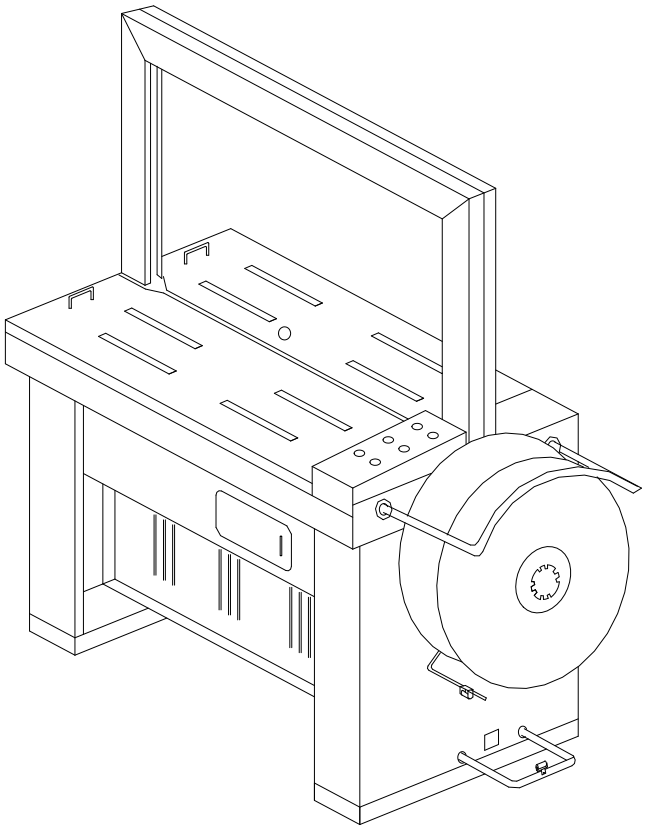
Fully auto strapping machine
Instruction manual



Catalogue

1 The main features of the machine

2 Main specifications and technical parameters

3 The consumptive material and environment for use

4 Installation of the machines

5 Assembling and treading the PP strap

6 Adjustment of the machine

7 Usage of the control panel

8 Troubleshooting

9 Introduction of the control system

10 Machine maintenance and lubrication

11 Structure of Units

Non grounded use is forbidden ! !

1) The main features of the machine

Thank you for using automatic strapping machine, this machine is the company's long-term experience with modern science and technology and engineering personnel carefully to complete the design.

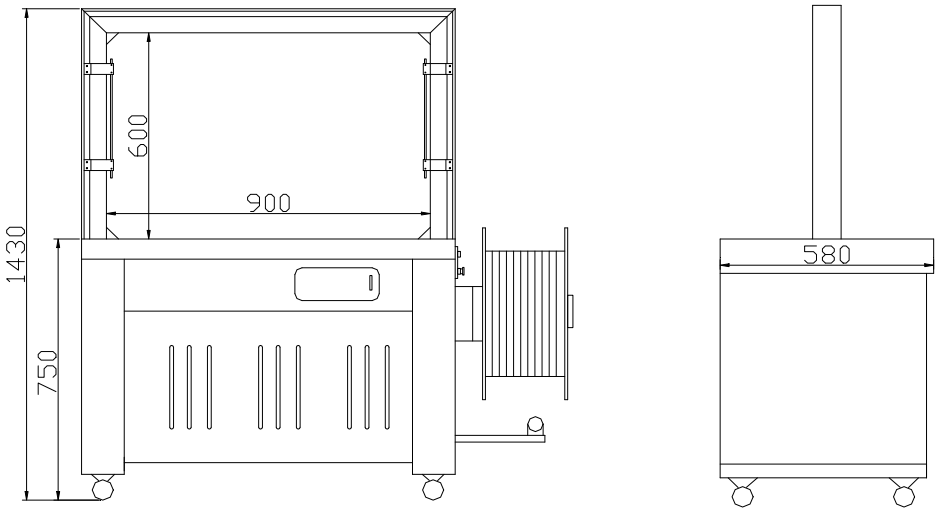
This machine is suitable for strapping on automatic packing line. It can realize high speed strapping according to the size of the package. It takes only 1.8 seconds for each strapping time;

This type of machine adopts advanced design technology. It has the characteristics of high precision, high strength, wear resistance and low noise;

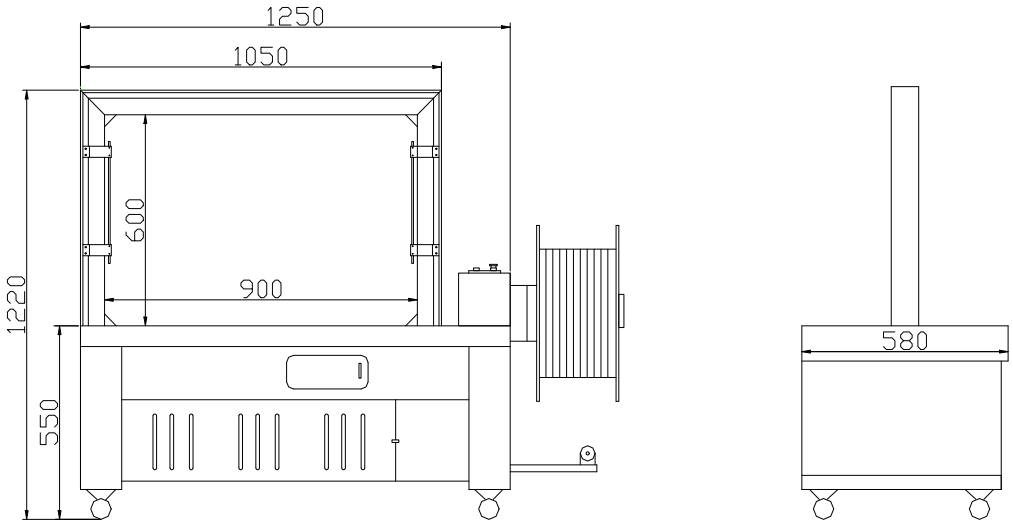
About electrical parts, which using microcomputer control, purchase electrical components for the world known brands, "Schneider", South Korea "Autonics" and “Omron” so on;

Using aluminum Arch design, very convenient for installation and disassembly;

The special design of the machine, only need regular cleaning, without special maintenance, please read this manual carefully before using the machine, so that we can correctly use and maintain the machines.



The size of the high table machine



The size of the low table machine

2) Main specifications and technical parameters

Power Supply： 1Ph,220V/50Hz; 3Ph,380V/50Hz

Dimension of high table：W1400mm×D580mm×H1450mm

Dimension of low table：W1600mm×D580mm×H1220mm

Net weight：180kgs

High table height： 750mm

Low table height： 550mm

Arch size：W800mm×H600mm

Strap mode：parallel one or multi channel, manual, automatic, continuous, foot in various forms;

Electrical configuration: OMRON relay, French Schneider button, Autonics switch

PP strap width: 6,8,10,12,13.5,15mm

PP strap thickness: 0.5mm – 1.0mm

Reel : Paper core, inner diameter 200 -280mm (adjustable)

Strapping speed: 1.8 seconds each

Package size : minimum length 150mm x width 80mm,

the maximum length is not limited, the width of less than 800mm,

the height is less than or equal to 500mm

Power : 0.8 KVA

Strapping tightness: 5kg – 80kg

Adjustable options: Arch size, width of PP strap, power supply

Note : Arch size can be customized according to customer requirements;

3) Environment for use

Automatic strapping machine using polypropylene strap, the size of the package must be no larger than Arch, the size of standard arch is written below:

(width 800mm x height 600mm). The machine can not strap wet, dusty, powdered or too bulky package.

It is recommended to use the following type of PP strap:

Raw material: Polypropylene

Fixed strap width: 8, 9, 10, 11,12 ,12.5, 15mm

Strap Thickness: 0.5 mm - 1 mm

Deviation rate: no more than 50 mm per metre

Coil width: 180 mm - 230 mm

Inner diameter of roll paper core: 200 mm - 405 mm

4) Installation

4.1 place of installation

The machine must be installed close to the power supply and the dry flat hard floor, firmly and not moving.

The power supply must be consistent with the nameplate on the side of the machine.

