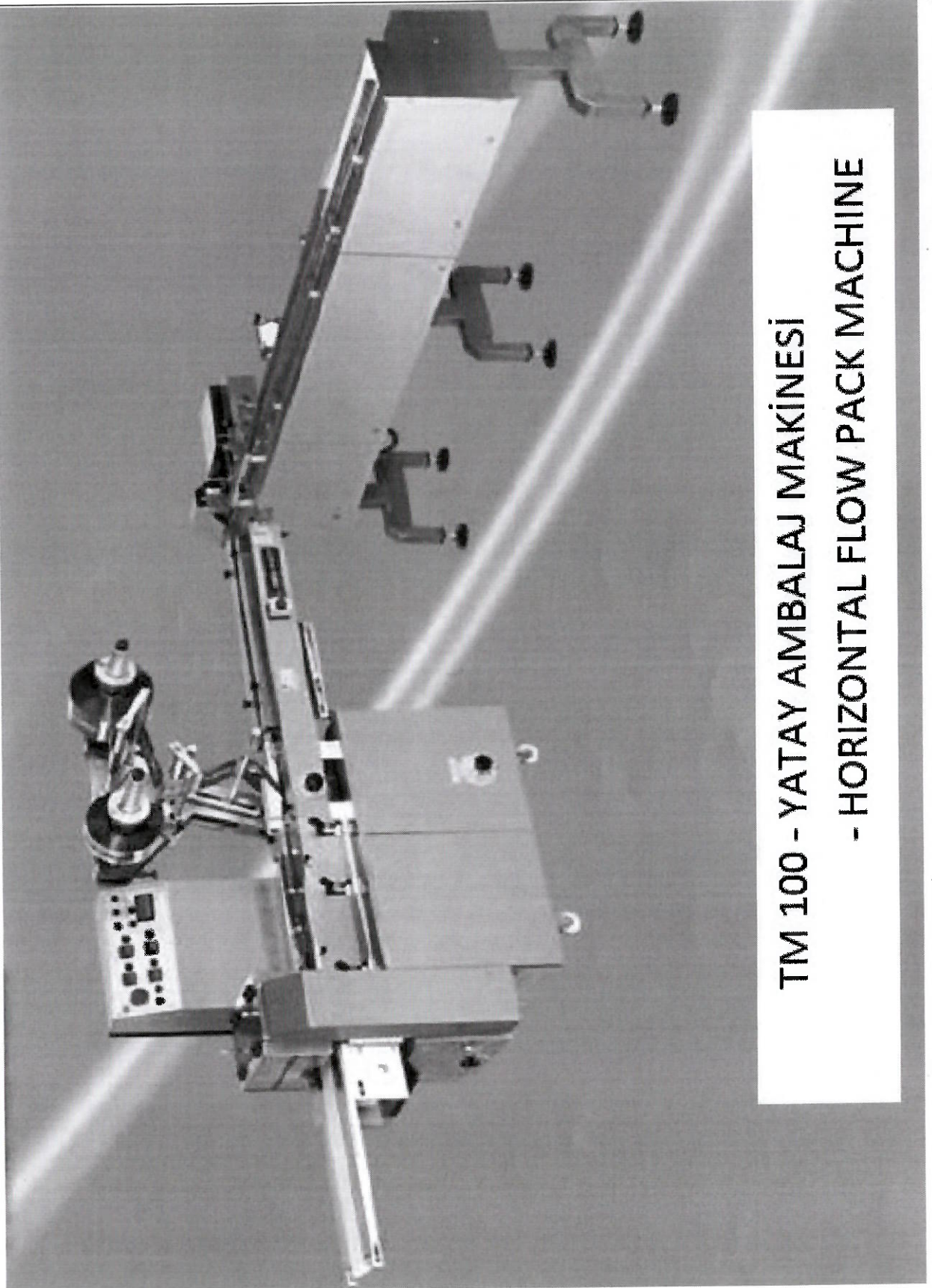


Drucker VIDEOJET VJ 6210
Thermotransferband ca. 32 mm

tam•taş
packaging machinery



TM 100 - YATAY AMBALAJ MAKİNESİ
- HORIZONTAL FLOW PACK MACHINE

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SECTION 01

Introduction

Machine Description

INTRODUCTION

Dear Customer,

This operating manual explains the processes that need to be followed in order to use the machine safely and efficiently. Please read carefully.

Performance, life cycle and operating cost of the machine not only depend upon a good design, workmanship and use of quality materials but also proper operation and periodic maintenance. Excellent operation and maintenance require knowledge and attention. This operating manual will help you in detection and elimination of possible machine-related problems in a short time.

This operating manual always needs to be close to the reach of machine operator and service man. We recommend keeping it in a safe place near the machine.

We are constantly developing our machines. Thus, this operating manual may differ from your machine in some points.

All technical values, diagrams and documents in this operating manual are registered and belong to TAM-TAŞ. It's prohibited to reproduce some part or whole of this operating manual.

PLEASE SPECIFY SERIAL NUMBER OF YOUR MACHINE IN YOUR SPARE PART ORDERS!

Machine Specifications

tam-taş packaging machinery	YATAY AMBALAJ MAKİNASI HORIZONTAL FLOWPACK MACHINE	
MADE IN TURKEY		
MAKİNA KODU : TM 100	GÜÇ : 3,5 kW	
MACHINE CODE :	POWER :	
MAKİNA NO :	FREKANS : 50 HZ	
MACHINE NR. :	FREQUENCY :	
YAKITI :		
FUEL :		
TAM-TAŞ MAKİNA SAN. TİC. A. Ş. İSTANBUL / TÜRKİYE		

Technical Informations

Technical Information:

- Machine Code : TM 100

- Capacity : product size, product shape, wrapping paper
etc. specify the real capacity.

Hot Application : 100 – 170 rev./min.

Cold Application : 250 – 350 rev./min.

- Packing Dimension :

	Min.(mm)	Max.(mm)
Lenght	40	520
Height	-	40-60-80
Width	15	200

Packing dimensions depend to machine's jaws number.

- Wrapping Material Types:

For Hot Applications

Selafon, pörlýze, polypropylen, lamine, aluminyum
lamine

For Cold Applications

All kinds of material

- Seal Type :

Transverse or Longitudinal

- Cutting Type :

Straight or Zig-zag

- Air Connection :

optional.

- Power Input :

3,5 Kw

- Nominal Voltage : 380V-3~N, PE±%10

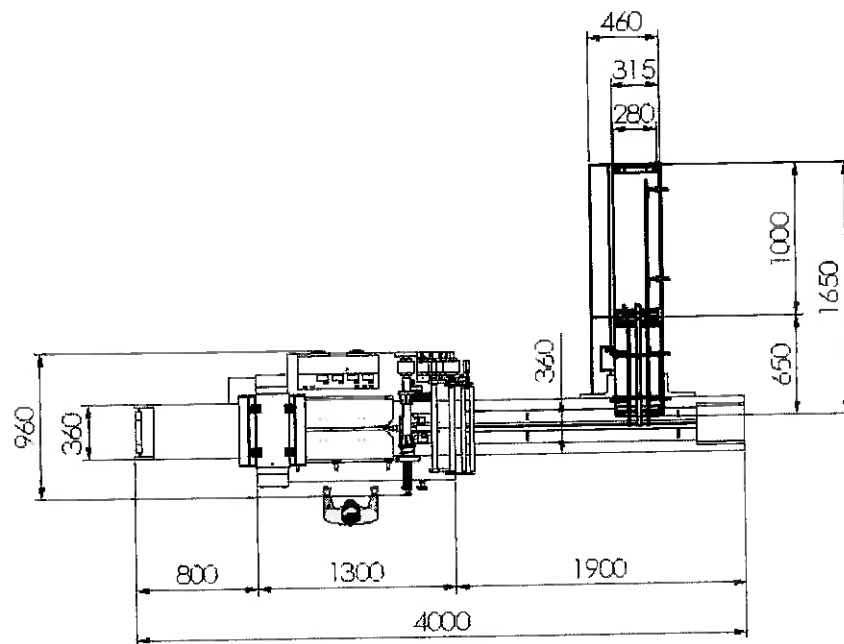
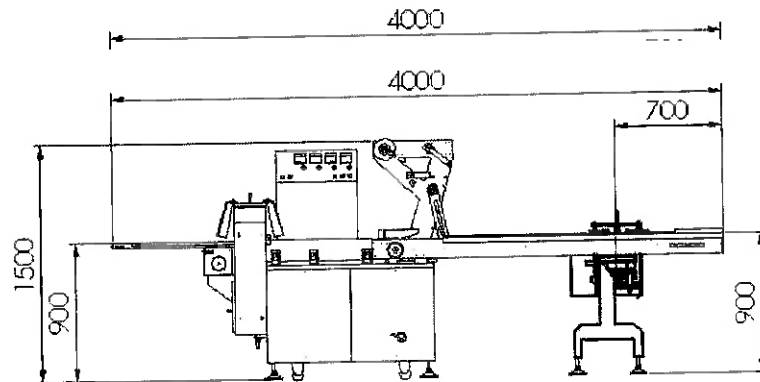
- Frequency : 50 Hz ±2%

- Necessary Fuse : 25 Amp.

- Mean Current : 8 Amp.

SECTION 1

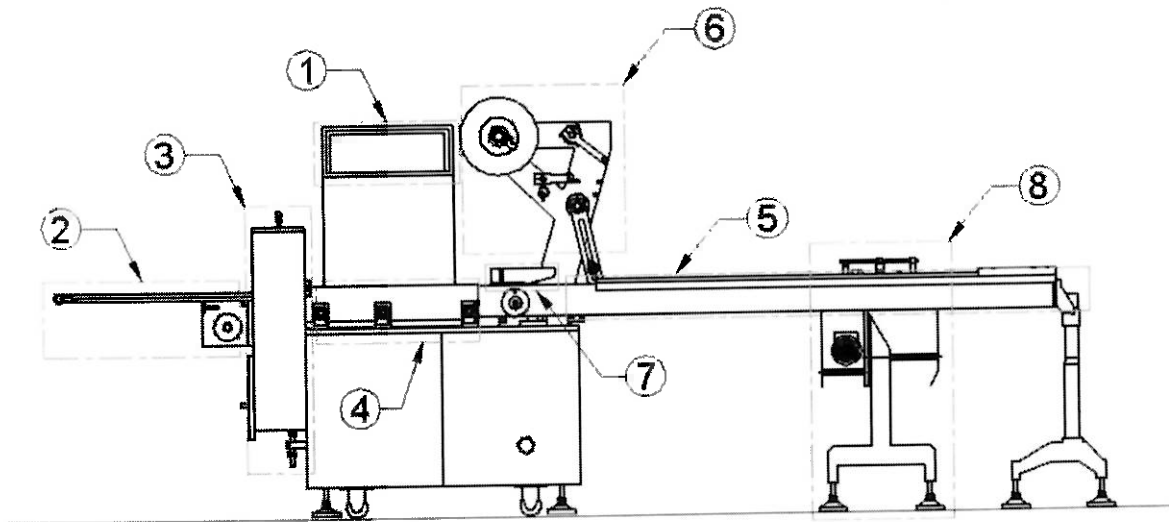
Diagram:



At least, it needs 10 m² space to install the machine.

