



AN ISO 9001:2008 CERTIFIED COMPANY

USER MANUAL

Delta Shrink Tunnel

QS4020DSTV/Single phase



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.

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3. SAFETY PRECAUTIONS

❖ 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.

❖ Warning

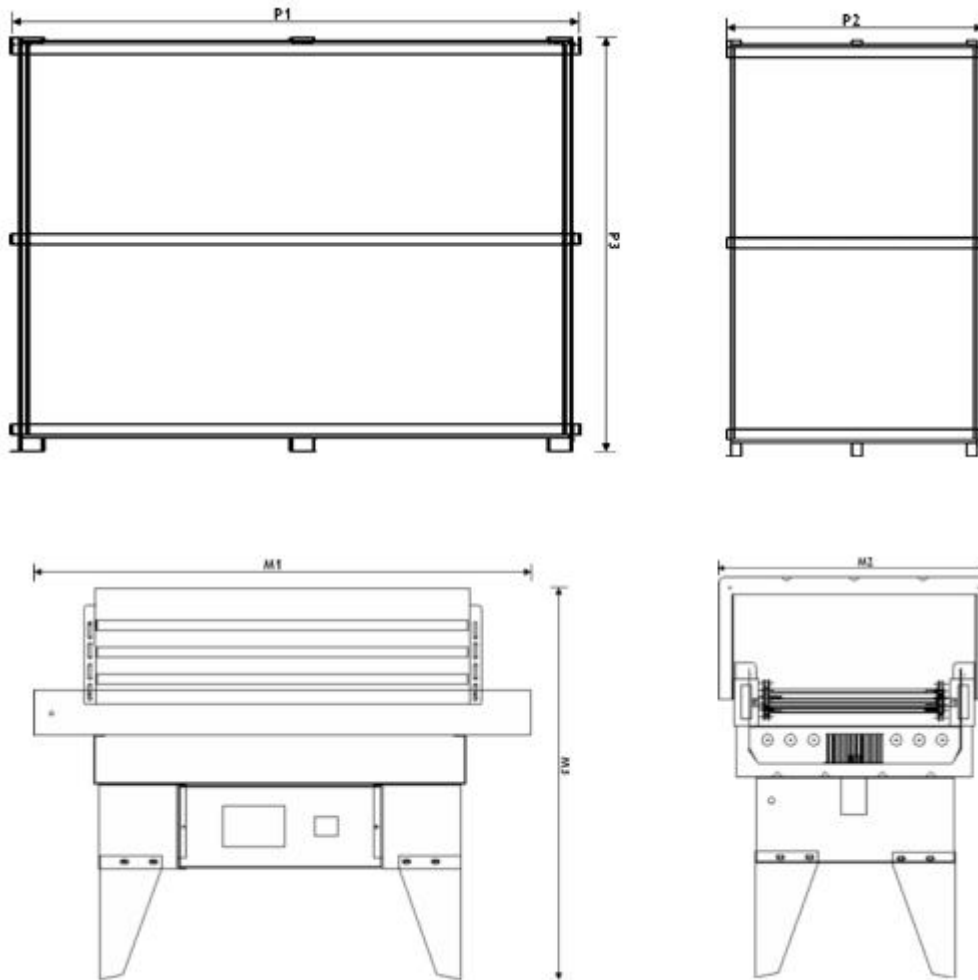
A warning describes safety hazards or unsafe practices which could result in personal injury or loss of life. A warning message is accompanied by a symbol as described in the following paragraphs and is also surrounded by a box to attract your attention.

- i.  This is a warning symbol indicating a hot surface.

- ii.  This is a warning symbol indicating moving parts.

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

4. PACKING CASE AND MACHINE DIMENSIONS



Machine	P1	P2	P3	M1	M2	M3
QS4020DSTV	1250	760	600	1200	650	1055

5. PACKING SLIP

ITEM	QUANTITY
Machine	1
User manual	1
Double open-end wrench/spanner (15-16) *	1
Screw driver*	1
Tool storage box*	1

*Contains in disassembled and packed mode

6. 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 plywood box.
- ❖ 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 crate using a pallet jack.
- ❖ The legs are separately packed and kept inside the box.
- ❖ Fix the legs to the machine. (Use double open-end wrench/spanner 16)
- ❖ Remove all packing materials.
- ❖ Fix the heat guard to the chamber of the machine.

