



AN ISO 9001:2008 CERTIFIED COMPANY

USER MANUAL

Three Chamber Sleeve Shrink Tunnel

QS3520STVL3C



www.sevana.com

YOUR PACKAGING PARTNER

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1. FOREWORD

Thank you for choosing Sevana. You now belong to the Sevana family of over one million satisfied customers across the world. We are confident that you will have many years of complete satisfaction from this Sevana product.

We want you to derive maximum value from Sevana's reliable service and support infrastructure in India. We maintain Sevana's service mission of working continuously to provide customers with highest level of service, thereby ensuring mutually successful long term business association.

You can contact us through

Email	:	support@sevana.com	
Phone	:	+91-484-2680780	Monday to Saturday
Mobile	:	+91-9388180781	8.30 am – 5.00pm IST
Fax	:	+91-484-2680680	

We value your partnership

Yours sincerely

For Sevana Electrical Appliances Pvt. Ltd.

Manager in charge, Customer support

While contacting the support centre kindly provide the following information for a speedier support and service.

- Model
- Serial No
- The nature of problem

2. HOW TO USE THIS MANUAL

- ❖ Please read this manual carefully before installing and commissioning the machine.
- ❖ Please keep a copy of this manual for reference near the machine.

The information in this document is believed to be accurate and reliable. However, Sevana Electrical Appliances cannot accept any financial or other responsibilities that may result from the use of this information. No warranties are granted or extended by this document.

Sevana Electrical Appliances reserves the right to change any or all information contained herein without prior written notice. Revisions may be issued at the time of such changes and/or deletions.

3. SAFETY PRECAUTIONS

a. Introduction

Machines of Sevana have been designed to provide extremely safe and dependable operation when properly used. Safety precautions must be observed during normal operation and when servicing the machines of Sevana.

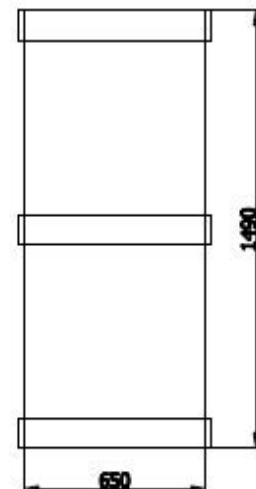
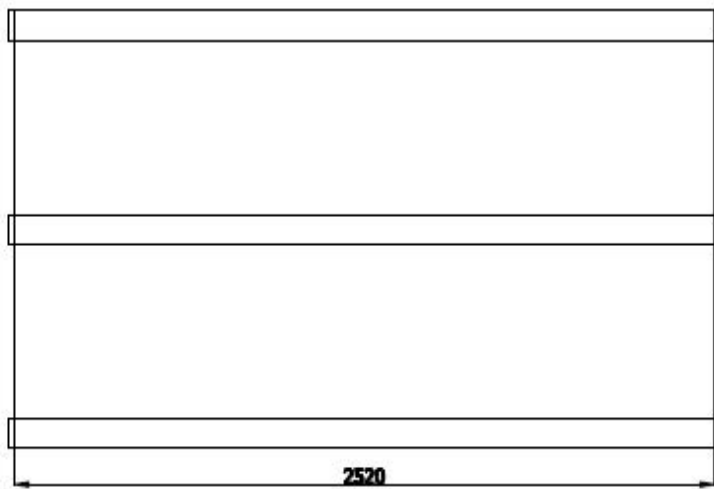
b. Warning

A warning describes safety hazards or unsafe practices which could result in personal injury or loss of life. A warning message is accompanied by a symbol as described in the following paragraphs and is also surrounded by a box to attract your attention.