Machine Description

Introduction:



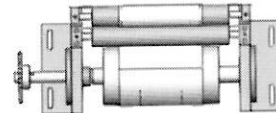
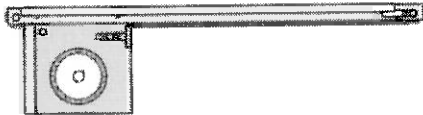
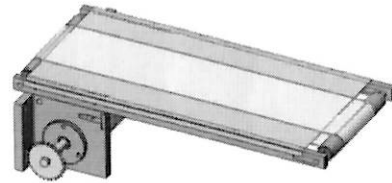
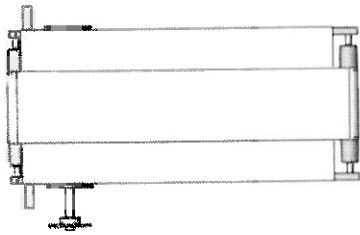
- 1) Control Board
- 2) Output Band
- 3) Jaws Section
- 4) Pulley Section
- 5) Conveyor
- 6) The Film Rolls Section
- 7) Forming Tunnel Section
- 8) Step Feeding Band

Functional Units

Control Board:

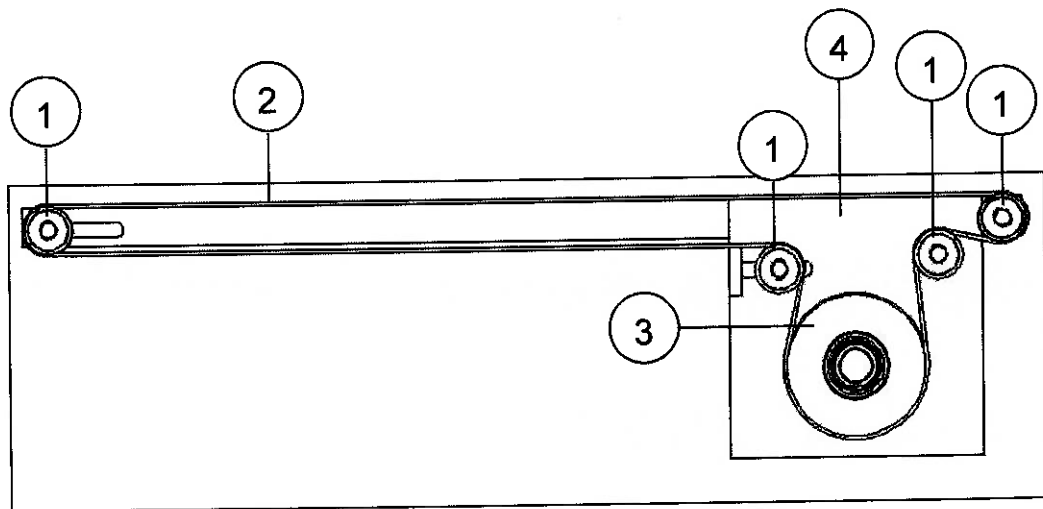
It is the units of the flow pack machine settings. With the help of touch-screen machines on the necessary adjustments are made

Output Band:



SECTION 1

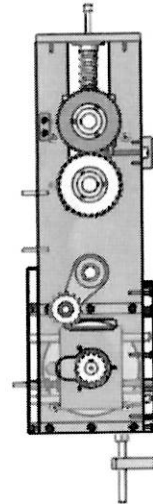
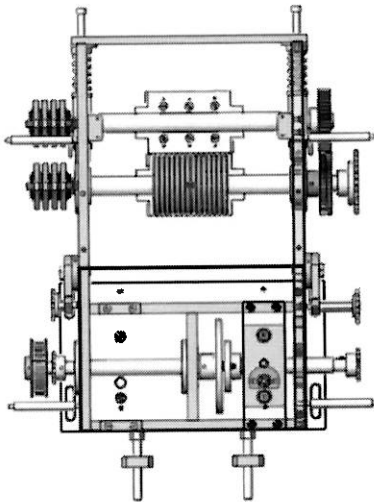
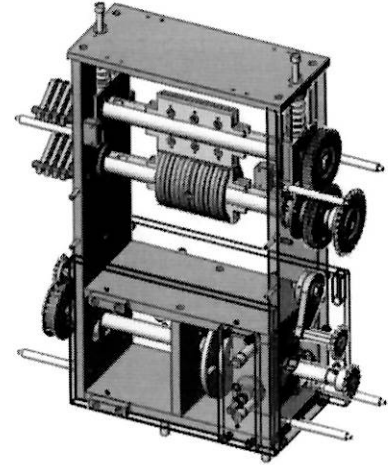
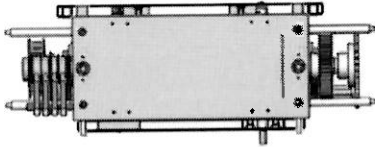
It is the unit where packaged products are carried. It can be operated according to machine speed or independent of machine speed. The length of band depends on a Project



Output Band

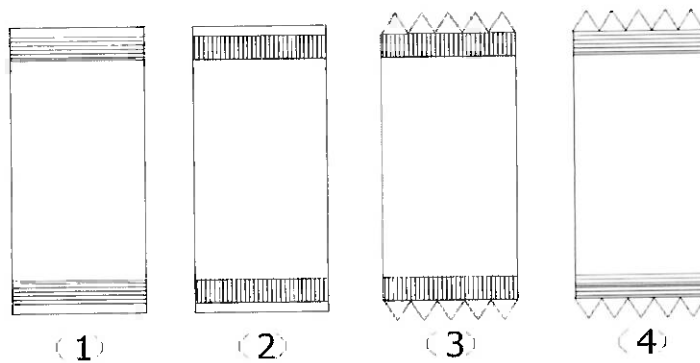
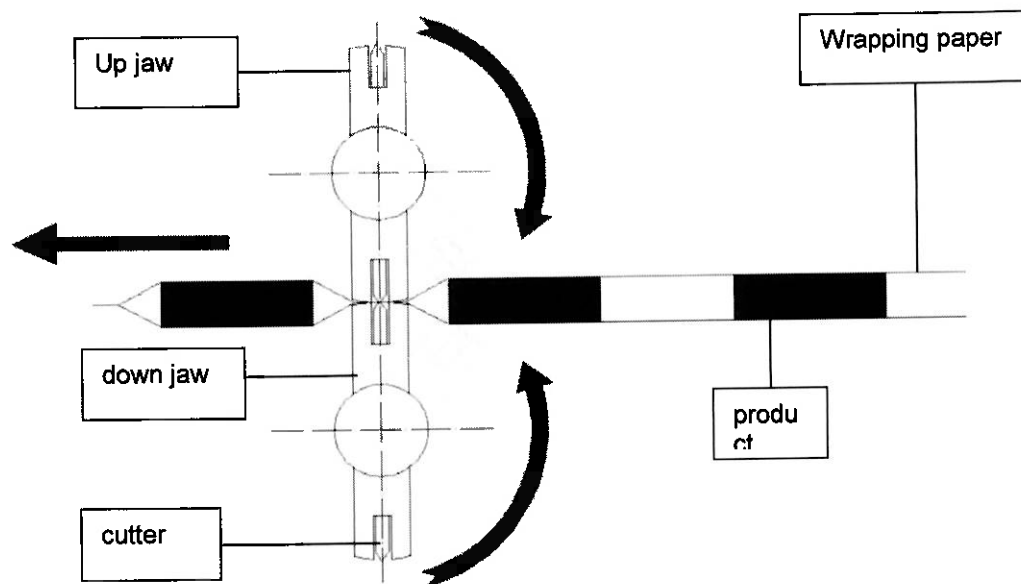
- 1- Driving and spanner drum (6201bearing beds at both ends)
- 2- Conveyor
- 3- Driving Cylinder (6205 bearing beds at both ends)
- 4- Side Body

Jaw Section:



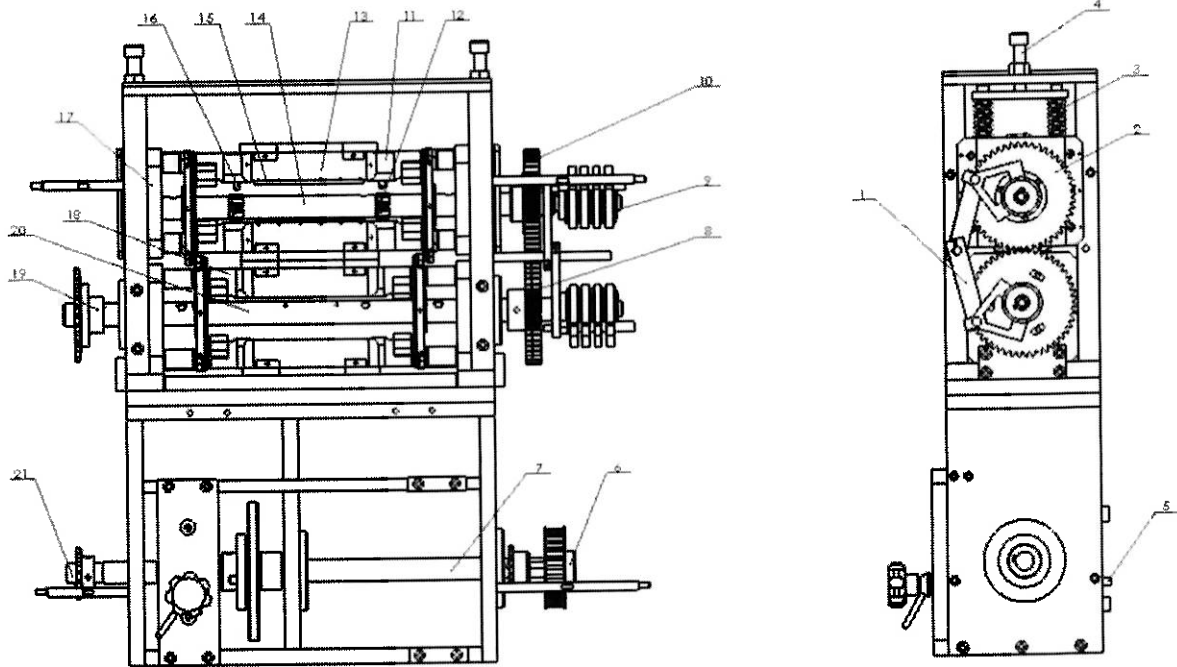
Jaw Section

It is the section where flowpack paper in roll form, that already took the product, which will be packaged, inside itself and was already stuck lengthwise while passing from pulley group, is stuck widthwise and cut. Process is in scheme below.



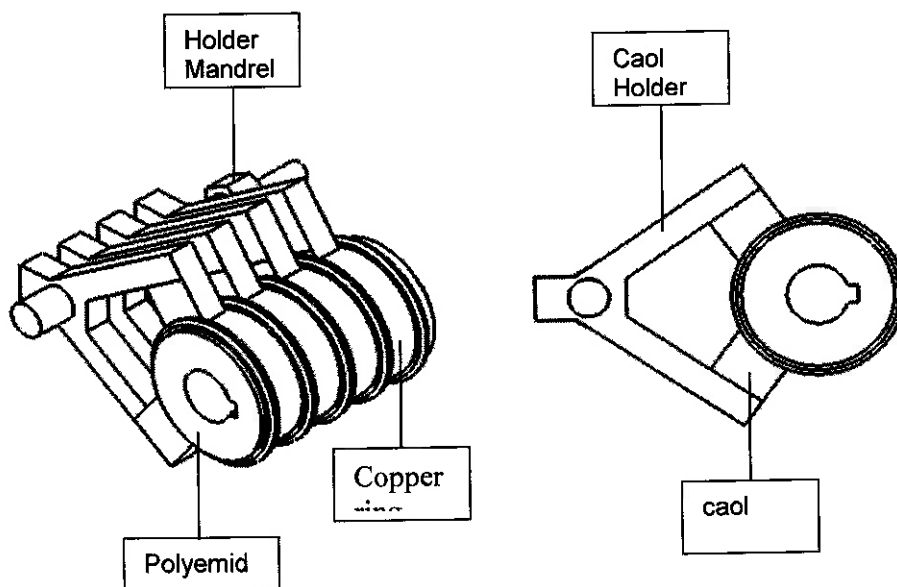
Sticking and cutting samples are shown in figures on left side.

SECTION 1



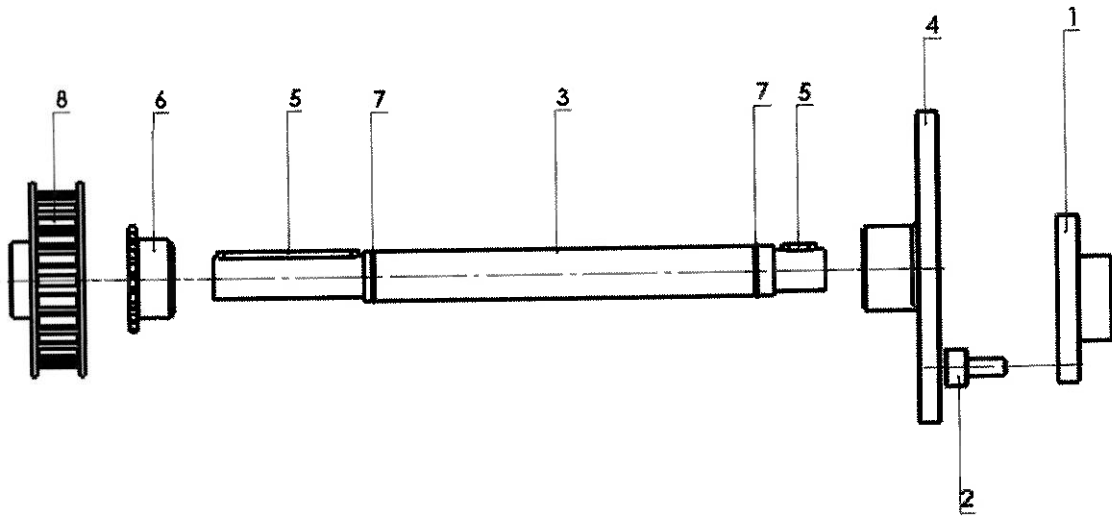
1. Brush Holder
2. Bed With Adjusted Upper Jaw
3. Thrust Spring
4. Thrust Bolt
5. Jaw Waiting Adjustment Screw
6. Jaw Driver Pulley
7. Waiting Drive Shaft
8. Down Jaw Drive
9. Coal Heater

