FH-230A High Speed Large Package Twister Machine

User's Guide

大陆飞虎

Zhejiang Tongyou Machinery Technology Co., Ltd.

Foreword

Thanks to the use of the FH-230A high-speed large-capacity double twister in the series of twister machines produced by Zhejiang Tongyou Machinery Technology Co., Ltd.

Our company has long been committed to the development and research of yarn forming equipment. With more than ten years of market demand, new products are constantly ahead of market development, closely combined with the user's reactions and suggestions in use, attracting a long list of customers, introducing new products, and winning extensive customer approval. .

In order to fully grasp the performance of the machine and ensure safe production, please read this manual carefully before using.

As the technology is constantly updated and improved, each client device configuration is different, so the machine used and the contents of the manual will be different, please understand! Please contact us if you have any questions.

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First, the introduction of machine performance

The FH-230A high-speed large-capacity double winding machine is suitable for single or multiple twisting of 45D to 1000D various fibers such as DTY, POY, HDY, and FDY. This type of machine has greater breakthroughs and innovations in terms of production efficiency and design concept compared with traditional double-twist equipment: machine structure is more robust; transmission layout is more scientific; single spindle shuttle box system is formed; spindle speed, winding line The speed and overfeed speed are controlled by the intelligent PLC with the same frequency system, and the process change is more convenient; the anti-folding, soft-edge, and edge-receiving functions of the bobbin yarn are provided; the double-roller yarn transmission and the like are provided. In order to achieve rapid line speed, production efficiency greatly increased; the original diameter of the original cartridge barrel can be in the 250mm; twisting a large range of twisting quality and stability; yarn forming uniform inside and outside the uniform tension; process changes convenient; low maintenance costs Such advantages are the ideal high-efficiency, large-volume, high-quality double-twist equipment.

Second, the main technical parameters of the machine

1. Machine form: double-sided single layer, threaded wire threading

2. Number of spindles: 16 spindles/section, standard 160 spindles/station

3. The spindle distance: 304mm

4. Spindle speed: 2500-13000r/min

5. Range of twist: 65-3000T/M

6. Towards: S or Z

7. Spindle tensioner: Ball type

8. Winding stroke: 190-210mm

9. Winding line speed: ≥130M/min

10. Package volume: ≥4KG

11. Spindle drive: Dragon belt form

12. Rated power (160 spindles/set): Dragon belt 2X7.5KW; coiling 2.2KW; overfeed 2X2.2KW;

(96 spindles/set): Dragon belt 2X4KW; coiling 1.1KW; overfeed 2X1.1KW

13. Machine shape (length X width X height):

Headstock: Long 1140 wide 880 high 1450;

Intermediate power cabinet: Long 670 wide 880 high 1720;

Tail box: Long 780 wide 880 high 1450.

Body: 2424 wide and 880 high

96 spindles/station: 17100X865X1720;

128 spindles/station: 21972X865X1720;

160 spindles/station: 26840X865X1720;

14. Machine weight:

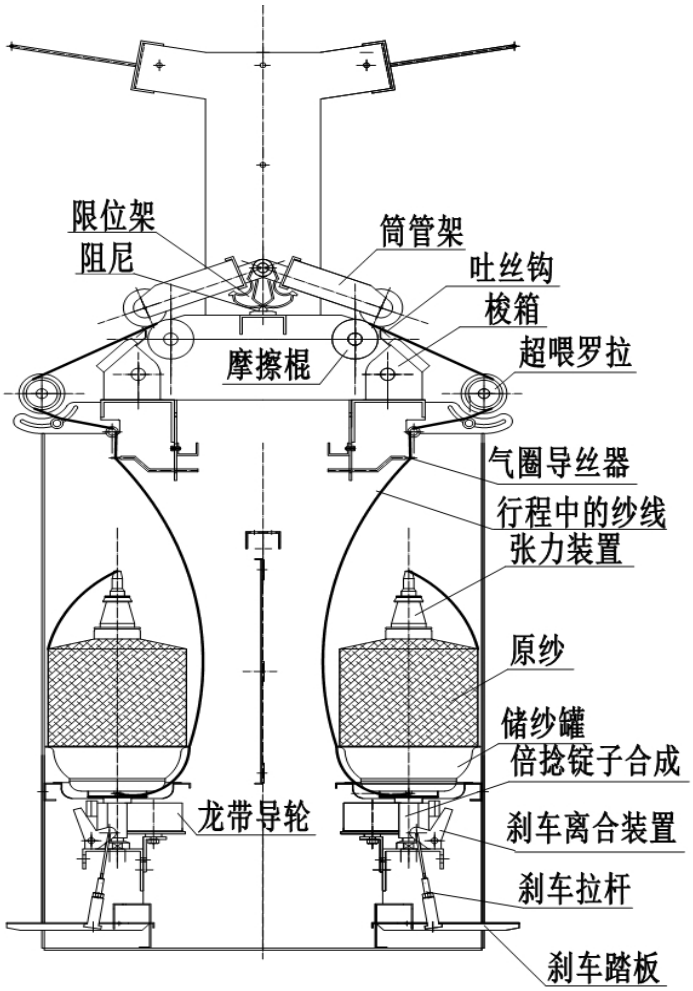
Headstock 372 KG;

