

# XPress 51

## 51" Calendar System

### Mini TB

## ***USER MANUAL***



# Contents

<b>Chapter 1. Introduction</b>	<b>3</b>
<b>Chapter 2. Safety Instruction</b>	<b>4</b>
<b>Chapter 3 Specifications</b>	<b>7</b>
<b>Chapter 4 Structure</b>	<b>9</b>
<b>Chapter 5 Installation</b>	<b>13</b>
<b>Chapter 6 Function</b>	<b>15</b>
<b>Chapter 7 Operation Guide</b>	<b>16</b>
<b>Chapter 8 Notice for operation</b>	<b>17</b>
<b>Chapter 9 Processes Diagram</b>	<b>19</b>
<b>Chapter 10 Circuit Diagram</b>	<b>20</b>
<b>Chapter 11 Trouble Shooting</b>	<b>21</b>

# Chapter 1. Introduction

Xpress44 mini rotary sublimation press MINI-TB is developed on the basis of continuous feedback from end users and market requirements. It is industrial equipment for Dyesub and thermal transfer. It is capable of flat transfer for garments, transfer in roll to roll or piece to piece and thermal transfer for cotton materials. Moreover, the machine occupies small workplace. It reduces expenses in terms of power and labor.

## **Features:**

1. Most of shafts of the machine were processed by CNC cutting system precisely, which means all shafts are equipping at parallel.
2. The heating roller is made of stainless steel, CNC forming ensure smoothness of the surface of roller, and uniform heating on the roller. In addition, more than 70% of the roller surface is covered by blanket, it is very good for avoiding the heat Lossing and ensure the good transfer result.
3. The chosen balance shafts in 87mm diameter which processed with CNC technique which keeps it rigid and prevents it from deforming. Therefore, transfer paper does not curl and ripple pattern doesn't appear on media.
4. The machine is designed to feed materials from upper position, which keeps fabric feeding precisely and lower the fault rate in process.
5. High-quality blanket: Outstanding dimensional stability: at temperature of 250°C, only less than 1% of thermal shrinkage, with excellent high temperature stability.

## **Chapter 2. Safety Instruction**

Before the operation, please read the safety instruction carefully to fully understand the machine's primary structure, function, and operation method. If conditions permit, the training to the operators is required, and the operators, passing the examination, are allowed to operate and maintain. During the operation and maintenance, please pay attention to the warning signs, pasted to the equipment, and improve the safety awareness to prevent the accidents and to guarantee operator's personnel safety.

### **2.1 Safety parts**

#### ***Heat switch and Power switch***

Heat switch and Power switch both are on the control panel. Press the heat power to stop the heating immediately. Turn off the power button; the machine can not get the power for heating, but the machine can get power for revolving the motor.

#### ***Blanket maintenance***

When the heat transfer finishes its working, turn off heating and keep motor rotating until the temp decline under 80°C to prevent the blanket from burning.

#### ***Heating Roller***

Following heating, the surface temperature of the heating roller could be up to over 240°C. While it is heating, please don't touch the roller surface with any part of the body to avoid crushing or burning. When the machine is heating and operating, the operators shall be present to avoid the roller damages or the fire due to the overheating.

### **2.2 Warning Sign**

Please pay attention to the following warning signs. The cases shown in the signs are likely to cause machine damages or injuries of the operators.



### ***Anti-grinding***

This sign is shown at the junction of the upper and lower drive rollers, respectively at the both sides of the machine front.

The rubber roller in operation is relative dangerous. Please don't let your hand, clothes, hair or other parts of your body touch it to avoid incident.



### ***High Voltage***

This sign is shown at the inner flank of the box.

High Voltage! Don't touch to avoid electric shock.



### ***Chain***

This sign is shown at the inner flank of the left box.

Please don't let your hand, clothes, hair or other parts of your body touch the chain in operation to avoid injury.



### ***Burning Prevention***

This sign is shown at the heating roller of the box.

Heating roller is the heating component, so don't touch it. When the power is off, upper rubber roller requires enough time for heat output. Don't touch it immediately to avoid burning incident.

High Voltage! Don't touch to avoid electric shock.