10. Up Jaw Drive
11. Up Jaw Plate
12. Blade Drive Kam
13. Jaw
14. Up Jaw Shaft
15. Spring Pressure Plate
16. Cutter
17. Kam
18. Down Jaw Plate
19. Down Jaw Shaft Drive Pulley
20. Down Jaw Shaft
21. Jaw Drive Shaft



Details of Collector

SECTION 1



Details of Camshaft

- 1- Small Flansh
- 2- Cam Bearing (INA KRV 22 PP)
- 3- Main Shaft
- 4- Big Flansh With Bearing Way
- 5- Keys 8x7x85 and 8x7x30
- 6- Driver Chain Pulley (DIN 8192-B 19Z 06B-1)
- 7- Retaining Ø30 (DIN 471)
- 8- Timing Sprocket (Z=24 t=1/2" H2,29)

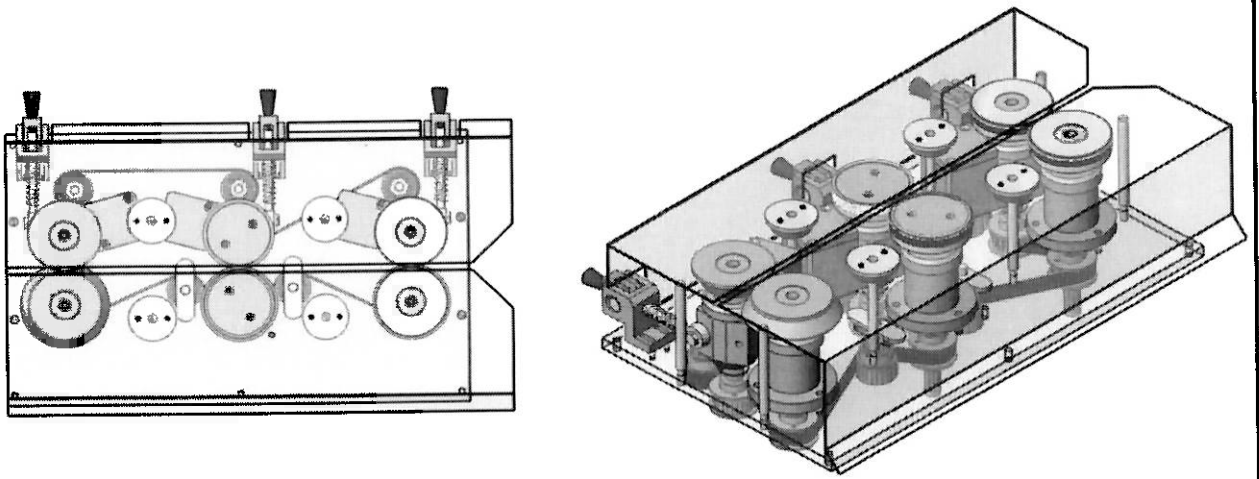
Note : The safety clutch system can be added to machine as optionally protecting jaws and product against any clogged accident case.

Pulley Section:

Flowpack materials is pulled out from roll through pulleys and is curled and takes pipe form while passes from inside of forming section. Flowpack is sealed lengthwise from its bottom while passing between opposite pulley pairs.

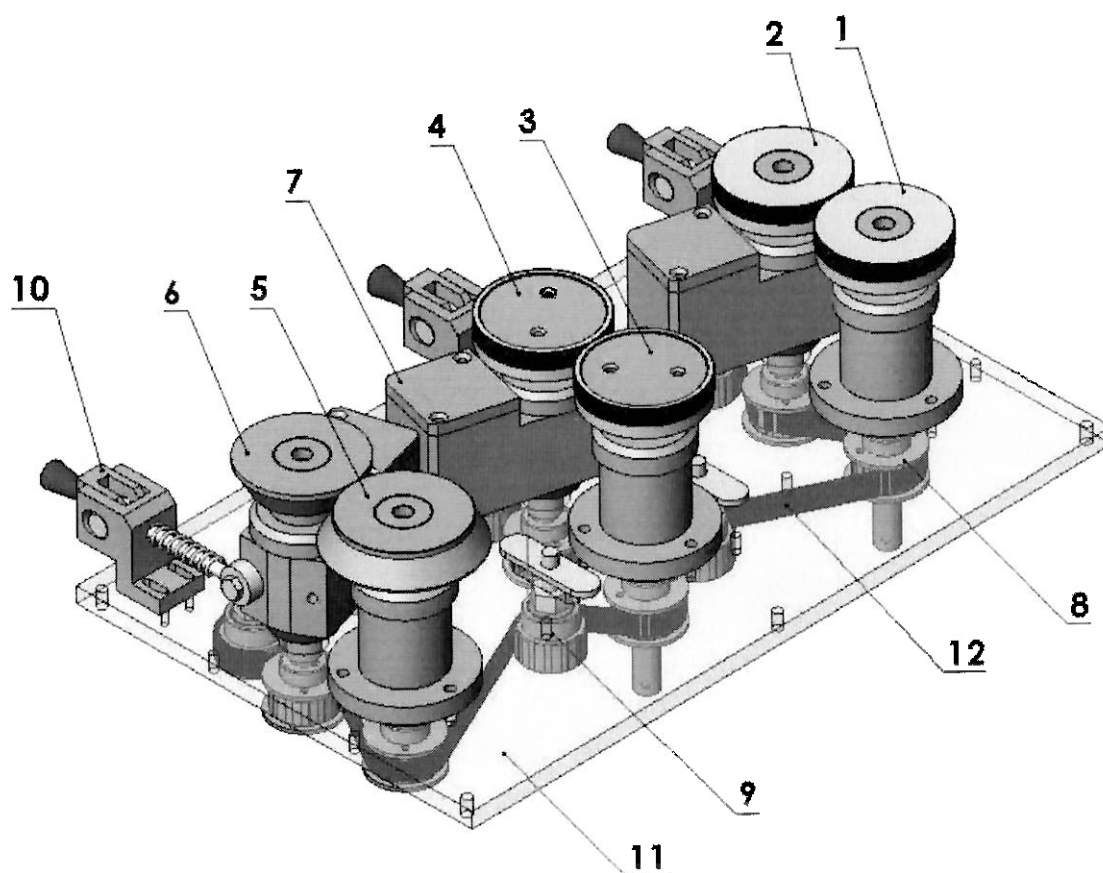
There are three pairs of pulley in the section. The first pair pulls flowpack materials out of the roll. Second one seals flowpack materials lengthwise from the bottom by the heaters that are placed in it. The last and third pair helps the stucked are to curled propely t the wished way.

Size of cutting can be achieved by changing turning speed of pulleys.



General View of Pulley Section

SECTION 1



Details of the Pulley Section

- 1) Fixed Front Pulley
- 3) Fixed Heater Pulley
- 5) Fixed Folder Pulley
- 7) Adjustable Pulley Bad
- 9) Spanner Sprocket Pulley(13 H 40)
- 11) Main Table

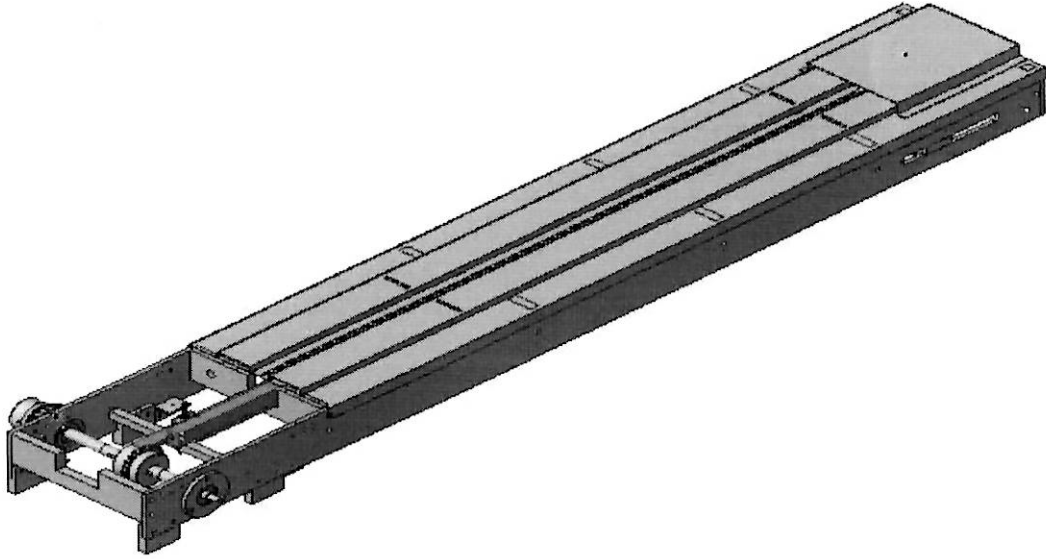
- 2) Adjustable Front Pulley
- 4) Adjustable Heater Pulley
- 6) Adjustable Folder Pulley
- 8) Driver Timing Sprocket (13 H 40)
- 10) Pulley on-off System
- 12) Timing Belt (700 DH)

Conveyor Section:

It is the conveyor which periodically carries the finished good that will be packaged according to its packaging style.

Carrier private's pitch can be adjusted according to product size.

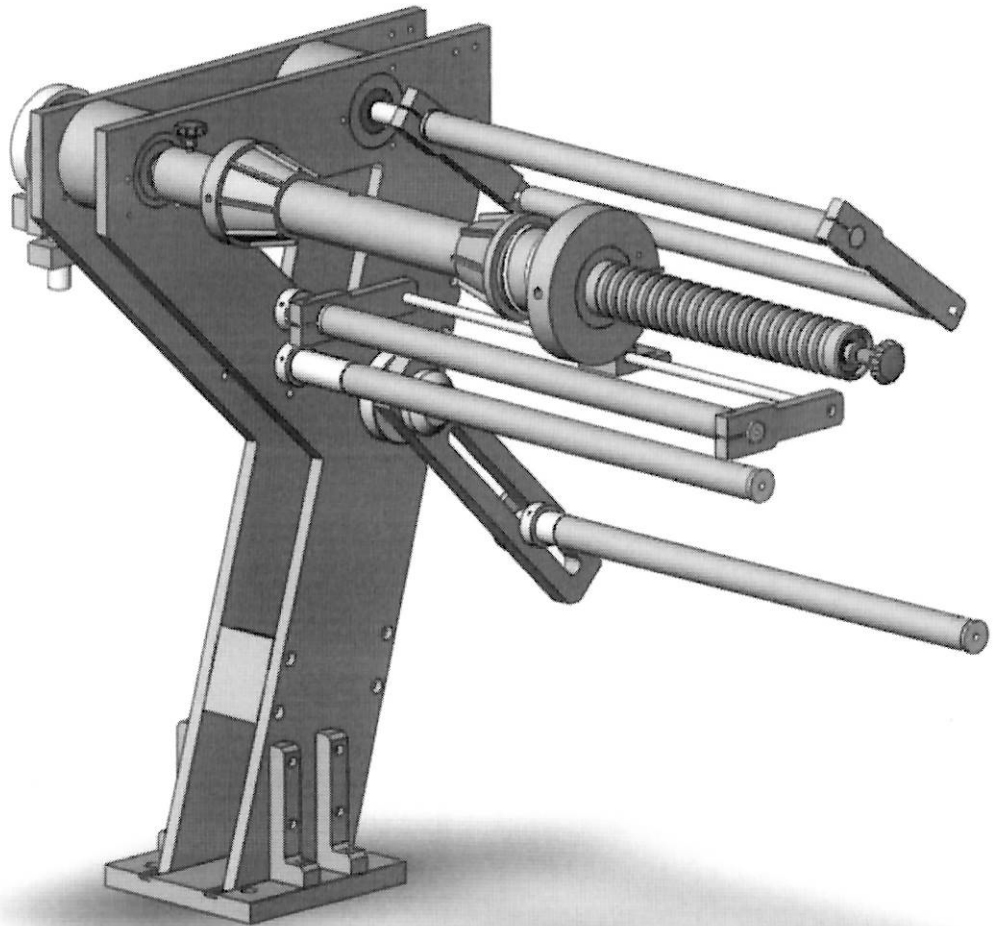
Every surfaces that touche the product,are made as stainless steel.Hygienic environment is provided by hidding the chain part inside the darys.