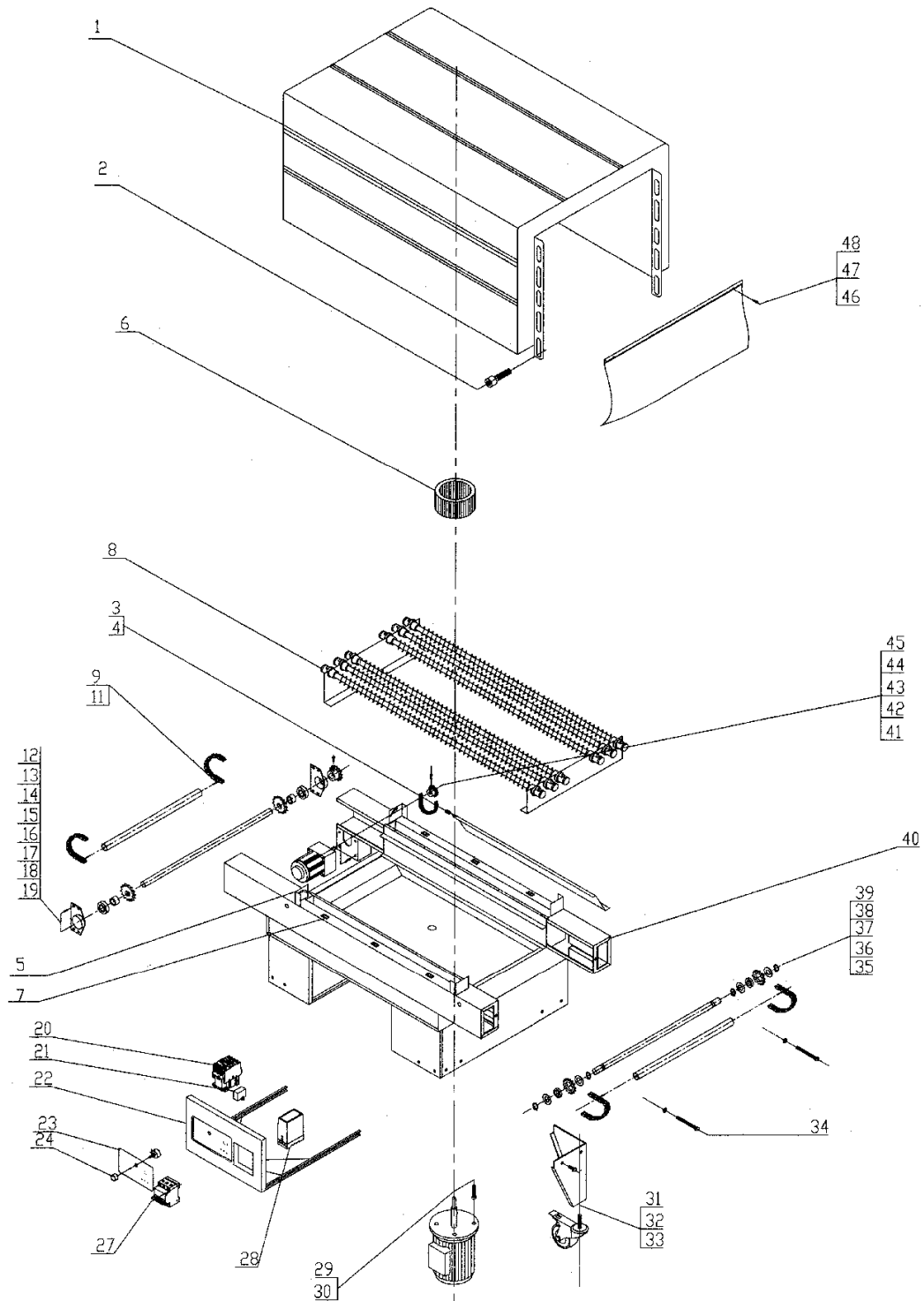
Tools required to unpack and assemble

- a. Pry bar/Crowbar
- b. Claw hammer
- c. Double open-end wrench/spanner 16
- d. Screw driver (Phillips screw drive) 

7. TECHNICAL SPECIFICATIONS

Model	QS 4020 DSTV
Window width (mm)	400
Window height (mm)	200
Maximum packet size (mm)	500 x 350 x 180
Voltage (V)	240V/50Hz/1P
Power (KW)	5.4
Conveyor length (mm)	1150
Chamber length (mm)	900
Conveyor speed (M/Min)	0-10
Conveyor height (mm)	800
Conveyor rod pitch (mm)	30
Maximum load weight (Kg)	10
Machine length (mm)	1200
Machine width (mm)	650
Machine height (mm)	1055
Weight (Kg)	91