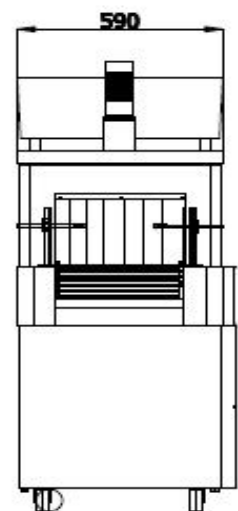
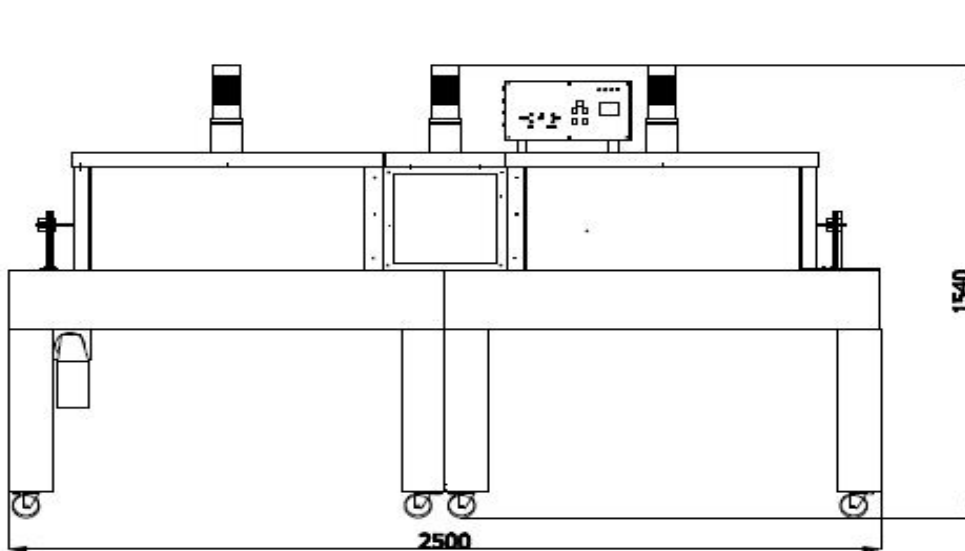
i.		This is a warning symbol indicating a hot surface.
ii.		This is a warning symbol indicating moving parts.

- The machine has to be grounded properly before using.
- Never try to shrink wrap explosive or inflammable material.
- Do not insert hand in the chamber when machine is in operation.
- Do not allow any liquid to go in to the machine.
- Do not keep Shrinkable film on the machine.

4. CASE AND MACHINE DIMENSIONS



INNER DIMENSION OF PACKING CASE
 LENGTH=2500
 WIDTH=650
 HEIGHT=1490
 ALL DIMENSIONS ARE IN MM



5. PACKING SLIP

ITEM	QUANTITY
Machine	1
User manual	1
Double open-end wrench/spanner (10-11) *	1
Ring spanner/box-end wrench (10-11) *	1
Double open-end wrench/spanner 18-19*	1
Screw driver*	1
Tool storage box*	1

*Contains in disassembled and packed mode

6. TECHNICAL SPECIFICATIONS

Model		QS 3520 STVL 3C
Conveyor speed (m/min)		0-10
Travel time (sec)		Variable
Window size (mm)	B	350
	H	200
Max. object size (mm)	B	300
	H	180
Chamber 1 : Length (mm)		890
Chamber 2 : Length (mm)		350
Chamber 3 : Length (mm)		890
Conveyor pitch (mm)		30
Dimension (mm)	L	2500
	B	590
	H	1540
Power	KW	10
	V	415
	Φ	3
Weight (Kg)		280

7. UNPACKING

Note: Please verify the items with the packing slip.

- ❖ Inspect for any transit damages. If there are any, notify your dealer/transporter/insurance company or us immediately.
- ❖ The machine is shipped well packed in a wooden box with
- ❖ four bolts holding the machine to the bottom panel.
- ❖ Place the wooden box with the “TOP” marked to the top.
- ❖ Remove all the side panels and top panel of the box.
- ❖ Lift the machine with the crane using a pallet jack.
- ❖ Remove the packing bolts.
- ❖ Remove all packing materials.

