

veneer fleccing machine user's manual

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1.Basic info

1.1 the core date of machine

info

model FL450

input power 380V 50HZ

manufactory Huzhou Ranow Hi-tech Machinery Co., Ltd. (湖州睿宝智能装备)

adopted stradran A. CE safty declaration and MD directives

B. ISO 19085-11:2024 《木工机械 — 安全 — 第 11 部分：组合机床》

1.2 CE Declaration of Conformity

DECLARATION OF CONFORMITY

THIS IS HEREBY DECLARED THAT FOLLOWING DESIGNATED PRODUCT COMPLIED WITH THE ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF 2006/42/EC、2014/35/EU、2014/30/EU ON THE APPROXIMATION OF THE LAWS OF THE MEMBER STATES RELATING TO IT. 、

APPLICANT'S NAME AND ADDRESS:

NAME: HUZHOUE RANOW HI-TECH MACHINERY CO LTD.

ADDRESS:11-101 BUILDING NO.51 XIWAN LINGHU NANXUN HUZHOUE ZHEJIANG CHINA

NAME AND ADDRESS OF MANUFACTURER:

NAME: HUZHOUE RANOW HI-TECH MACHINERY CO LTD.

ADDRESS : 11-101 BUILDING NO.51 XIWAN LINGHU NANXUN HUZHOUE ZHEJIANG CHINA

DESCRIPTION OF MACHINERY:

PRODUCT NAME:

Trademark / brand : RANOW

MODELTYPE: FL450

APPLICABLE STANDARDS:

EN ISO 12100:2010

EN 60204-1:2018+A1:2025

EN IEC 61000-6-4:2019

EN IEC 61000-6-2:2019



THIS DECLARATION APPLIES TO ALL SPECIMENS MANUFACTURED IDENTICAL TO THE MODEL SUBMITTED FOR TESTING / EVALUATION. ASSESSMENT OF COMPLIANCE OF THE PRODUCT WITH THE REQUIREMENTS RELATING TO SAFETY STANDARDS LISTED ABOVE WAS PERFORMED BY MANUFACTURE.SIGNED ON BEHALF OF: HUZHOUE RANOW HI-TECH MACHINERY CO LTD.

1.3. This equipment fully complies with the 6 core safety dimensions of the ISO 19085-11:2024 standard, with specific requirements as follows:

Risk Assessment and Design Principles (Basic Requirements): A full-process risk assessment was completed during the equipment design phase to avoid hazards such as mechanical pinching injuries and electrical leakage.

Protective Device Requirements: Moving components (e.g., composite rollers, winding shafts) are equipped with protective covers, which are automatically locked in the non-operating state.

Operational Safety Specifications: Only trained personnel are permitted to operate the equipment; the safety status must be confirmed before starting the equipment.

Maintenance and Repair Safety: During maintenance or repair, the main power supply must be disconnected and the "Do Not Switch On" sign must be posted. Repair of key components requires manufacturer authorization.

Warning Signs: Prominent safety warning labels (in both Chinese and English) are posted in the equipment's hazardous areas (e.g., drying oven, glue application rollers).

Personnel Training and Emergency Response: The manufacturer provides operational training; this manual is attached with emergency shutdown procedures and contact information for fault handling.

2. Welcome & Company Introduction

Thank you for choosing products from RANOW Equipment. Throughout the full-cycle usage, the stable performance and excellent functionality of RANOW Equipment will bring you peace of mind and convenience.

Huzhou Ranow HI-TECH machinery co.,ltd. has always adhered to the concept of "pursuit of details" in R&D and production, integrating "designs that meet production needs" and "equipment stability" into all aspects of production management. We attach great importance to user experience: designated personnel conduct regular customer visits, and users' needs and suggestions are timely fed back to the R&D team—this is the core driving force behind the company's sustained and rapid development. The company's main products include: Wood Veneer Finger Jointing Machines, Wood Veneer Laminating Machines, Wood Veneer Sanding Machines, Wood Veneer Slitting Machines, Wood Veneer Joining Machines, etc. All equipment is manufactured in compliance with EU CE safety standards to ensure durability and safety.

3. Safety Declaration & Warning

3.1. general safety rules

The design, manufacturing and inspection of this equipment fully comply with ISO 19085-11:2024 and EU CE safety standards (such as 2006/42/EC). Any operation, maintenance or repair work must be performed by professionally trained and qualified personnel, and all provisions of this manual must be strictly abide by. Improper operation may result in equipment damage, fire or personal injury (e.g., pinching, scalds, electric shock), which must be taken seriously.

For your own safety, read the user's manual carefully. Learn its application and limitations as well as specific potential hazards pertinent to this machine. Do not attempt to operate until you have read thoroughly and understand completely all instructions, rules, etc. contained in this manual. Failure to comply can result in accidents involving fire, electric shock, or serious personal injury. Keep owners manual and review frequently for continuous safe operation.

3.2 mandatory safety requirement

Before operation, protective equipment must be worn: non-slip gloves (to avoid glue contamination and mechanical scratches), safety goggles (to prevent glue splatters), and heat-resistant aprons (to prevent scalds in the drying oven area).

When the equipment is in operation, it is prohibited to insert hands, tools, or other foreign objects into moving parts (such as composite rollers, winding shafts, or inside the drying oven). When the drying oven is in operation, its surface temperature can reach 80-120°C. Do not touch the oven's outer casing to prevent scalds. Before repairing or cleaning the equipment, the main power supply must be disconnected and the plug must be unplugged. Meanwhile, a "Do Not Switch On" sign must be posted.