8. LIST OF PARTS



No.	Name
1	Shrink chamber
2	Chamber height adjustment screw
3	Wind flow adjusting knob
4	Window flow adjuster
5	Flow adjusting slow
6	Blower
7	Hinge
8	Electric heater
9	Conveyor
10	Conveyor rod
11	Conveyor chain
12	Bearing cover
13	Drive sprocket
14	Chain sprocket
15	Spacer
16	Bearing
17	Bearing tong cover
18	Drive motor sprocket
19	Adjustment bolts
20	Contactor
21	Capacitor
22	Control box
23	Panel cover
24	Conveyor speed knob
25	Keypad set

26	LCD display
27	Microcontroller board
28	AC variable speed drive
29	Blower motor
30	Motor fixing screw
31	Vertical leg
32	Allen bolt
33	Caster wheel
34	Conveyor tension adjusting bolt
35	Idler shaft
36	Idler bearing
37	Idler sprocket
38	Oval ring
39	Circlip
40	Chassis
41	Conveyor motor
42	Conveyor motor fixing screws
43	Drive chain
44	Drive sprocket
45	Sprocket locking screw
46	Window curtain
47	Curtain strip
48	Curtain strip screw
49	MCB

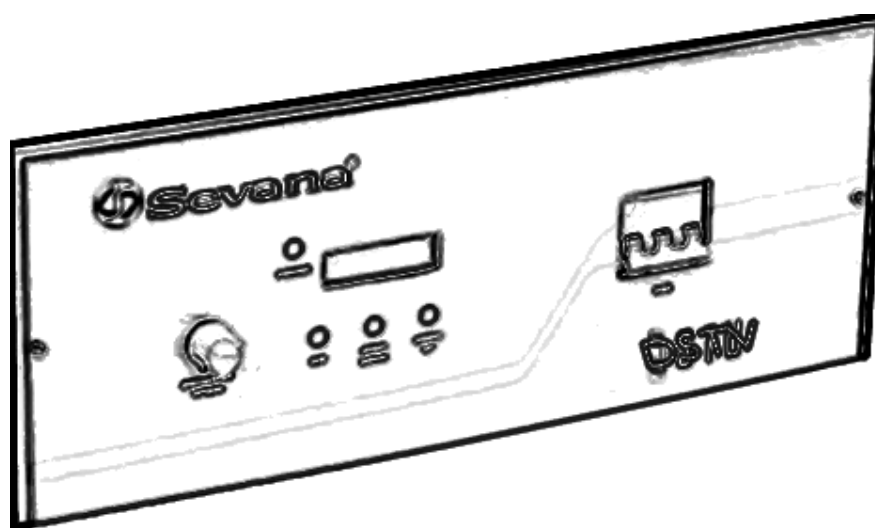
9. INSTALLATION

1. Keep the machine on the ground resting on the Hot chamber.
2. Bolt vertical legs to the chassis with the bolts provided.
3. Before starting the machine please ensure that,
 - (a) The chain is aligned with and rests on the chains sprocket the links of the conveyor chain properly engaged with the teeth of all the sprocket wheels.
 - (b) The conveyor rods are perpendicular to the conveyor chain. If otherwise, move the lagging chain slightly forward to align the conveyor rods perpendicular to both the chains.

10. POWER CONNECTION

Three terminal points on the power connection block with indication R, N and E. Connect the terminal points R to phase, N to the neutral and E to the earth. Switch on MCB.

11. CONTROL PANEL



Conveyor speed knob	Power on LED	LCD display
SET button	STOP/DOWN button	MODE/UP button
MCB		

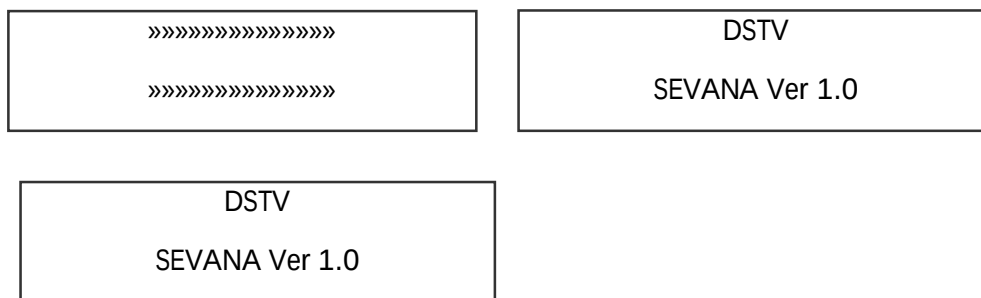
12. STARTING THE MACHINE

CONTROL BUTTONS :

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

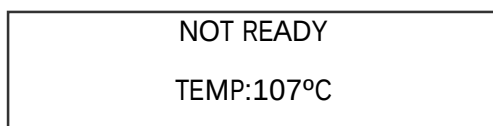


The machine has four(4) modes/program presets. Each mode preset parameter is

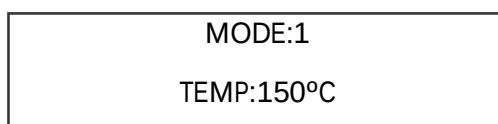
1. Temperature of Chamber

These parameters can be modified by the operator if required. (Each mode can be used for different type of films/products).