The installation site shall meet the following conditions:

Room temperature: -20 ~ +50 C

Floor: maximum load 380 kg / square meter

Space: Minimum 2 meters, 1.5 meters, 2 meters

4.2 determine voltage:

Make sure that the power supply voltage is the same as the voltage set by the machine to connect the power supply;

There are usually 2 types of voltage, one is single and the other is three-phase.

A． For the single phase, in addition to the ground wire (yellow green 2 color line), there are two lines in the power line, which can be connected to the fire line and the zero line respectively, regardless of phase;

B. Power line in the three-phase, in addition to the ground wire (yellow green two-color line), there are three Fire Wire, connected to the power supply of three firewire;

Because of the phase problem, the phase change of the three-phase voltage makes the steering of the machine not fit, so the phase must be corrected, two lines will be replaced.

4.3 phase determination method:

Refer to page 7 about " Assemble and treading the PP strap",

First, we turn off the power, then insert the strap into the Pool Feed Shooter,

make sure the inner surface of the strap is downward.

Then turn on the machine to check the rotation of motor, if the PP strap is backward outside of the machine, which means the phase of the power must be change, we only need to replace 2 fire-lines among the three fire-lines. If the PP strap is sent into the Pool box, we shall turn off the power at once.

5) Assemble and treading the PP strap

5.1 Take off the reel nut handle（1）;

5.2 Then take off the reel out circular（2）;

5.3 Find the head of PP strap from the coil, fix the coil into claw, according to the direction of the arrow, Figure 1 shows a clockwise direction.

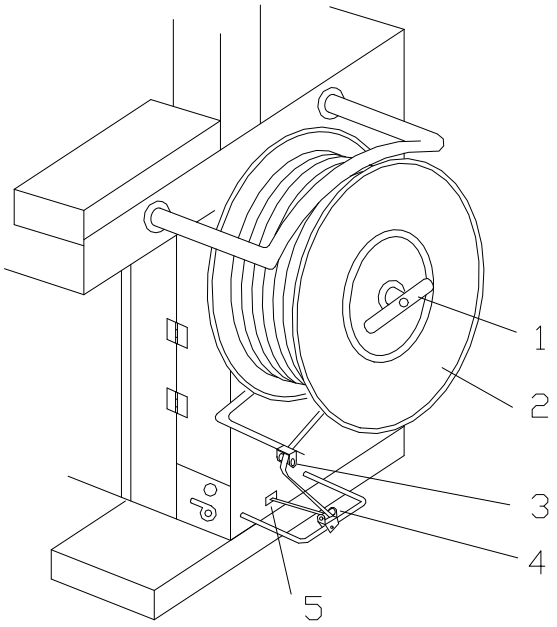


Figure 2　Treading the PP strap outside

5.4 Place the reel out circular ，tighten the Reel Nut Handle(1)；

5.5 Thread the tip of the strap into the Strap Guide rollers(3)，then twist the strap so that the inside surface of the strap turns out downward and outside surface touches the roller, pass the strap through the Free Angle Roll(4)，then insert the strap into the Pool Feed Shooter(5).

5.6 Push the Knob(6) down ward and insert the strap into the Pool Feed Shooter (5). Pull out about 1m of the strap and then open the door of Pool Boxes, insert it under the Strap Cover (8).

5.7 Close the door of the Pool Boxes, turn on the power switch, press the feed switch, then make the strap send to the right point.

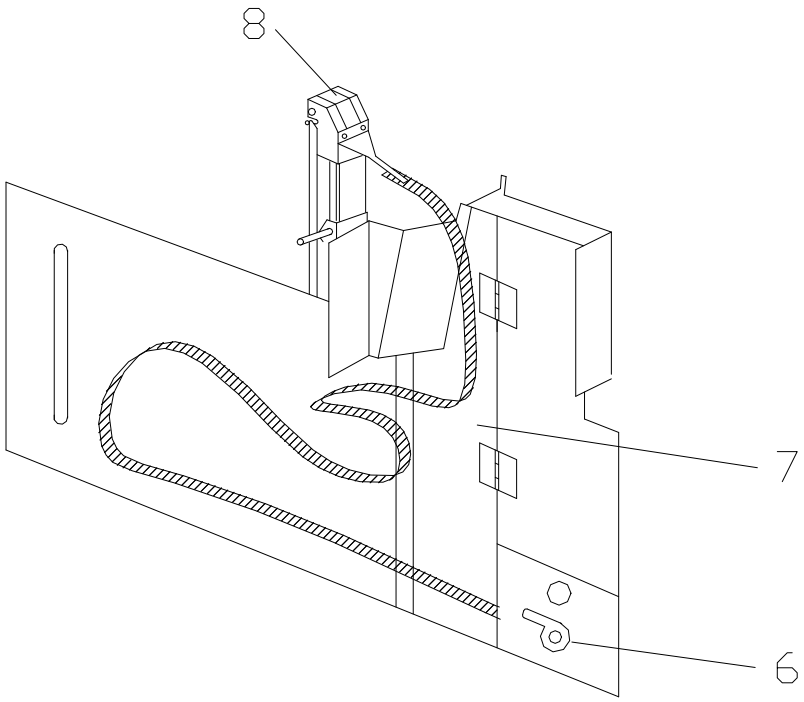


Figure 3　Treading the PP strap inside

6）Adjustment

6.1 Strap tension

The tension dial is used to adjust the tension strength strapping.　When the plastic black hand shank is turned anticlockwise, the strapping tension increase, Otherwise the tension decrease.

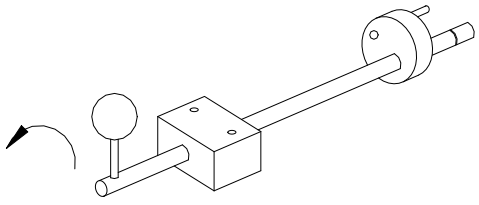


Figure 4　Tension adjustment

6.2 Strap length in Pool Box

Adequate length of the strap must be stored in the pool

box for easy and smooth feeding into the starp way units. The machine has been already set fo the adequate length (about 1.5 times than total length of strapways and arch). If a different quality or thickness of strap is fed, it should be adjusted.

1>.Insufficient length

It may cause error in feeding strap.
Loosen the 8mm nut(1) on the stopper plate and pull out the pool adjust pin(2) outward boy turning it counter-clockwise until the adequate length is stored. After that, fasten the nut (1).

2>.Excessive length

It may cause error by entangled or bent strap. Loosen the nut (1) and turn the pin(2) clockwise.

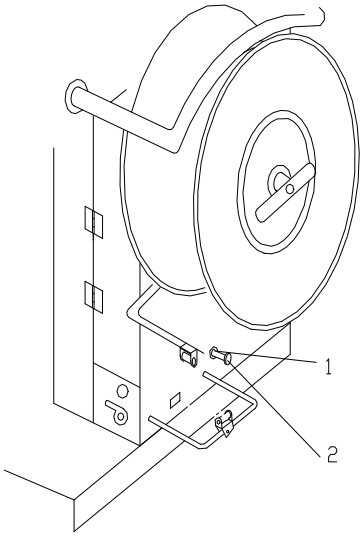


Figure 5 Strap length in Pool Box

6.3 Heater Temperature

Set the heater set volume at the position of 4 to 5 in normal room temperature. If the heater temperature is too high or low, if causes an error or wear sealing force. Turn the heater set volume gradually higher or lower and select the temperature where the best sealing force occurs.

Actually can put the strap onto the heater, when the strap is melt, and smoke, but not be red, it shall be the right temperature; it the temperature is too high, we can turn the delay knob, and adjust 2 to 3 position, which can make the strap stick tighten.

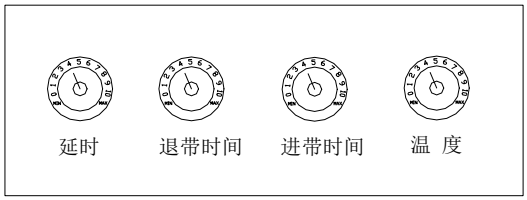


Figure 6 Temperature, Feed time, and Reverse time

6.4 Feed and Reverse time

When the strap is fed from the pool box to strap ways and arch and reversed from them to the pool box, rotating time of feeding motor(M2) should be adjusted by times.

6.4.1 Feed Time

This timer determines the time necessary for feeding the strap. The timer dial is “0” to “10”(0.0 to 1.0 sec.) and should be adjusted by the arch size. The standard arch (850mm*600mm) needs for about 0.4 sec. position at “4”.
If the time is short, the strap may not reach the stopper at the sealing point, that causes an error.

