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Shrink Tunnel Operation Handbook



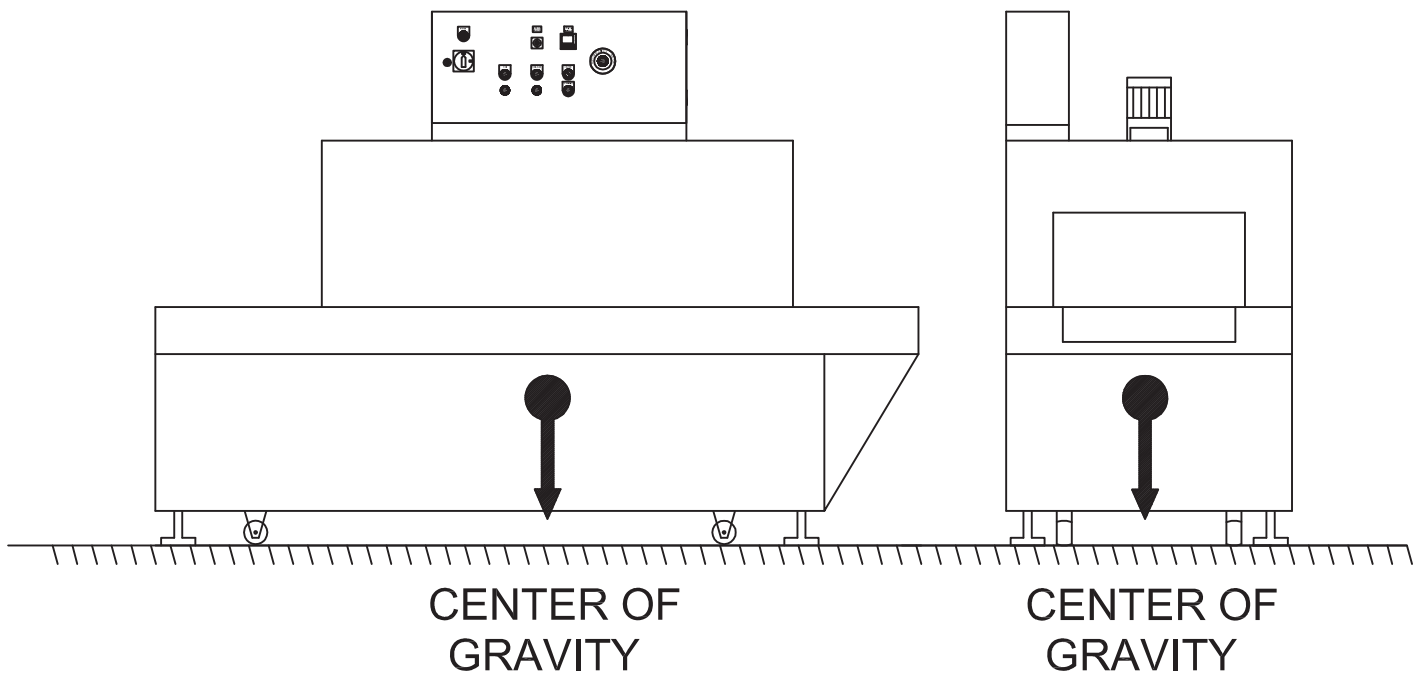
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1. TRANSPORTATION

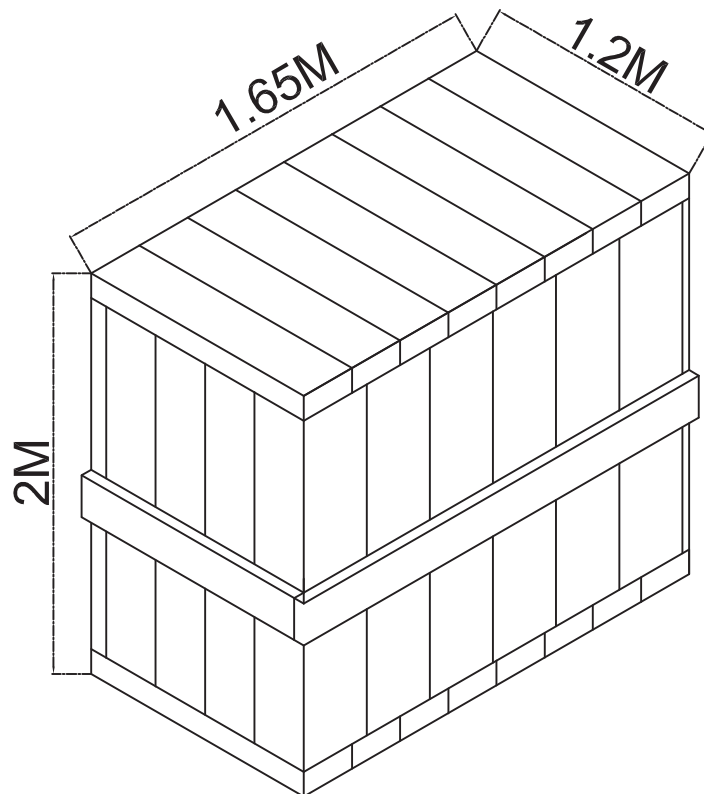
1.1 PACKING

1. DS Heat shrink tunnel is covered with PE plastic protection film when deliver by truck, machine is weigh 240 kg, need a at lease 1.25 tons stack machine or a crane to un-load it.
2. Need at lease 3 workers (not including the stack machine operator).
3. Workers must wear safety helmet, shoes,gloves and protectional outfits.
4. During moving the machine, pay attention to the center of gravity of the machine.

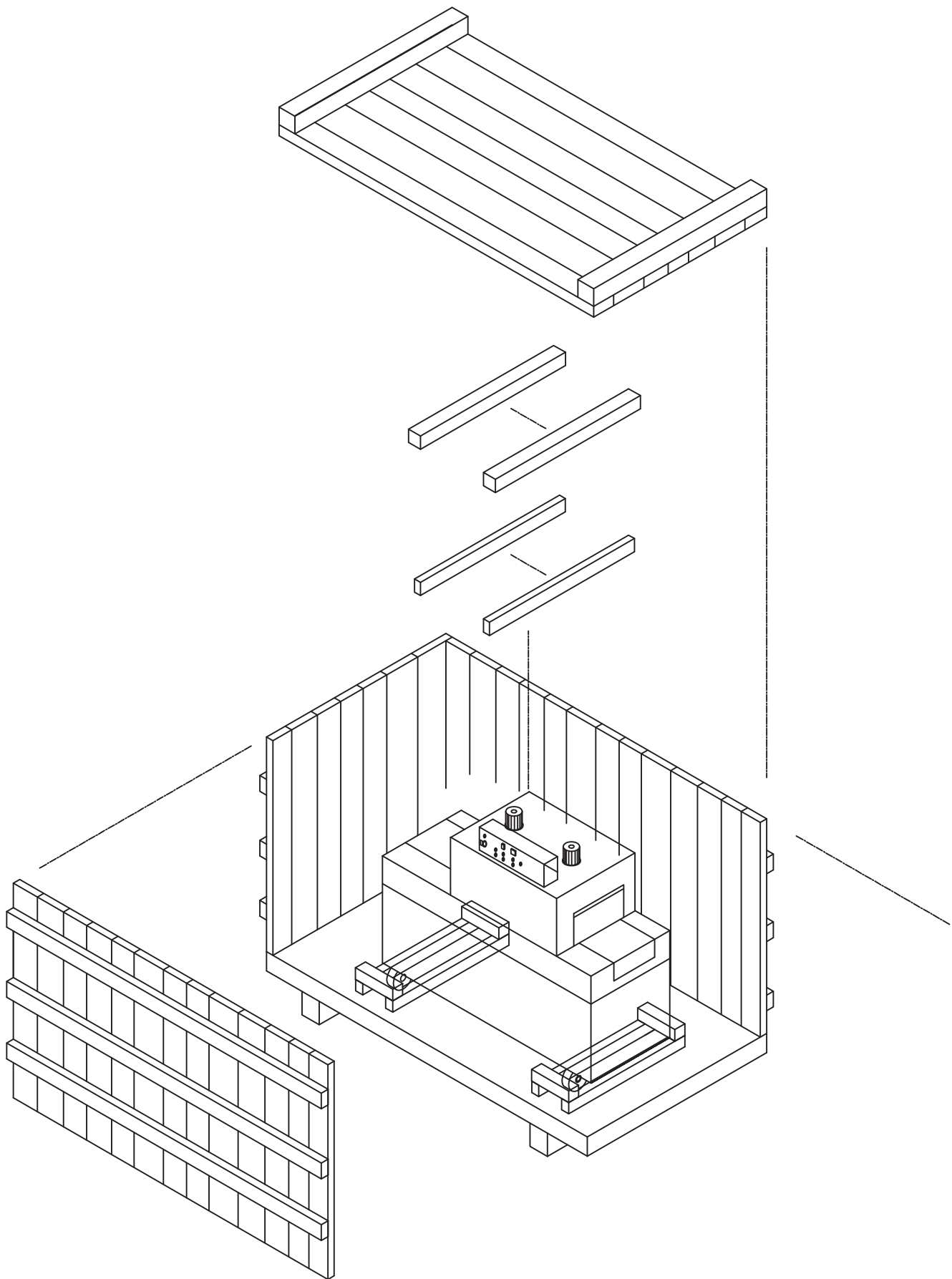


1-2. UN-LOADING

1. DS Heat shrink tunnel is packed with wooden crate, L 1.65m x W 1.2m x H 2m, weigh 340 kg, need a at lease 1.25 tons stack machine or a crance to un-load it.
2. Need at lease 3 workers (not including the stack machine operator).
3. Workers must wear safety helmet, shoes, gloves and protectioncal outfits.
4. During moving the machine, pay attention to the center of gravity of the machine.
5. Open the wooden crate prepare the tools like nail puller, hammer, ladder etc.
6. Open the wooden crate from the top, clean up the wood boards,wood crumbs, nails immediately to avoid hazard.
7. Clear up all miscellaneous articles away for the machine before move it, to avoid dangers.
8. Wooden crate's measurement is as below figure.