If the equipment malfunctions (e.g., abnormal noise, smoke, or glue leakage), immediately press the emergency stop button (red, located in a prominent position on the main operation panel), disconnect the power supply, and contact after-sales service. Do not stack flammable and explosive materials (such as alcohol, thinners) near the equipment.

A dry powder fire extinguisher must be provided in the drying oven area.

So you have to follow the below key instructions

***KEEP GUARDS IN PLACE AND IN WORKING ORDER. REMOVE ADJUSTING KEYS AND WRENCHES.**

For habit of checking to see that keys and adjusting wrenches are remove from the machine before turning it on.

***KEEP WORK AREA CLEAN.**

Cluttered areas and benches invite accidents.

***DO NOT USE IN DANGEROUS ENVIRONMENTS.**

Do not use power tools in damp or wet locations, or expose them to rain. Keep work area well illuminated.

***KEEP CHILDREN AWAY.**

all visitors should be kept at a safe distance from work area.

***MAKE WORKSHOP CHILDPROOF.**

with padlocks, master switches, or by removing starter keys.

***DO NOT FORCE THE MACHINE.**

It will do the job better and be safer at the rate for which it was designed.

***USE THE RIGHT TOOLS.**

Do not force the machine or attachments to do a job for which they were not designed.

***WEAR PROPER APPAREL.**

Avoid loose clothing, gloves, neckties, rings, bracelets, or jewelry, which could be caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.

***SECURE WORK.**

use clamps or a vice to hold work when practical. It is safer than using your hand and frees both hands to operate the machine.

***DO NOT OVERREACH.**

keep proper footing and balance at all times.

***MAINTAIN MACHINE IN TOP CONDITION.**

Keep machine clean for best and safest performance. Follow instructions for lubricating and changing accessories.

*** DISCONNECT MACHINE FROM POWER SOURCE.**

before servicing and when changing accessories, or when mounting and remounting motor.

***USE RECOMMENDED ACCESSORIES.**

consult the owner's manual for recommended accessories.

***NEVER LEAVE MACHINE RUNNING UNATTENDED.**

When the power is turned off, do not leave the machine until it comes to complete stop.

***AVOID ACCIDENTAL STARTING.** Make sure switch is in “ OFF ” position before plugging in cord. Never clean or remove chips

while the machine is running.

***WARNING LABELS.**

do not remove or alter warning labels and replace any that become obscured.

4. Manual Description

4.1 manual purpose

This manual is a dedicated operation guide for the FL450 Veneer fleecing Machine, designed to help operators: Correctly understand the equipment structure and functions; Safely and standardizedly complete the composite production process; Master daily maintenance methods and common fault troubleshooting; Ensure the long-term stable operation of the equipment and produce high-quality continuous lengthened wood veneers.

4.2 scope of application

Applicable machines: FL450 veneer jointing machine;

Applicable person: equipment operators and maintenance personnel trained and certified by the manufacturer;

Applicable range: all kind of natural veneer & engineered veneer (thickness 0.25-0.50mm) 。

4.3 important note

Before using the equipment for the first time, the operator must read and fully understand all contents of this manual. Starting the machine is prohibited if the operating procedures are not mastered. This manual must be stored in the designated document box next to the equipment for easy reference at any time, and must not be altered or lost. Equipment parameters (such as heating temperature, torque value) shall be adjusted according to the thickness of wood veneers and the type of

glue. It is recommended to conduct small-batch test runs before the first production. If the content of this manual is updated, the manufacturer will notify through after-sales channels, and the latest version shall prevail.

4.41 general safety rule for machine unpacking

1. Pay special attention to the balance of the machine while lifting.
2. Use a forklift with sufficient loading capacity to lift the machine.
3. Have another person help guide the way when lifting the machine.
4. The forks of forklift must protrude from under the machine underside.
5. The forklift must only be driven by an experienced forklift driver.

4.42 the machine is loaded into a box. This box is made by plywood and steel. The plywood is belong to the treated wood. So it is no problem in any country importing control on fumigating .

4.43 the machine is packed with plastic film to avoid any humidity and dust. All moving parts are fixed firmly . there are two bolts screwed on the pallet to fix machine on the pallet.

4.44 please pay attention to the instruction label on the box. And find the front side (labeled with gravity) as the forklift side. Any other side can not be unload .adjust fork position at the gravity let the box keep horizontal while lift.

4.45 broken the front side(labeled with gravity) to open the box. Unscrew the bolts and unloaded machine with forkcar. The forkcar max.lift power must be exceed 3 tons.

5. Machine Profile

5.1 The wood veneer fleecing machine is a high-performance continuous wood veneer laminating device. Its core function is to: through the "gluing → pressing" process, laminate continuously spliced wood veneers with non-woven fabric/non-woven paper on the back of the veneers, forming continuous composite wood veneers. The composite wood veneers after processing have excellent ductility and flexibility, which can greatly reduce breakage during subsequent processing and facilitate follow-up procedures (such as bending, cutting, etc.).