Conveyor Section

Film Roll Section:

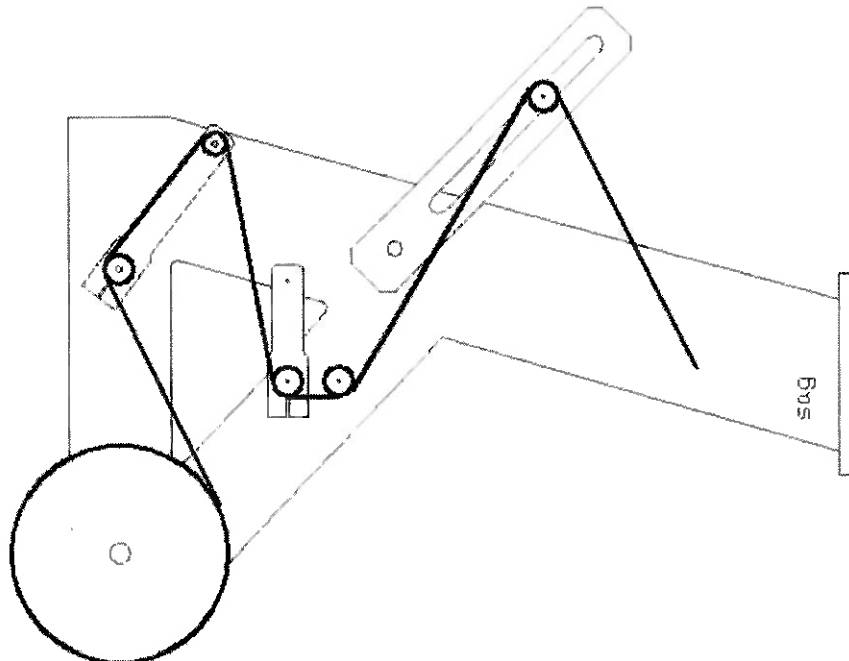
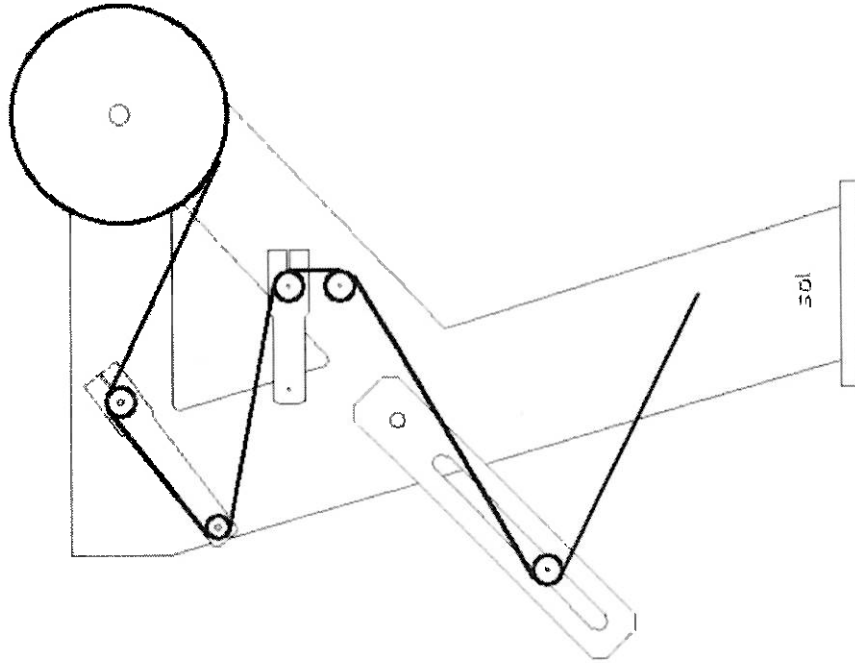
It is part which flowpack material in roll form is placed. Proper driving and spanner of flowpack material while it is pulled out of the rulle is achieved in this section as well.



Single Roll Section

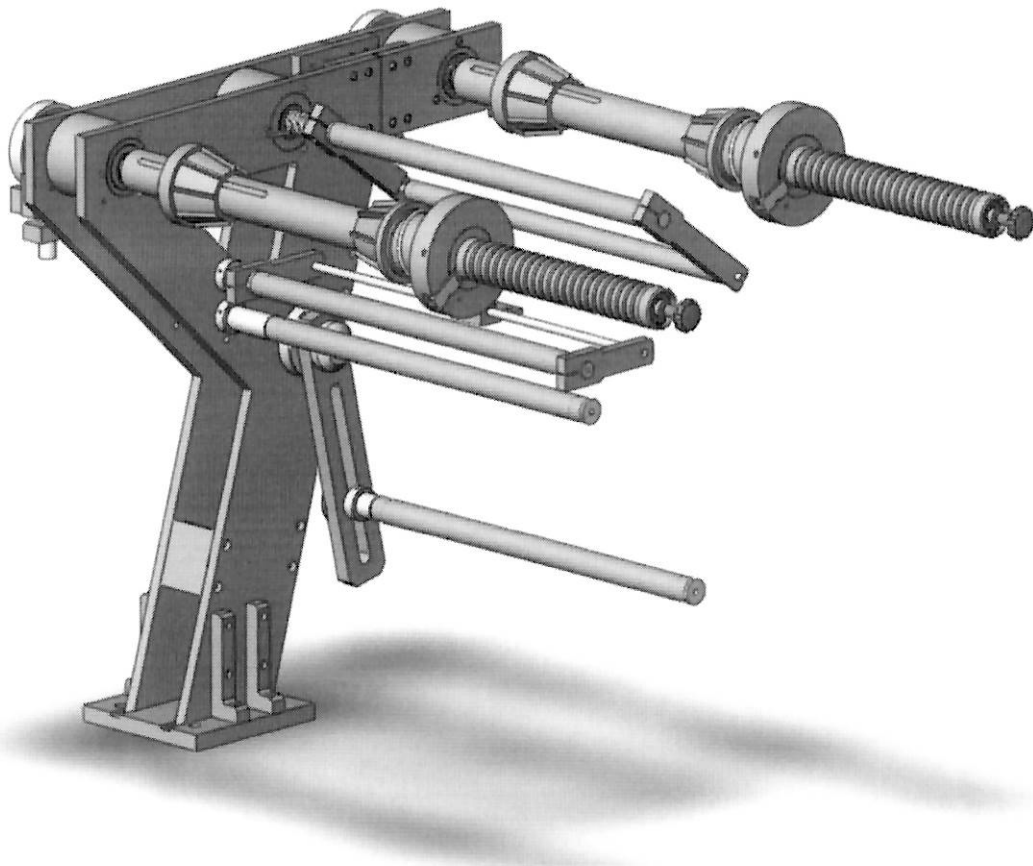
Placement of Flowpack Material Into Single Film Roll Section :

SECTION 1



SECTION 1

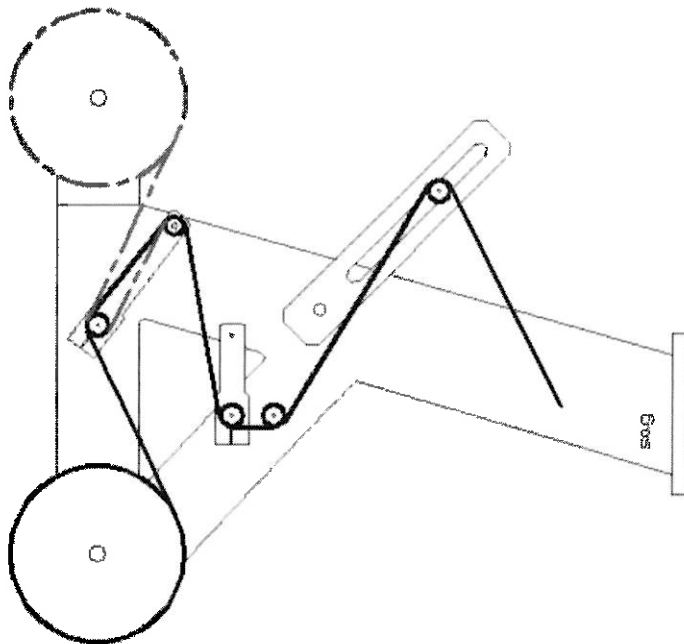
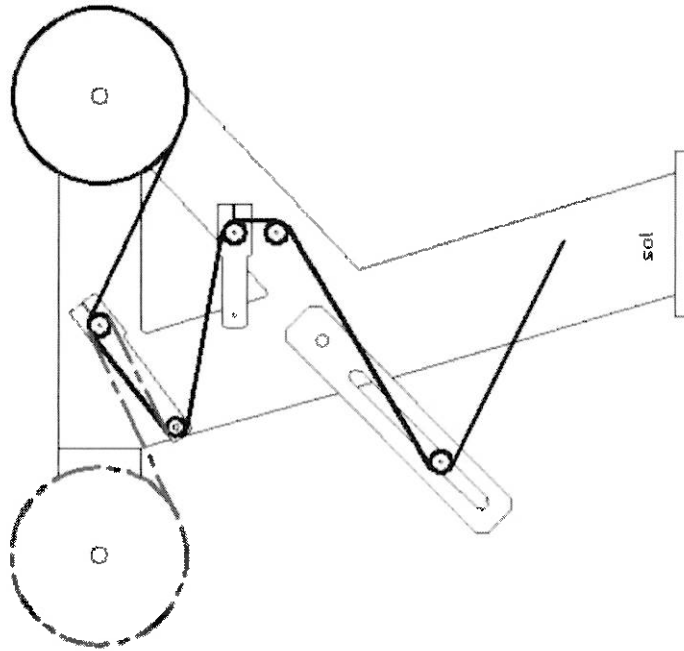
There is a cylinder available in spanner system to adjust tightness of flowpack materials and another cylinder in folding section to achieve proper enter of flowpack material.



Double Roll Section

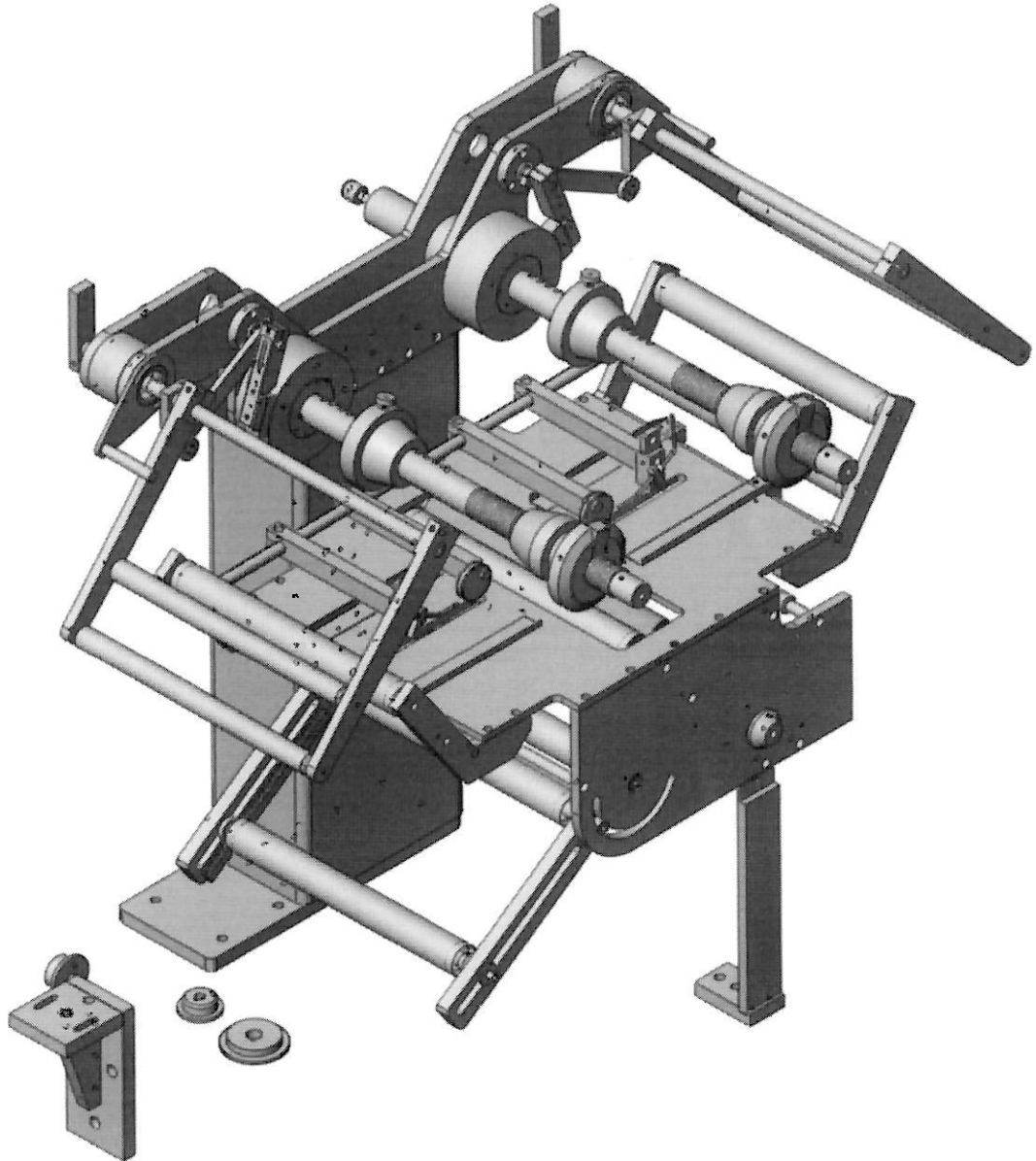
SECTION 1

Placement of Flowpack Material Into Double Film Roll Section :