Wooden crate outlook drawing

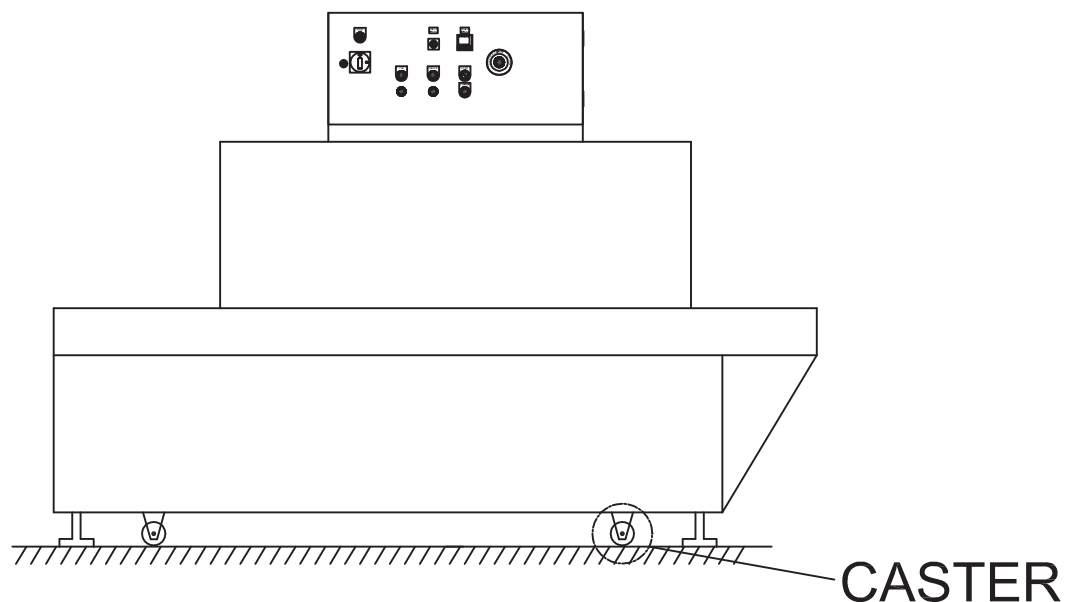


Wooden crate packing drawing

2. INSTALLATION

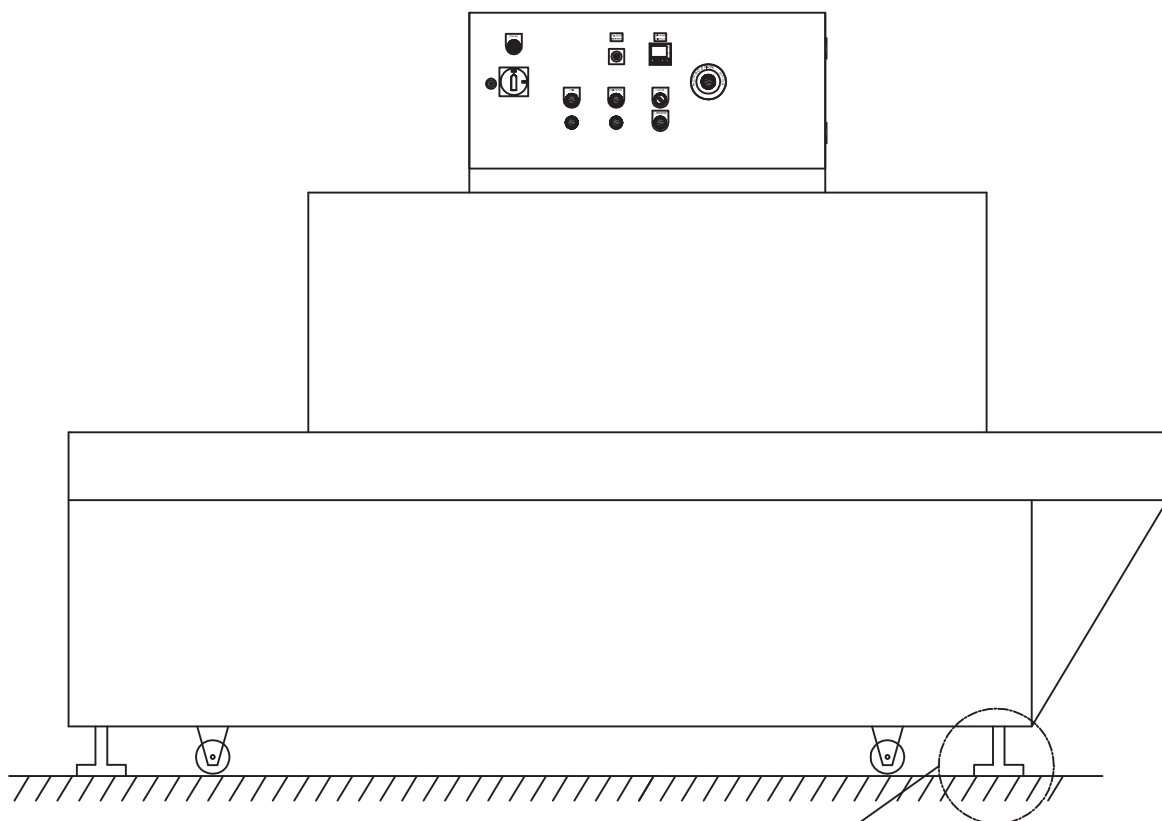
2.1. INSTALLATION PROCEDURE

1. DS Heat shrink tunnel weigh 240kg, and is mounted on four casters, easy to move.
2. Machine need two workers to move.
3. Workers must wear safety helmet, shoes, gloves and protection outfits.
4. Must move machine on the even hard ground, uneven surface or have obstacle objects would cause machine tilted to turn over.
5. If need stack machine to move, the stack machine must be can handle over 1.25 tons and the operator has to be experienced.



2.2. SET UP THE MACHINE

1. Machine pushed to the right location, first have to take off the PE plastic film cover.
2. Adjust to line up with packing machine and convey delt.
3. Use wrchine to adjust the screw at the legs to level the machine, use a leveller may help.



SCREW LEVEL ADJUSTABLE LEG

2.3 SPECIFICATION OF ELECTRICITY THE MACHINE.

1. This machine electricity : reference schematic.
2. Machine and attachments must be ground wired to protect.
3. Machine after put on electricity power please run the fan motor slowly to check is it turning to the right direction.

Remark : The actual specification of electricity must follow Purchase Order.