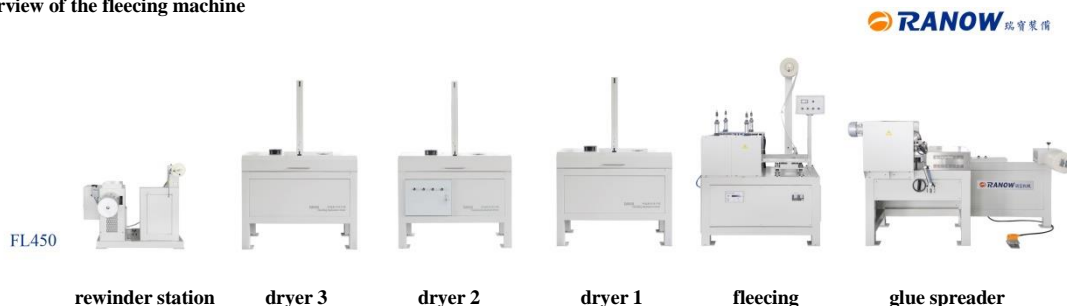
The key expression of the fleecing machine;

Wood veneer fleecing(laminating) machine—fleecing(Laminatinng) specifically refers to the process of bonding two/more materials into a composite structure, which is the standard term in wood processing equipment.

Continuously jointed veneers—jointed(Spliced) emphasizes the process of connecting short wood veneer sections into a continuous strip, a key pre-processing step for continuous production.

Non-woven fabric/non-woven paper—Non-woven is the industry-unified translation for materials made by bonding fibers without weaving, distinguishing them from woven fabrics/papers.

5.2 overview of the fleecing machine

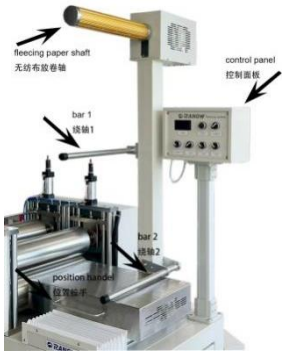






5.3 The production line consists of 6 core components, and the functions of each component are as shown in the table below:

component	Core function
Glue Spreader	apply adhesive to the upper surface of the wood veneer
Fleecing Machine	Composite materials such as non-woven fabric/non-woven paper are pressed and bonded onto the glued surface of the wood veneer
Dryer 1/2/3	The glued composite wood veneer is subjected to drying treatment
Rewinder Station	The dried finished composite wood veneer is arranged and rewinded up

6. Introduction to Basic Equipment Functions

No.	Photo	Basic function
1		Basic control panel The basic function of the line will be controlled with these buttons
2		releaser shaft and bumper adjusting the screw to make sure the appropriate bumper force step the foot switch to inflate the shaft
3		rewinder shaft CW/CCW direction control switch the handle to the position of stop/forward/backword
4		Unwoven paper shaft &rewinder shaft torque control Switch on the controller and adjust the button to set appropriate torque tension
5		The main shafts and parts of the glue spreader The dark polyurethane shaft is glue spreader ,the stainless shaft is adjusting gule spreading coating amount, the two pillars with ball is the bracket of the glue barrier .
6		The glue spreader adjustment & idler roller Adjust the wheel of glue spreader adjustment to make out the ideal coating amount. Adjust the wheel of shaft lift to set appropriate force on the veneer
7		Start panel start glue motor & fleecing paper motor ,control the heating shaft temperature

8		Fleecing part
9		<p>Insect the glue barriers</p> <p>Insect the barriers into the gap of the two shafts ,ensure the barriers locked by the brackets each ,pay attention to the direction of the barriers</p>
10		<p>Control box of the Drying channel</p> <p>The control cabinet controls the heating tubes and ventilation fans.</p>
11		<p>The releaser inflatable sleeve</p> <p>match the 8 inches inner diameter veneer roll</p>
12		<p>glue baffle</p> <p>A glue baffle with a groove on one side, which prevents glue spillage</p>

7. Operation Procedures

7.1 Installation of Wood Veneer Roll

Pretreatment

After finger-jointing, the wood veneer roll shall first be neatly arranged by a packing machine to prevent the roll from loosening and affecting lamination accuracy.

Core Adaptation

If the roll core is 3 inches: Directly slide the roll onto the unwinding shaft. If the roll core is 8 inches: First install the "unwinding air expansion sleeve" (No. 11) on the unwinding shaft, then slide the roll onto it.

Securing the Roll

Mount the roll on the unwinding shaft (No. 2) and adjust it to the centered position. Press down the foot switch to inflate the unwinding air expansion shaft, which clamps the roll (to prevent displacement during operation).

Damping Adjustment

Adjust the "damping screw knob" (No. 2) to set an appropriate damping force—this ensures the unwinding speed matches the production line and prevents tension or slack of the roll.

Key Terminology & Scene Adaptation Critical Term Accuracy

finger-jointing: Woodworking-specific term for joining wood pieces end-to-end with interlocking "finger" cuts, ensuring structural integrity of the roll.

unwinding shaft: Standard term in industrial unwinding systems (avoids ambiguity vs. "roll shaft").

unwinding air expansion sleeve: Industry jargon for inflatable sleeves that secure rolls of different core sizes, emphasizing its "air-expanded" function.

damping force: Mechanical term for resistance that controls unwinding speed (avoids "resistance force," which is too generic).

Action Description Precision

slide onto: Captures the smooth, vertical/horizontal movement of fitting the roll onto the shaft (more accurate than "put on").

Press down the foot switch: Reflects the hands-free operation common in production lines (specifies "press down" to distinguish from "toggle" or "press").

clamps the roll: Uses the active voice to clarify the air shaft's function (avoids passive "the roll is clamped," which weakens process clarity).

Technical Document Consistency

Item numbering (No. 2/11) aligns with standard equipment manual formatting. Em dashes in "damping force—this ensures..." connect cause and effect, a common technique in technical writing to explain why an adjustment is needed. parallel structure in Core Adaptation and numbered steps in "Securing the Roll" enhance readability for operators.