6.4.2 Reverse Time

The timer determines the time necessary for Reversing the strap. It should be adjusted depending on difference between sizes of arch and package. If the time is too short, no strapping tension may be occurred. Set the timer gradually higher or lower for properly reversing length of the strap.

6.5 Strap Thickness Clearance

When the clearance is not correctly adjusted, feeding and reversing become irregular. This mechanism is very important. This normally set for 0.55mm to 0.65mm thick straps. If thicker or thinner strap is used, following adjustment is needed.

1. Make the sealing head returned to its original position by pressing Start Button.

2. Insert the strap between the feed roller (1) and the feed upper roller(2).

3. Loosen nut (4) ， turn bolt(5), make the end of the bolt(5) and the top of ejector pin(6) closer, the clearance is approximately 2~3mm.

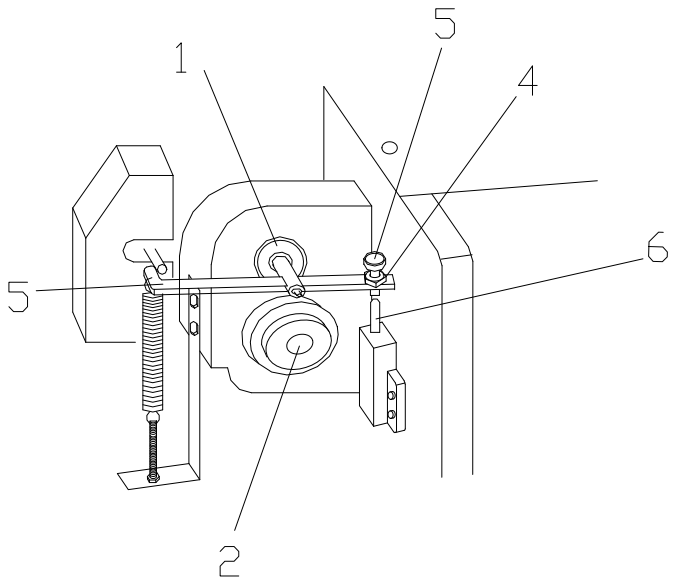


Figure7 Strap thickness clearance

6.6 Movement of Sealing Head Unit

The position of each part of sealing head unit is set up by the limit switch

Contactor on Proximity Switch Cams, that make Proximity Switches 1 and 2 worked. Exactly contacting position is very important since wrong position cause and in operation.

LS-1 Proximity Switch

The switch set up the original position of Sealing Head Unit just before starting operation. At the same time when a cycle operation is completely finished, and adjusted by the Proximity Switch contactor on Proximity Switch Cam 1 that makes all motor stop.

LS-2 Proximity Switch

The cam of LS2 switch has 2 control points, when the first point close to the LS2 Switch, it makes the sealing head unit stop and the strap reverse. The End Gripper (1) goes up to the top and tightly holds the strap.

When the second point close to the LS2 Switch, M2 motor worked to feed the strap into strapway units. The cam follower starts to go down on top of the tension cam. If the 2nd point lately contacts the switch, strap may be jammed between the tension arm and feed shooter, that causes an error.

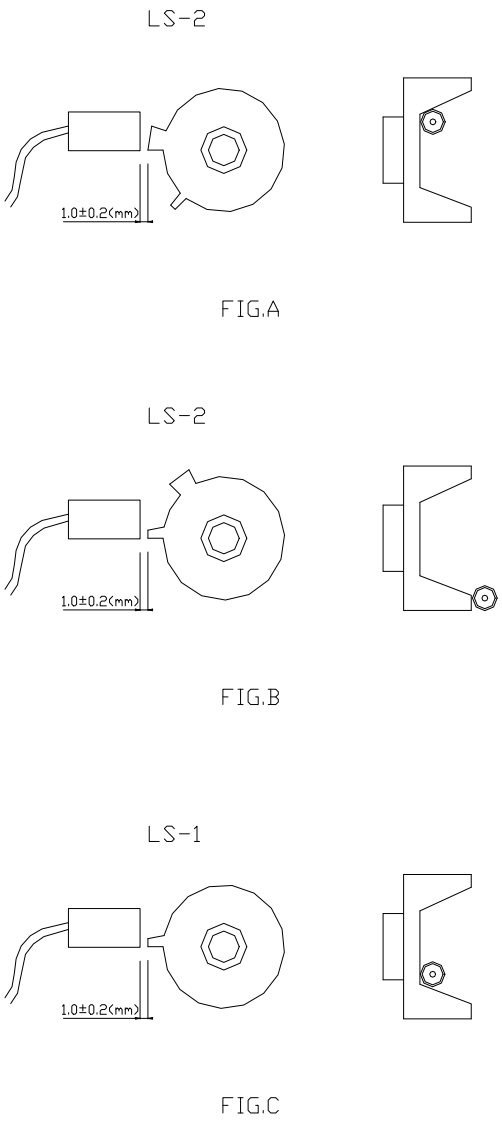


Figure8

7.Control Panel

1>. Power Switch

ON – Turn on, power lamp is lighted
and machine is ready for operation.
OFF – Turn off

2>. Power Lamp

It is steadily lighted when the main power switch is on.

3>. Feed button

After the strap is on, push the button to feed strap around the Arch.

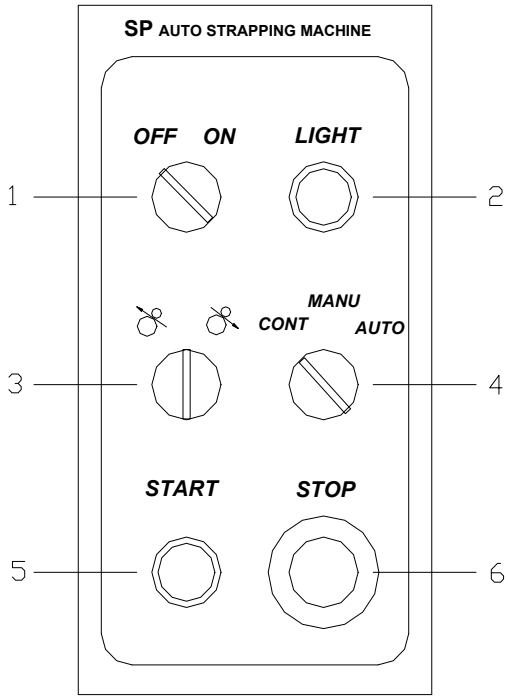
4>. Reverse button

When the button is pushed the strap reverses and returns to pool box from the arch track. Keep pushing button in the strap reaches the stopper.

5>.Auto/Hand/Continue Switch

The selector Switch is for Ball Switch on the top of the table.
When the selector Switch is placed to the position “Auto”, the machine will automatically strap if the package is placed on the table and passes the arch.
When the selector Switch is placed to the position “HAND”, place the package under the Arch and push the start Button for operation.
When the selector is placed to “Continue”,
The machine continue package.

Figure 9 Control Panel



6>.Start Button

Activate the Start button or Foot pedal Switch to initiate strapping.

7>.Emergency Stop Button

Incase of emergency, push the button, then the machine stops.