Tools required to unpack
• Pry bar/Crowbar • Claw hammer

8. LIST OF PARTS

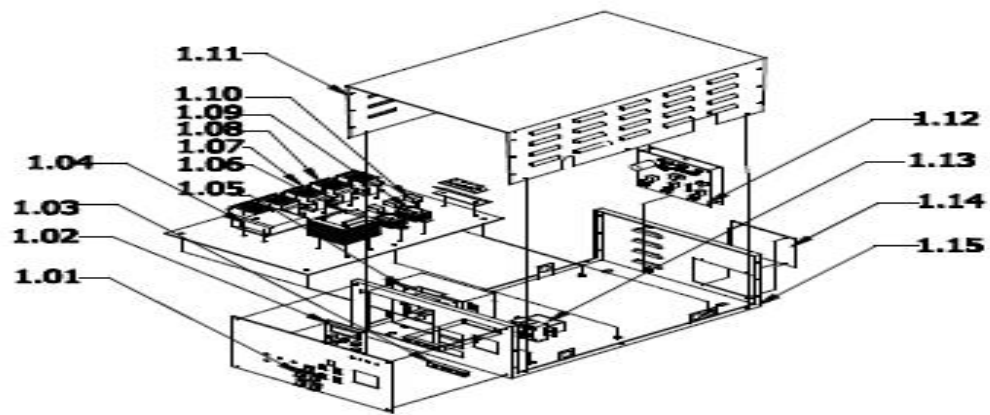


FIG. 1

