, and the number of wires per layer is adjustable).
 - m. The equipment is suitable for automatic winding of 4 identical products at the same time.
 - n. The device itself can store 100 different product programs without connecting any external storage devices. The maximum step sequence of a single product program is 320 steps. The device itself has an automatic save function. When the product program is halfway through, the device is suddenly powered off. When the product program is edited after restarting, the current steps can be continued

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to complete the subsequent product editing. Product program editing is simple, and can be mastered through simple personnel training, and the complete product program editing work can be done independently.

5.4. Using HMI and motion controller, all alarms of the equipment are prompted to the operator in the form of a pop-up dialog box, and are equipped with an alarm indicator and a buzzer (Tricolour light).

6. Electrical technical requirements

6.1 Overall requirements:

The electrical control system of the stand-alone equipment complies with the national design standards.

6.2 Control system:

6.2.1 Overall description of the control system

The stand-alone control system is composed of an independent main control PLC and a man-machine interface of the workstation, which can be independently debugged and operated.

Each stand-alone machine has full automatic, manual, and adjustment operation modes.

6.2.1 Interface data requirements:

The equipment has Ethernet communication function and can provide Ethernet interface to facilitate the uploading and downloading of product programs.

6.2.1 Configuration requirements:

a. Stand-alone equipment adopts independent PLC.

b. The equipment is equipped with a man-machine interface as required, with functions such as product step programming. The man-machine interface of the workstation adopts an integrated touch screen. The main functions are: product step sequence programming, real-time dynamic display of various states of the equipment, such as the actual state and position of the equipment, the ON/OFF state of various sensors, alarm information, etc., with fault diagnosis and fault query functions.

6.3 Wiring and marking requirements

6.3.1 In the electric cabinet, the plastic wiring groove in front of the board is used for wiring.

6.3.2 All electrical components must have a unique label and be installed in an eye-catching position, corresponding to the drawing for easy searching. The movement direction of the servo axis must be clearly marked. All wires and cable joints must have a unique label. All signs must comply with the national electrical standards, and the line numbers should be printed clearly and beautifully.

6.3.3 The electrical components in the electrical cabinet must be properly grounded, and the grounding wire shall be an electrical standard yellow-green wire.

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Accessories Model

NO	NAME	MODEL	SPECIFICATION	BRAND
1	400W Servo motor (2PCS)			安川
2	3000W Servo motor (2PCS)			安川
3	4000W Servo motor (1PCS)			安川
4	400W Servo controller (2PCS)			安川
5	3000W Servo controller (1PCS)			安川
6	4000W Servo controller (2PCS)			安川
7	IO module (32IN 32OUT)			安川
8	M-3 Communication cable			安川
9	CPU module			安川
10	Base unit MBU304 (Single slot)			安川
11	Terminal station			安川
12	IO Cable			安川
13	Communication Servo CN1 plug			安川
14	Terminating resistor			安川
15	Touch screen	10 inch		威纶
16	Intermediate relay			施耐德
17	Relay base			施耐德
18	24V Switching power supply			施耐德
19	Ac contactor			施耐德
20	C16 The circuit breaker			施耐德
21	C60 The circuit breaker			施耐德
22	Buttons			施耐德
23	Air source treatment element			亚德客
24	Electronic digital display pressure switch			亚德客
25	Induction switch			亚德客
26	Scissors cylinder	Diameter 32, stroke 10		亚德客
27	Scissor rising cylinder	Diameter 25, stroke 20		亚德客
28	Needle transfer cylinder	Diameter 16, stroke 100		亚德客
29	Mold cylinder	Diameter 40, stroke 15		亚德客
30	The electromagnetic valve	3 links , 2 positions		亚德客
31	Connector	2 connecting piece		亚德客
32	Tensioner			亚博
33	Tricolour light	DC24V		台邦
34	Origin sensor			欧姆龙
35	Limit switch			欧姆龙
36	Second gear selector switch			施耐德
37	Green normally open button			施耐德
38	Red normally closed button			施耐德
39	Safety grating	DC24V		德国劳恩
40	Screw			台湾上银
41	Guide			台湾上银
42	Transformer	12KW		中科

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1. Technical documents

NO.	NAME	A	B	C	D
1	Equipment operation and maintenance instructions				√
2	Input and output module diagram				√
3	Electrical drawing diagram/electronic file				√
4	Equipment standard parts, brand and model, certificate and operation manual				√
5	Drawings of vulnerable parts				√

Description:

A: The time agreed by both parties to submit; B: Submitted when the design is approved;

C: Submitted during pre-acceptance; D: The final acceptance shall be provided

1.1.1. Equipment acceptance

1.1.2. Equipment acceptance can be divided into two parts: pre-acceptance and final acceptance; pre-acceptance is performed at the supplier's factory, and final acceptance is performed at the demander's factory. If the party does not need pre-acceptance, it can be combined and completed in the final acceptance.