7.2 Operation of the Glue Spreader

1. Installing the Glue Baffle

Take the glue baffle (No. 12) and insert it along the gaps on both sides of the glue application roller and the glue adjustment roller. Ensure the glue baffle is held in place and locked by the stainless steel ejector pins with balls on both sides (No. 5) (refer to the insertion method of (No. 9) to prevent glue leakage.

2. Starting and Adjusting

Press the motor start switch on the "start operation panel" (No. 7); the motors of the glue spreader and the laminating machine will operate synchronously. Turn the "glue amount handwheel" (No. 6) and observe the state of the glue layer on the dark-colored glue application roller (No. 5) until the glue layer thickness meets the desired standard (the glue layer is uniform, with no missing coating and no accumulation). (Optional) Adjust the "glue application idler roller lifting knob" (No. 6) to control the pressure of the idler roller on the veneer. (Adjust according to the veneer thickness to ensure smooth conveyance of the veneer.)

Key Terminology Notes

Glue baffle (specialized term for glue spreader components, referring to the part that blocks glue from overflowing)

Glue application roller (core component for applying glue, with "application" emphasizing its functional purpose)

Glue adjustment roller (used to regulate glue distribution, distinct from the glue application roller)

Operate synchronously (describes the coordinated operation of the glue spreader and laminating machine motors, a common industrial expression)

7.3 Operation of the Laminating Machine

1. Installing Non-woven Fabric / Non-woven Paper

Place the non-woven fabric or non-woven paper roll onto the unwinding shaft (**No. 8**) of the laminating machine, and adjust it to the centered position. Activate the air-expanding shaft for composite paper (via the basic operation panel, **No. 1**) to secure the non-woven roll. Turn the magnetic powder torque control knob (**No. 4**) to set an appropriate unwinding resistance—this ensures the non-woven fabric is conveyed stably without wrinkles.

2. Guiding the Non-woven Fabric Path

Guide the non-woven fabric around Winding Shaft 1 and Winding Shaft 2 of the laminating machine in sequence, forming a Z-shaped path before it enters the composite roller (the Z-shaped path enhances tension stability). Determine the position of the composite material appropriately. During the machine's operation, use the handle (**No. 8**) on the laminating machine to push and pull back and forth, fine-tuning the position of the non-woven fabric on the veneer. Ensure the non-woven fabric is fully aligned with the veneer (no deviation).

Key Terminology Notes

Unwinding shaft ; standard industrial term for the shaft that holds and releases material rolls during processing

Air-expanding shaft ; a specialized shaft that secures rolls by expanding with compressed air, common in laminating/printing equipment

Magnetic powder torque control knob ; adjusts resistance during unwinding via magnetic powder, preventing material slack/wrinkles

Composite roller ; core component that presses and bonds multiple materials, e.g., non-woven fabric and veneer

7.4 Operation of the Drying channels

1. Check the Status

Ensure the heating tubes inside the 3 drying ovens (**Dryer 1/2/3**) are undamaged and the ventilation fans function properly.

2. Start Control

Turn on the drying oven switch on the "basic operation panel" (**No. 1**) to activate the 3 drying ovens. (The heating temperature can be adjusted via the control cabinet according to the veneer thickness and glue type.)

Each drying oven is equipped with 6 heating tubes, and the heating intensity of each oven can be independently controlled via the control cabinet (**No. 10**). (It is recommended to set the temperature based on production experience to avoid veneer deformation or glue carbonization caused by excessively high temperatures.)

3. Subsequent Process

The laminated veneer passes through the 3 drying ovens in sequence. After the glue is fully cured, it enters the winding machine (**No. 3**) for rewinding.

Key Terminology Notes

Drying channel; standard industrial term for equipment used to dry or cure materials, here for glue curing on veneer

Heating tube; core heating component in the drying oven, "tube" accurately describes its structural form

Glue curing; professional expression for the process of glue hardening to bond materials, critical for the laminating effect

rewinding machine; consistent with previous terminology, referring to equipment that rolls up processed materials like laminated veneer

7.5 Composite Operation

7.5.1 All parts of the equipment are in the activated state: the glue spreader is raised; the composite roller of the laminating machine is raised; the drying ovens are turned on, with their heating tubes activated for heating.

7.5.2 Ensure the unwinding shaft is under appropriate tension.

7.5.3 Pull the installed veneer through between the idler roller and glue roller of the glue spreader, then drag it to between the composite roller and drive roller, leaving a 50cm margin to facilitate manual pulling after startup.

7.5.4 Install the composite material on the composite unwinding shaft. Do not turn on the composite unwinding torque controller yet. Use the Z-shaped winding method to leave the end of the material on the platform and join it with the veneer (you can tape the end of the composite material and the end of the veneer together to facilitate subsequent operations).

7.5.5 Turn on the motor start on the start operation panel (**No. 7**); at this point, all drives of the production line will be activated. Adjust the speed adjustment knob on the "basic operation panel" (**No. 1**) to set the desired speed.

7.5.6 Turn on the winding torque controller and set the initial torque value to approximately 18-22.

7.5.7 After completing the above operations, turn on the glue roller lifting and cold roller lifting on the "basic operation panel" (**No. 1**). At this point, the idler

roller of the glue spreader will clamp the veneer and convey it forward, and the composite cold roller will also push the veneer forward. Manually pull the end of the veneer through the drying ovens, then wind it onto the winding machine and turn on the forward/reverse switch (the direction should be determined according to requirements).