#### **2.4 Safety Tips**

- 1) Power source must match the power rating marked on nameplate. The ground connection must be accurate and reliable
- 2) When the equipment is operating, the surface temperature of the heating drum is very high. Do not touch it with your hand.
- 3) During maintenance, main power must be shut off to avoid electric shock or mechanical injury. When daily work is finished, main power must be cut off.
- 4) Do not place the cable on the walkway. Nothing should roll over the cable.
- 5) All electronic components must be kept clean and dry to avoid short circuit. Do not open the protective covering to avoid electric shock.
- 6) The working place should be dry and well ventilated. Please stay away from the water or the damp place when using the equipment. Do not place inflammable or explosive materials near to the equipment.
- 7) Do not put tools or other accessories, such as screwdriver, screw nail and nut etc. on the top of the machine. It avoids alien objects falling into the rotating drum. It may cause serious damage to drum surface or belt.
- 8) Do not wash the machine with water to avoid the short circuit, electric shock and the equipment corrosion.

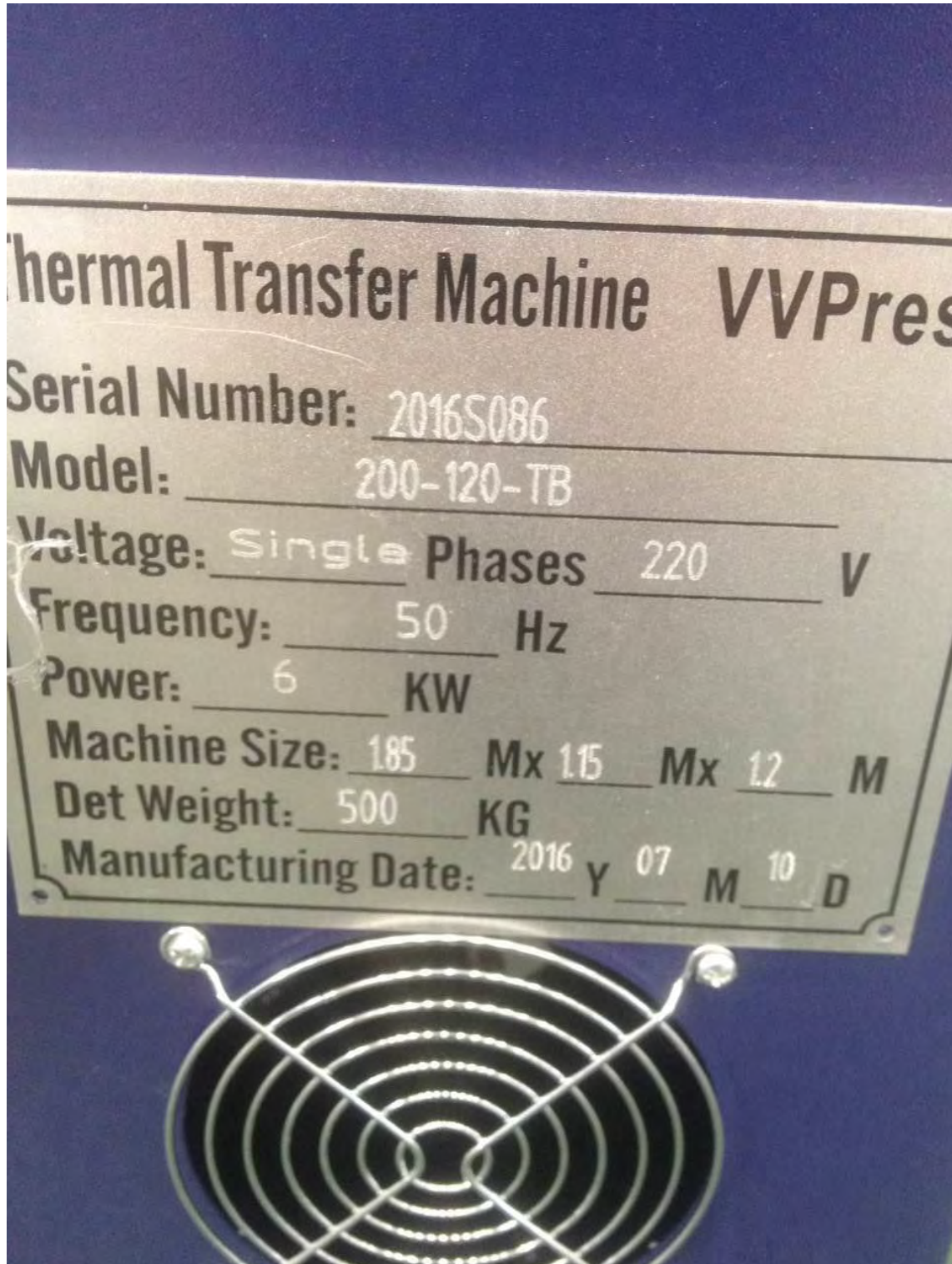
## Chapter 3 Specifications

### 3.1 Specifications of the Machine

<b>Model</b>	<b>MINI-TB</b>
Heating Media	Oil
Voltage	Single Phase, 220V
Heating Power	6.5kW
Number of Heating Elements	3
Diameter of Drum	200mm or 7.8"
Transfer Speed	up to 0.5m/min or 5.4'/min
Max Temperature	240°C or 464°F
Transfer Width	1295mm
Process Path	Feeding in through Top Drum
Function of Roll-to-roll	Y
Function of Piece-by-Piece	Y
Number of Feeding Rollers	3
Number of Collecting Rollers	3
Work Table	Yes
Air Cylinder	No