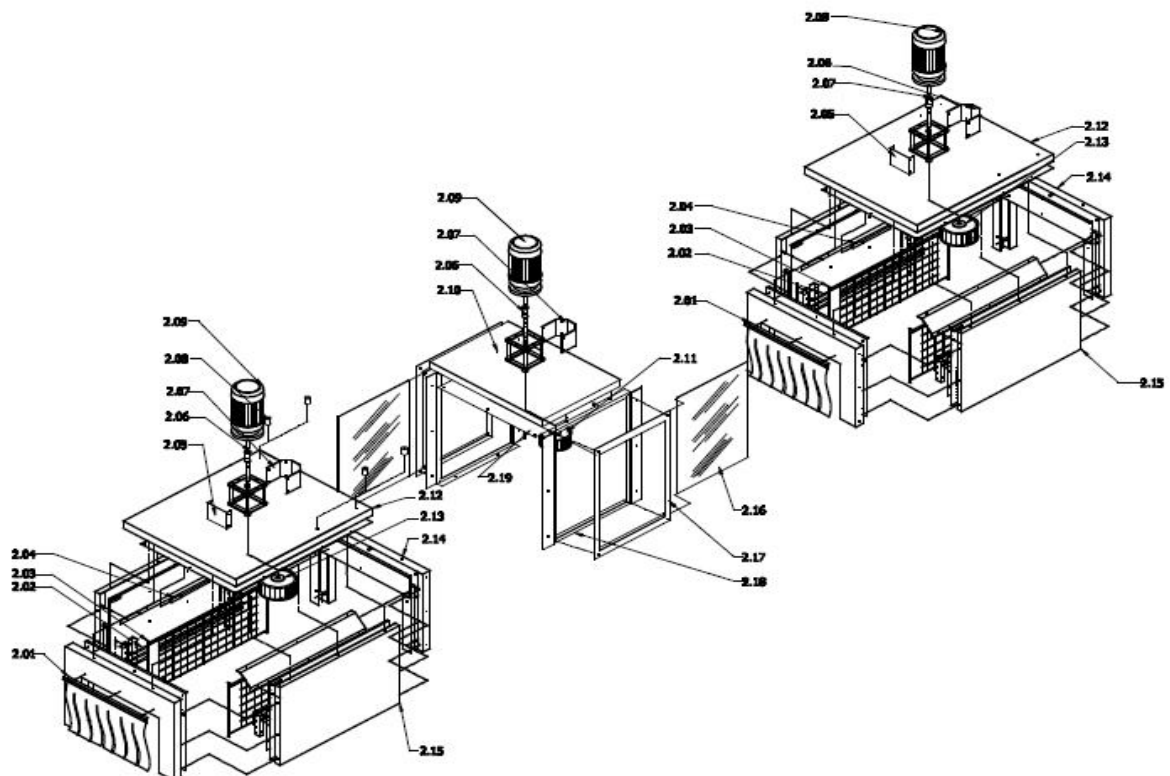


FIG. 2

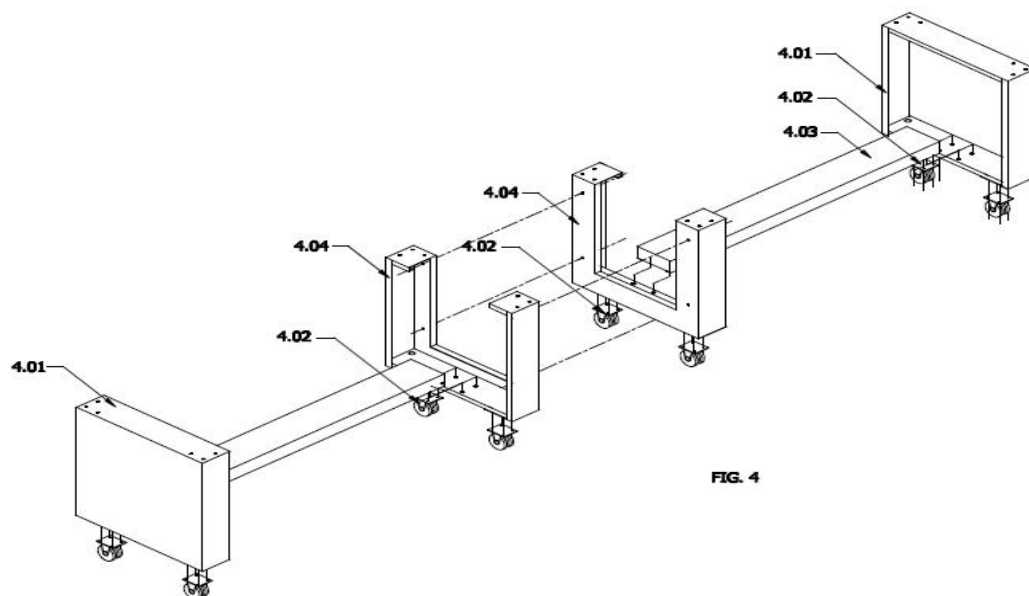
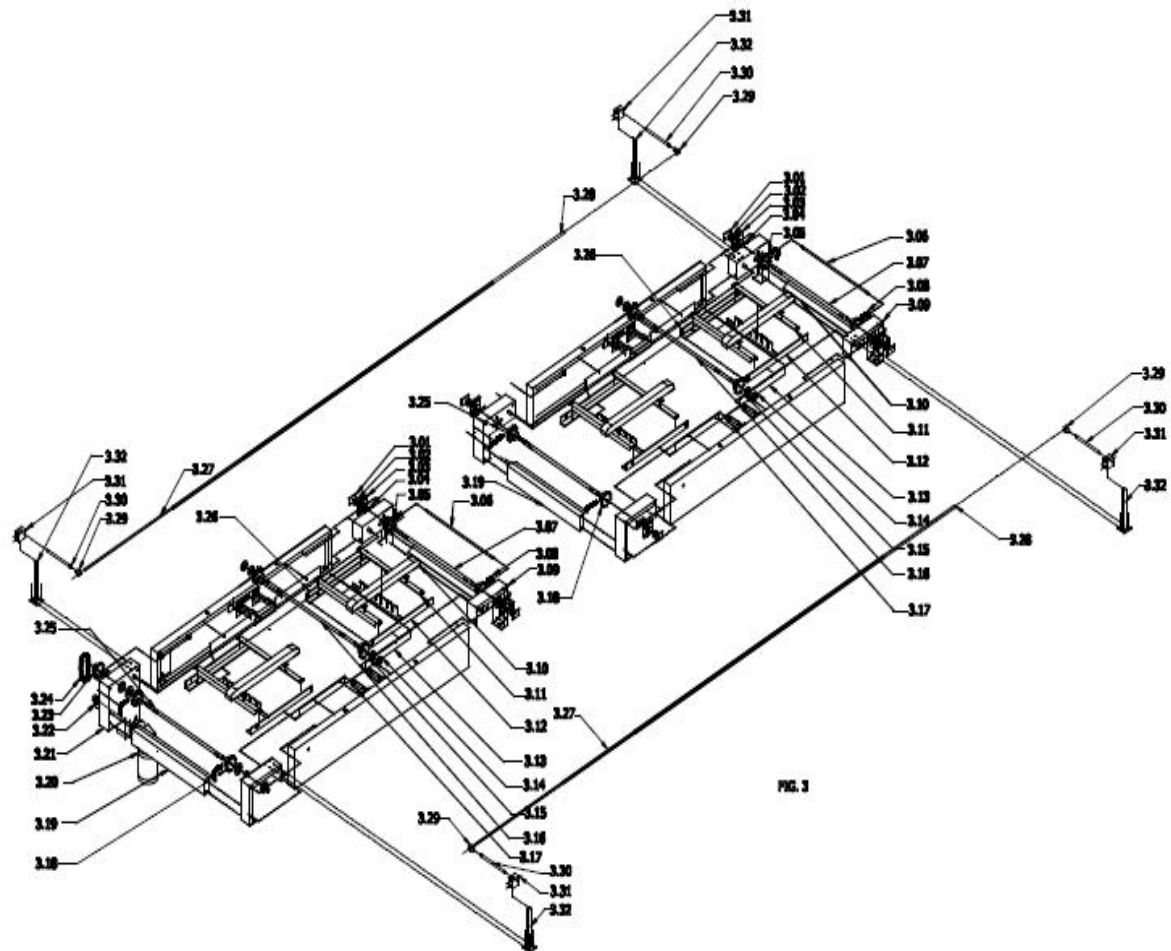