SECTION 1

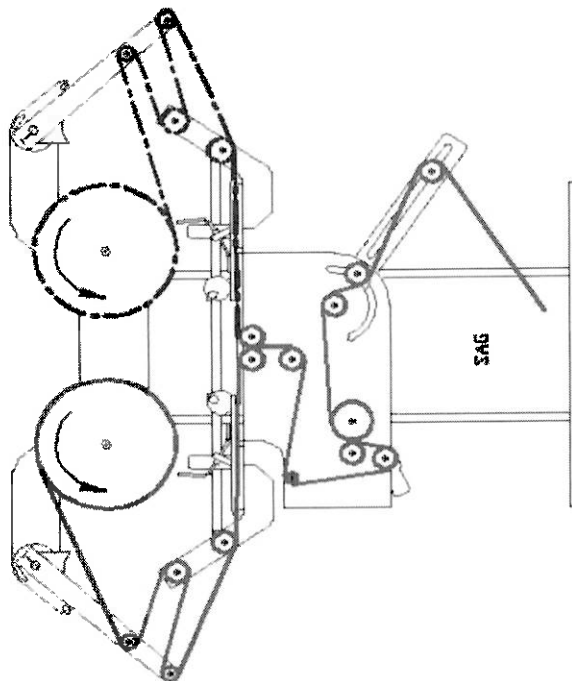
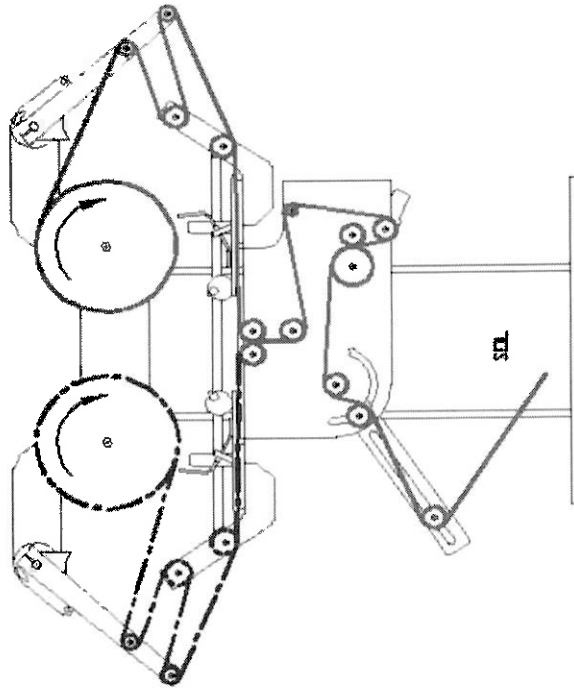
Automatic paper changing system which put the flowpack roll in process automaticly when previous one used up, can be added to a machine if it is asked.



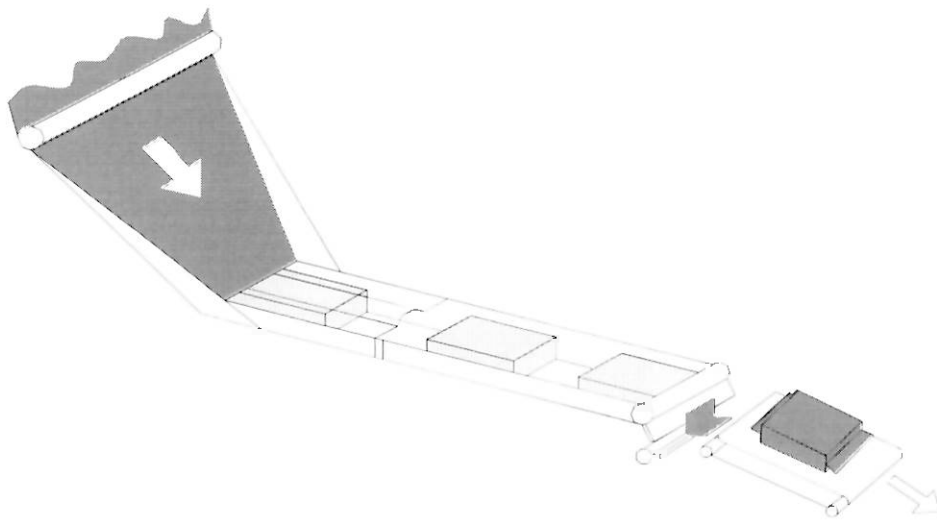
Automatic Roll Section

SECTION 1

Placement of Flowpack Material in Automatic Roll :



Forming Tunnel Section:



forming tunnel section

Flowpack materials is pulled out from roll through pulleys and is curled and takes pipe shape while passes from inside of mould. It is the section where flowpack materials and product will be packaged meet .

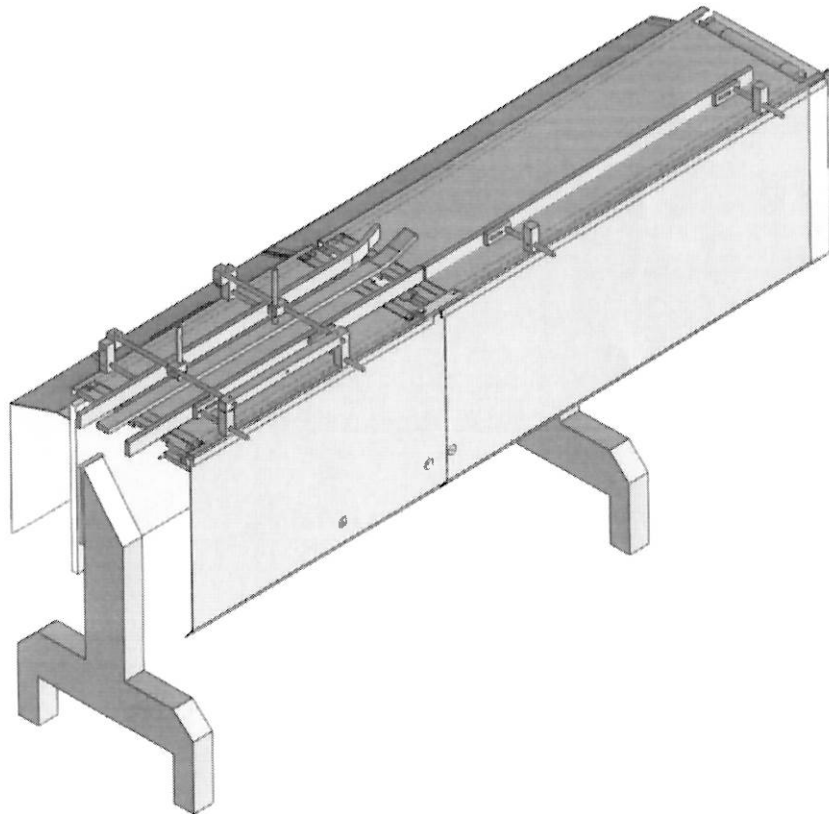
Step Feeding Section:

In this section where product's come from production line is transfered automatically or half automatically to the flowpack machine one by one or as a group

This section Works on basis of servo system.

Feeding unit is connected to chained conveyor vertically or with angle.

It can be produced with different sizes .



Step Feeding Section

Areas of Application

Horizontal flowpack machine is designed to package single or multiple hard products on the horizontal axis.

Any kind of hot or cold sealing application film, in rulo form can be used as flowpack materials and for specific models polyethylene material can be used as well.

❖ In Food Industry :

Biscuits, chocolate, wafer, halvah, delight, cake, bread, grisini, chips, etc.

❖ In Cosmetics and Cleanliness Industry :

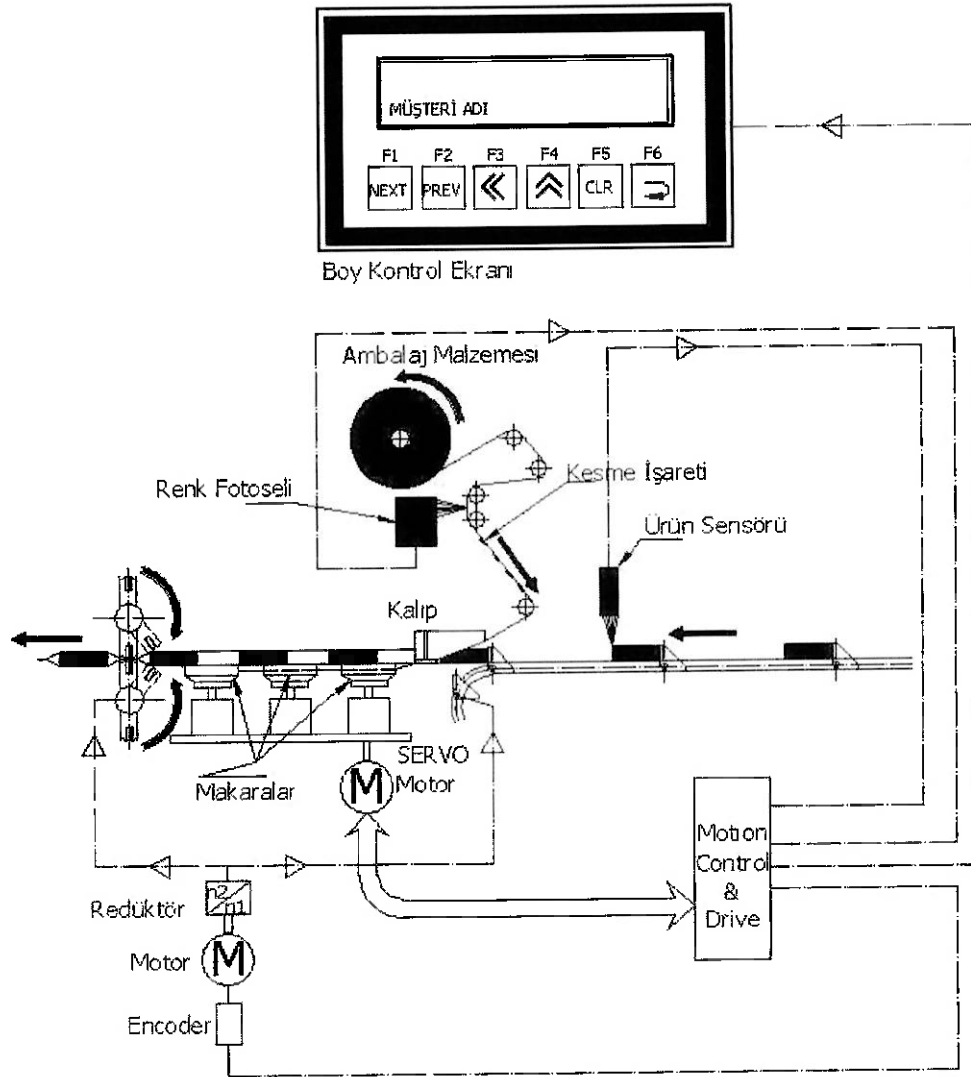
Soap, dustcolthes and cleaning sponges, dishclothes and razors etc.

❖ In Automotive Industry :

Car accessories, spare parts etc.

❖ Horizontal flowpack machine can be used in packing any kind of product that can be wrapped up such as medical, electricity, toy, souvenirs.

Principal of Working



Tek Servolu Sistem

Principal of Operation

Flowpack paper is pulled out of the roll through the pulleys and takes pipe form while passing from inside of forming mould. Products are carried into flowpack paper in pipe form by the private palettes and both side of package are sealed longitudinal by the pulleys and transversal by jaws then flowpacking is done.

Multiple choice adjustment system (servo system) is available in the machine to make necessary adjustments according to packaging style.

In technical language, any motion of machine is controlled from the single control center which is called Motion Control & Driver by a servo engine.

As it is explained in the figure above;

- Machine acquire data from color photocell and send the necessary order to servo engine. Servo engine makes necessary adjustments for timing of cutting points according to orders.
- With the help of product sensor controls motion of conveyor and makes product enter the flowpack in required time
- With support of encoder it synchronizes motion of conveyor, pulley and jaw by the reductor.