### 3.2 Nameplate

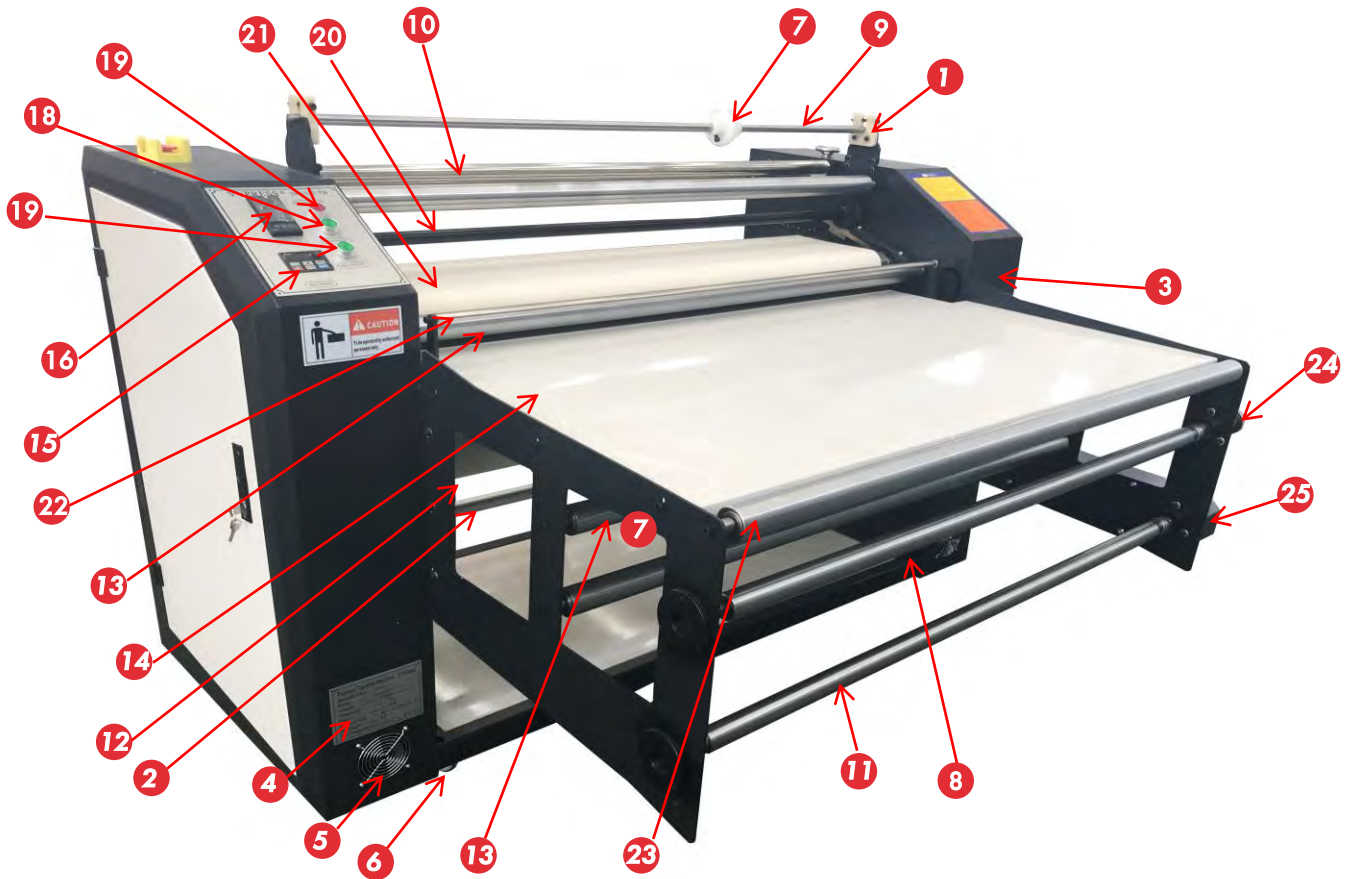
This is the sample of the nameplate





# Chapter 4 Structure

## 4.1 Explanation to appearance and all parts



- (1) Plastic plug
- (2) Shaft for tissue paper
- (3) Right cabinet
- (4) Nameplate
- (5) Fan
- (6) Caster
- (7) Plastic plug
- (8) Transfer paper unwinding shaft
- (9) Fabric unwinding shaft

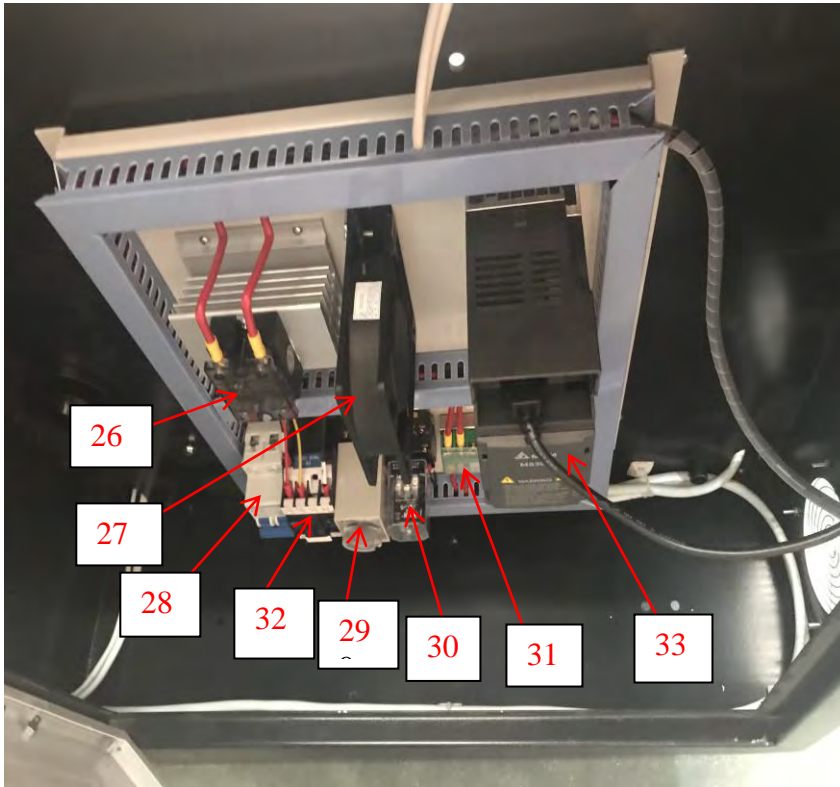
1. Emergency Switch

- (10) Tensioner
- (11) Transfer paper rewind shaft
- (12) Fabric rewinding shaft
- (13) Guiding bar
- (14) Work table
- (21) Tissue paper rewinding shaft
- (15) Speed controller of main motor

- (16) Temperature controller
- (17) Main power button
- (18) Heating button
- (19) Speed regulation button
- (20) Support beam
- (21) Blanket
- (22) Guiding bar for transfer paper
- (23) Guiding bar for transfer paper and fabric
- (24/25) Tension