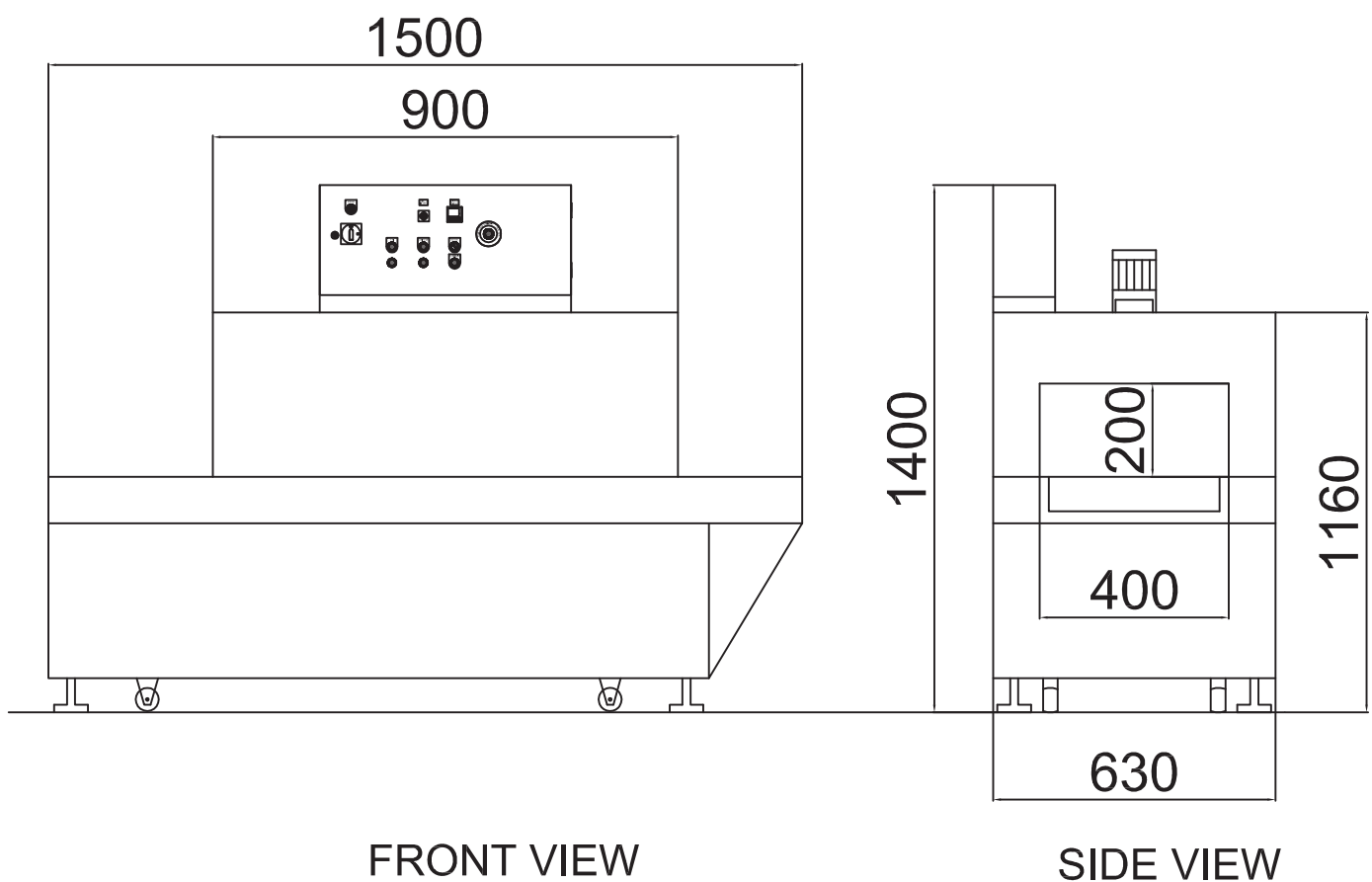
3.INTRODUCTION OF MACHINE

3.1 GENERAL DESCRIPTION

1. PREFACE

We are very appreciated for your right judgement to purchase our company's machine, in this booklet we will introduce to you the correct way to operate and maintain the machine.

2. OUTSIDE MEASUREMENT



3. MACHINE SPECIFICATION AND CAPACITY

ELECTRICITY : Reference Schematic.

HEAT POWER : 6KW

SHRINK TUNNEL GATE SIZE : 400X200 mm

CONVEY SPEED : (max.speed) 21.3 Meters per min.

CONVEY MOTOR : 40W X1

FAN MOTOR : 1/2 HP X1

Remark : The actual specification of electricity must follow Purchase Order.

Remark : The shrinkage efficiency would be defected by the shrinkage film material/ object to be packed, and work shop environments.

3.2 SAFETY AND PRE-CAUTION OF TURN ON,TURN OFF THE MACHINE

1. All operators should study this manual thoroughly before operating the machine. Warranty does not cover machine break downs due to operator error or improper setups.
If those operators do not follow the rules to run the machine leading to injury, Benison won't be responsible for the wounded.
2. Before turn on the machine, please check the details as below :
 - (1) Check that the power is connected correctly.
 - (2) Visually check over the machine and accessories.
 - (3). The machine outlook and the attachments are they good condition.
 - (4). Be sure has no obstacle objects on the convey belt.
 - (5). The EMERGENCY STOP switch should on the up-right position.
 - (6). Machine inside or upper part cannot put any tools or other articles, to avoid danger.
 - (7) Check that the power switch is in the off position.
3. The machine must be turned off and have stopped running before any maintenance or adjustments are performed.
4. Pay attention to all warning sign stickers, and must follow the safety regulations.
- 5.To prevent from danger, in any case, never pull out & turn off the safety switch when the machine is electrified. Also, keep off your hands & any tools in the scope of cutting zone.
- 6.All operators must strictly observe the above guild line and keep the machine clean & well-run.
7. If there are any problem happened, please contact our company technicians immediately.



EMERGENCY STOP

WARNING SIGNS



Caution sign, be alert.



Grounded sign, Notice here is the grounded location.
Please ground the earth cable to Class-3 (lower than 100Ω).
Incomplete grounding connection may lead to electric shock.



Electrical hazard, electrical danger if touched.
Only the trained electrician can uncover the electric panel or box.



Cut warning.
In any case, do not place your hands or any object on the sealing or cutting zone. Shut down the machine before doing the maintenance, parts replacing or trouble shooting in these zones.



Pinch warning.
Do not put your hands or any object on the moving mechanism. Shut down the machine before doing the maintenance, repair or adjustment.



Crush hazard.
Do not put your hands or any object on the moving mechanism. Shut down the machine before doing the maintenance, repair or adjustment.



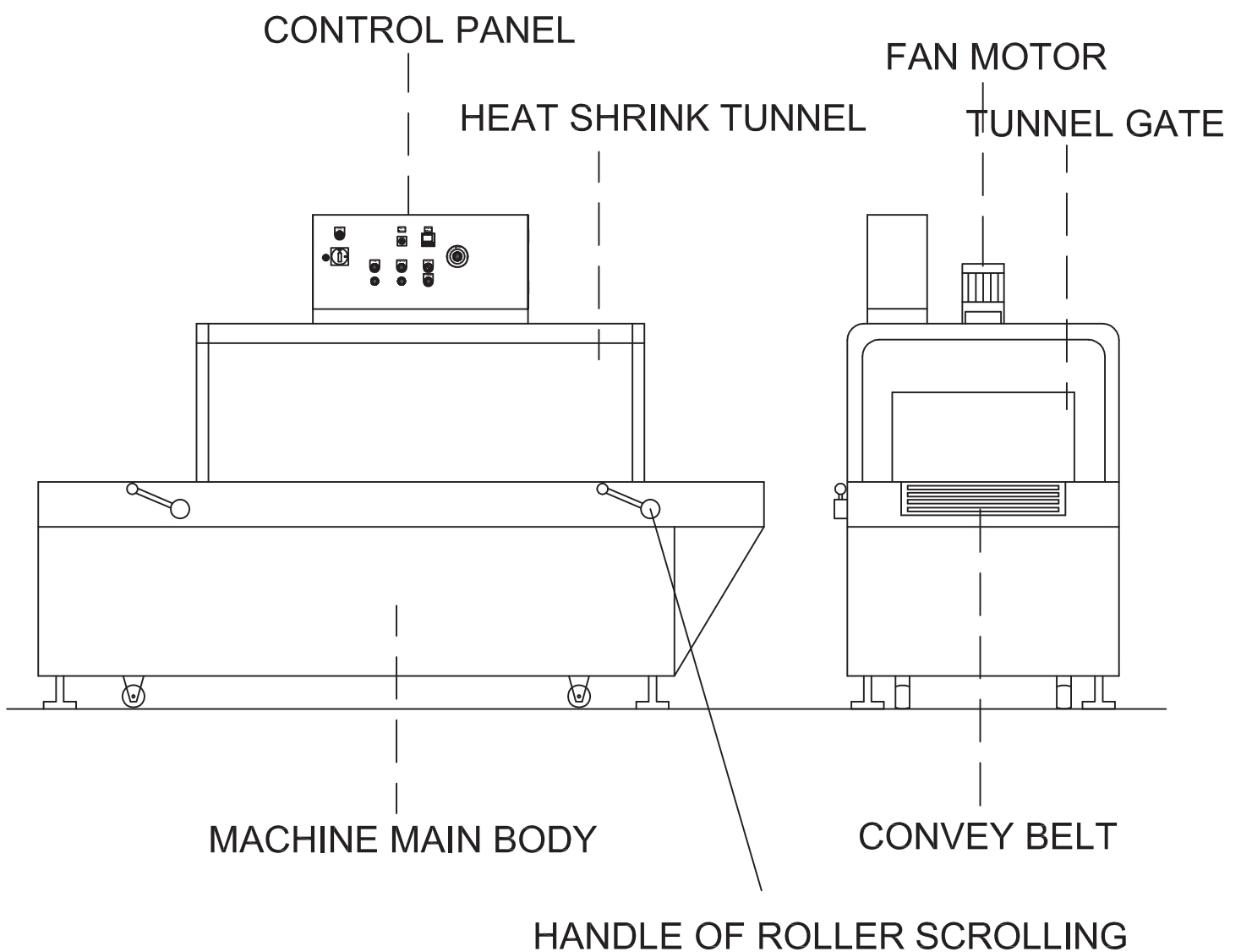
High temperature warning.
Do not touch or close to the heating source to prevent from getting burn. Proceed any maintenance only when the temperature of heater or heating source cool down to room temperature.