The machine will automatically go to the previously used mode after initializing. Now the temperature will be building up. When the temperature is not built up to the preset level a message “Not ready” is displayed



When the temperature is built up to the preset level the message will change to “MODE:x, TEMP: xxx” also an audio indication is also given.



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

Temperature represents the temperature to be set in shrink chamber in degree Centigrade (°C).

Speed represents the speed of conveyor (Minimum-maximum = 0-10 Meters per minute)

TO PRESET PROGRAM MODES:

Eg: Target

Temperature : 203

Select the mode by pressing "MODE/UP" button

To set the temperature press "SET" button. It displays "Set Temperature"

EDIT SETTINGS TEMP:40°C

To increase the temperature press the "MODE/UP" button continuously till the required value is displayed.

EDIT SETTINGS TEMP:203°C

Press the "SET" button to save the values.

Turning Conveyor speed knob clockwise or anticlockwise will increase or decrease the speed of the conveyor respectively.

Features:

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

CHECK TEMP PROBE TEMP: xxx°C

13. SHUT DOWN/ SWITCHING OFF THE MACHINE

Press the “STOP” button for 1 second.

COOLING DOWN
TEMP:100° SPD:18

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.

14. SHRINKING OPERATION

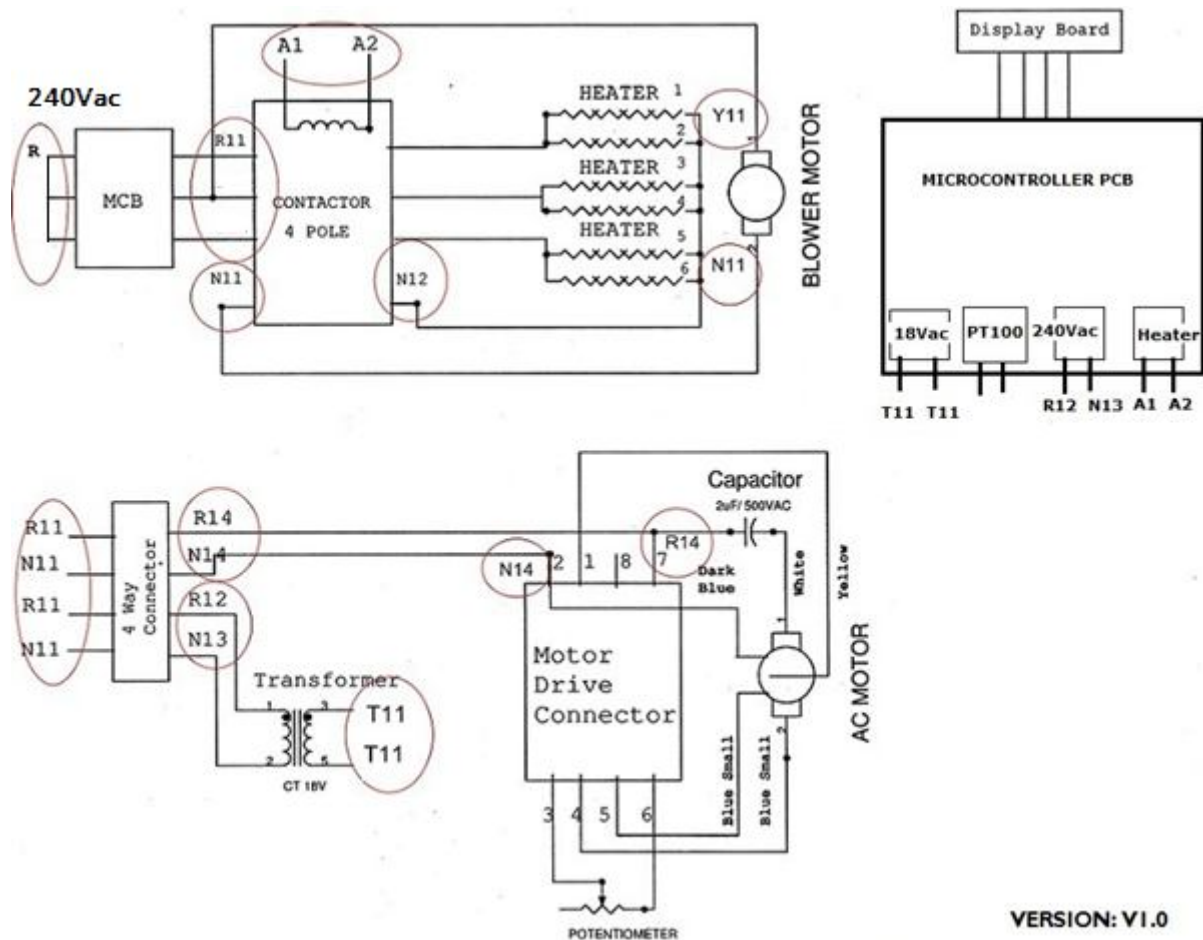
- a. Special plastic films which shrink on application of heat are used for shrink wrapping. The temperature required for shrinking each film varies and this information can be obtained from the film manufactures. Shrink films commonly available are,
 - Low Density Poly Ethylene (LDPE)
 - Poly Vinyl 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.