7.5.8 Turn the drying ovens on or off using the drying oven switch on the "basic operation panel" (**No. 1**).

7.6 Shutdown Procedure

Press the buttons for "Glue Roller Lift" and "Composite Cold Roller Lift" to lift the rollers.

Turn off the magnetic powder torque controller (**No. 4**) and press the "Stop" button on the winding machine.

Step on the foot switch to deflate the unwinding air-expanding shaft, then remove the remaining veneer roll.

Turn off the main switch of the drying oven control cabinet and the main power supply of the equipment.

Clean the equipment:

Wipe the glue roller, glue adjustment roller, and composite cold roller with a cloth to remove residual glue;

Clean up the remaining glue in the glue tank to prevent solidification and blockage;

Clean up debris around the equipment.

7.7 Key Operation Notes

Unwinding damping adjustment: Adjust to the maximum possible level with the upper limit of "no tearing or breaking of the veneer" (to avoid uneven gluing caused by veneer slack).

Composite torque control: If the composite material is thin non-woven fabric (thickness $\leq 0.1\text{mm}$), the magnetic powder torque controller can be turned off, and stability can be maintained solely by the tension path; if it is thick non-woven paper (thickness $\geq 0.2\text{mm}$), the torque control must be turned on.

The towel on the composite cold roller must be sufficiently wetted to ensure composite quality.

Composite cold roller pressure: Complete compression is prohibited (with a gap of 0.1-0.2mm maintained), otherwise the veneer will twist and deviate.

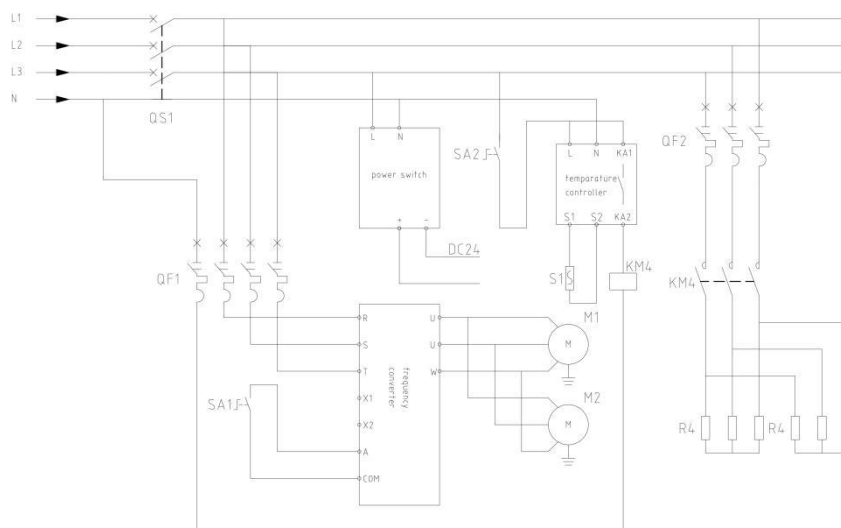
Glue application idler roller gap: A gap consistent with the veneer thickness must be maintained between the idler roller and glue application roller (e.g., 0.3mm veneer requires a 0.35mm gap) to prevent veneer deformation due to extrusion.

8. diagram

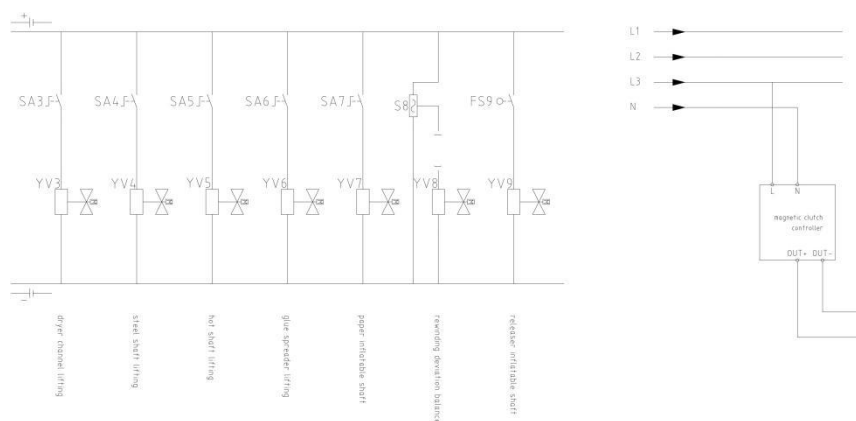
8.1 WS32 Definition for connection of plug WS32

No.	Parts	Specification	Quan.
AP4.1	<u>Gule spreader part to fleecing part connection 1</u> Φ 2.5-L12, L12, L12, Φ 2.5-U, V, W, Φ 2.5-L1,L2,L3	WS32-11 PIN cable 3meters*1 JACK cable 1 meters*2 公电缆 cable 3 米*1 母电缆 cable 1 米*2	1 unit
AP4.2	<u>Gule spreader part to fleecing part connection</u> L1-1, L2-2, L3-3 Φ 2.5-24V, Φ 2.5-0V, Φ 2.5-10V, Φ 1.5-A1, Φ 1.5-COM, Φ 1.5-SEN+, Φ 1.5-SEN-	WS32-10 PIN cable 3meters*1 JACK cable 1 meters*2 公电缆 cable 3 米*1 母电缆 cable 1 米*2	1 unit
AP4.3	<u>fleecing part to rewinder station part connection</u> Φ3.5-L1, Φ3.5-L2, Φ3.5-L3 Φ 1.5-23V, Φ1.5-0V, Φ1.5-OUT+, Φ1.5-OUT-	WS32-8 PIN cable 7meters*1 JACK cable 1.5 meters*2 公电缆 cable 7 米*1 母电缆 cable 1.5 米*2	1 unit
AP4.4	<u>Drver part connection</u> Φ 3.5-L1, Φ3.5-L2, Φ3.5-L3 Φ 3.5-N	WS32-4 PIN cable 4meters*1 JACK cable 1.5 meters*2 公电缆 cable 4 米*1 母电缆 cable 1.5 米*2	2unit