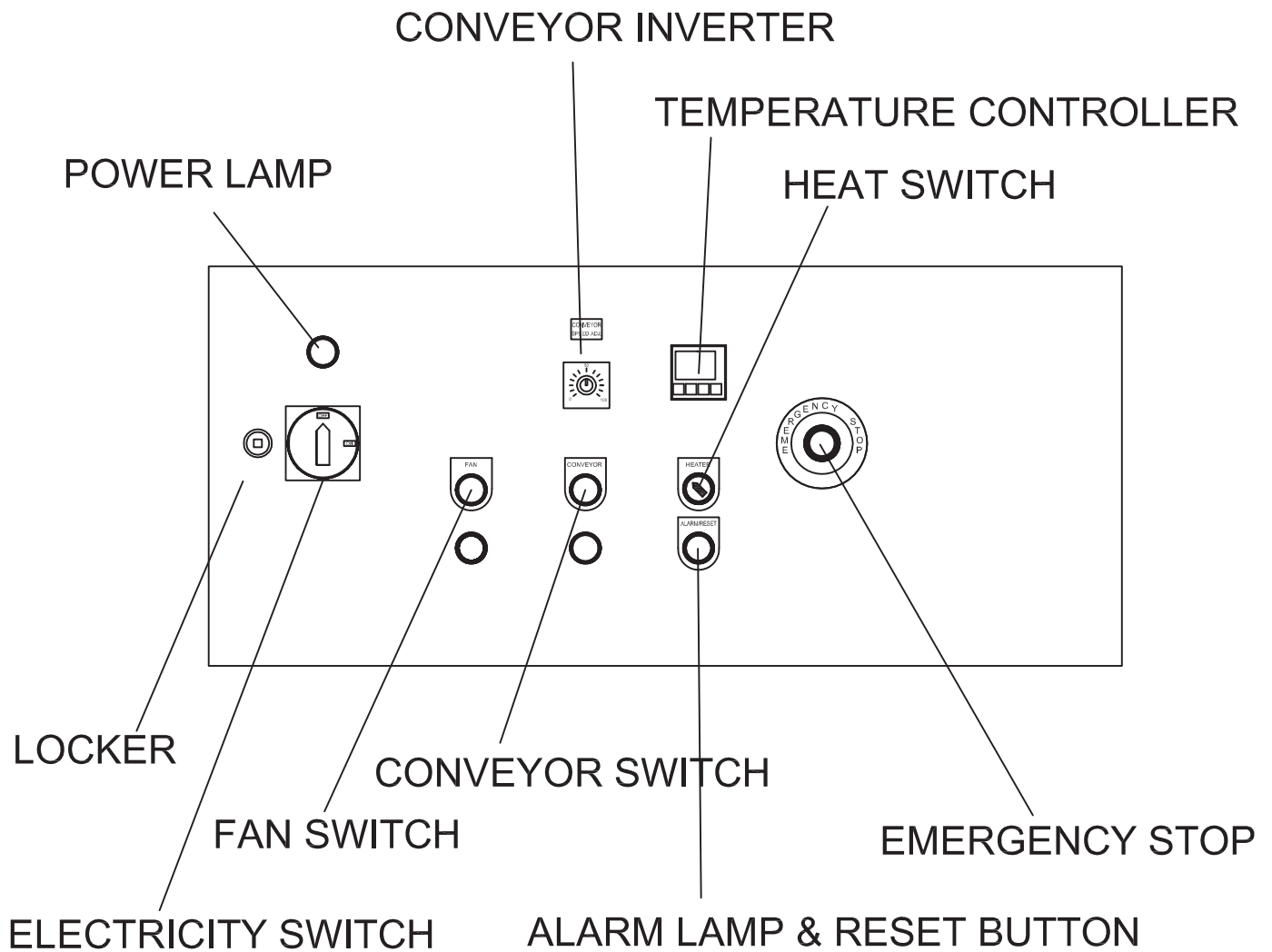
Moisture warning, keep dry.

4. OPERATION DESCRIPTION

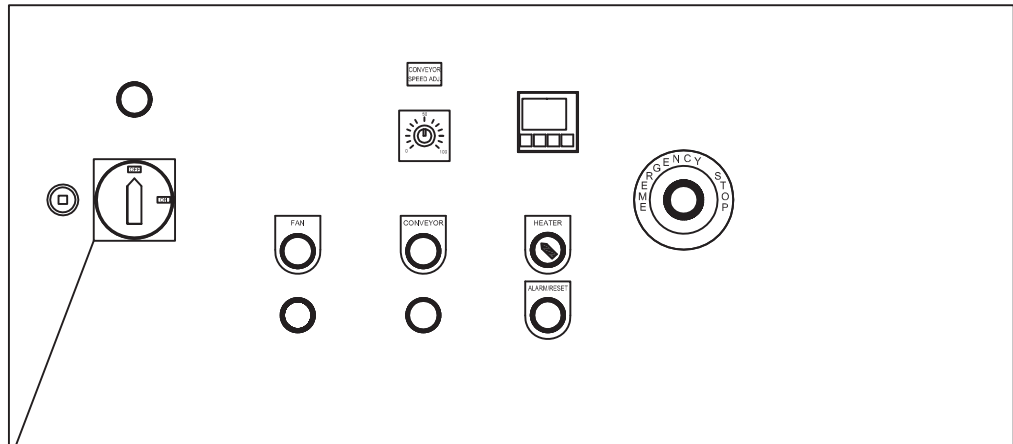
4.1 DETAILS DESCRIPTION



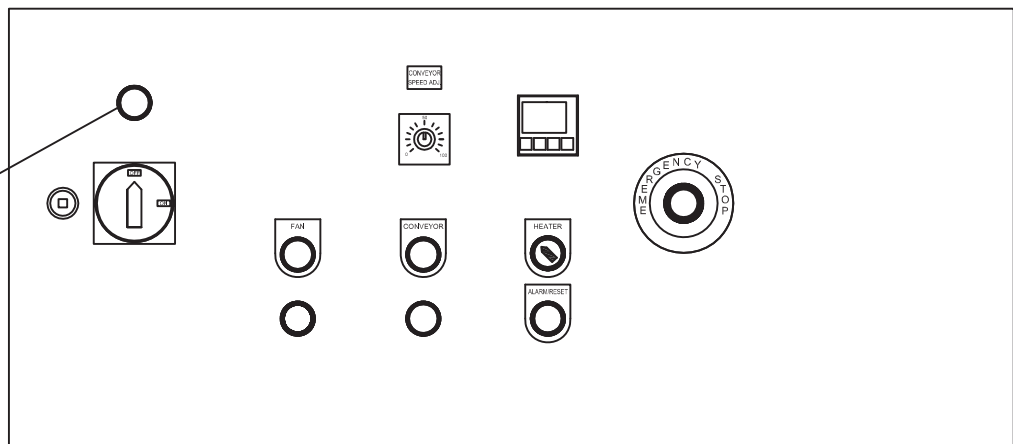
DESCRIPTION OF CONTROL PANEL



4.2 OPERATION PROCEDURE, STEP 1.



ELECTRICITY SWITCH

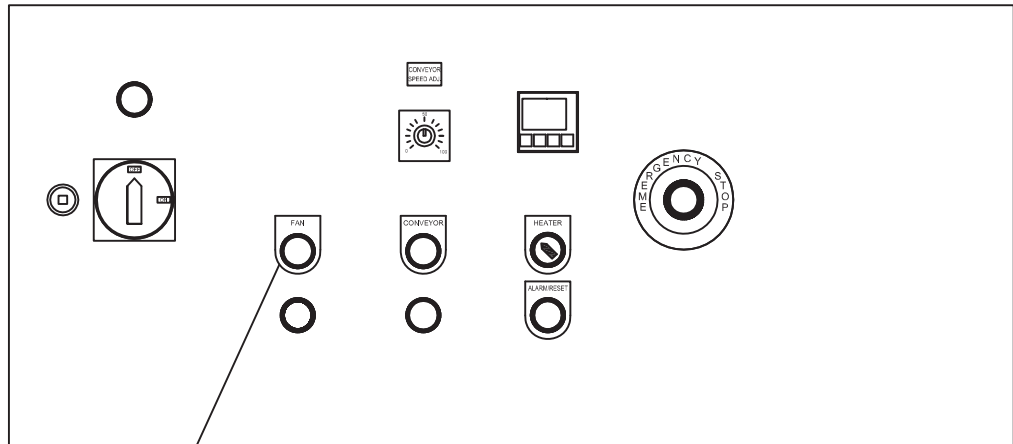


POWER LAMP

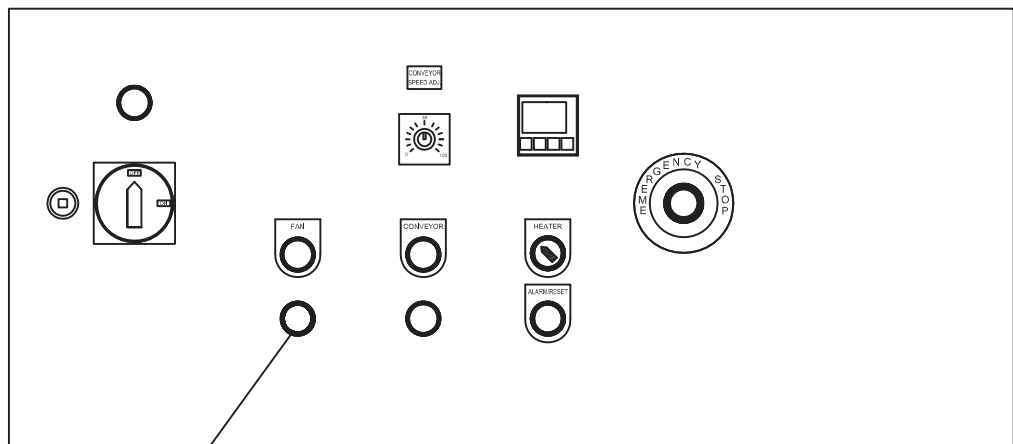
TURN ON MAIN ELECTRICITY SWITCH, THEN POWER LAMP WILL LIGHTEN.