8>.Troubleshooting

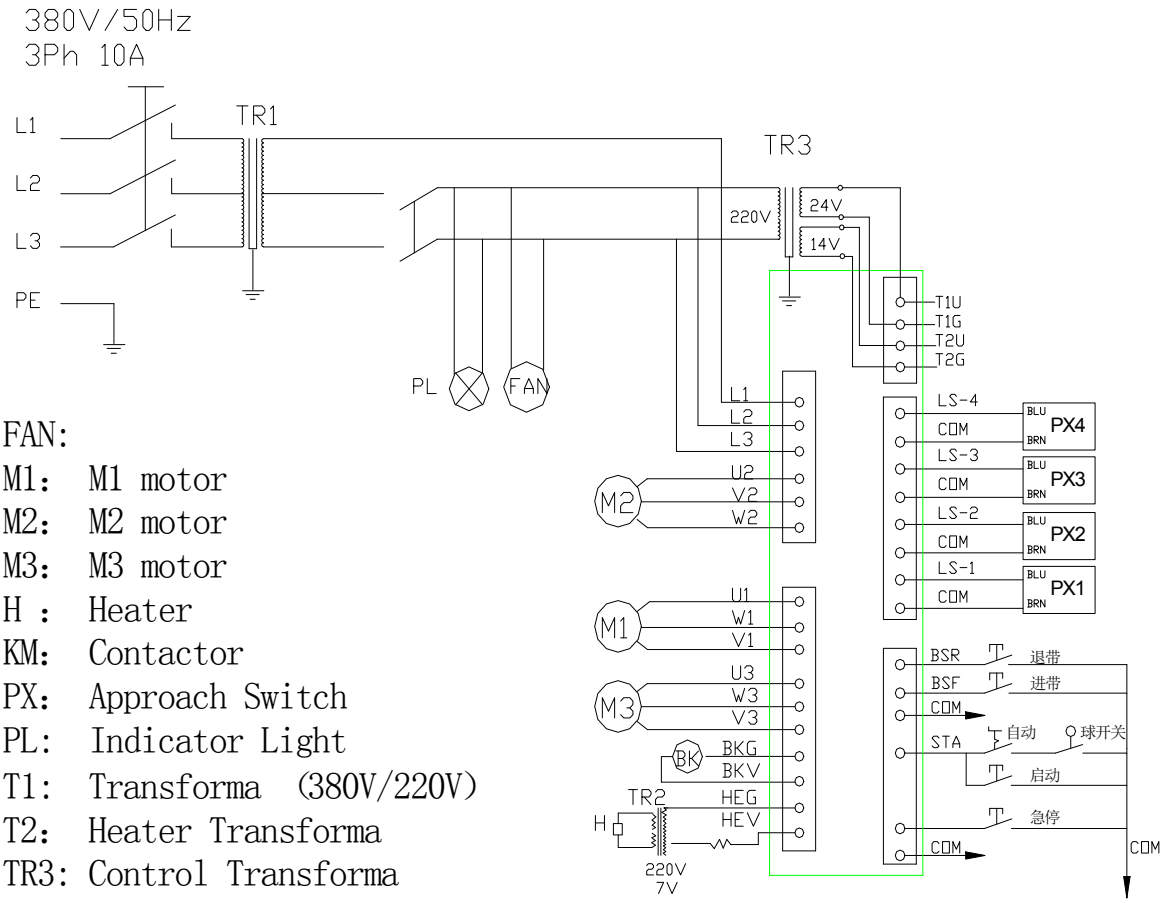
Trouble	Cause	Remedy
Machine not work		
Power lamp is off:	Loose receptacle, connector or power cord	Check power supply and connecting devices
	Fuse is blown or out of place	Change fuse or supply it
Power lamp is on:	Pool motor (M3) worked more tan 5 sec. (Pool box error lamp is on.)	Turn off the operating ready switch and turen it on again
	Stop Switch locked in down position	Release the stop switch
	Insufficient contact or break down of stop switch	Right connection or change the switch
	Insufficient contact or break-sown of start switch	Right connection or change the switch
	Damaged belt of motor M1, and /or motor M2, or loosened set screw of its pulley	Change the belt or fix the pulley
Machine works		
Strap is not feeding	Incorrect insertion of strap coil	Insert it correctly
	Strap is threaded incorrectly	Thread it correctly
	Limit Switch LS2 improperly works (malfunction)	Check the position for proper contact
	Improper time of feed timer	Check the timer for proper time
	Belt of motor M2 or set screw of pulley is loosened	Make it tightly
Strap doesn’t run to sealing point	Improper Brake belt assembly on reel unit	Check it for proper function

	Strap is caught in between strap coil and reel plate	Remove it and correctly put it inside both reel.
	Cutting or dusts on the upper roller	Clean them
	Tension jaw doesn't return to its initial position	Check the tension jaw spring for return
	Strap guide is not positioned at initial position	Make it at original position
	Weak force of Weight Adjuster set	Make the weight adjuster spring enough strong force
	Tension arm doesn't at all make strap tightened	Check the tension adjuster set
	The tip of strap is split after cut because of cutter upper and cutter lower	Check them for well cut
	Length of strap in the pool box is too short	Adjust the length for about 1.5 times than the arch size
Strap feeding doesn't stop	Flaps of strapways or arch do not return completely to its proper position	Correct them to be returned properly
	Improper time setting of the feed time	Proper setting of feeding time
Strap is not properly pulled in reverse:	Improper contact of limit switch LS2	Check position for proper contact
	Loosen belt of motor M2 or set screw of its pulley	Make it tightly
Strap insufficient pulled back from the	Short time of the back time	Increase the time

arch:		
	Upper shaft spring doesn't touch spring hook	Adjust it to touch
Strap is pulled out from the arch	More time of the feed time	Reduce it properly
	The spring force of the weight adjuster set is too strong	Adjust it properly
	The arch flaps don't return to initiate position but opened	Adjust the arch spring force or change
Strap runs away at sealing place	Strap doesn't reach the stopper of strap guide	Check the strap guide assemble
	Cutter upper is not positioned at the highest position when strap is fed	Check the limit switch cam
	Heater temperature is too high	Lower the heater temperature
	Improper tensioning for solid or soft package	Adjust the tension dial

9>.Diagram

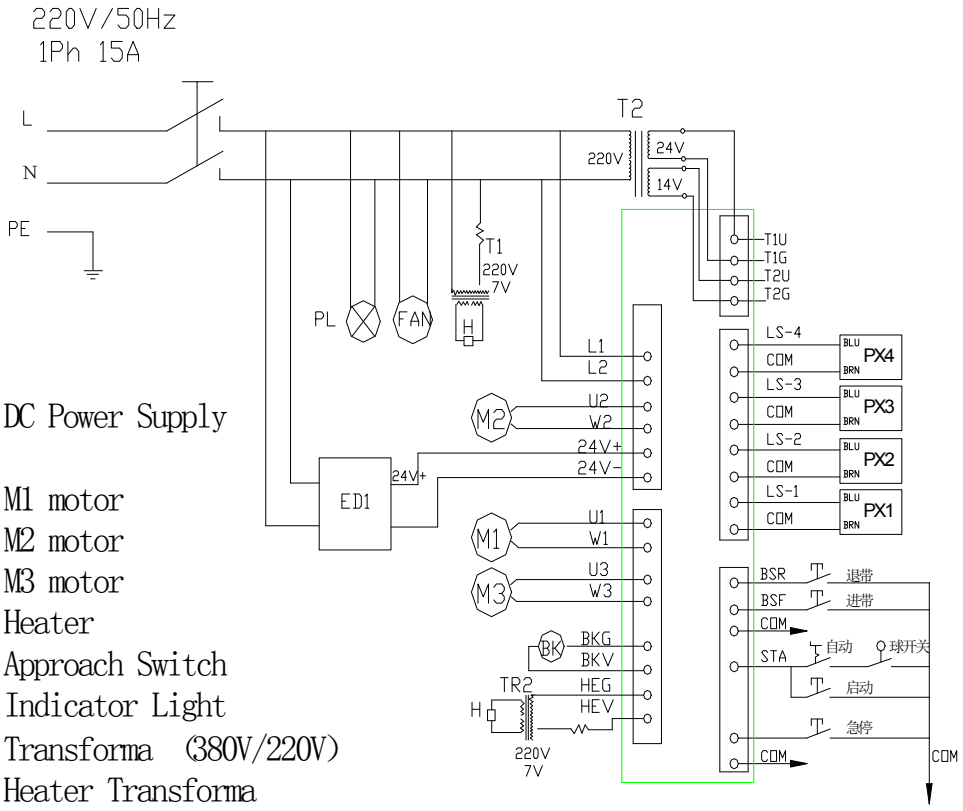
Diagram （380V/3Ph）



FAN:
M1： M1 motor
M2： M2 motor
M3： M3 motor
H ： Heater
KM： Contactor
PX： Approach Switch
PL： Indicator Light
T1： Transforma （380V/220V）
T2： Heater Transforma
TR3: Control Transforma

Control PC Board

Diagram (220V/1Ph)



ED1: DC Power Supply
FAN:
M1: M1 motor
M2: M2 motor
M3: M3 motor
H : Heater
PX: Approach Switch
PL: Indicator Light
T1: Transforma (380V/220V)
T2: Heater Transforma
TR3: Control Transforma