1.1.3. Equipment pre-acceptance

1.1.4. General inspection:

1.1.5. Whether the physical layout of the equipment is reasonable, and whether the pipeline connection of the equipment is reasonable.

1.1.6. Inspection of equipment "three leaks" (leakage, oil leakage, gas leakage).

1.1.7. Safety inspection includes: inspection of various protection functions such as mechanical and electrical fault display, monitoring, and alarm.

1.1.8. Inspection of supporting parts: inspection of equipment and accessories models and specifications.

1.1.9. Acceptance of technical documents

1.1.10. Check whether the technical information is complete and whether the content meets the relevant standards.

1.1.11. Equipment packaging and shipment

1.1.12. The supplied goods must be firmly packed, and measures such as moisture-proof, moisture-proof, rain-proof, shock-proof and rust-proof are taken according to the different shapes and characteristics of the goods, so that they can withstand multiple handling, loading and unloading and transportation to ensure the goods It can be safely transported to the destination specified in the contract without damage and erosion. The supplier shall be responsible for the corrosion, damage and damage caused by improper packaging.

Storage and unpacking of equipment

Unpacking the goods

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Party B must deliver the equipment to Party A's factory, and it can be resolved through negotiation if Party A's assistance is required.

Unpacking and inspection after unpacking

Party B delivers goods to Party A's factory by freight, and Party A must check the shipment quantity in accordance with the packing list attached to Party B. And sign to confirm the receipt, if the number of shipments does not match, you should confirm with Party B in time.

Storage of goods

After the equipment arrives at Party A's factory, it will be stored by Party A. Party A is not allowed to debug the machine before Party B has trained it, and Party A can use this equipment on its own only after Party B has trained professional adjusters.

1.1.12.1. Final acceptance of equipment

1.1.12.2. The final acceptance is carried out at the end user's factory. The final acceptance of the buyer to the supplier shall be subject to the signature of the final acceptance report of the representatives of both parties.

1.1.12.3. Procedures for final acceptance of equipment

1.1.12.4. Functional verification: the equipment can realize all the content in the agreement by the demander.

1.1.12.5. All functions required and meet the technical requirements of the end user.

1.1.12.6. After Party A receives the finished equipment produced by Party B, it must cooperate with Party B in the acceptance work, and shall not delay or fail to arrange the acceptance work for any reason.

1.1.12.7. After Party A receives the equipment from Party B, Party B shall dispatch technical personnel to the site for final acceptance within 2 working days. Party A must arrange relevant professionals for process confirmation and technical training. During this period, if Party A does not raise any objections within 15 consecutive working days, it shall be deemed that Party A defaults to the final acceptance of the equipment provided by Party B as qualified.

1.2. Quality assurance and technical services

1.3. Effective service life of equipment: 8 years (except standard parts);

1.4. Warranty period: from the date of final acceptance of the equipment, the warranty period is two years;

1.5. Scope of service: During the equipment warranty period, the supplier shall provide maintenance services for all types of equipment and tooling failures free of charge in time, and shall promptly replace all types of parts that are not caused by man-made damages free of charge.

1.6. Within the effective service life of the equipment, the supplier is obliged to provide technical services.

1.7. During the service life of the equipment, the supplier shall guarantee to provide maintenance services for the purchaser's equipment for life, and guarantee the supply of equipment spare parts and wearing parts.

1.8. During the service life of the equipment, the supplier has the responsibility to provide the required winding tooling and fixture to the demander and charge a certain processing fee.

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- 1.9. During the equipment warranty period, if the equipment requires after-sales personnel from the supplier to the buyer's factory for maintenance, the supplier's after-sales personnel's travel and living expenses shall be borne by the supplier; the buyer can provide free dormitories to the supplier's after-sales personnel And canteen meals.
- 1.10. Random spare parts for wearing parts: tungsten steel guide pin, winding rod, winding arm, winding drum, etc.
- 1.11. In order not to affect Party A's production, equipment maintenance must be resolved within 48 hours after Party A informs Party B, except for special reasons, but the maximum shall not exceed 72 hours.

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