(FAN&CONVEYOR INVERTER ARE LIGHTEN ALSO)

OPERATION PROCEDURE, STEP 2.



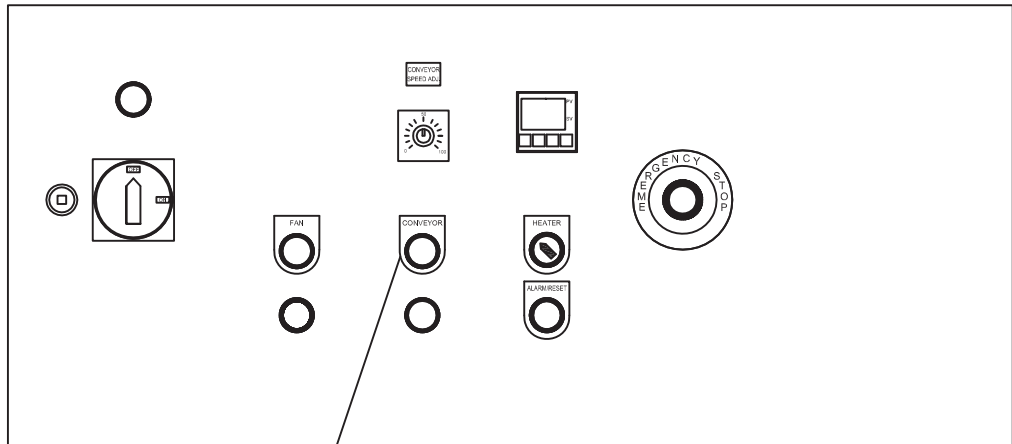
FAN SWITCH



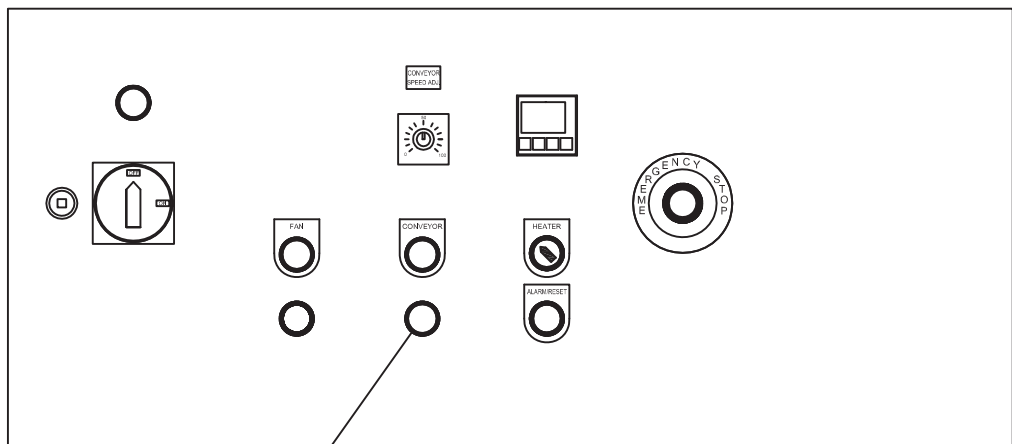
FAN SWITCH

PRESS DOWN FAN SWITCH TO ON, THEN FAN LAMP WILL LIGHTEN. PRESS RED BUTTON THEN FAN MOTOR WILL STOP.

OPERATION PROCEDURE, STEP 3.



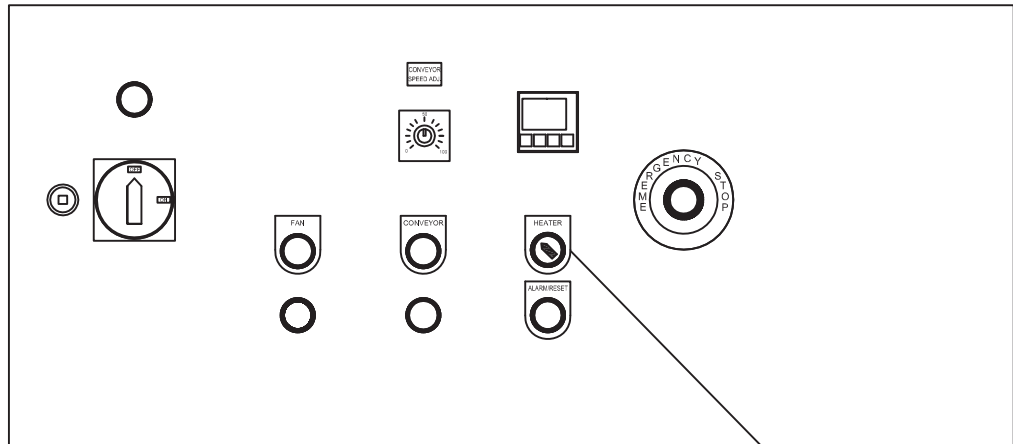
CONVEYOR SWITCH



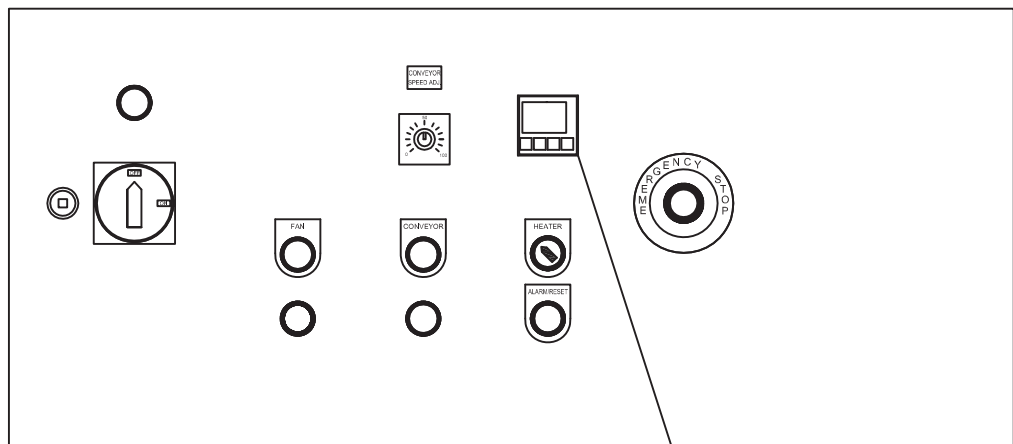
CONVEYOR SWITCH

PRESS DOWN CONVEYOR SWITCH TO ON, THEN CONVEYOR LAMP WILL LIGHTEN. PRESS RED BUTTON THEN FAN MOTOR WILL STOP.

OPERATION PROCEDURE, STEP 4.