Middle cabinet 370 KG;

Tail cabinet 260 KG;

Body 546 KG。

Third, the main structure of the machine and yarn flow schematic



三、机器结构组成和纱线流程

Fourth, safety precautions

1. The power supply of the machine adopts AC380V±10%, 50HZ, three-phase five-wire system; the machine must be strictly grounded correctly.

2. The motor and electrical equipment of this machine have dangerous voltage values and high current intensity. Improper operation and maintenance, ignoring safety regulations or operation by non-professionals can cause loss of life and property.

3. Due to the use of this machine, the machine is running at high speed and the long-distance winding has dangers. The yarn touching the high speed around the stroke will have the danger of cutting. When winding the waste wire, stick on the brake pedal and operate with caution. The dragon in high-speed operation has the danger of injuring the hand. It also needs to pay attention to the consequences of the burr breakage yarn produced by the cutting wire cutter.

4. Due to the long machine body, the emergency shutdown of the tail to the head should be quick; before the start of the long-term observation of whether there is no safety factor; shutdown maintenance must turn off the machine's total power and listed maintenance.

5. During operation, do not open the cabinet door or protective door.

Fifth, the installation and commissioning of the machine

1. Installation environment

(1) Installed at ambient temperature -10° C to 40° C.

(2) Avoid installation in direct sunlight, moisture, condensation or water droplets.

(3) Avoid installation in the presence of flammable gases, corrosive gases, or other harmful gases.

(4) Ensure that there is enough space around the machine and machine repair space.

2. Installation of the machine

(1) The reasonable layout of the workshop, in order to facilitate the installation, it is suggested that a linear ink line be struck on the straight line surface of the machine table, and the middle position of the machine table should be measured.

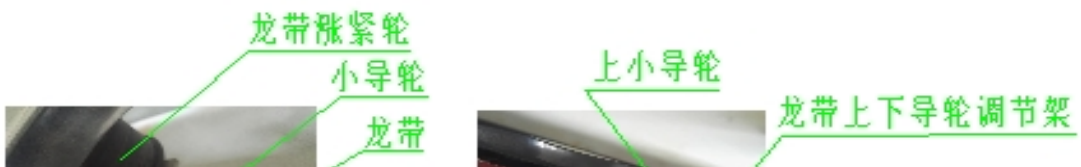
(2) The equipment is folded and the power cabinet is placed in the middle position. Check whether the shaft section on each shaft of the machine body is missing or not. Press the left and right, numbered order along the section, neatly and closely.

(3) Screw the power cabinet, nose, tail, and body into the adjustment

screw with nut, and place the washer at the contact with the ground, and screw the screw to the middle position of the thread. Wait until the adjustment of the whole machine is completed and then adjust the foot nut.

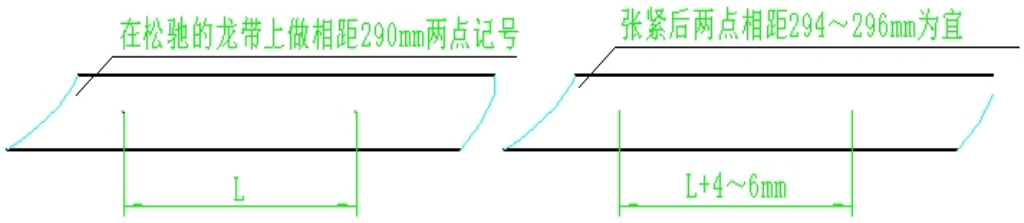
(4)Adjust the adjustment screws, and use M10X15 external hex bolts, flat washers, spring washers, and nuts to connect each wall board to ensure the overall level of the machine and the whole machine straight line. Each section corresponds to ensure the concentricity and straight line between the shaft and the shaft. Adjustment is completed. Tighten the adjusting nut and tighten the wall plate screw. (5) Each shaft end is equipped with key pins, shaft joints, and shaft joints beef tendons. The friction stick shaft, spindle box shaft and super-feed shaft are respectively rotated by hand to ensure that the rotation is flexible, there is no jamming, no abnormal noise, etc. to eliminate abnormal conditions.