FIG. 4

Sl. No.	Item name	Sap code
1.01	Fan, heater switch	1023200
1.02	Display board	1033031
1.03	LED	1023098
1.04	Phase sequencer	1023001
1.05	Micro controller board	1052082
1.06	Control transformer 240/104V	1049865
1.07	Contactor 9A	1020008
1.08	Contactor 12A	1020001
1.09	Control transformer 18V	1043002
1.10	CC2 relay	1023153
1.11	Control cabin cover	1010189
1.12	Drive board	1052083
1.13	MCB 16A	1022019
1.14	Control panel side cover	1049989
1.15	Control cabin base	1010751
2.01	Silicon coated teflon cloth	1050024
2.02	Heater 750W	1027012
2.03	Heater guard	1010423
2.04	PT-100	1023212
2.05	Hex. Motor shroud end cover	1010769
2.06	Blower motor drive shaft	1045050
2.07	Hex. Motor shroud	1010446
2.08	Cabin support	1010755
2.09	Blower motor – 3 phase	1030014
2.10	Top cover middle	1010734
2.11	Blower 150 ø	1003002
2.12	Top cover	1010652
2.13	Blower 180 ø	1003005
2.14	End cover RH	1010356
2.15	Side cover front	1010584
2.16	Toughened glass	1050264
2.17	Toughened glass frame	1010752

2.18	Toughened glass support	1010749
3.01	Bearing housing cover chain tension	1045031
3.02	Bearing	1002003
3.03	Idler shaft bush	1045255
3.04	Bearing housing cover	1045032
3.05	Idler sprocket	1045271
3.06	Conveyor rod	1045081
3.07	Idler shaft	1045257
3.08	Chain	1018004
3.09	Front chassis end box	1010394
3.10	Conveyor rod support	1010217
3.11	Cross support	1010280
3.12	Chain rail front	1010056
3.13	Bottom shield	1001009
3.14	End ring	1045180
3.15	End bush	1045178
3.16	Middle shaft	1045334
3.17	Chain rail support	1010076
3.18	Idler sprocket motor end	1045274
3.19	Chassis end cover	1010112
3.20	Conveyor motor	1030003
3.21	Rear chassis motor end box	1010528
3.22	Motor end sprocket	1045361
3.23	Drive shaft end sprocket	1045138
3.24	Chain 3/8 pitch	1049140
3.25	Drive shaft	1045144
3.26	Chain rail back	1010066
3.27	Bottle aligning shaft	1045475
3.28	Rubber sleeve	1038020
3.29	Shaft adjusting hinge	1045481
3.30	Horizontal adjuster	1045477
3.31	Vertical adjusting block	1045479
3.32	Vertical adjusting support	1045483

4.01	Vertical leg at end	1010747
4.02	Castor wheel	1049133
4.03	Horizontal channel	1010745
4.04	Vertical leg	1010746

9. POWER CONNECTION

Open panel box cover , one can see five terminal points on the power connection terminal block with indication R, Y, B, N and E. The connections are to be made as follows. Connect the terminal points R, Y and B to phases N to the natural and E to the earth. Switch on MCB. All the phase lamps RYB will light up and fourth lamp phase sequence OK will light if the phase sequence is all right. If it does not, interchange any of the two phase line.

For machines without phase sequencer, turn on the blower fan and ensure that it spins anticlockwise, if not interchange any 2 phase after the motor comes to a complete stop.

10. CONTROL PANEL

MCB
LEDs
Blower on/off switch
Heater on/off switch
Control buttons
LCD display

11. STARTING THE MACHINE

CONTROL BUTTONS :

- ❖MODE button
- ❖STOP button
- ❖UP button
- ❖SET button
- ❖DOWN button

To start the machine, connect the machine to appropriate power supply and switch on.

A LCD check function is done first; version of the software is displayed.