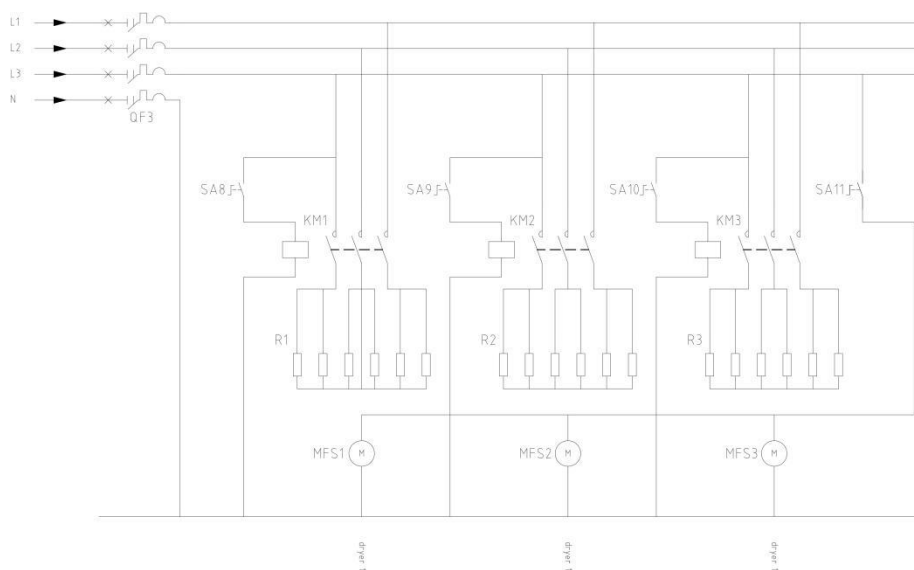
8.2 Circuit diagram 电气原理图



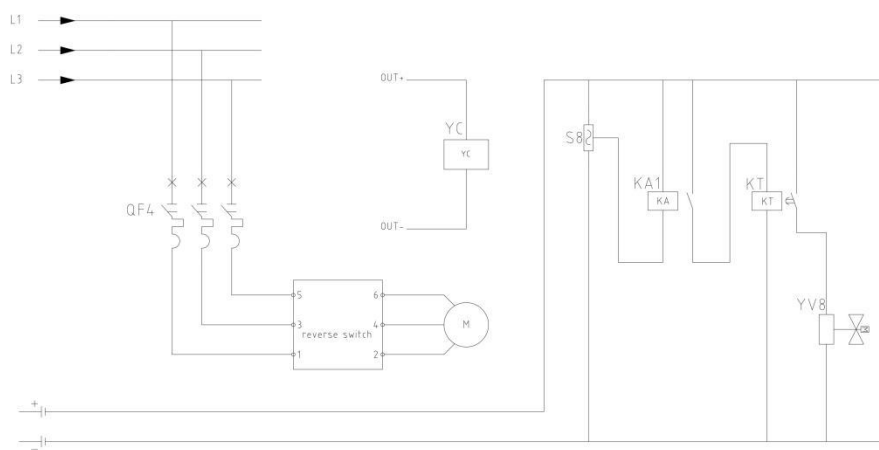
main circuit
涂胶机主电路原理图



solenoid circuit&fleeing circuit
复合机电磁阀与控制器电气原理图



dryer circuit
烘干机部分电气原理图



rewinder station circuit
收卷机部分电气原理图


















LEGEND 图例			
No.	Mark	symbol	definition
1	N		input power N
2	L1 L2 L3		input power L
3			CAM switch
4			air switch
5			AC contactor
6			intermedia relay
7			solenoid valve

No.	Mark	symbol	definition
8			emergency stop
9			start & stop button
10			fans
11			switch
12			foot switch
13			start & stop button with light (close)
14			start & stop button with light (open)
15			magnetic clutch
16			sensor
17			time relay
18			heating part
19			motor

No.	Mark	symbol	definition
20			frequency converter
21			switch power
22			temperature controller
23			reverse switch
24			magnetic clutch controller