(6) Install the dragon belt, and the dragon belt passes through the fuselage to the tail or from the tail through the fuselage to the nose. Both sides of the machine will put the dragon belt into the spindle and the tension guide wheel (unified to the eccentric exit position). At the same time, it is placed in the middle of the two adjusting small guide

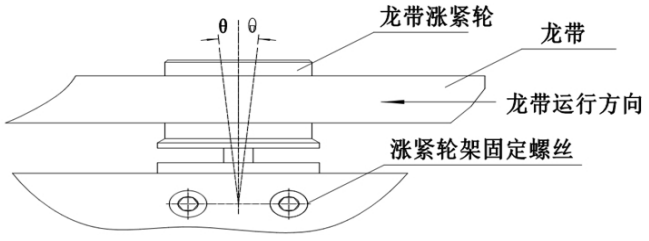


pulleys above and below the adjusting harness, and finally it is put into the pulley on the nose of the nose.

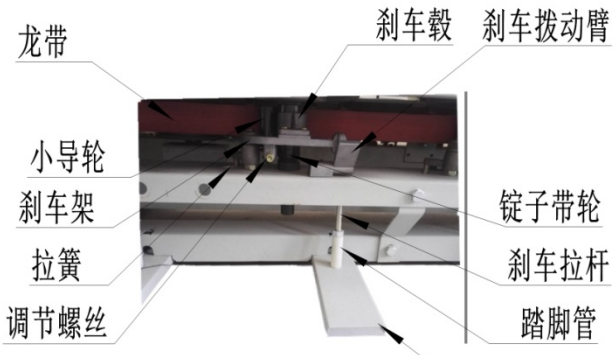
The tension of the belt is adjusted. When the belt is commissioned, it is necessary to manually turn the motor pulley so that the entire belt moves and the tension of the entire belt is even. The detection method is as follows:



During the operation of the machine, it is measured whether the spindle speed is consistent with the set value, and the spindle speed is detected one by one. Under the precondition of meeting the spindle speed error requirement, the tension of the belt is minimized. Otherwise, both the power consumption and the service life of the guide wheel bearings are shortened, and the life of the belt is also shortened. One week after normal operation, you need to adjust again. Dragon belt up and down position adjustment: Dragon belt is on both sides of the machine motor pulley for the driving wheel along the spindle and the guide wheel to drive the spindle spindle disc rotation and operation. The up and down fine adjustment of the belt: Loosen the two fixing screws of the guide wheel slightly. When the belt is too high, the guide wheel is inclined along the direction of θ, and then tighten the screws. When the belt is too low, the guide wheel is inclined in the direction of θ'. Adjust the eccentric tensioning force of the dragon belt guide wheel and tighten the guide wheel eccentric shaft nut



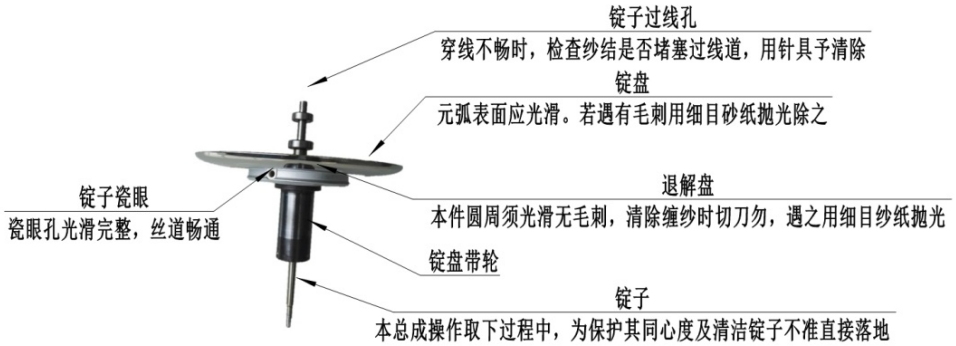
(7) Adjustment of the brake: The machine adopts a spindle release brake device. Under normal operating conditions, the brake hub skin and the spindle pulley are disengaged, the spindle disk rotates at a uniform speed under the action of the dragon belt, and the small guide wheel is also separated from the dragon belt under the action of the brake frame tension spring; when the brake pedal is depressed, the brake drum is depressed Hold the spindle pulley tightly, the spindle disc stops instantly, and at the same time, in order to protect the friction between the high-speed running belt and the stationary spindle pulley, the small guide pulley will disengage the contact between them and make the spindle pulley Detach from the dragon belt.