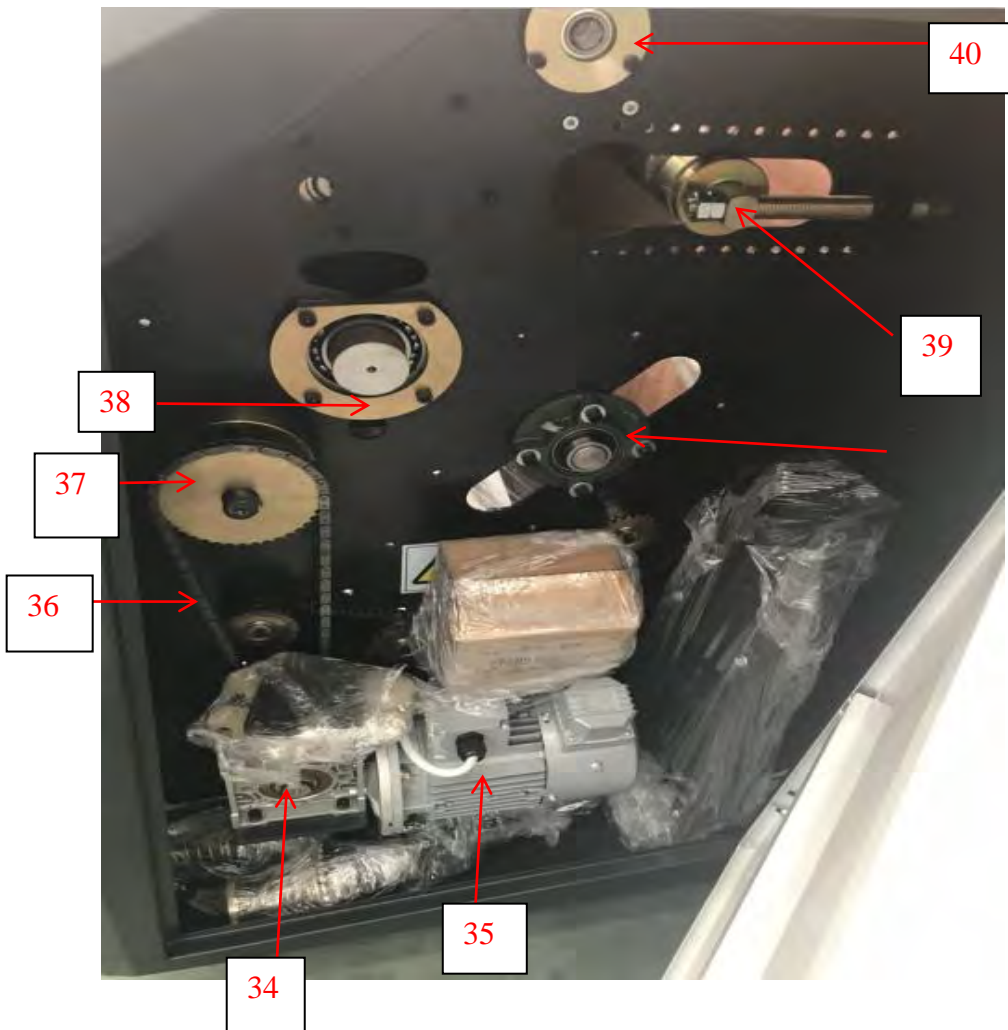
## 4.2 Parts in Cabinet

### Configuration of Left Cabinet



- (26) Solid-state relay    (27) Cooling Fan    (28) Circuit Breaker    (29) Time relay  
(30) Heating relay    (31) Terminal block    (32) a.c. contactor    (33) Frequency changer

## Configuration of Right Cabin



(34) Main motor      (35) Gearbox      (36) Chain

(37) Sprocket for driving felt

(38) Bearing block for oil drum

(39) Tracking adjusting roller

(40) Bearing block

# Chapter 5 Installation

Machine should be placed in empty space with flat ground, good ventilation and dry working environment.

## 5.1 Unpacking

- 1) Unfasten packaging tapes
- 2) Remove Paper Honeycomb packing
- 3) Use forklift to move heat press to proper location

## 5.2 Installation of worktable

Notice: ( 2 operators needed)

Step 1. Installation of the main structure.

Fix the two horizontal sheet metal parts to left and right cabinet separately (refer to the image above). Then, connect them with guiding bar and install column .

Step 2. Installation of support beam . Do not fasten it tightly right now.

Step 3. Installation of unwinding shaft .Fasten the screws on left and right column ; make sure that the screw is a little bit loose. And put on the stand. So the installation of Guiding bar for transfer paper is the same.

Step 4. Installation of work table

Put the metal plate on the stand, fasten with four screws.

Step 5. Installation of tension bar , including the installation of gearbox. It is the same for the tension bar on the top of machine (refer to the image above), but you need to install the metal support plate on left and right cabinet first.

Step 6. Install guiding bar .

Step 7. Adjust the height of the table by work table height adjuster.

Step 8. Check and fasten all the screws on machine.

Note: Rewinding shaft can be removed by pulling to one side and take out from the other side.

### **5.3 Notice**

1. Check whether all screws in machine are loosen or not. Tighten them one by one.
2. As the equipment is heating machinery, the machine should be used in dry environment with good ventilation. Make sure that there is no corrosive gas, inflammable and explosive materials around the machine.
3. The crust of machine must be grounded separately.
4. Choose power wire which cross section is above 6 square millimeters.
5. Keep the machine in level while installation and operation. Use water pipe (more than 6m long) to check level of machine.