15. MAINTENANCE

Caution: Isolate electric power supply before doing the maintenance.

- A) Daily Maintenance
 - ❖ Blow off the dust and film debris using a blower or compressed air.
 - ❖ Remove any plastic leftover on the conveyor rods or sleeves
- B) Weekly maintenance.
 - ❖ Apply graphite grease on the chains
 - ❖ Check the conveyor tension. Adjust if required
 - ❖ Apply lubricant to other moving parts.
- C) Monthly maintenance.
 - ❖ Inspect window curtains for damage.
- D) Annual maintenance.
 - ❖ Inspect the conveyor chains. If they are elongated beyond adjustable limits remove two links from either side.

16. ELECTRICAL SCHEMATIC



17. TROUBLE SHOOTING CHART

No.	Complaint	Reasons	Remedy
1.	Machine does not work	1.No power supply. 2.MCB tripped. 3.No output from CT18V.	1.Restore power supply. 2.Check the wiring for any short circuit. If satisfactory, reset the MCB. 3.Check and replace if defective.
2.	Air blower is not working	1.Defective blower motor. 2.Defective capacitor. 3.No supply at motor end.	1.Replace the blower motor. 2.Replace the capacitor. 3.Check and restore the supply.
3.	Blower motor works , but the blower 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.
4.	Conveyor is moving at constant speed	1.Defective speed controller.	1.Replace the speed controller.
5.	Conveyor is not moving	1.Conveyor speed set to zero. 2.Conveyor motor stalling. 3.Defective conveyor motor. 4.Conveyor chain disengaged from the sprockets. 5.Conveyor chain breakage. 6.Defective conveyor drive sprocket. 7.Defective AC variable speed drive.	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. 3.Rectify/replace the conveyor motor. 4.Engage the conveyor chain with the sprocket. 5.Replace both chain together to avoid the mismatching of chains. 6.Replace the conveyor drive sprockets. 7.Replace AC variable speed drive.
6.	Conveyor chain slips from the guides	1.Lower conveyor tension. 2.Misalignment of sprockets.	1.Increase the tension by adjusting the conveyor tension adjusting bolt. 2.Align the sprockets and chain rails.
7.	Insufficient shrinking	1.Low temperature setting. 2.Temperature is not building up	1.Increase the temperature setting. 2.Refer to complaint no. 7
8.	Temperature is not building up.	1.Electric heater connection loose. 2.Electric heater failure. 3.Low temperature setting. 4.Defective contactor for electric heaters.	1.Make proper connections. 2.Replace the defective electric heater. 3.Increase temperature setting. 4.Replace the defective contactor
9	Excessive Shrinking	1.High temperature setting. 2.Low conveyor speed. 3.Defective Temperature	1.Reduce the temperature setting. 2.Increase the conveyor speed. 3.Replace the defective part.

		sensor. 4.Defective contactor for electric heaters due to contact welding.	4.Replace the defective contactor.
10	Shrinking is not uniform	1.Blower is not working or loose. 2.All the electric heaters are not working.	1.Refer complaint 4 and 5. 2.Identify the defective electric heaters and replace.
11.	Abnormal sound and vibration	1.Blower loose. 2.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 motor 2.Replace the defective bearing. 3.Correct the level the machine.
12	Display black out when Heater 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.
13	Display black out while pressing control buttons.	1.Low supply voltage.	1.Ensure the proper operating voltage

18. SERVICE LOG

[illegible]