The machine has four (4) modes/program presets. Each mode preset parameters are

- Speed of conveyor
- Temperature of Chamber

The machine has four (4) modes/program presets. Each mode preset parameters are

1. Speed of conveyor
2. Temperature of Chambers

These parameters can be modified by the operator if required (Each mode can be used for different type of films/products) and these are indicated using letters as follows:

M: MODE

S: Speed of conveyor

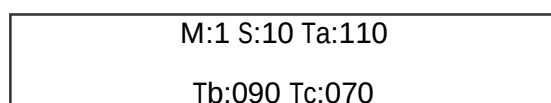
Ta: Temperature of Chamber1 (CHBR1)

Tb: Temperature of Chamber2 (CHBR2)

Tc: Temperature of Chamber3 (CHBR3)

The machine will automatically go to the previously used mode after initializing. Now the temperature will be building up. LCD displays as “M:x S:xx Ta:xxx Tb:xxx Tc:xxx”.

Eq.



When the temperature is built up to the preset level of each chamber buzzer alarm is given as indication.

PROGRAM MODES:

Sevana's micro-processor based shrink tunnel machine has 4 preset modes or programs. Each program can be set with different parameters.

Variable parameters in each mode/program are:

- Temperature of chambers –Ta, Tb, Tc
- Speed

Temperature represents the temperature of chambers to shrink the film in degree Centigrade (°C). Speed represents the speed of conveyor (Minimum-maximum = 0-10 meter/min), Parameter can vary from 0-20.

TO PRESET PROGRAM MODES:

Select the mode by pressing "MODE" button. Four modes are available.

To set the temperature of chambers, press "SET" button. It displays as

EDIT SETTINGS

After getting this display, press "SET" button once again and get display as

EDIT CHBR1 TEMP
TEMP A:115 110°C

To increase/decrease the temperature of shrink chamber1, press the "UP" or "DOWN" button continuously till the required value is displayed. Changing value will be displayed on left side of the previous temperature.

After setting this, again press "SET" button and can edit temperature of chamber3 as above.

EDIT CHBR3 TEMP
TEMP C:068 070°C

We cannot change the temperature of Shrink Chamber2.

Press "SET" button to save all the values and get display as

SETTINGS UPDATED

Display automatically returns to

M:1 S:10 Ta:100
Tb:075 Tc:050

Any time pressing "UP" or "DOWN" button will increase or decrease the speed of the conveyor. The value is stored to the preset Mode/Program.

If the temperature sensor probe fails, a message will be displayed on the Digital Display

CHECK TEMPERATURE
PROBE

12. SHUT DOWN/ SWITCHING OFF MACHINE

Press the “STOP” button for 1 second.

COOLING DOWN.....

Ta:120 Tb:098 Tc:076

When the temperature is reduced to safe levels, the heaters, conveyor and fan is switched off automatically.

A message is displayed when ready to switch off.

SAFE TO TURN OFF
THE MACHINE

Now the power supply to the machine can be switched off.

13. SHRINKING OPERATION

- a. Special plastic films which shrink on application of heat are used for shrink wrapping. The temperature required for shrinking each film varies and this information can be obtained from the film manufactures. Shrink films commonly available are,
 - Low Density Poly Ethylene (LDPE)
 - Poly Vinyl Chloride (PVC)
 - Poly Olefin (POF)
- b. Insert the article in a preformed sleeve or tube of shrinkable film of suitable size. Seal the open ends & make a few holes on the film by pricking it with a pin. The corners of the film may also be sealed cut off for better appearance. If open ends are desired, the ends of the tube need not be sealed. An L – Sealer can be used to make this easier and for better productivity.
- c. Place the wrapped article on the conveyor at the inlet. The article will come out of the outlet properly shrunk. Inspect the article.
- d. If the shrinking is not sufficient increase the temperature setting or reduce the conveyor speed. If over shrunk, reduce the temperature setting or increase the conveyor speed. By manipulating the temperature and conveyor speed one could get the best result and productivity. Make final adjustment of speed and temperature after the temperature has reasonably stabilized.
- e. If POF or PVC film used, to avoid the conveyor rod marks on the product then adjust the conveyor rod support so that conveyor rod support will fret conveyor rods and the rod will rotate.

Shrink Film	Thickness(Microns)	Time(S)	Temperature(° C)
POF	8	3 - 5	135 - 140
PVC	40	1 - 4	110 - 120
LDPE	60	1 - 3	150 - 170

14. MAINTENANCE

Caution: Isolate electric power supply before doing the maintenance.