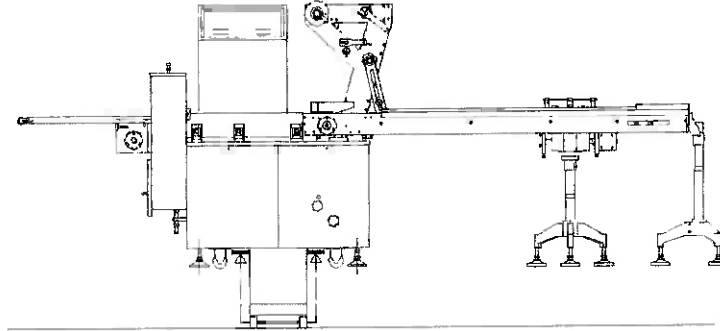
Handling

Problems Occurring During Handling

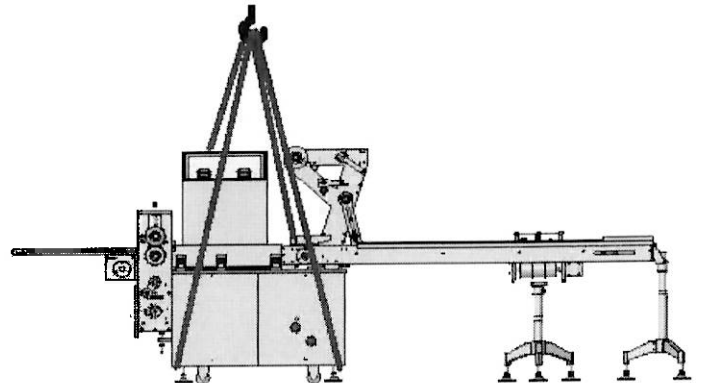
Please make sure that spare parts equipments and machine are in good condition when they come, for establishment.

When you realize any defectiveness contact to TAM-TAŞ. or Insurance Company. You will be help in allways sending missing parts and equipments

Transport of Machine



The machine can be carried by the crane hanging up in the weight center or by forklift vehicle.



Packaging of Machine

The machine can be carried by crane hanging up in the weight center or by forklift. Packaging of machine.

Horizontal flowpack machine and it's equipment are carried with poethylene flowpack and in wooden package

It is covered by stretch film.

On request or in places where is high risk, the machine is packaged according to the contract signed. When carrying, all precautions should be taken in advance to prevent a harm.

Machine should be fixed to crane considering weight center

Packaged materials should be opened in establishment area

At the time of carrying, machine and it's all parts should be free of danger which may cause a damage.

Storage of Machine

Machine should be kept in a covered place.

The ceiling of the place where machine is kept should be one meter higher than the machine

Machine should be placed on fixed points.

The machine should be established in a severe floor.

At the place where machine is kept, temperature should be between - 40°C - +50°C.

At the place where machine is kept , maximum humidity should be %50 yearly and %70 in general.

Since warranty of machine for production defeets is one year after having the machine, the machine should be kept in a warehause at most one year..

Place where machine is kept should be cleaned from all kind of harmful insects.

All sensetive parts should be handled with care in order not to be damaged.

INSTALLATION

Installation Place

No specific please is required to install the machine. It can be established in a ground where is adjusted by the water gauge in advance

Please make sure than the ground where the machine will be install, is able to carry the machine weight.

Machine must be moved to setup place by carrying with a crane system.

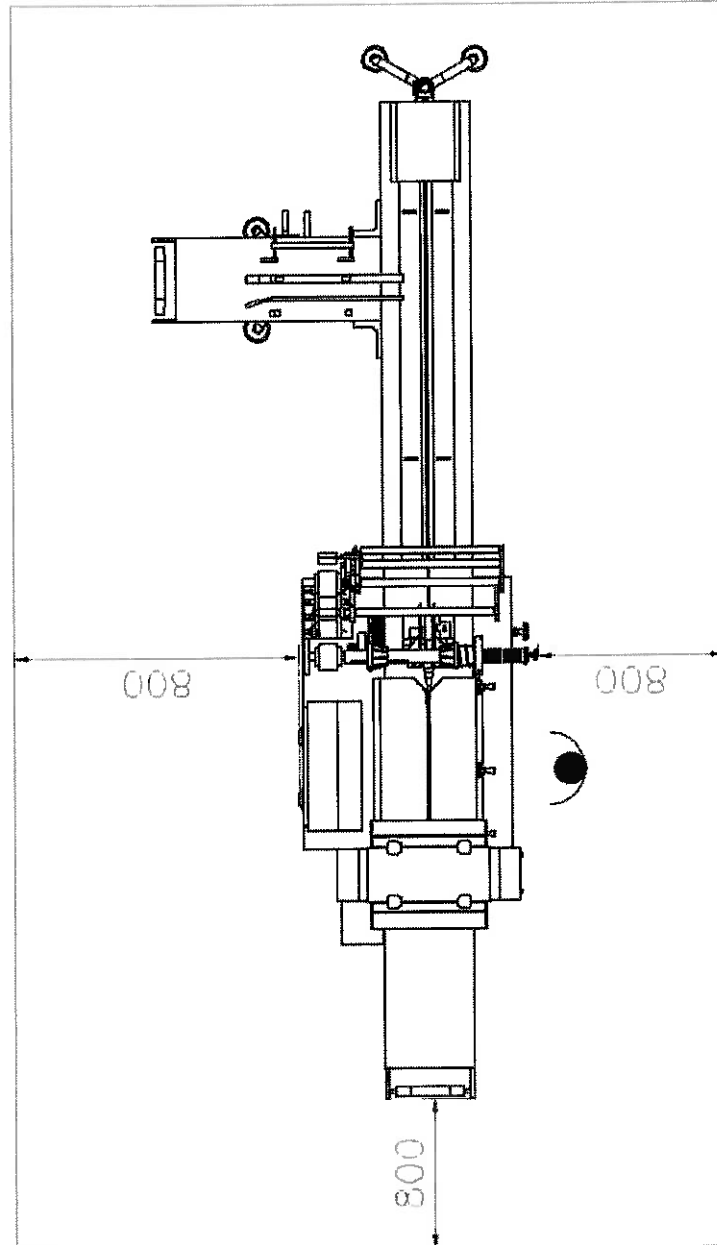
Installatiaon Area

Horizontal flowpack machine has wheels so that it can be carried easily to preferred installation place. So there is no need for a specific place to set up the machine.

Horizontal flowpack machine is not only used to pack products it is also used in wafer production lines as on last machine in line to pack the products automatically.

It must be set up at the end of line, and there must be enogh clearance, which will make operator work in comfortable conditions, at the end of line.

SECTION 1



Machine Installation Range

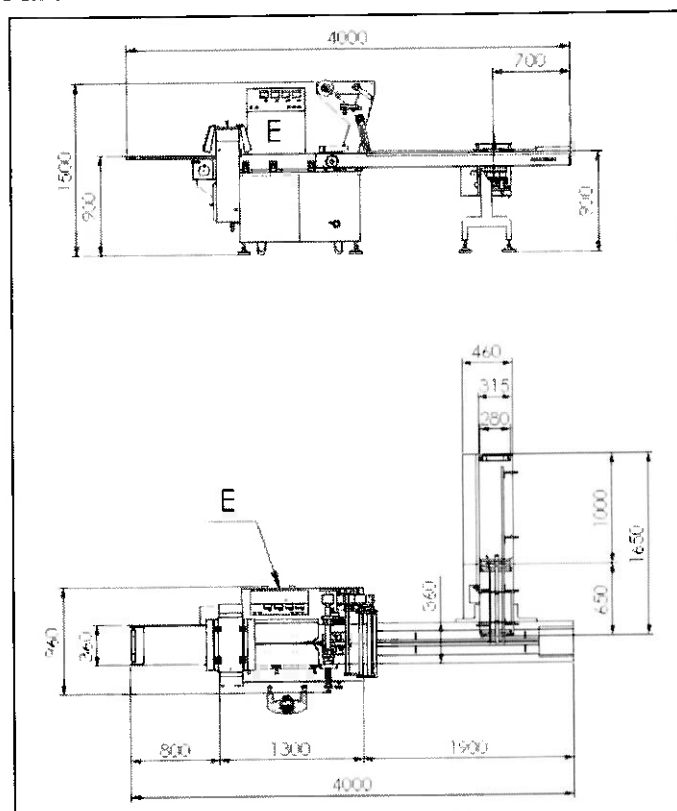
CONNECTIONS

All connections must be done by educated and authorized staffs and it must be done according to legal rules in a country, where machine works.

Power Connection

Main electricity board and safety must be both connected to a power supply. Connection is done to connection terminals R, S, T, or L1, L2, L3 which are placed in main electricity board. Grounding wire must be connected to green or yellow terminal.

Cross section and security devices of the feeding cable must match power of machine. Scheme about electricity is adjusted for each customer and is kept in electricity board.



Electricity power input :3,5Kw Mean current:8A Fuse : 25A

SECTION 02

Safety Regulations

General Security Information

Please carefully read this operating manual before using the machine. For prevention of possible staff injuries, please meticulously follow **CAUTIONS** and **WARNINGS**. The information in this section will help you to use the machine safely.

Before starting the machine, operator should know all control and command processes.

Safety-related information, warnings and cautions are introduced in this section. Never neglect and cancel safety-related measures. In case of absence of safety labels, do not operate the machine and call us for new label.

- 1- Before installation, be sure whether the ground resists to machine weight.
- 2- Customer is responsible for well-earthed feeding line to be connected to power cabinet and suitability of power. If it is possible, customer is responsible for adaptation.
- 3- Power (by the switch in power cabinet) and compressed air of the machine should be cut for any cleaning, lubrication and/or maintenance processes.
- 4- Installation and adjustment of the machine should be performed by only trained staff member of the customer.
- 5- In case of any problem during normal operation, immediately press the 'urgent stop' button.
- 6- Please do not forget that the 'urgent stop' button stops only all mobile parts of the machine and sections thereof. But, heated places of the machine are still at high temperatures. For reach to these places for cleaning and maintenance, please wait until they return to ambient temperature after turning the main switch off.

SECTION 2

- 7- After shutting down the machine by main switch and air switch for maintenance and cleaning purpose, please hang written warnings on suitable places so that others don't turn them on.
- 8- Do not lean against the machine or sit on it while the machine is running or remains idle.
- 9- Do not put any item or object on the machine.
- 10-Always use the spare parts recommended by TAM-TAŞ. For example, a high quality bolt should be replaced with a bolt at the same quality level.
- 11-Be careful when gate of power cabinet is open. Main power cables are earthed but it will not prevent electric shocks to occur due to wrong and careless uses.
- 12-Check accuracy of all security switches and devices every day.
- 13-Install the machine on a firm ground by providing an adequate lighting in the way that will ensure easy maintenance and service operations around the machine.
- 14-Long hair, loose clothes and belonging like necklace can be caught by mobile parts of the machine.
- 15-Keep the surrounding area of the machine clean.
- 16-Turn power and air sources off by relevant switches at the end of every working day or the shift.

Warning and Caution Signs



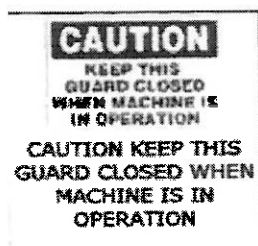
HOT SURFACE



POWER PANEL



ELECTRICAL SWITCHBOARD



KEEP THIS GUARD CLOSED WHEN MACHINE IS IN OPERATION

SECTION 2

CAUTION

READ
INSTRUCTIONS
BEFORE OPERATING

CAUTION READ
INSTRUCTIONS BEFORE
OPERATING

READ INSTRUCTIONS BEFORE OPERATING

CAUTION

BEFORE
CLEANING OR SERVICING
DISCONNECT POWER SUPPLIES

CAUTION BEFORE
CLEANING OR
SERVICING
DISCONNECT POWER
SUPPLIES

**BEFORE CLEANING OR SERVICING DISCONNECT
POWER SUPPLIES**

CAUTION

AUTOMATIC
EQUIPMENT
WILL START AT ANY TIME

CAUTION AUTOMATIC
EQUIPMENT WILL
START AT ANY TIME

AUTOMATIC EQUIPMENT WILL START AT ANY TIME

DANGER

NEVER
REACH INTO
MOVING
MACHINERY

DANGER NEVER
REACH INTO MOVING
MACHINERY

NEVER REACH INTO MOVING MACHINERY

SECTION 2



HOT SURFACE- KEEP YOUR HANDS AWAY



DANGEROUS SURFACE-KEEP YOUR HANDS AWAY



CHAIN CONVEYOR-STAY AWAY

SECTION 2



DANGEROUS SURFACE – KEEP YOUR HANDS AWAY



TURN POWER OFF BEFORE OPENING THE GUARD



DO NOT PLACE YOUR HANDS INSIDE GUARD

SECTION 03

Operating Components

Equipments

Electrically

Operating components and indicators are parts of electrical equipment.

Important

You can obtain detailed information regarding complete installation from electricity-related documents.

Errors on electrical equipments of the machine should be eliminated by experts.

Mechanically

Operating levers, star handles, etc. are parts of electric equipment.

Important

Errors on mechanical equipments of the machine should be eliminated by experts.