9 spare parts list

9.1 Air cylinder parts

No.	Parts 品名	Specification 规格	Quan.数量	Brand 品牌
FL1.1	fleece shaft up-down cylinder 复合辊升降气缸	SCJ32*50-50	4	 星辰气动 XINGCHEN
FL1.2	Glue spreader up-down cylinder 涂胶升降气缸	MA32-100CA	2	 星辰气动 XINGCHEN
FL1.3	Dryer channel lift cylinder 烘干箱开启气缸	SC32-300	3	 星辰气动 XINGCHEN
AR1.7	Glue spreader up-down cylinder 涂胶升降气缸接头	F-MA32I	2	 星辰气动 XINGCHEN
FL1.5	rewinder deviation cylinder 收卷机纠偏气缸	XCMA25-10SCA	1	 星辰气动 XINGCHEN
AR1.8	rewinder deviation cylinder bracket 收卷机纠偏气缸支座	F-MA25SDB	1	 星辰气动 XINGCHEN
AR1.1	Cold shaft up-down solenoid valve 复合辊升降电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	hot shaft up-down solenoid valve 热压辊升降电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	Glue spreader up-down solenoid valve 涂胶升降电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	releaser inflatable shaft solenoid 放卷气胀轴电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	dryer channel open solenoid 烘干箱开启电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	deviation blance soleniod 收卷纠偏电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.1	fleeceing paper shaft soleniod 无纺布轴电磁阀	4V110-06 DC24	1	 AIRTAC
AR1.2	releaser shaft rotary joint 放卷气胀轴旋转接头	KSL06-02S L 型	1	 星辰气动 XINGCHEN
AR1.3	Fleeceing shaft rotary joint 无纺布气胀轴旋转接头	KSH04-01S I 型	1	 星辰气动 XINGCHEN
AR1.4	Oil-water separator 油水分离器	AL3000-03	1	 星辰气动 XINGCHEN
AR1.5	releaser shaft air pressure Valve 放卷轴调压表	AR2000-02 with bracket 带支架	1	 星辰气动 XINGCHEN

9.2 Electricity parts 电气部件

No.	Parts 品名	Specification 规格	Quan.数量	Brand 品牌
EA2.1	start/stop motor switch 电机启动/停止开关		1	
EA2.1	hot shaft switch 加热辊加热启动开关		1	
EA2.1	hot shaft up-down switch 加热辊升降开关		1	
EA2.1	fleeing shaft up-down switch 复合辊升降开关		1	
EA2.1	fleeing paper inflatable shaft switch 无纺布气胀轴开关		1	
EA2.1	glue spreader up-down switch 涂胶辊升降开关		1	
EA2.1	dryer1switch 烘干箱 1 启动开关		1	
EA2.1	dryer2switch 烘干箱 2 启动开关		1	
EA2.1	Dryer3switch 烘干箱 3 启动开关		1	
EA2.1	Open dryers channel switch 烘干箱开合开关		1	
EA2.1	Fan switch 风扇开关		1	
EA2.6	CAM switch 万能转换开关		1	
EA2.46	Rewinder shaft reverse switch 收卷倒顺开关	HY2-30	1	
EA2.33	temperature controller 加热温度控制器	KT72-4011*A (K 型 继电器输出)	1	
EA2.34	temperature sensor 温度传感器	M6-K (1.5meter)	1	
EA2.47	speedometer 线速度表	ZH-5135 (0-10V)	1	N/M
EA2.48	speed control switch 调速器	LA42DWQ-22 5k	1	
EA2.49	fleeing paper shaft magnetic clutch 无纺布磁粉离合器	空心轴磁粉制动器 1.2KG (12nm)	1	
EA2.50	rewinding shaft magnetic clutch 收卷磁粉离合器	双轴磁粉离合器 2.5KG (25nm)	1	
EA2.51	fleeing paper shaft magnetic clutch controller 无纺布离合控制器	KTC800A	1	
EA2.51	rewinding shaftmagnetic clutch controller 收卷离合控制器	KTC800A	1	
EA2.52	power switch supply 开关电源	DR-120-24	1	
EA2.25.4	fleeing machine air switch 空气开关	iC65N D25A 4P	1	
EA2.25.3	fleeing machine air switch 空气开关	iC65N D25A 3P	1	
EA2.63.4	dryer2 air switch 空气开关	iC65N D63A 4P	1	
EA2.26	rewinding intermediate relay 中间继电器	MY2N-GS DC24	1	
EA2.27	rewinding intermediate relay socket 中间继电器底座	PYF08A-E	1	
EA2.53	rewinding time relay 时间继电器	H3Y-2	1	ECNKO
EA2.27	rewinding time relay socket 中间继电器底座	PYF08A-E	1	
EA2.28.12	heating shaft AC contactor 加热辊交流接触器	LC1D12	1	
EA2.28.18	Dryer1 AC contactor 烘干箱 1 交流接触器	LC1D18	1	
EA2.28.18	Dryer2 AC contactor 烘干箱 2 交流接触器	LC1D18	1	
EA2.28.18	Dryer3 AC contactor 烘干箱 3 交流接触器	LC1D18	1	
FL2.20	Dryer1 fan 150 烘干箱 1,150 通风扇+网	YM15050A,P/NFP-108EX-S1-B,AC220	1	
FL2.20	Dryer1 fan150 烘干箱 1,150 通风扇+网	YM15050A,P/NFP-108EX-S1-B,AC220	1	
FL2.20	Dryer1 fan150 烘干箱 1,150 通风扇+网	YM15050A,P/NFP-108EX-S1-B,AC220	1	