## Chapter 6 Function



- 1- Temperature Controller - -Setting temperature and controlling temperature range.
- 2- Speed adjustor -- Adjusting transfer speed.
- 3- Power - - Main Power Switch.
- 4- Heat - -Switching on/off heating.
- 5- Transform Start - -Switching on/off circuit of frequency converter.

Note: Please learn the details of frequency converter referring to the manual

## Chapter 7 Operation Guide

1. Before switching on the machine, make sure that all electrical wires are connected correctly. The body of the machine must be connected to ground. Press the main power switch and transform start switch. Then, adjust the rotary speed on speed adjustor (2) to optimum value. When the heating roller start revolving, press "heating" button (5) and adjust the temperature to optimum value. (Default temperature is 220°C )
2. When the machine reaches the preset temperature, let the thermostat stabilize the temperature for a while. Check the transfer result with small piece of printed transfer paper and substrate. Adjust the temperature with reference to the testing result of the transfer.
3. Place the printed transfer paper and tissue paper (to prevent the contamination of blanket) in proper position on working table and main machine. Feed the tissue paper first and then the printed transfer paper flatly. Lastly, feed the textiles to the machine evenly.
4. When tissue paper and transfer paper comes out, attach the tissue and printed fabric to collecting rollers at the rear side of the machine. Then, attach the transfer paper to collecting roller at the front side of the machine under the table. So all materials can be collected automatically. The speed of collecting transfer paper can be adjusted by the controller (7).
5. During the working process, the transfer speed can be adjusted (by "2") according to the vividness of the print.
6. When the transfer is finished, switch off the heating button to let the machine cool down. The operators have to monitor the machine until the temperature drops to less than 80°C. Then, the operators may switch off the machine. For special circumstances, the operators may switch off the main power supply and heater simultaneously. The machine will cool down automatically and stop running after certain intervals (2 hours).
7. When there is sudden blackout and the oil is still hot, using soft paper board or paper to separate the felt from hot oil drum. It prevents permanent damage to felt

# Chapter 8 Notice for operation

## 8.1 Adjustment to Felt Tracking

There is a little shrinkage of a new blanket working under high temperature. To avoid damaging new blanket by improper operation, do not adjust the location of tracking adjusting roller in the first two weeks (or first 100 hour of operating) for a new blanket; just take back the blanket by changing revolving direction (18) until the blanket move to the central of the oil drum.

The blanket may track to either side. This is a normal phenomenon. There is tracking adjusting roller inside the machine. When the blanket is tracking to right side, increase the tension of blanket band on the right hand side a little bit, or decrease the tension of blanket band on the left hand side a little bit.

When the blanket is tracking to left side, increase the tension of blanket a little bit band on the left side, or decrease the tension of blanket a little bit band on the right hand side.

This is the step of controlling the tension – insert the tailor-made spanner to the end of adjusting rod. Increase the tension by revolving anti-clockwise. Decrease the tension by revolving clockwise. Be patient as the adjustment cannot be completed in a short while.

## 8.2 Noise

The rollers and bearing may expand and create noise when they are heating to certain temperature. Do not worry as it is a normal phenomenon.

## 8.3 Cleaning

Keep clean and tidy so that there is no dirt falling into electric circuit box and transducer. Do not open the protective shield of transformer to avoid electric shock.

The roller cannot be scratched nor cleaned by acidic chemicals.

## 8.4 Lubricating

The bearing should be lubricated with lithium base grease, a kind of high temperature resistant grease with the flash point normally not less than 240 degree.

## 8.5 Blanket

Blanket is not a warranty part. Remind your colleagues to operate the machine with good practices.

When there is sudden power failure, using soft paper board or paper (around 2 to 4mm thickness) inserts to the gap between the blanket and the oil drum; this protects blanket



from burning.

When the power resumes normal, take out the soft paper board or paper. Make sure that there is nothing between the drum and felt.

PS: The instruction of changing blanket will be in a separated file.

## 8.6 Changing of oil

The oil drum was filled heat transfer oil (mineral base, suggested brand name: Total).