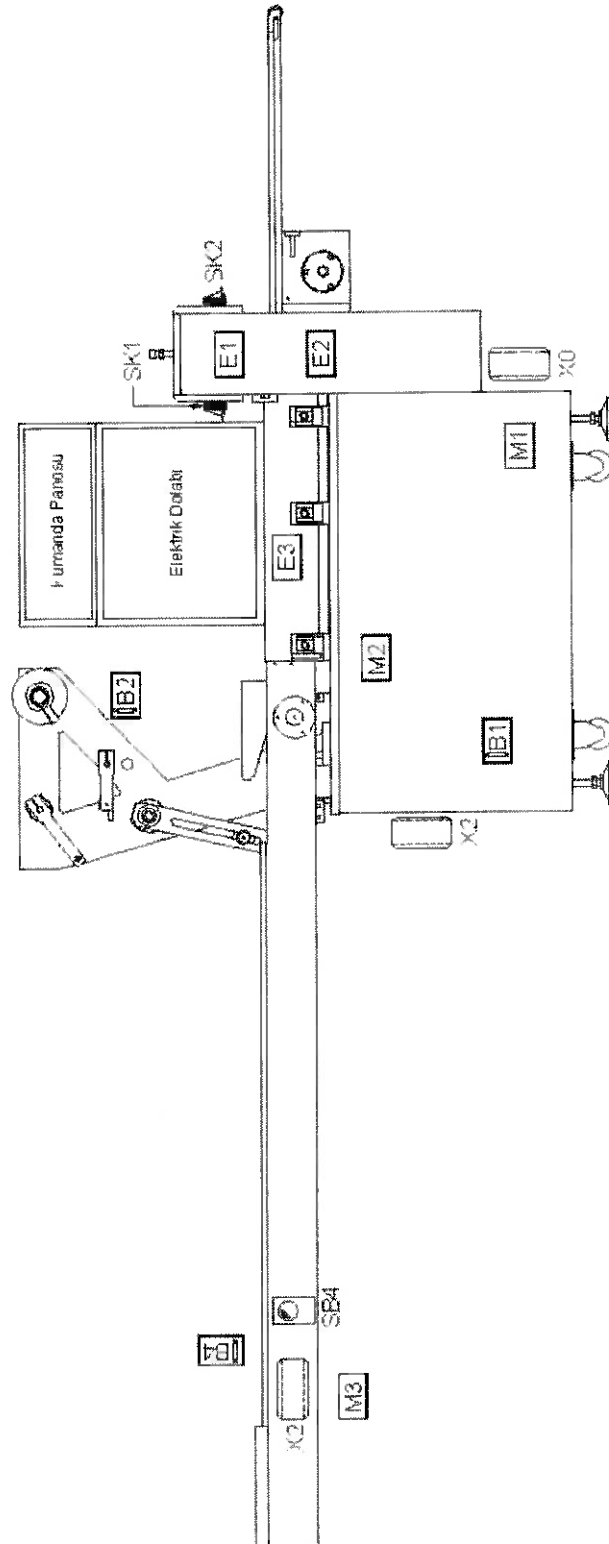
Pneumatically

Pressure adjustment valves, pressure indicators, etc. are parts of pneumatic equipment.

Important

Errors on pneumatic equipments of the machine should be eliminated by experts.

SECTION 3

Introduction to Control System of the Machine**a) Motors, Valves, Pistons and Photocell:**

a) Sensors (page 7/2) :

B1	PRODUCT SENSOR
B2	COLOR PHOTOCELL
B4	DISPLAY PHOTOCELL

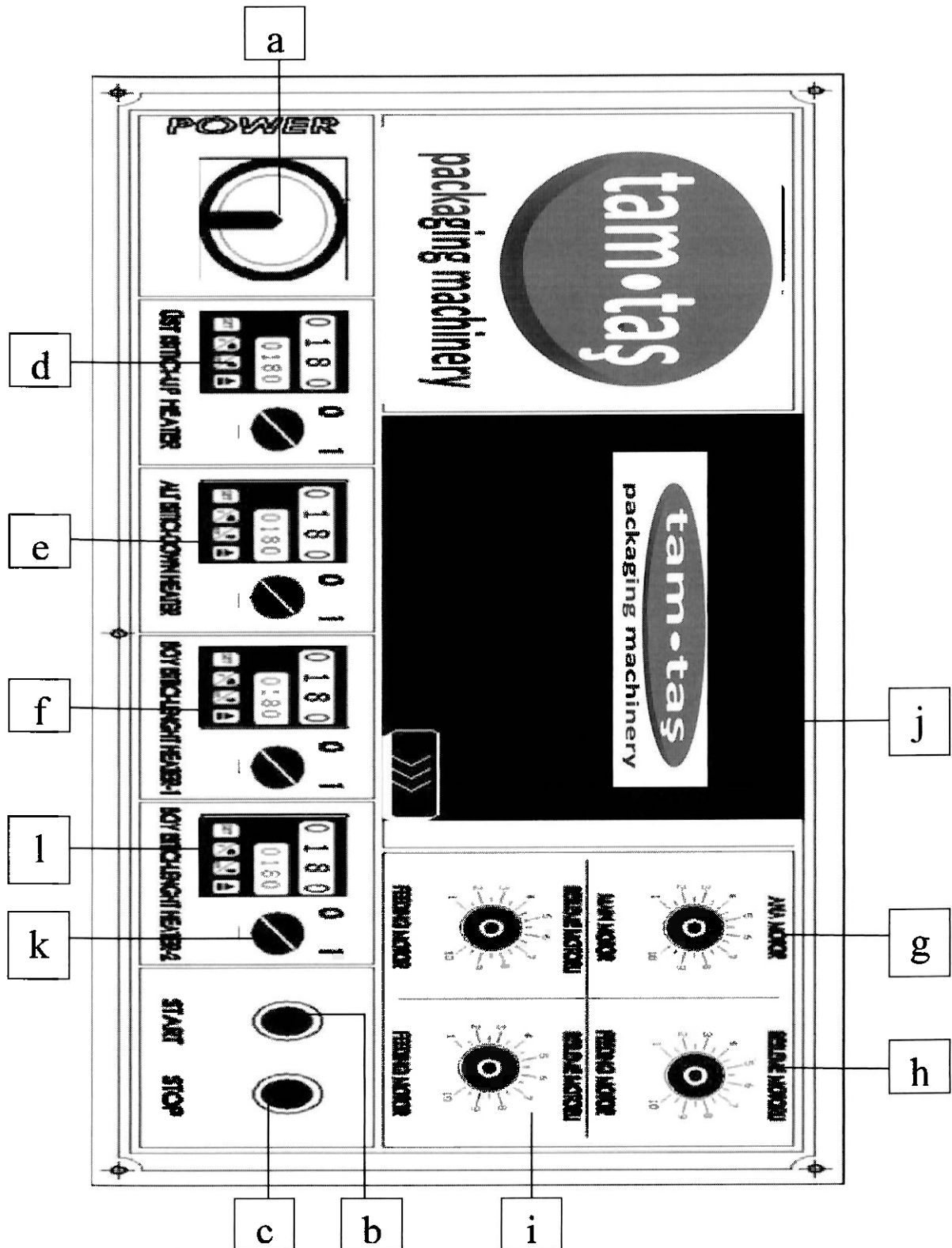
b) Heaters (page 7/2) :

E1	UPPER JAW HEATHER (110V-150W.....600W)
E2	LOWER JAW HEATHER (110V-150W.....600W)
E3	PULLEY HEATER (220V-350W)

c) Motors (page 7/2) :

M1	MAIN MOTOR
M2	SERVO MOTOR
M3	FEEDING MOTOR

b) Control Panel



a – Paco Switch:



Provides electric while ON cuts it while OFF

b – Start Button:



START

Pushing type machine starting button.

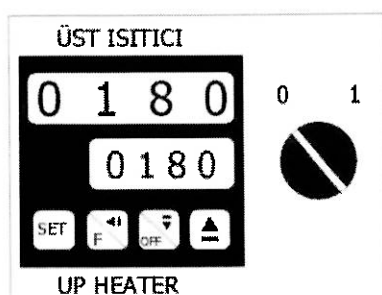
c – Stop Button:



STOP

Pushing type machine stopping button

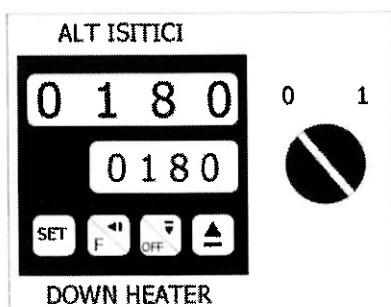
d – thermostat which adjusts upper heat:



It is the screen which shows target and real heat value of upper jaw. Upper jaw real heat value is reflected on upper screen. Adjusted target value is reflected on lower screen.

Not : If FFF value is reflected on upper screen it means there is a thermokopul failure.If Off is reflected on lower screen push the OFF<1 one time

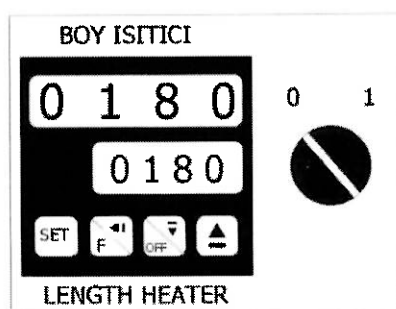
e – thermostat which adjusts lower heat:



It is the screen which reflects target and real heat value of upper jaw. Lower jaw's real heat value is reflected on upper screen. Adjusted target value is reflected on lower screen

Not : If FFF value is reflected on upper screen it means there is a thermokopul failure.If Off is reflected on lower screen push the OFF<1 one time

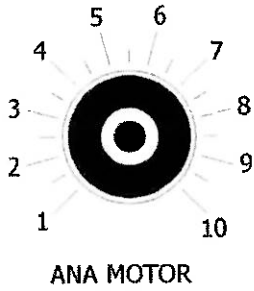
f – – Thermostat which adjusts length heat :



It is the screen which reflects heat of lengthwise sticker rollers real and target heat value.

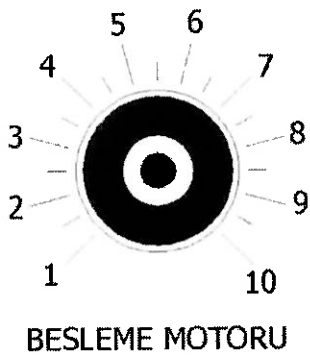
Not : If FFF value is reflected on upper screen it means there is a thermokopul failure.If Off is reflected on lower screen push the OFF<1 one time.

g – Main Motor Potansiyometer:



Increase or decrease main motor speed.

i / h – – Feeding Driver Potansiyometer:



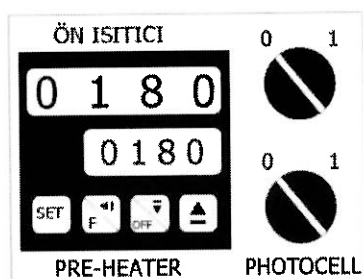
Increase or decrease feeding bands` engine`s working speed . It is placed at top-right corner and there are two of them.

j – Length Control Screen:



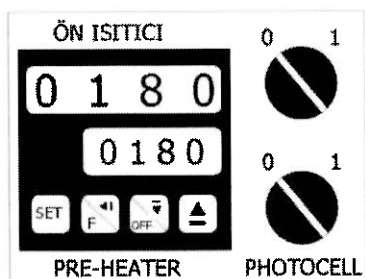
See Chapter 8 – you can find necessary information about function and working principals of this part in under the adjustments title and see the subtitle package length adjustments

k – Photocell switch:



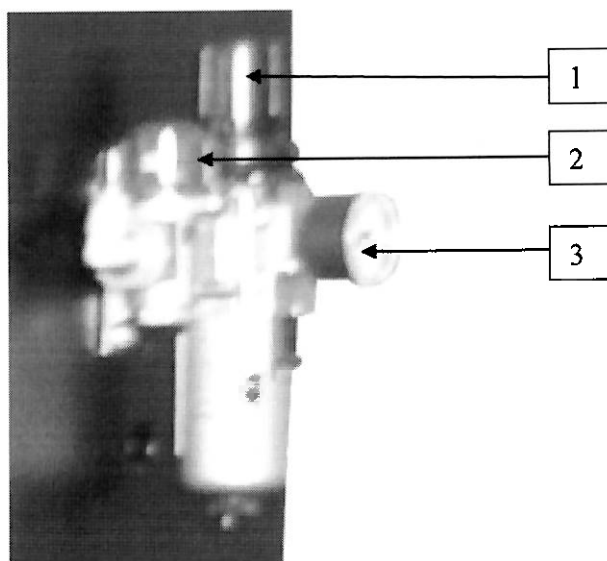
It is placed right bottom and it is available in feeded machine.it switch on-off photocell on feeding band.

I – Pre-heater thermostat :



This is optional thermostat and it is placed in machine if customer asks. The working principle is the same with section d,e,f and g above.

Operating Components and Indicators – Pneumatic



NOTE: Router is used by the type of feeding conditions.