刹车装置结构

To achieve the above objectives, the length of the brake lever can be adjusted, the position of the screw can be adjusted, and the nuts must be tightened after the adjustment.

(8) Spindle oil or transformer oil is added into the spindle cover (see the figure above for illustration). Clean the spindle assembly spindle core with a clean cloth, insert the spindle assembly, and assemble the upper spindle disk.



锭子总成——本总成是倍捻过程中，是纱线退解、捻线起弧的关键处，丝道通畅、光滑是不断纱的保障。

(9) Connect the electrical box to the cables between the motors and standardize the ground connection. Disconnect the alarm line. Check the circuit wiring, complete installation of machine parts, no foreign objects on the machine, lift the cylinder frame without contact with the friction stick, etc., and confirm the safety under the condition that the test machine runs at the beginning and abnormal and quick shutdown is found. Check the rotation direction of the friction stick from the outside to the inside and the rotation direction of the roller from the bottom up is correct

Six, the operation of the machine

1. Determination of twisting direction: When the production process needs to change the direction of twisting, the direction of rotation of the belt motor is operated in the front display screen in the Z direction or in the S direction. After starting the transformation, you must check the operation of the belt, the up and down position during operation, and whether there is any abnormal noise.

2. The setting of the degree of control (in the head control color input).

The principle of data generation: The setting of the twist degree is obtained by calculating the speed of the spindle and the linear speed of the friction roller. Because of the loss of friction coefficient, contraction rate and winding angle, the actual and theoretical angles are slightly different, so they must be tested and corrected. The calculation method is as follows: 1HZ spindle speed = motor speed 960÷50Hz x pulley 280 ÷ spindle diameter 35 ≈ 154 turns

The twist of 1HZ spindle per minute = 154×2=307 turns.

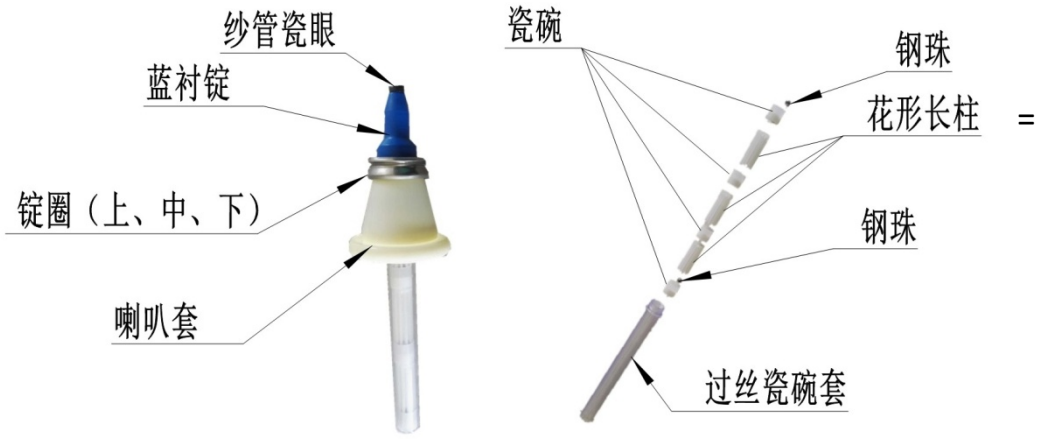
1HZ friction roller speed per minute = 960 ÷ 50HZ × 40Z ÷ 32Z = 24 rpm

1HZ friction roller per minute line speed=80mm×3.14×24=6028.8mm=6.03M

Degree of twist = number of turns produced by the spindle ÷ linear speed.