EA2.29	wire end 接线端子	UK2.5	N/M	
EA2.30	fixings 终端固定件	E/UK2	N/M	
EA2.31	connect strip 短路连接条	FBI-10-6	N/M	
EA2.32	common barrier 通用挡板	D-UK2.5B, 1.5N	N/M	
EA2.24	fleeing driving motor 复合传动电机*	0.75KW, NMRV050, 1: 30,25/8	1	WANYU
EA2.37	glue spreader driving motor 涂胶传动电机*	1.5KW, NMRV063, 1:30,25/8	1	WANYU
EA2.38	rewinder station motor 收卷传动电机*	GH-28-750-10-S, 键 8	1	
EA2.39	fleeing driving motor 复合传动电机*	S47DRE80M4, 0.75, 1:29, M1A, 25/8	1	
EA2.40	glue spreader driving motor 涂胶传动电机*	S47DRE80M4, 1.5, 1:29, M1A, 25/8	1	
EA2.41	rewinder station motor 收卷传动电机*	R37DRE80M4, 0.75, 13.25, M5-180	1	
EA2.42	rewinder shaft foot switch 收卷气胀脚踏开关	LT4 (yellow) (self-lock) (自锁)	1	N/M
EA2.42	releaser shaft foot switch 收卷气胀脚踏开关	LT4 (yellow) (self-lock) (自锁)	1	N/M
FL2.21	connecting pipe 连接管	46-60 -670	1	N/M
FL2.22	installation base 固定底座	46-60-6640	2	N/M

10. Daily Maintenance

10.1 Daily Maintenance (to be performed after shutdown)

Cleaning--Wipe the glue application roller, glue adjustment roller, and composite cold roller with a cloth to remove residual glue;

Clean the glue tank, rinse it with clean water, and then wipe it dry.

Inspection-- Protective covers: Ensure there is no looseness or damage to the protective covers of all moving parts;

Cables: Check that the aviation plugs and cable connections are secure, with no damage to the outer sheath;

Air-expanding shaft: After inflation, check for air leakage (apply soapy water to the joints; no bubbles indicate normal operation);

Lubrication--Add a small amount of lubricating oil (Type: No. 3 Lithium-Based Grease) to the bearings of the unwinding shafts and winding shafts, with approximately 5ml of oil per bearing.

10.2 Weekly Maintenance (recommended to be performed on weekends)

Inspect glue application rollers and composite rollers: Ensure there are no scratches or deformation on the roller surfaces. For minor scratches, polish with 800-grit fine sandpaper;

Inspect drying oven heating tubes: Open the drying oven door and confirm that all 6 heating tubes heat normally (no blackening or breakage). Replace any faulty tubes (Type: 220V 1kW);

Inspect magnetic powder torque controller: Adjust the torque knob and observe whether the tension of the winding shaft is uniform. If there is significant tension fluctuation, clean the magnetic powder inside the controller (or contact after-sales service for replacement);

Tighten screws: Check all fixing screws of the equipment (e.g., glue spreader brackets, laminating machine base) and tighten any loose screws with a wrench.

10.3 Monthly Maintenance

Inspect motors: Touch the motor housings (glue application motor, laminating motor, winding motor) by hand to confirm no abnormal heat (normal temperature $\leq 60^{\circ}\text{C}$), and listen for no abnormal noise during motor operation;

Inspect emergency stop buttons: Press the emergency stop buttons to confirm the equipment shuts down immediately, and restarts normally after reset (ensure the emergency stop function is effective);

Calibrate temperature: Use an infrared thermometer to detect the internal temperature of the drying oven, and compare it with the temperature displayed on the control cabinet. If the error exceeds $\pm 5^{\circ}\text{C}$, contact after-sales service to calibrate the temperature sensor;

Replace wear parts: If the surface of the glue application roller is severely worn (resulting in uneven glue application), replace the glue application roller (Type: Special Polyurethane Roller for FL450, Diameter: 80mm).

11. Troubleshooting

Fault Phenomenon	Possible Cause	Solution
1. Veneer deviates during conveyance	1. Uneven damping force of the unwinding shaft; 2. Uneven gap of the glue application idler roller; 3. Uneven pressure of the composite cold roller	1. Readjust the damping screws to ensure uniform damping on both sides; 2. Measure the gap on both sides of the idler roller and adjust it to match the veneer thickness; 3. Adjust the pressure knobs on both sides of the composite cold roller to ensure uniform pressure
2. Uneven gluing (missing coating or accumulation)	1. Improper position of the glue amount adjustment wheel; 2. Glue baffle not installed in place; 3. Abnormal glue viscosity	1. Re-rotate the glue amount adjustment wheel and test with white paper until the glue layer is uniform; 2. Adjust the position of the glue baffle to ensure it is locked without wobbling; 3. Check the glue viscosity (recommended viscosity: 500-800mPa · s at 25°C); replace the glue if it does not meet the requirement
3. Non-woven fabric peels off from veneer after lamination	1. Too low drying temperature; 2. Insufficient drying time; 3. Qualified glue quality	1. Increase the drying oven temperature (e.g., from 60°C to 70°C); 2. Reduce the production line speed (to extend drying time); 3. Replace with the special composite glue recommended by the manufacturer
4. Insufficient tension of the winding machine (loose roll)	1. Too low set value of the magnetic powder torque controller; 2. Worn magnetic powder;	1. Increase the torque value from 18-22N · m to 22-25N · m (not exceeding 30N · m); 2. Contact after-sales service to replace the

	3. Jammed bearings of the winding shaft	magnetic powder; 3. Add lubricating oil to the bearings; replace the bearings if jamming is severe
5. Drying oven does not heat up	1. Damaged heating tube; 2. Malfunctioning temperature sensor	1. Open the drying oven door, check the heating tube, and replace it if damaged; 2. Test the sensor with a multimeter; replace it if there is an open circuit
6. No response after equipment startup	1. Emergency stop button not reset; 2. Main power not connected; 3. Contactor malfunction	1. Rotate the emergency stop button clockwise to release the lock; 2. Check the main power switch and plug to ensure power supply; 3. Contact after-sales service to inspect the contactor; replace it if malfunctioning

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