Control PC Board

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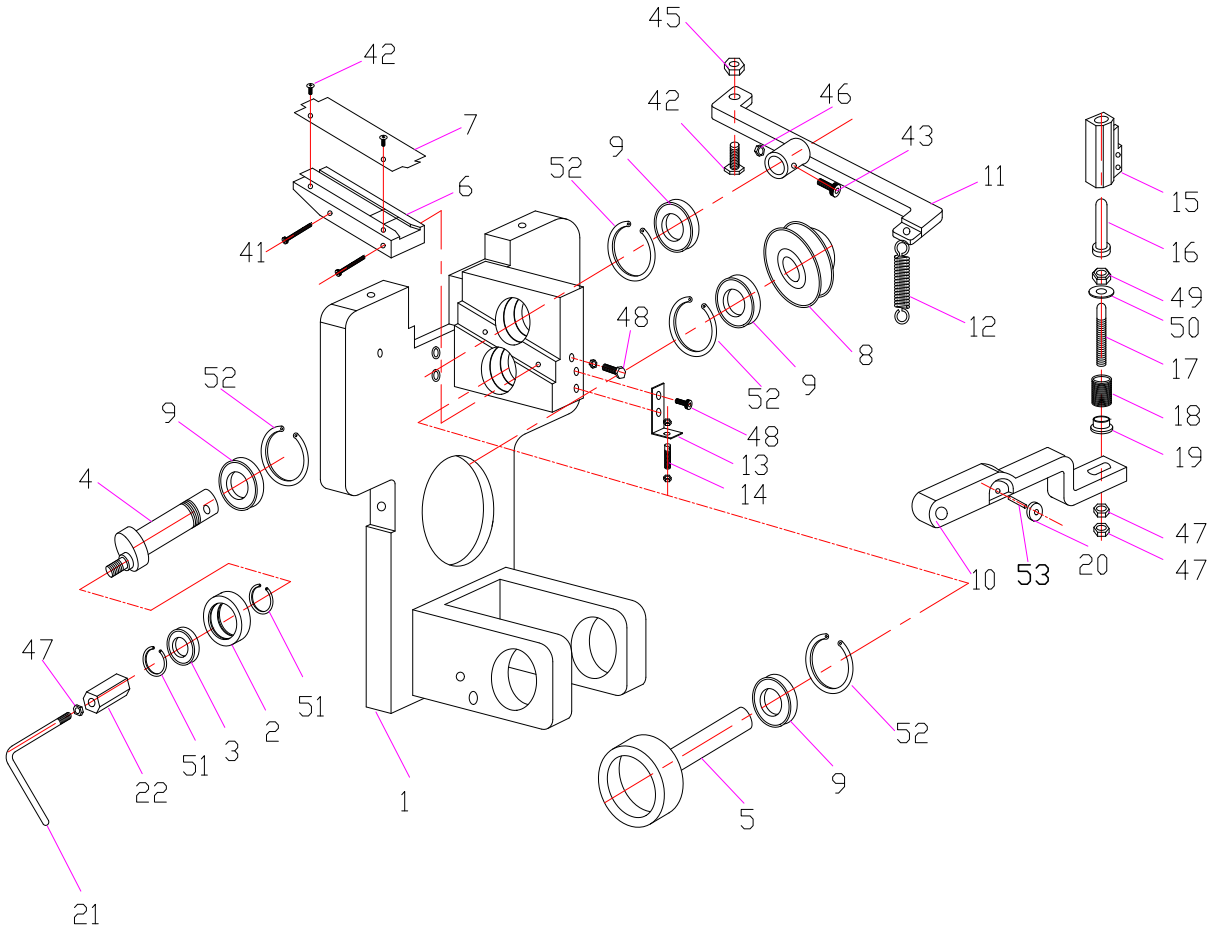
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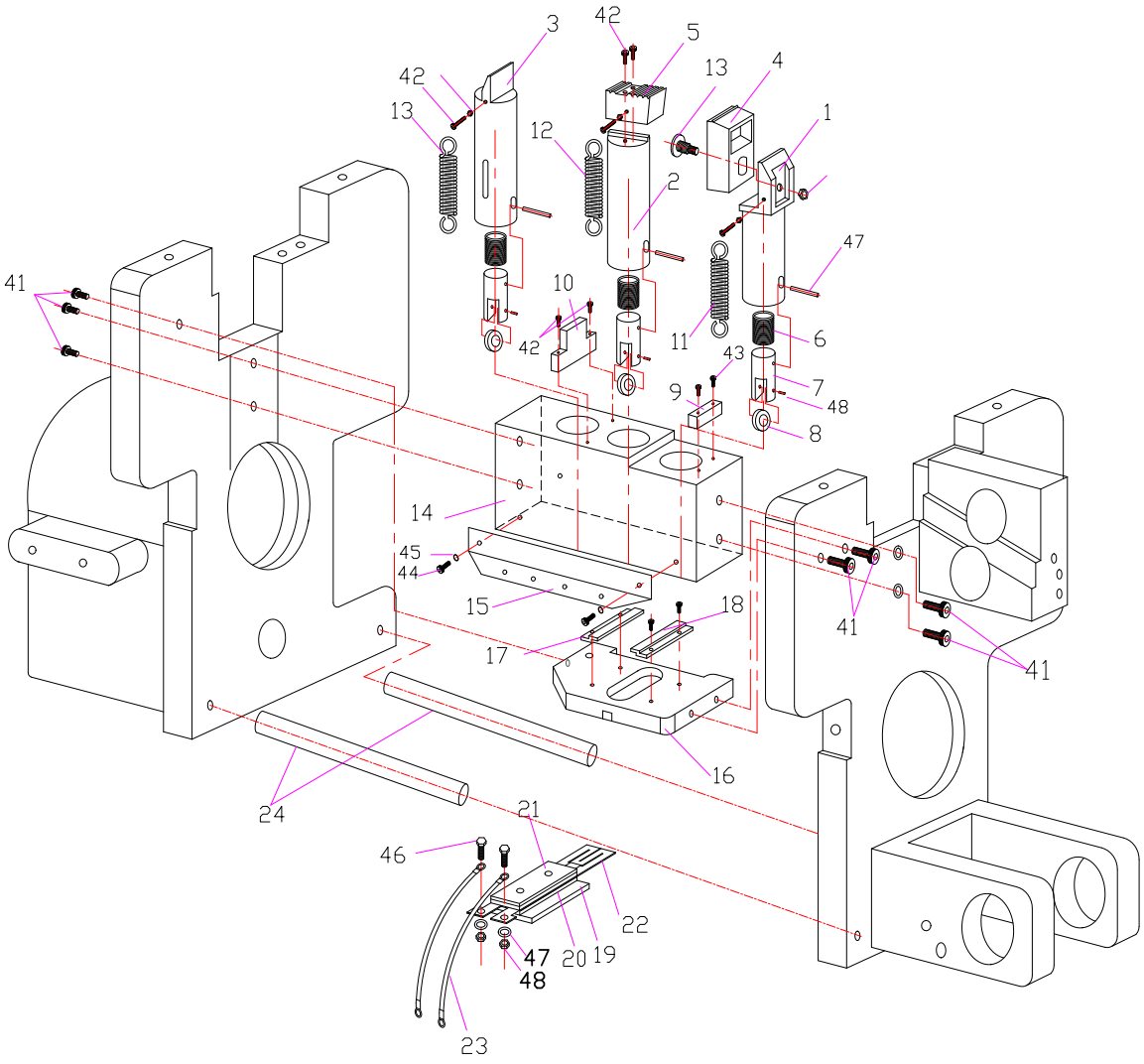
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