This is the specification:

Density: 0.83-0.87g/cm<sup>3</sup> at 20 °C

Viscosity: 21-31 mm<sup>2</sup>/s at 50°C

Flash Point (open to air): 173 °C

Distillation range (2%v/v): 340 °C

Maximum temperature at use: 320 °C

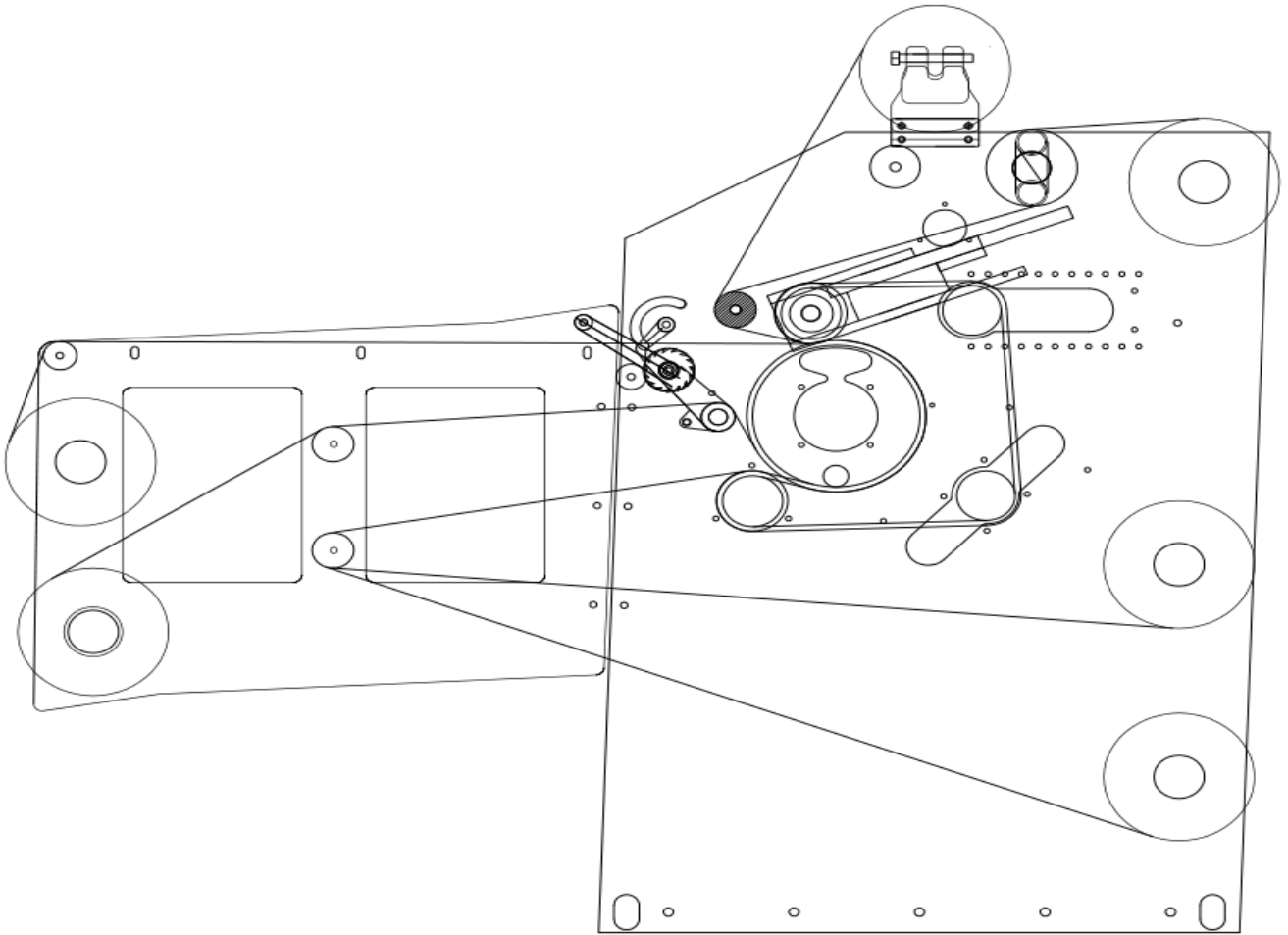
Cool down the oil drum to room temperature. Switch off the main power. Open right cabinet. Prepare a vessel below the screw of oil drum (41). Unfasten the screw on oil drum and use a plastic tube to drain the oil.

After oil is drained entirely, use a funnel and plastic tube to fill new oil. There is roughly 30kg oil.