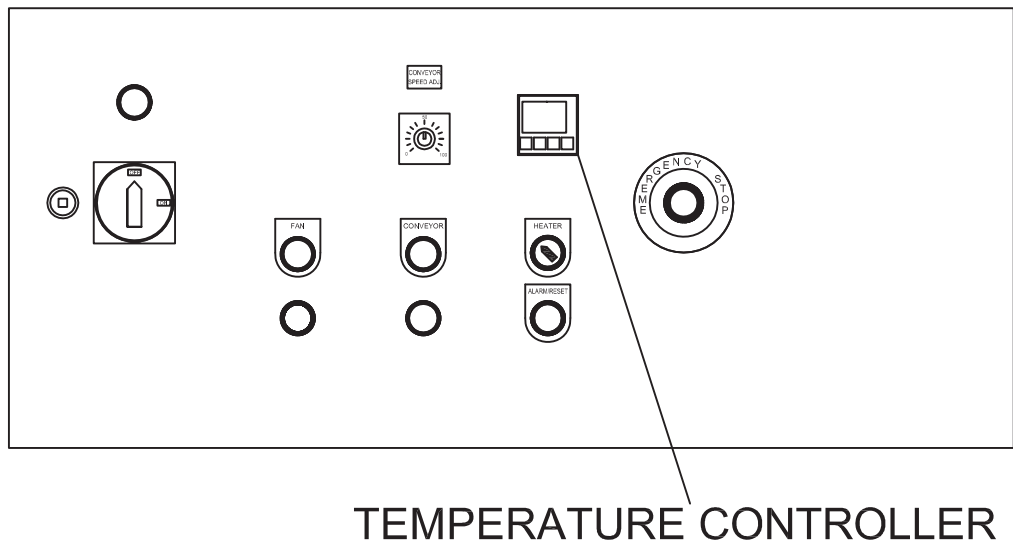
HEAT SWITCH



TEMPERATURE CONTROLLER

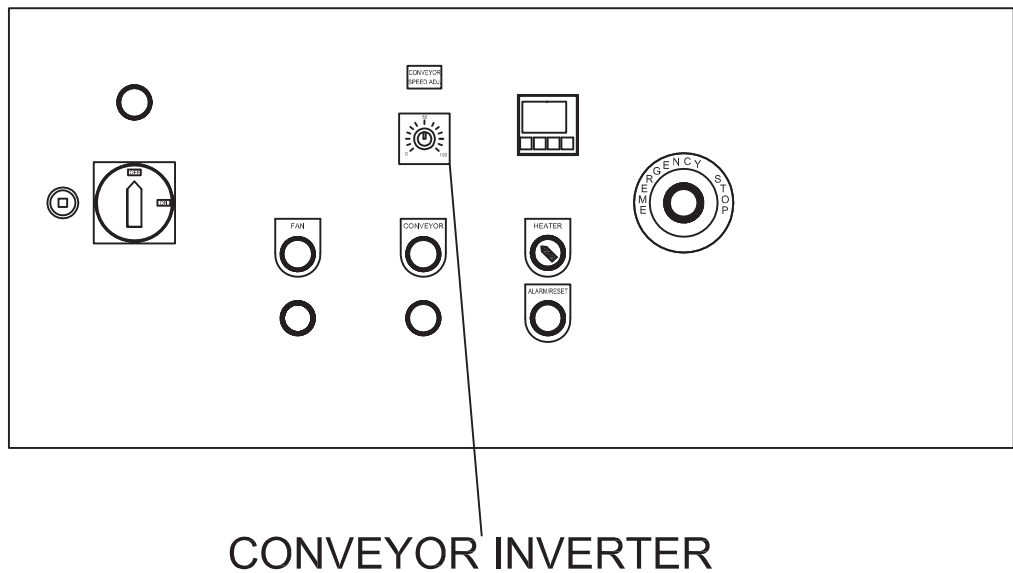
TURN ON HEAT SWITCH, THEN TEMPERATURE CONTROLLER IS WORKING.

OPERATION PROCEDURE, STEP 5.



ACCORDING TO THE OBJECT PACKING SHRINKAGE
REQUIRMENT ADJUST THE SHRINKAGE TEMPERATUE

OPERATION PROCEDURE, STEP 6.



ACCORDING TO THE OBJECT PACKING SHRINKAGE
REQUIRMENT ADJUST THE CONVEYOR INVERTER

OPERATION PROCEDURE, STEP 7.



PUT THE PACKING OBJECT TO THE FRONT PART OF
THE CONVEY BELT

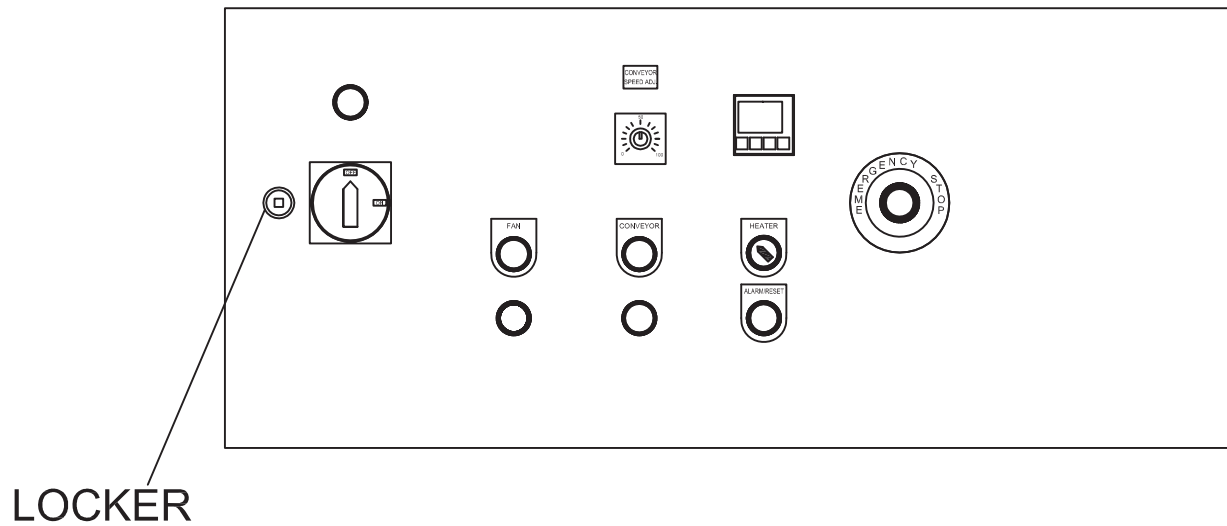
OPERATION PROCEDURE, STEP 8.



RECEIVE THE PACKED OBJECT FROM END OF
HEAT TUNNEL

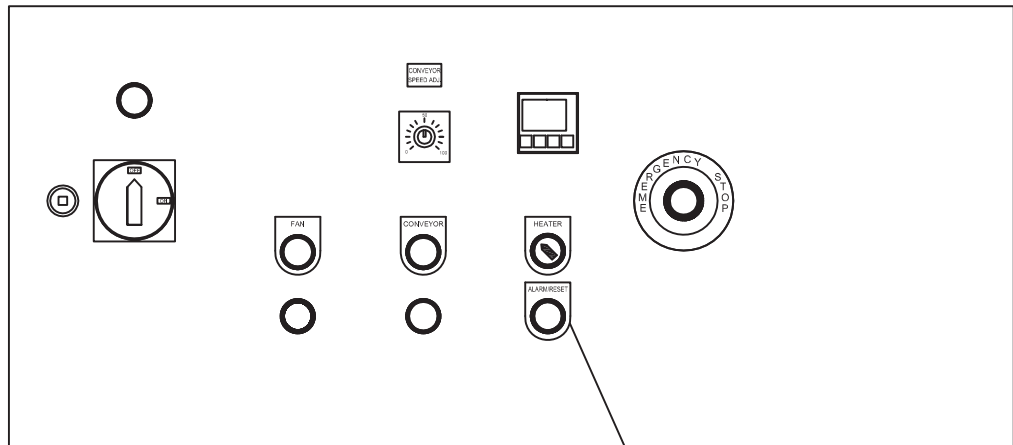
ACCORDING TO THE OBJECT PACKING SHRINKAGE
REQUIRMENT ADJUST FOLLOW STEP5~8.

OPERATION PROCEDURE, STEP 9.



FOR SEAFETY , THE PANEL HAS A LOCK, TURN RIGHT TO LOCKED;TURN LEFT TO UNLOCKED.

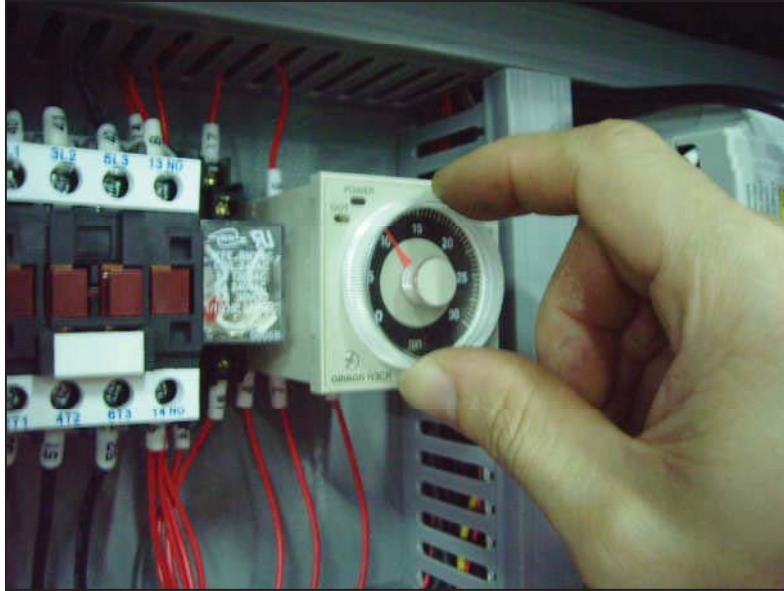
OPERATION PROCEDURE, STEP 10.



ALARM LAMP & RESET BUTTON

ALARM/RESET BUTTON, IF "PV" VALUES IS UPPER "SV" THAN 30 DEGREE , THE ALARM LAMP(RED) WILL LIGHTEN AND STOP TO HEAT, UNTIL BETWEEN "PV" AND "SV" ARE LESS THAN 30 DEGREE, PRESS ALARM/RESET BUTTON, HEATER IS WORKING AGAIN.

OPERATION PROCEDURE, STEP 11.



FOR TO PROTECT FAN AND CONVEYOR ,TUNNEL MUST BE COOLED DOWN BEFORE TURN OFF THE POWER.

SO AFTER TURN OFF HEAT SWITCH ,COOLING TIMER IS WORKING. FAN MOTOR AND CONVEYOR MOTOR STILL TO RUNNING THROUGH TO THE SETTING TIME IS UP.

PLEASE WAITTING TIME UP ,UNTIL FAN AND CONVEYOR ARE STOPPED ,JUST TRUN OFF MAIN ELECTRICLY POWER SWITCH.