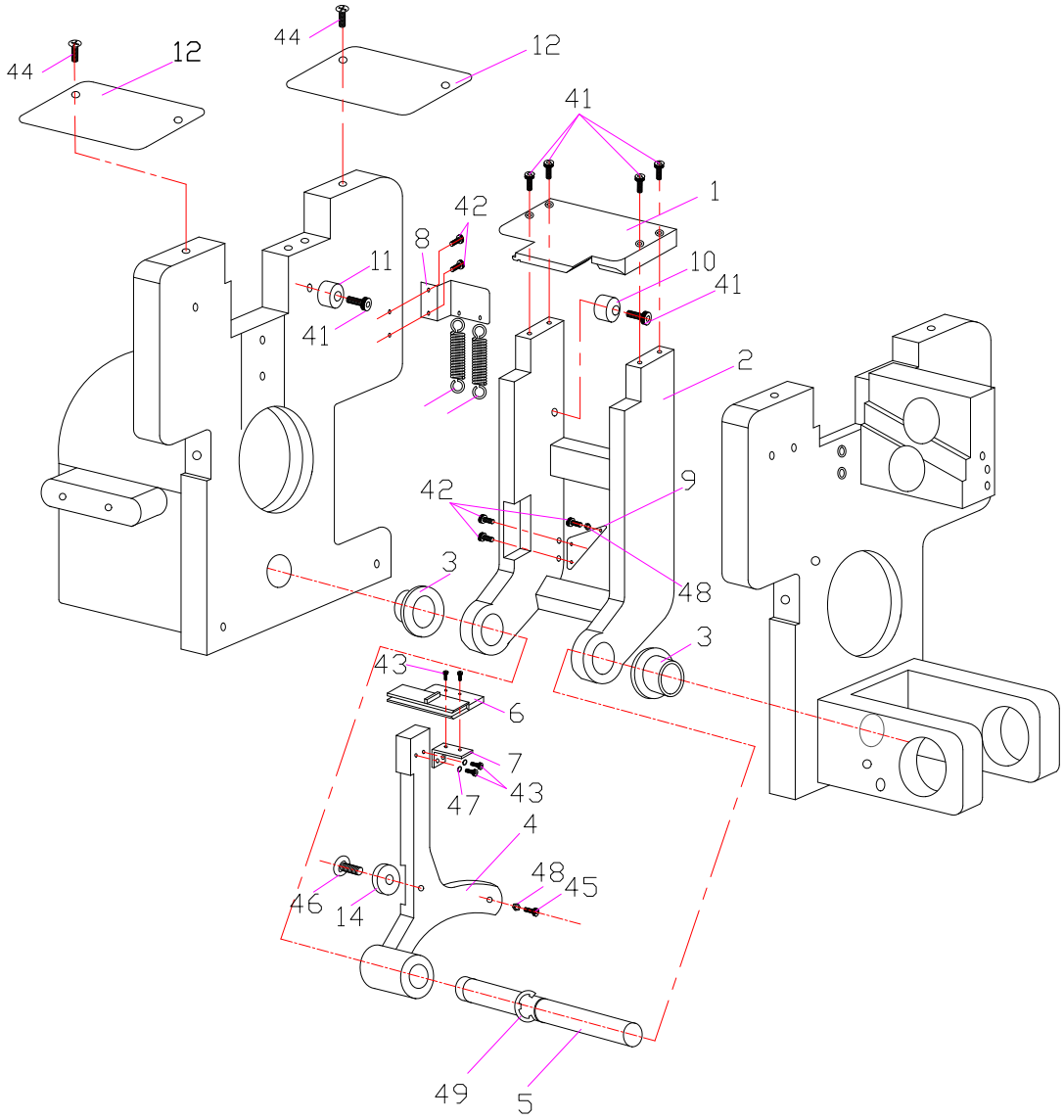
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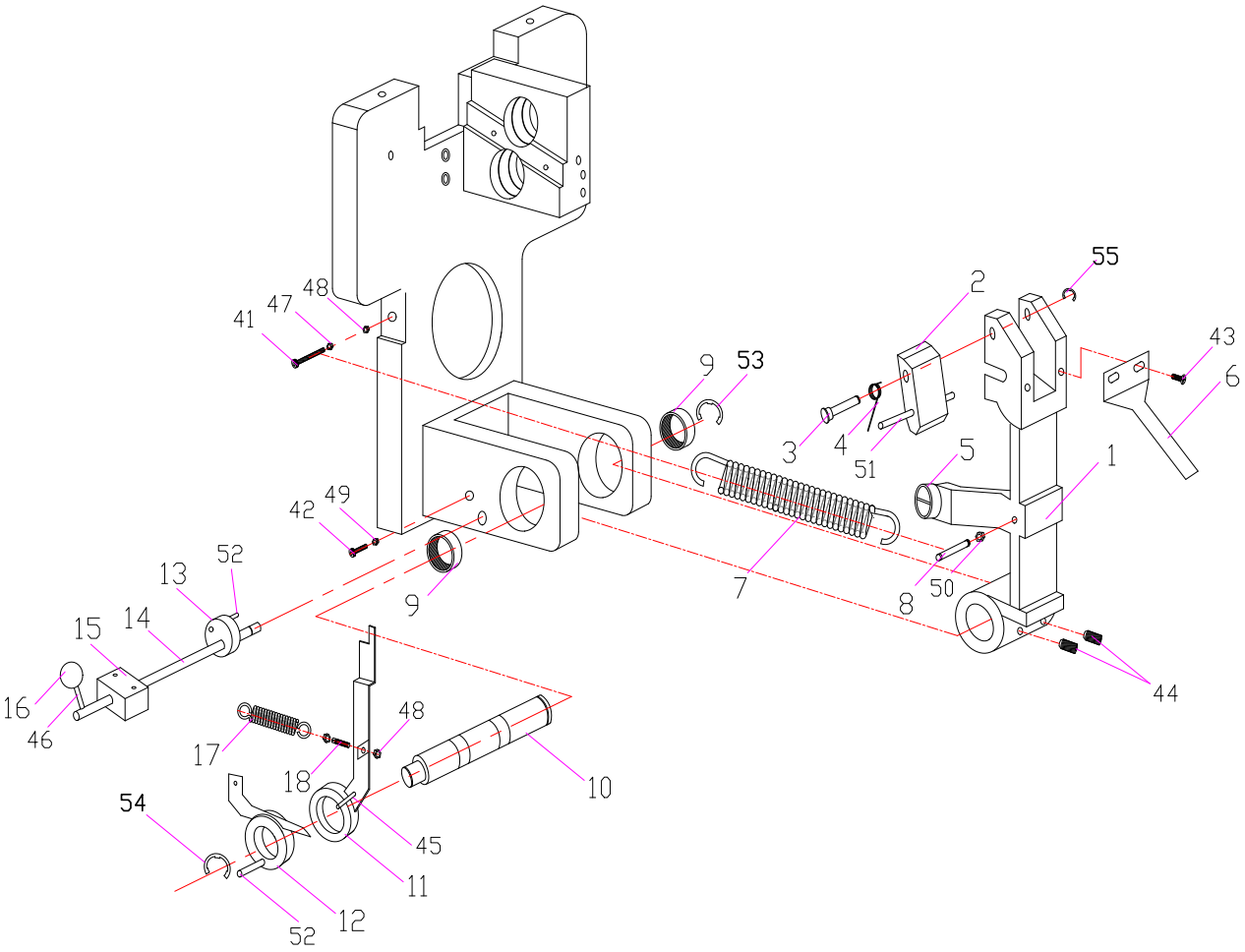
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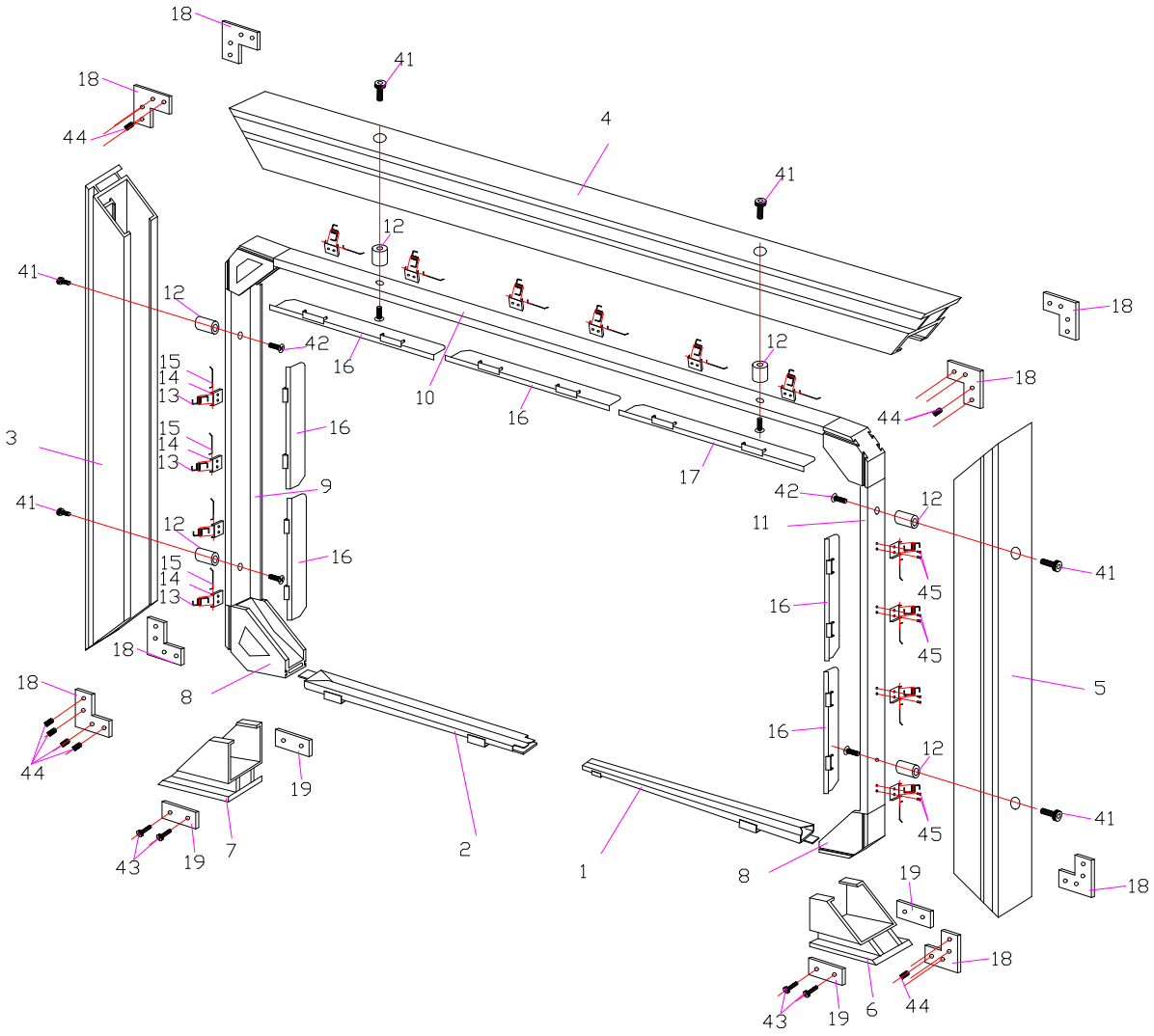