A) Daily Maintenance

1. Blow off the dust and film debris using a blower or compressed air.
2. Remove any plastic leftover on the conveyor rods or sleeves

B) Weekly maintenance.

1. Apply graphite grease on the chains
2. Check the conveyor chain tension. Adjust if required
3. Apply lubricant to other moving parts.

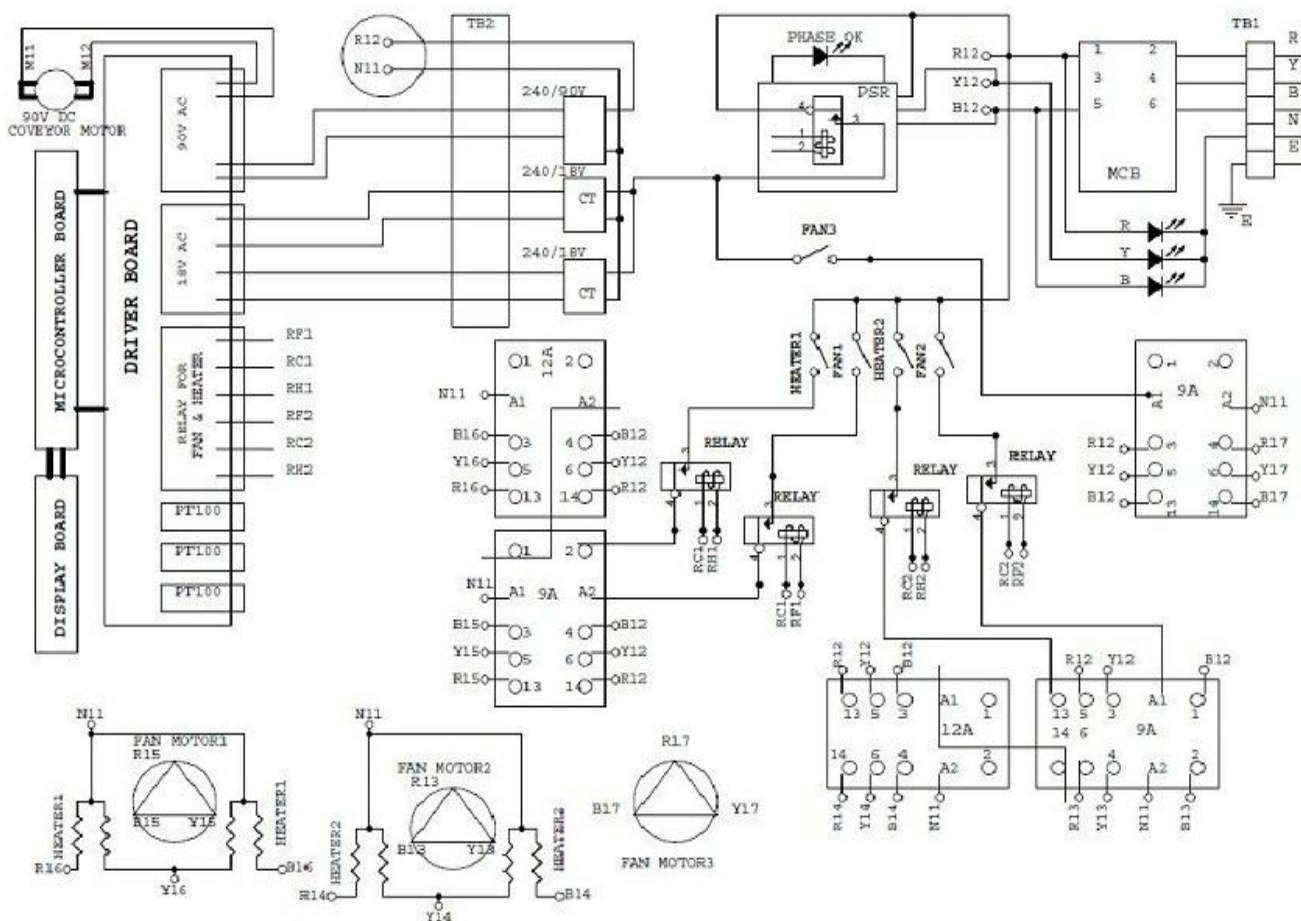
C) Monthly maintenance.

1. Inspect window curtains for damage.

D) Annual maintenance.