***FACTORY SETTING: 15 MINUTES**

5. FIX THE MACHINE BREAKDOWN

5.1 REASONS OF BREAKDOWN AND REPAIR

Condition of breakdown	Could be reasons	Repair procedures
Electricity power off	Circuit breaker switch jump off of the machine or the plant main panel.	1. Put the circuit breaker switch to off position and then to on once. 2. If jump off again, check the fuse may need change the circuit breaker switch.
Heater is not hot	1. Heating coils is broken 2. Thermostat is broken 3. Heat sensor is broken 4. Electric magnic disk is broken	1. Change it. 2. Change it. 3. Change it. 4. Change it.
Fan is not move	1. Over load fuse burned 2. Motor stalled 3. Motor is burned	1. Check fuse and switch 2. Check the electric. 3. change the motor
Convey belt is not moving	1. Gear chain loose off 2. Motor is hot and shicking 3. Motor is burned	1. Tight up the chain. 2. Motor or convey belt is jammed by something, turn off electricity and clear it out. 3. Change the motor.

5.2 TECHNICAL SUPPORT AND PARTS SUPPLY

1. Our company have Technical Department 24 hours on call services, our technicians will set up the new machine, train the operator, maintenance and repair.
2. The machine is warranty for one year, manufacture will repair and replace defective parts free of charge, but this warranty shall not apply if the machine has been used incorrectly or for a purposely damaged.
3. Any adding extra function, change design or use foreign parts is prohibited, and the warranty automatically lose cover.
4. Change parts should contact our Technical Department to send a technician, or if change the parts yourself should use the original specificated manufacture products and follow the fatory instructions for installation.
5. All works for maintenance and repair, must straightly follow the safety regulations to avoid dangers.

5.3 IMPORTANT SAFEGUARDS

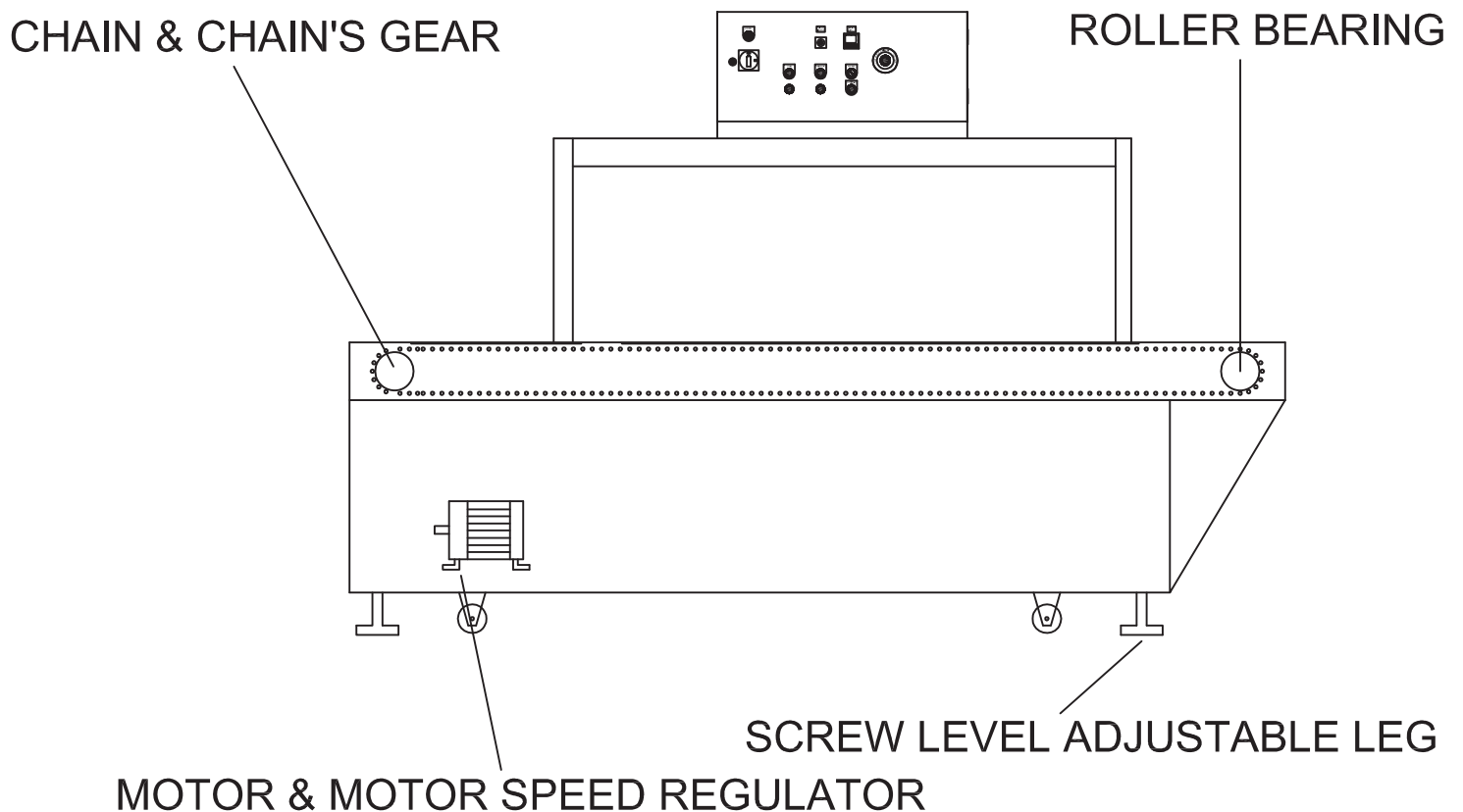
1. This machine must follow the sequence of operation step by step, otherwise cannot run the machine, turn on switches sequence is as following:
electricity power > fan > convey belt > heater
2. Object being packed to enter the heat shrink tunnel, must follow the shape of shrinkage film:
 - (1). Bag shape (one end open): the open end enter first.
 - (2). Bag shape (two end open): the open ends straightly follow the direction of convey belt.
 - (3). Four sides sealed: according to the shape of object, the long end enter first.
3. Adjustment :
 - (1). If shrink film has wrinkles, means the heat tunnel temperature is too low, or the convey belt runs too fast.
 - (2). If shrink film has cracks, means the heat tunnel temperature is too high, or the convey belt runs too slow.
 - (3). To adjust the speed of convey belt, please open the side door of machine and adjust the vary speed motor.
 - (4). Turn off the machine, need to wait for the temperature of the heat tunnel low down then turn off the electricity.

Remark :About CE type shrink tunnel, our company desings a device of timer, after timer setting, the tunnel will auto shut when operator turn off "heat swich" and "setting time is up".

6. MAINTENANCE

6.1 LUBRICANT ADDING LOCATION

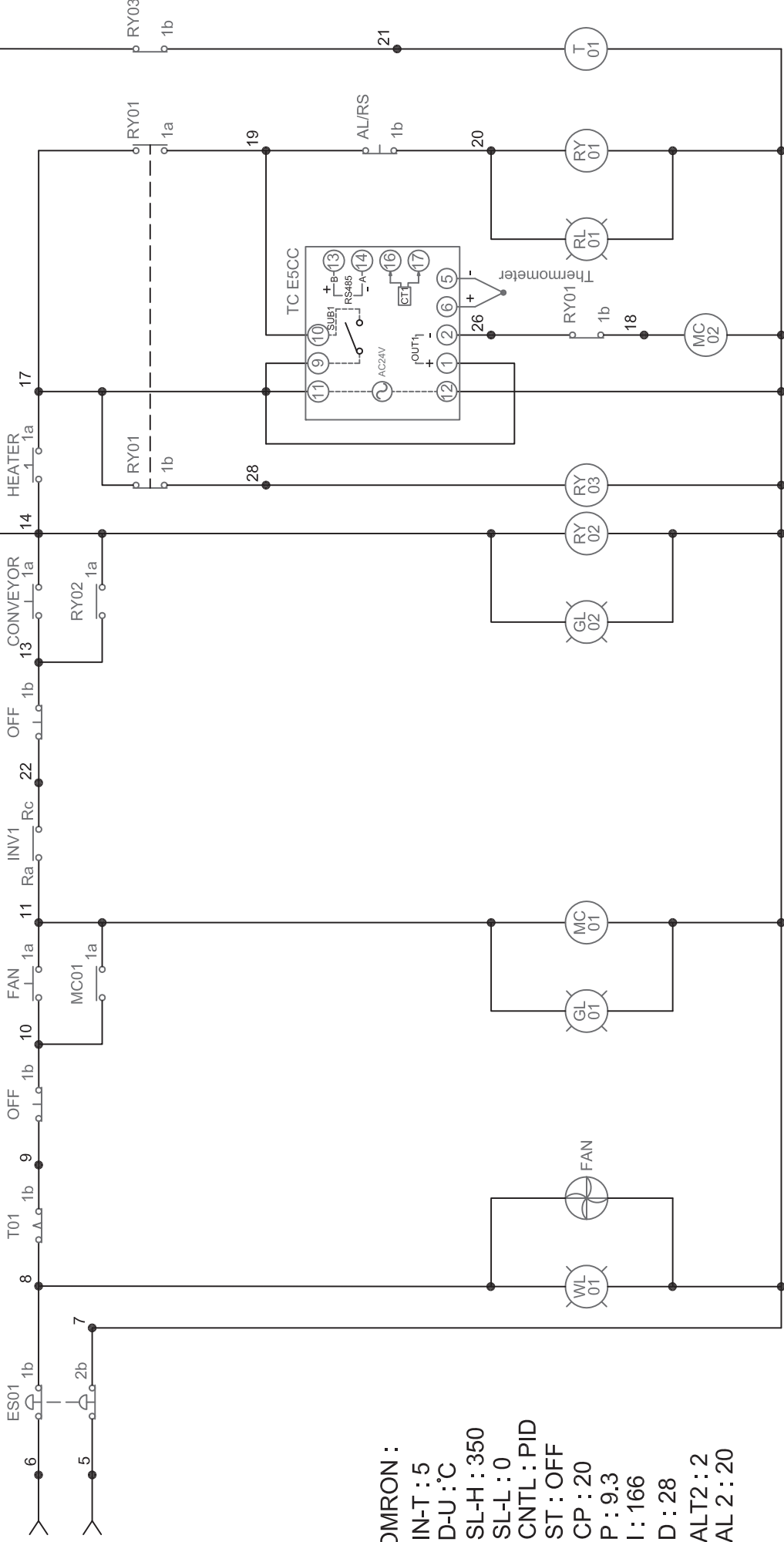
1. Before adding lubricant, please use brush or rags clean the machine first, or blow it with the compressed air gun.
2. Change the lubricant oil on schedule to the motor speed regulator.
3. Grease the convey belt roller bearing with grease gun.