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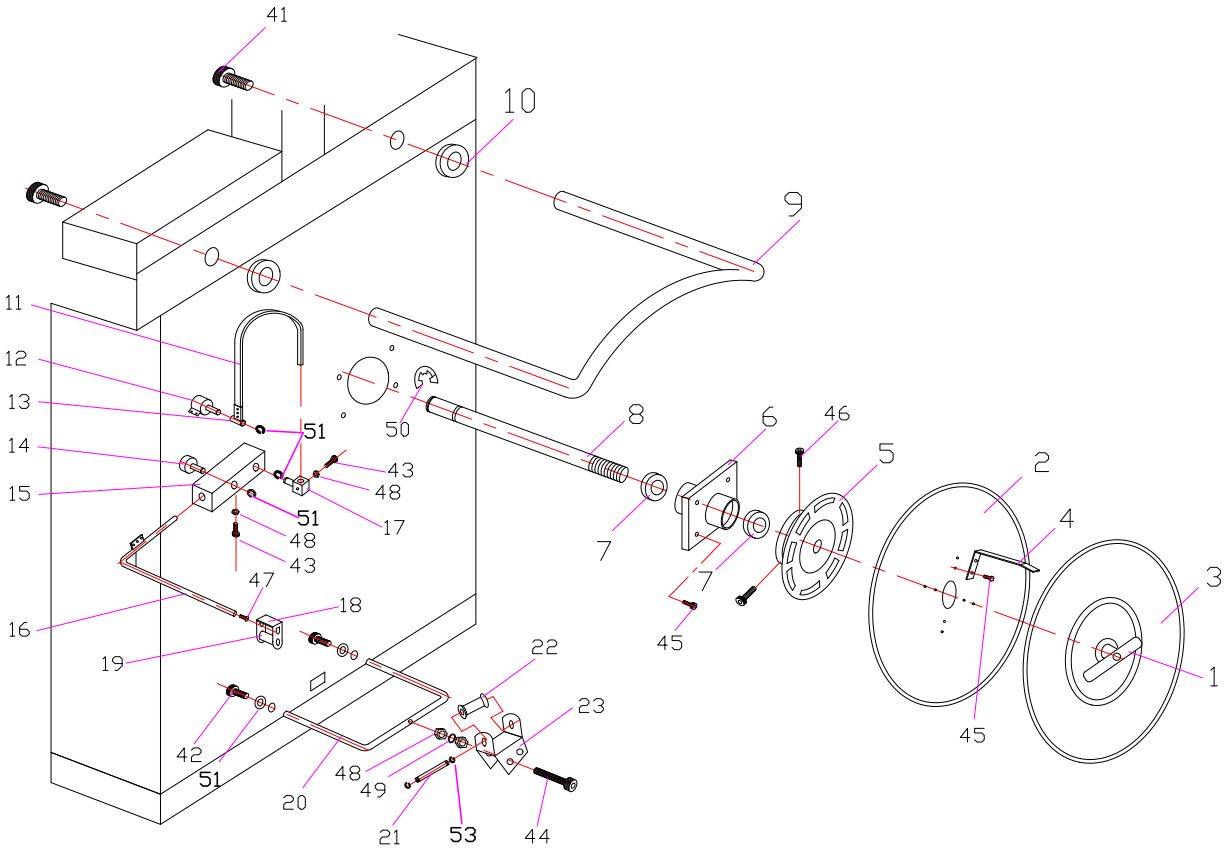
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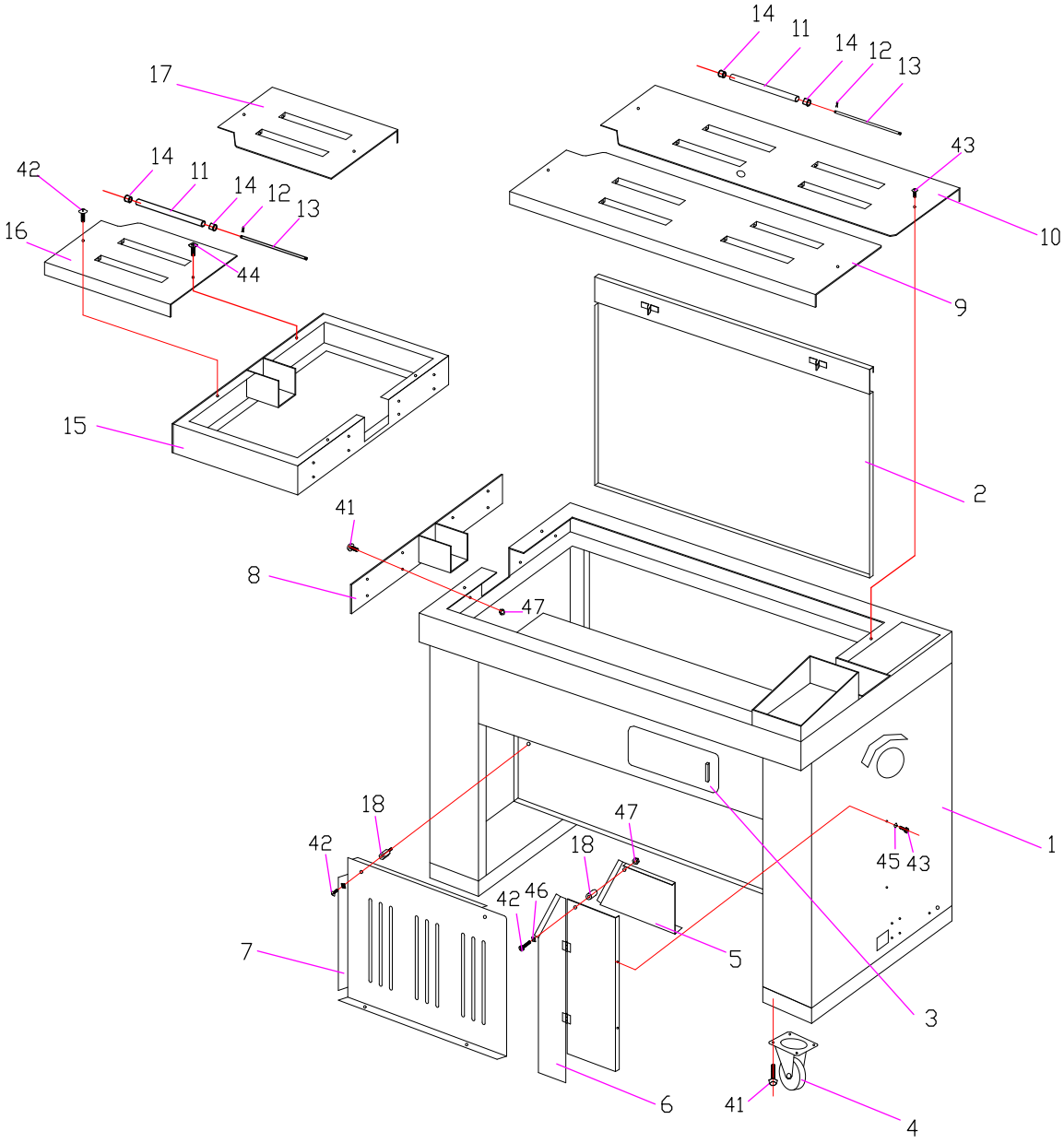
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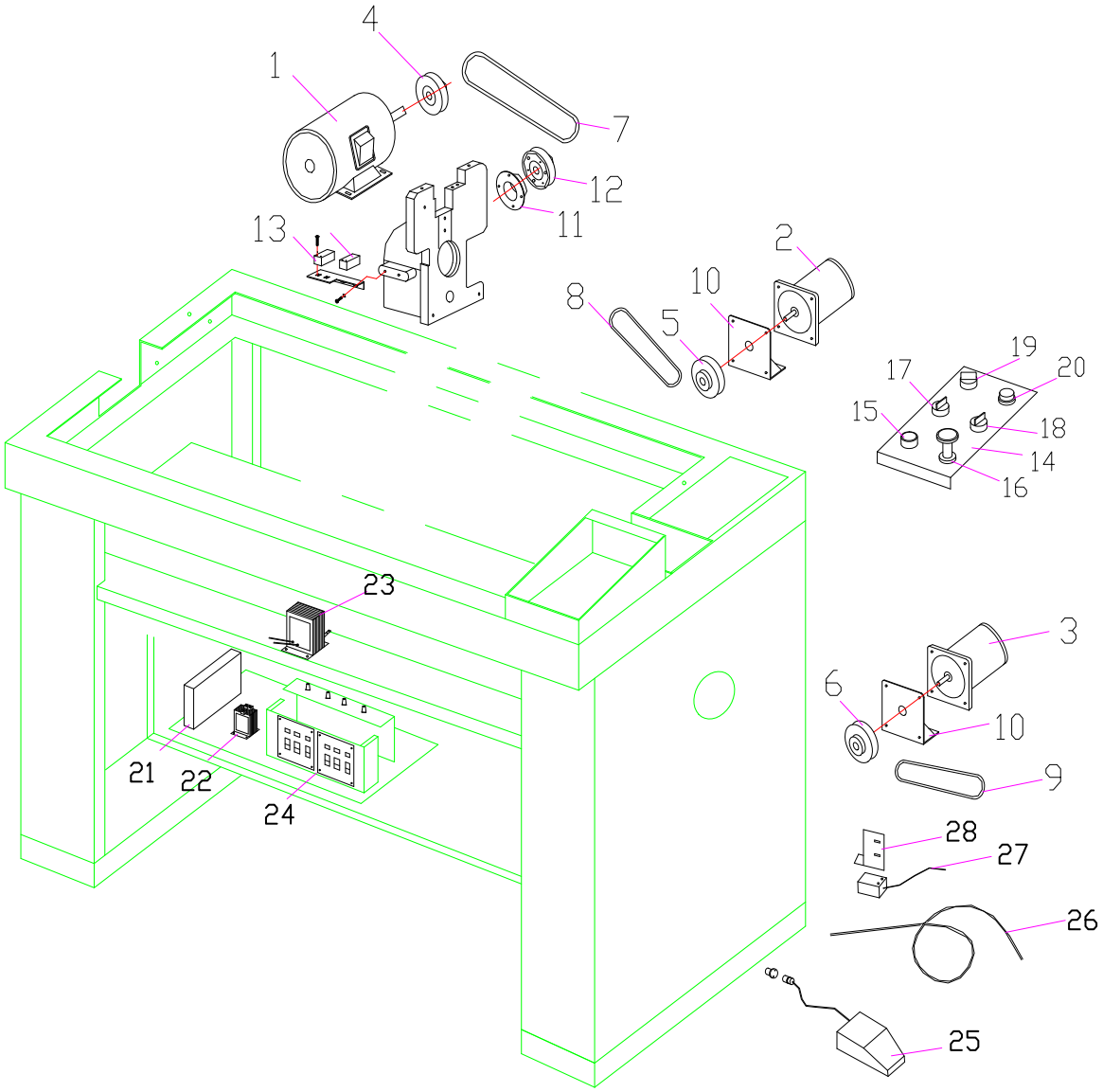