1. Inspect the conveyor chains. If they are elongated beyond Adjustable limits remove two links from either side.

15. ELECTRICAL SCHEMATIC



VERSION: V1.0

16. TROUBLE SHOOTING

No.	Complaint	Reasons	Remedy
1	Machine does not work , three phase power indicating LEDs are not lighting up.	1.No AC supply. 2.MCB tripped. 3.No output from CT18V.	1.Restore AC supply. 2.Check the wiring for any short circuit. If satisfactory, reset the MCB. 3.Check and replace if defective.
2	Conveyor is not moving.	1.Conveyor speed set to 0. 2.Conveyor motor stalling. 3.Defective conveyor motor. 4.Wear & tear of carbon brush. 5.Conveyor chain disengaged from the sprockets. 6. Conveyor chain breakage. 7.Defective conveyor driver sprocket. 8.Defective board for conveyor drive. 9. Blown out of FUSE in the board. 10.Defective IRF740/optocoupler in the board.	1.Increase the conveyor speed. 2.Reduce load on the conveyor. Install the machine with a slope towards the direction of the conveyor movements to increase the load carrying capacity of the conveyor. Use leveling screws to attain this. 3.Rectify/replace the conveyor motor. 4.Clean & reinsert it. 5.Engage the conveyor chain with the sprocket. 6.Replace both chain together to avoid the mismatching of chains. 7.Replace the conveyor driver sprockets. 8.Replace the board for conveyor drive. 9.Replace the FUSE. 10.Replace it.
3	Conveyor chain slips from the guides.	1.Lower conveyor tension. 2.Misalignment of sprockets and chain rails.	1.Increase the tension by adjusting the conveyor tension adjusters. 2.Align the sprockets and chain rails.
4	Air blower is not working	1.Fan switch is off. 2.Phase sequence RYB is not in sequence. 3.Defective blower motor. 4.No supply at motor end.	1.Switch on the fan. 2.Interchange any of the two phases.(Check Phase sequence indicator LED's and Phase sequence OK indicator). 3.Replace the motor. 4.Check supply voltages at the motor

		5.Defective contactor or relay.	end. 5.Replace the defective.
5.	Blower motor works , but the air turbulence fan does not rotate freely	1.Shaft fitting Allen screw loose.	(a) Check the fan shaft assembly. (b) Ensure free rotation of the shaft and a little axial play. (c) Refit the Fan Assembly Mounting Plate.
6.	Insufficient shrinking	1.Heater switch is off. 2.Low temperature setting. 3.Temperature is not building up.	1.Switch on the heater. 2.Increase the temperature setting. 3.Refer to complaint no. 7
7.	Temperature is not building up.	1.Loose connection of heaters. 2.Heater failure. 3.Low temperature setting. 4.Defective contactor for heaters/relay for heaters. 5.Defective PT100.	1.Make proper connections. 2.Replace the defective heater. 3.Increase temperature setting. 4.Replace the relay from the board/ replace the contactor. 5.Replace it.
8	Excessive Shrinking	1.High temperature setting. 2.Low conveyor speed. 3.Defective Temperature Sensor (PT100). 4.Defective Heater Contactor or relay due to contact welding.	1.Reduce the temperature setting. 2.Increase the conveyor speed. 3.Replace the defective part. 4.Replace the contactor for heater.
9.	Shrinking is not uniform	1.Air turbulence fan is not working or rotating in wrong direction. 2.Heaters are not working.	1.Refer complaint troubleshooting Case 4. 2.Identify the defective heater and replace.
10.	Abnormal sound and vibration	1.Air turbulence fan loose. 2.Fan Motor Bearing failure. 3.Machine is not installed on a level surface.	1.Tighten the nut with which the Air Turbulence Fan is attached to the blower drive shaft. 2.Replace the defective bearing. 3.Level the machine using the leveling screws.
11.	Conveyor is Moving at constant	1.Defective IRF740 in the PCB	1.Replace PCB or IRF740 in the PCB

	speed		
12.	Shows different Temperature values	1.Defective 18V CT 2.EMI problems	1.Replace 18V CT 2.Make proper FRC & other cable routing.
13.	Garbage values/ Display black out when heaters are turned on	1.EMI generated through contactor arcing.	1.Replace contactor connections for loose terminals. 2.Connect a 220ohm resistor and a 104/1kv capacitor in series across A1 and A2 of contactor. 3. Replace Contactor.

17. SERVICE LOG

[illegible]