For example: If producing 140D nylon, the twist is 100 turn/m, the line speed is required to open to 130 m/min, and the frequency of primary conversion and the winding frequency are calculated. Solution: Winding frequency = 130m ÷ 6.03m/min = 21.56HZ ≈ 22HZ

The main frequency = 130 meters × 100 turns / meters ÷307 turns



纱管座结构图

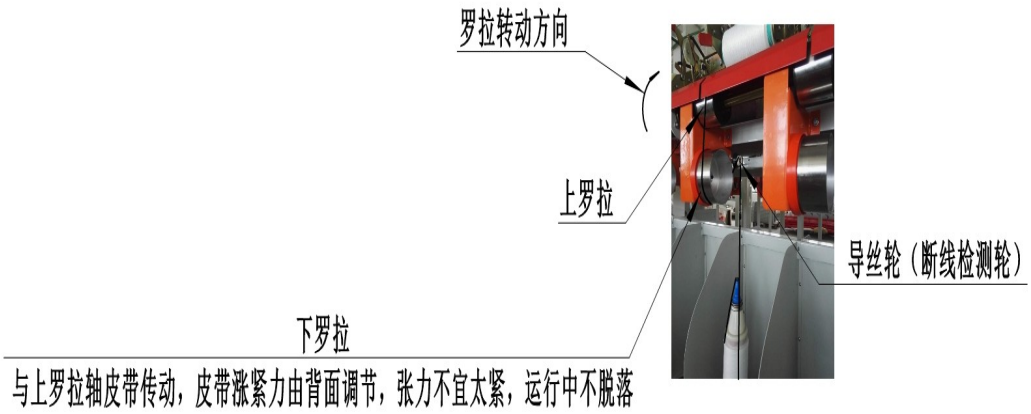
42.3HZ

3. Yarn tension during operation: There are four tensions during the twisting process: (1) withdrawal tension, (2) tension tension, (3) balloon tension, and (4) winding tension.

(1) Retardation tension - It is determined according to the type and thickness of the original yarn. The yarn can be changed by passing through or not passing through the middle ingot in the bobbin holder.

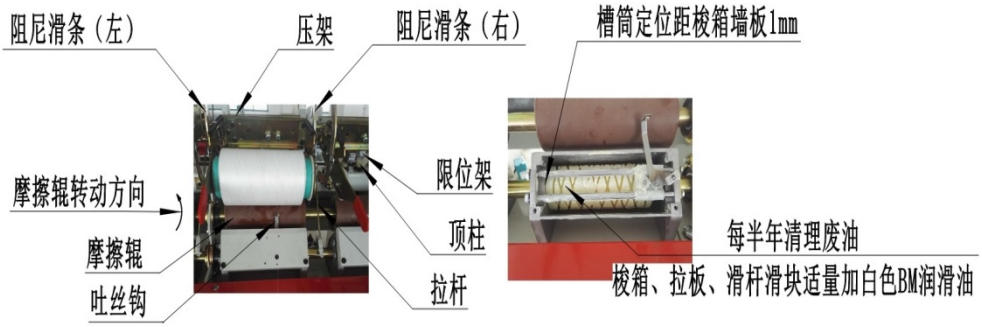
(2)Tensile tension—Tension tension can be controlled by changing the size and number of steel balls in the wire bowl sleeve in the yarn tube holder, and it must be ensured that the yarn is smooth and unbreakable.

(3) balloon tension - the speed of the spindle, the size of the fiber, and the height of the balloon guide, considering the quality factor, the balloon tension should not reach the breaking strength of the single yarn. The balloon height refers to the distance between the upper edge of the twist disk and the guide wire of the balloon. The balloon tension is proportional to the square of the balloon height. The height of the balloon can be adjusted by the guide wire to check the shape of the balloon. Speedometer, while the balloon should not touch anything.



(4) Winding tension - Affected by the balloon tension, it is adjusted by changing the wrap angle on the overfeed roller or changing the speed of the overfeed roller in the color screen of the headstock. The degree of looseness or set or adjustment of the wound package.