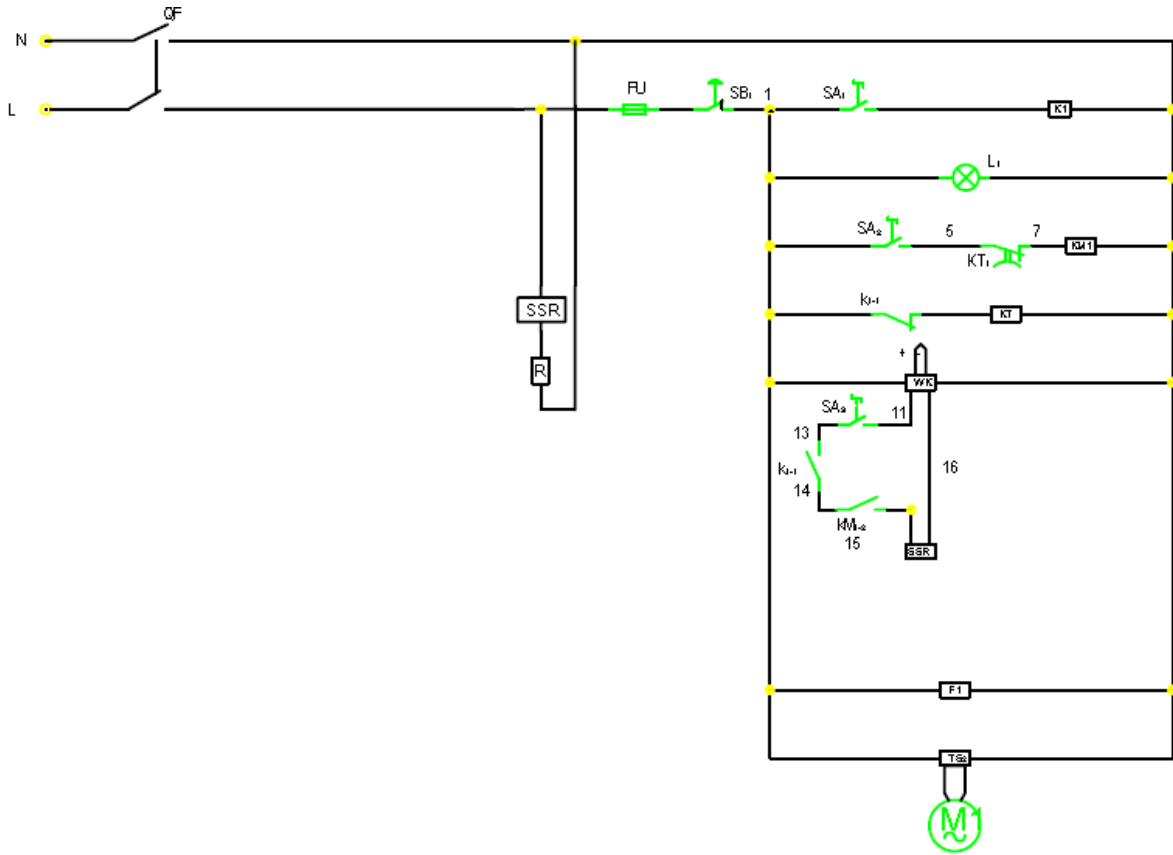
After filling oil finished, add hot temperature sealing tape to the screw, but do not fasten the screw tightly. When the oil drum reaches 200°C, fasten the screw tightly by using big spanner.

**Note: Do not replace the parts yourself without consulting the engineers of our company.  
The parts must be provided or approved by our company**

# Chapter 9 Processes Diagram



# Chapter 10 Circuit Diagram



## Chapter 11 Trouble Shooting

Phenomenon	Cause	Solution
The temperature can not be higher or rising slowly	The solid state relay is damaged	Replace
	Damage of one or few sets of electric tube in heating unit	Replace the electric tube in heating unit
	Aging of one or few sets of electric tube in heating unit	Replace the electric tube in heating unit
The temperature is out of control	Breakdown of solid replay	Replace
	The temperature control device is out of control	Replace
Blanket and heating roller don't revolve	Blanket is too loose	Adjust the tension of blanket
	Gear is skidding	Fasten gear screws
	Bearing is jammed	Check or replace the bearing
	Failure of frequency converter	Check frequency converter or replace
	Failure of motor or redactor	Check of Replace
Temperature is not stable	Temperature sensor is broken	Replace
	Aging or damage of Heating tube	Replace
Main switch trips	Breakdown of collector ring	1. Replace the collector ring 2. Replace SSR (solid state relay)