6.2 OUTWARD CLEANING AND MAINTENANCE

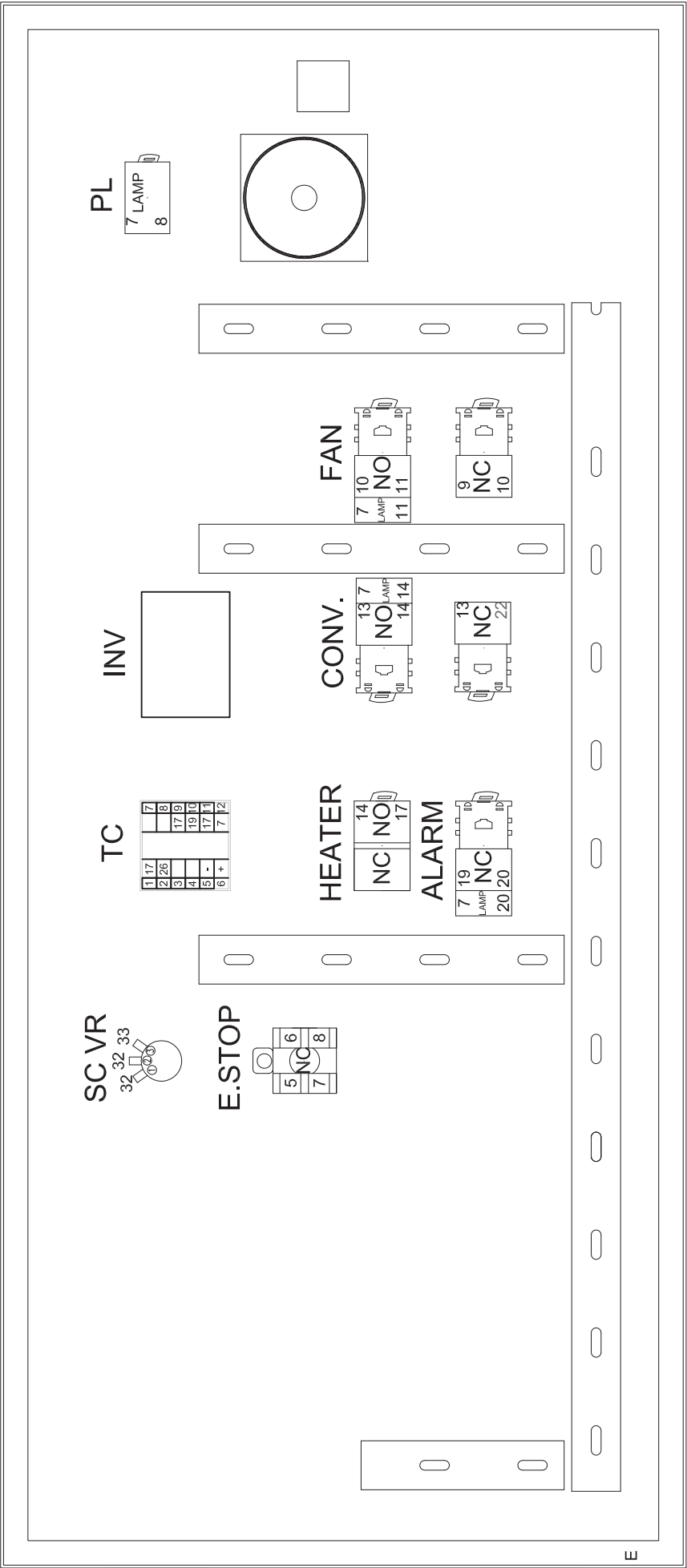
1. Every day before finish work or change shift, worker must clean the machine with rags or blow it clean with a compressed air gun.
2. This machine is not built to be water proof, please use mild detergent with wet cloth or rags to wipe outside, never splash water on it or hose it with water.
3. The metal outside of this machine is anti-corrosion treated, but still beware of contact with any corrosive acids liquid or gas, for can use the machine longer.
4. Avoid let any foreign objects fall into the heat tunnel, must clean it out immediately before burn to smoke or fire to avoid danger.

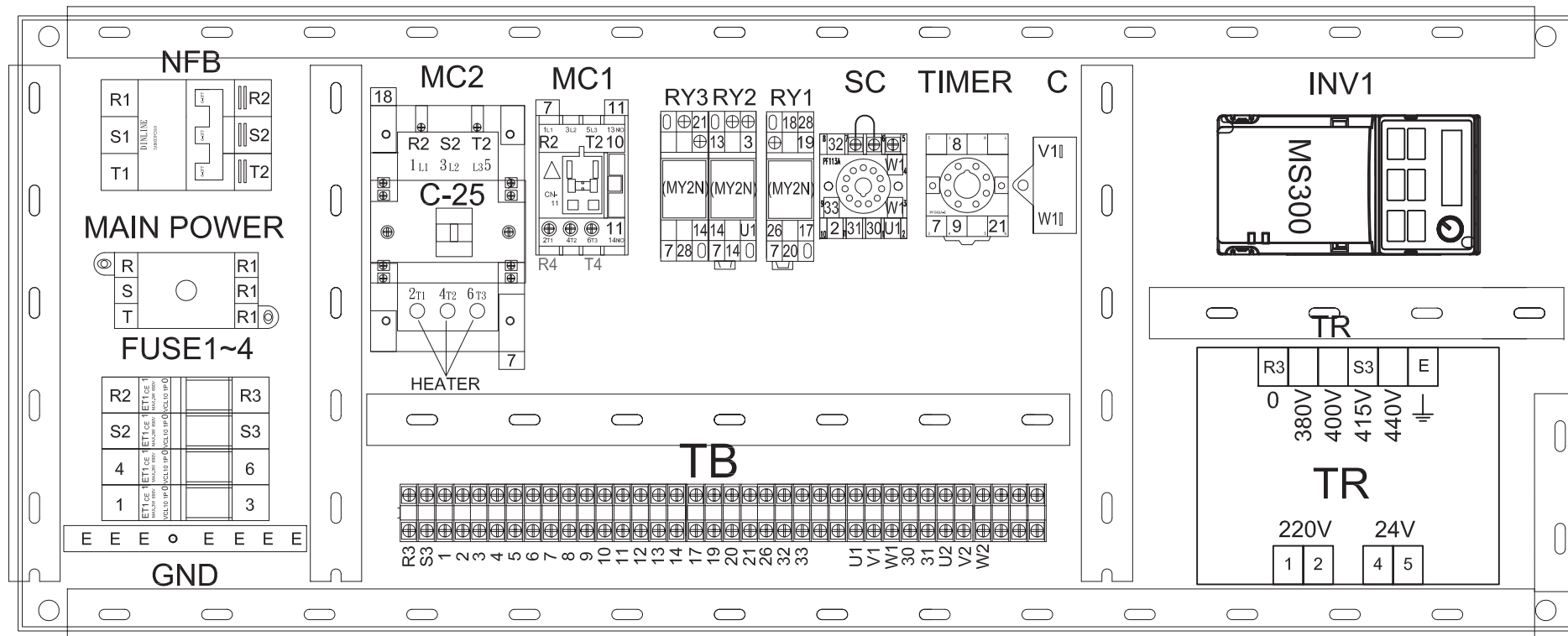
20AWG (0.75mm)



OMRON :
IN-T : 5
D-U : °C
SL-H : 350
SL-L : 0
CNTL : PID
ST : OFF
CP : 20
P : 9.3
I : 166
D : 28
ALT2 : 2
AL 2 : 20

BENISON & CO., LTD. ISO 9001/22000 CERTIFIED	Electric circuit diagram	Machine codename	Date	Approved	Check	Draw
	DS-400(CE)-B01	DS-400(CE)	2021.09.29			Sam.Xuan





*The position of the line number in the configuration diagram is for reference only, and may be different in practice



BENISON & CO., LTD.



Electric circuit diagram

DS-400(CE)-E02

Machine codename

DS-400(CE)

Date

2021.09.29

Approved

Check

Draw

Sam.Xuan

BS-003-03