4. Structure of bobbin press frame, edge adjustment, groove positioning and maintenance



（1） The positioning and lubrication of the drum are as shown in the figure on the right; (2) The direction of rotation of the boot friction roller is as shown in the figure on the left; (3) White BM lubricant is added to the friction slide and the friction between the limiting frame and the top column; (4) The top force of the limiting frame is covered by the top. Hexagon screws and nuts under the column cover are adjusted; (5) The length of the yarn formed on the bobbin is longer and shorter when it is shortened. One end of the bobbin holder rod is fixed upwards, and the yarn receiving angle of the bobbin is increased and fixed downwards, and the bobbin tube side-receiving angle is reduced. (6) The thread-lined porcelain eye must be clean and in good condition, with no glue traces on the hole wall; (7) The friction roller is easily damaged due to the material of the glue stick. During the operation, the pressure frame is lightly pressed. When the wound waste wire is cleaned, the cutting knife is wounded and the friction roller surface is clean. .

5. The operation procedure of the shifter: (1) The bobbin is clamped and clamped up on the press frame; (2) The original bobbin yarn to be double-twisted is gently placed and set on the disk in a smooth manner over the yellow (in accordance with the size of the inner diameter of the original bobbin tube). Adjustable yellow expansion black nut) (3) Put the yarn holder inserted in the bucket (outer edge of the magnetic platen, specifically for placing the yarn holder plastic rack) into the bobbin yarn to the yellow expansion sleeve; (4) Gently press on the brake pedal, thread the thread from the tube and wind it around the end of the threading spring wire, pull the yarn about 1 meter long, and pass the other end of the wire through the tube holder and the spindle assembly to the magnetic ring (see figure),

Pull the wire, pull the thread around the guide wheel, the bottom roller

and the top roller at the mouth of the right clamp of the bobbin holder, and gently release the brake pedal to lower the bobbin holder. The friction roller drives the tube. The tube rotates, and the other end of the induction wire is inserted from the spindle into the wire inlet. After passing through the center of the spindle and passing through the outlet of the twisting disk, the yarn passes through the balloon guide and passes over the wire roller. Over-disconnection detection Device, over-feeding roller, winding the thread around the take-up bobbin, gently tapping the foot of the brake pedal, delaying the press frame for 2 to 3 seconds, and the friction stick driving the tube to rotate, so that the yarn after twisting Wire to bobbin. (5) When the yarn in the winding is broken, the guide wheel sends a signal, and the red light on the wall plate of each section is flashed to inform the operator to deal with it in time.

Five. Display process parameter settings

1 power on, screen display interface

Interface description: (1) 〖Audio scroll bar〗 Display the cause of the fault when the machine fails;

(2) 〖equipment stop〗 is the same as the machine start/stop button

(3) 〖Spindle speed〗 is the display field;

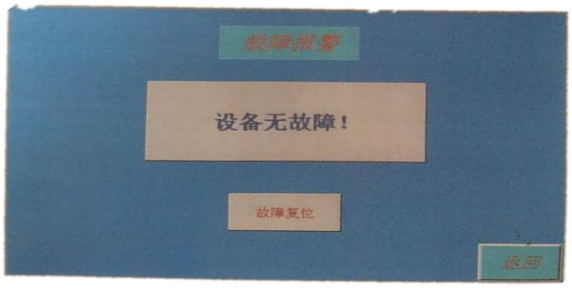
(4)〖Yarn twist degree〗The yarn twist degree can be directly set in and the winding speed and the overfeed speed are automatically changed according to the proportional coefficient;

(5) 〖winding speed〗 can be set directly to the winding speed, "Yarn twist" and "overfeed speed" automatically change according to the proportional coefficient;

(6) 〖Overfeed speed〗 You can directly set the overfeed speed without changing other parameters.

⑺ 〖I / O display〗 input and output ports for the PLC status is not adjustable, click into the interface:

(8) 〖Fault alarm〗 is the cause of monitoring and alarm when the fault occurs, it is not adjustable. Click "Fault reset" after troubleshooting and click "Back" to return to the previous menu



(9) Click 〖Parameter Settings〗,the interface is displayed as follows, enter the factory password 2623,

Enter the parameter adjustment interface

(1) Direct setting - In this interface, click directly to input the actual frequency of the belt, the actual frequency of the roller, the actual frequency of the drum, and the actual frequency data of the friction roller.

The set range: 0.00HZ-100HZ

(2) Proportional calculation - In this interface, directly input the motor ratio 1 of the actual frequency of the belt, and adjust the ratio of the ratio of the roller motor and the slot motor.

Setting range: 0.001-100

⑶ spindle direction Z twist direction - the dragon with a positive twist

direction . S twist direction - the direction of the dragon with a reverse twist

Sixth, the relevant parameters of the inverter have been set by our company (with inverter manual)

Seven, circuit schematic