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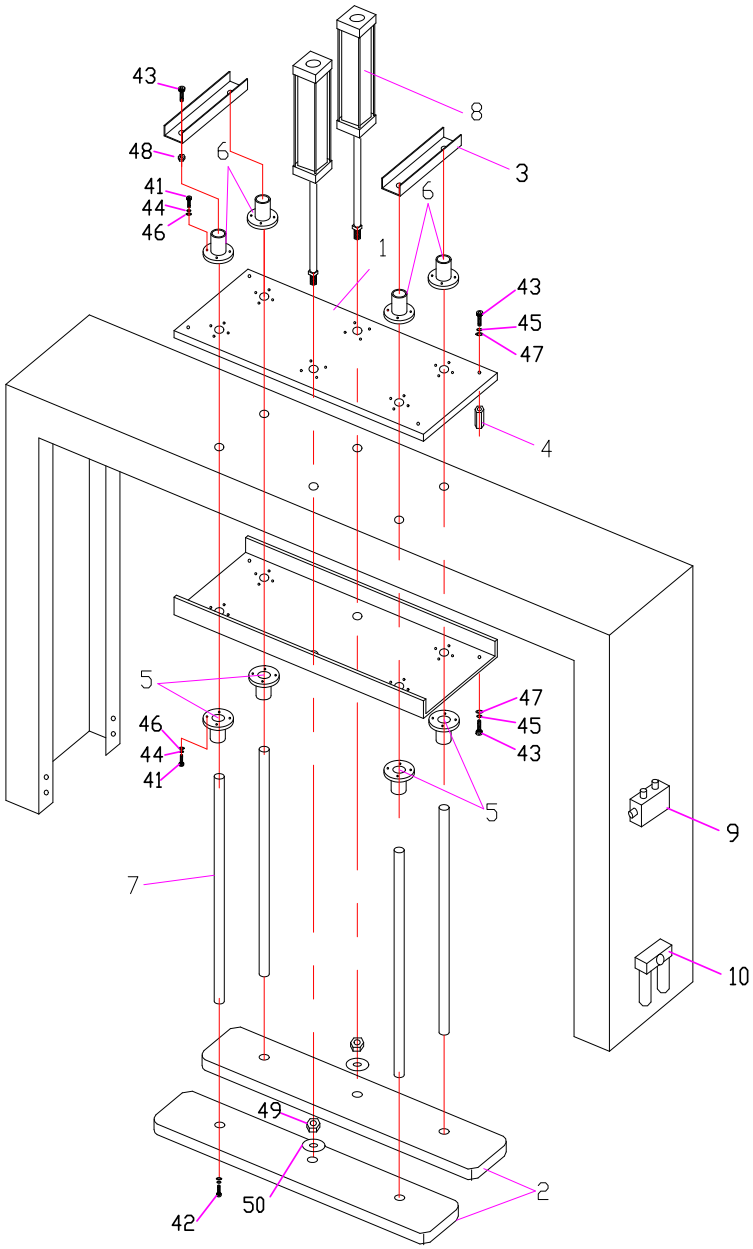

Thank you!