Operating Components	Function
1 pressure adjusting knob	For pressure adjustment of compressed air supply valve For adjusting operating pressure.
2 Cut-off valve	For supply of compressed air For closing compressed air supply
3 Pressure gauge	For pressure adjustment of compressed air supply valve It shows operating pressure.

Automatic failure monitoring

Instructions The most important functions are followed in order to prevent halt of production and defective production because of possible breakdown of machine components.

Objective In case of any error (at the beginning of defective production, defective processes) automatic monitoring system has 3 targets:

1. It triggers stopping of the machine at any particular time or urgently.
2. Automatic identification of error.
3. Visual representation of place and reason of error (on error indicator, touch screen, indicator lamp)

Relevant point 1:

Triggering machine stop

In the event of error; light barriers, proximity sensors and detectors trigger machine stop.

Machine error reminders and machine stop can not be operated before being cancelled by pressing START button twice (RESET function). Visual signal appears.

Relevant point 2:

Automatic identification of error

The most important packaging sections are followed by means of the following devices:

- Detectors
- Light barriers
- Proximity sensors
- etc.

Each deviation on different stations from normal production features is recorded.

Relevant point 3:

Visual signalling of place and reason of error

It allows determining reason of error and identifying place of error clearly and immediately.

Visual signals:

- On touch screen
- On security switches of machine
- etc.

After error is detected and displayed, error message will remain until error reminders of visual signals are eliminated and START button is pressed (RESET function) twice.

Removal of visible errors

Reason and place of error are exactly determined by means of visual indicators.

Procedure in occurrence of errors



- Machine stops automatically; error signals visually.
- Press lockable EMERGENCY STOP button in order to prevent machine operating during error removal (to prevent accidents!)
- Eliminate reason of error.
- Release lockable EMERGENCY STOP button.
- Press START button (RESET function). Press only once!

Before pressing START button, all staff members operating the machine should be warned against accident risk

Machine start:

Press the START button when all operating conditions are provided.

SECTION 04

Operation Check List

SECTION 4

Explanations

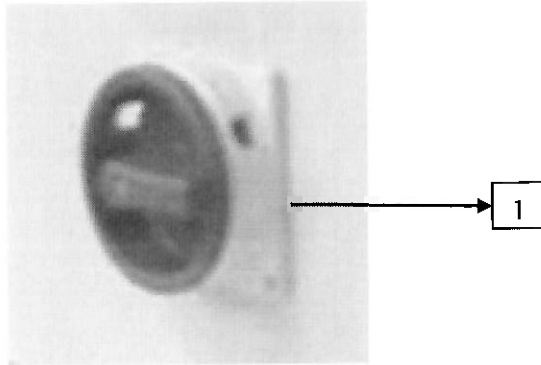
The check list below is document for operators of TAM-TAŞ packaging machines on whole of wafer production line.

They serve as check list and instructions for daily operations.

- When starting production
- When continuing production
- Before and after halt of production

Contents of instruction, guidelines and recommendations are a basis to an excellent operation and should be carefully implemented step by step in accordance with the expressed sequence. Initial start-up of TAM-TAŞ is performed by the expert assigned

Please note



As a principle , settings and new regulations should be made when the machine is idle and main switch should be in 1 closed position

To Get Ready For Operation

Preliminary Process

Before starting to operate the machine full time, some preparations and controls must be done.

- Make sure that electric voltage is at required value and check the connections.
- Make sure if safety devices and switches are ok..
- Make sure, if any safety guards and warning signs on the machine, are available .
- Start the resistance 15 minutes before starting any hot implementation.
- Make sure there is no unexpected materials.

Introduction of Control System of the Machine

a) Sensors (page 7/2) :

B1	PRODUCT SENSOR
B2	COLOR SENSOR
B4	DISPLAY PHOTOCELL

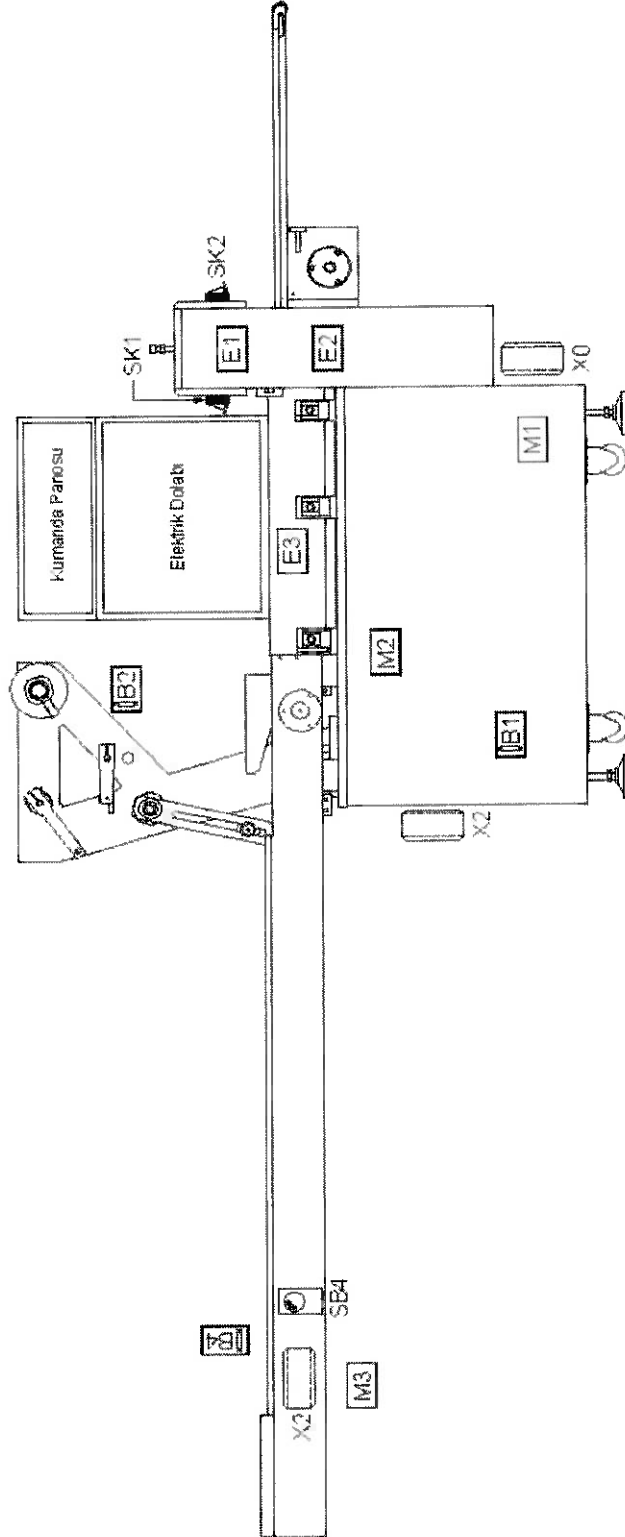
b) Heaters (page 7/2) :

E1	UPPER JAW HEATER (110V-150W.....600W)
E2	LOWER JAW HEATER (110V-150W.....600W)
E3	PULLEY HEATER (220V-350W)

c) Motors (page 7/2) :

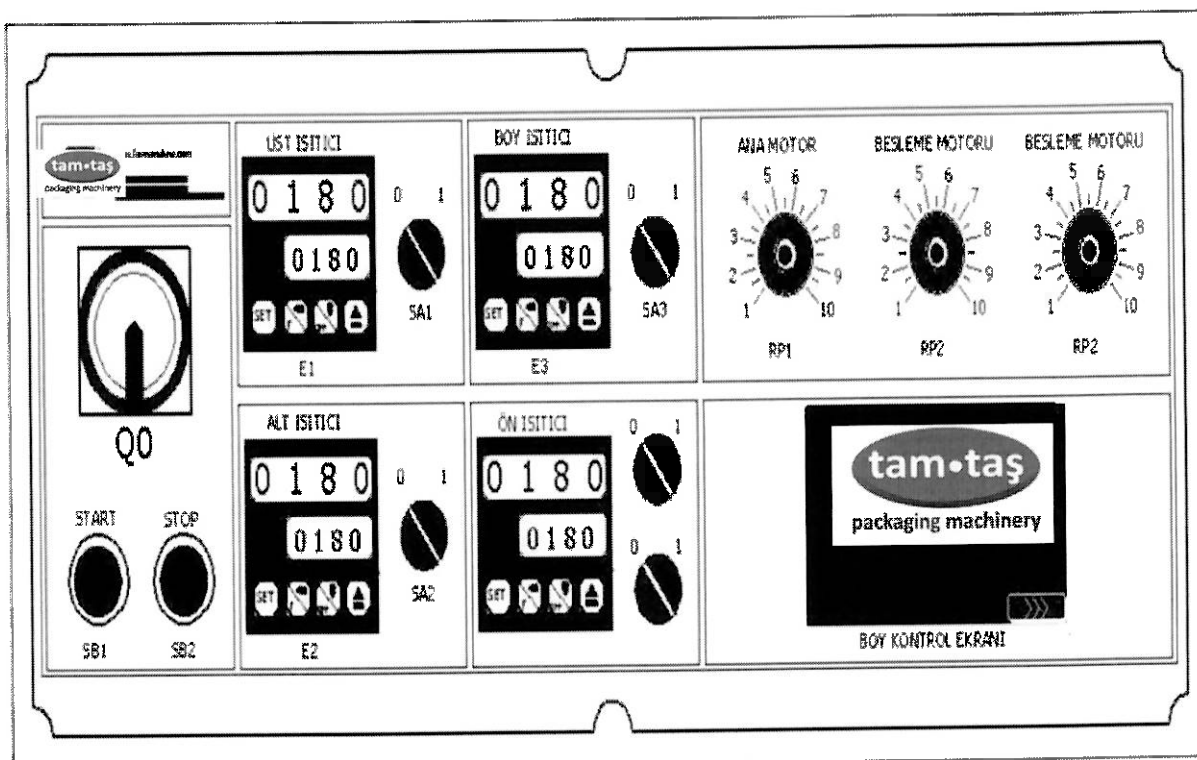
M1	MAIN MOTOR
M2	SERVO MOTOR
M3	FEEDING MOTORU

SECTION 4



d) Control Panel

SECTION 4



Q0	POWER SWITCH
SB1	MAIN MOTOR START BUTTON
SB2	EMERGENCY STOP BUTTON
E1	UPPER JAW THERMOSTAT
SA1	UPPER JAW HEATHER THERMOSTAT SWITCH
E2	LOWER JAW THERMOSTAT
SA2	LOWER JAW HEATHER THERMOSTAT SWITCH
E3	PULLEY HEATER THERMOSTAT
SA3	PULLEY HEATER THERMOSTAT SWITCH
RP1	MAIN MOTOR SPEED SETTING BUTTON
RP2	FEEDING MOTOR SPEED SETTING BUTTON

Preparations for Starting the Machine

Procedure	Descriptions
Preparations of the machine to operate	
1. Turn Q0 power switch electricity board	Machine is supplied with current Signal : lamp 2 flashes
2. If hot implementation will be applied open the SA1,SA2 and SA3 switches.	Upper-lower jaw and pulley heaters will be start.
3. Adjust the E1,E2 and E3 thermostats	Wait for the temperature to get required degree.
4. Always switch SA1, SA2 and SA3 off in all cold applications.	
5. Place the flowpack material which is in rulo form according to scheme put on the label on bobbin board.	Bring it to between the pulling rulleys by passing the material between rollers and formings and finally close the pulleys
6. If it is material with photocell reset the cutting spaces and select the photocell	
7. If it is not material with photocell just enter the cutting measurements.	
8. Start the machine by pushing the main engine start button (SB1)	
9. Operate the machine with appropriate speed by making necessary adjustment through RP1 button	

SECTION 4

End of Operation


1. Stop the engine by pushing emergency stop button SB2.
2. Stop upper-lower jaw and pulley heaters by switching SA1,SA2 and SA3
3. Separate the pulley pairs with the help pf pulley arm in pulley group. Take flowpack materials, which is in rulo form, off.
4. Turn the power switch off, in electric board.
5. Clean the machine

Caution

alarm continuous playback, you wipe photocells

SECTION 4

FAILURE STATUS

Procedure	Remarks
<p>FAILURE STATUS</p> <p>1. Machine stop automatically.</p>	<ul style="list-style-type: none"> • These are triggered by automatic fault tracing • Signal appears on pilot lamp column. • on touch screen you can read place and reason of error. <p> Press EMERGENCY STOP button.</p> <p>measurements:</p> <ul style="list-style-type: none"> a) Eliminate reason of error. b) Release EMERGENCY STOP button c) Press START button.(RESET process) d) Press START button.(START process)
<p>2. No observed errors</p>	<p>Immediately stop the machine!</p> <ul style="list-style-type: none"> a) Press EMERGENCY STOP button. b) Eliminate reason of error. c) Release EMERGENCY STOP button d) Press START button.(RESET process) e) Press START button.(START process)

CLEANING
SECTION 5

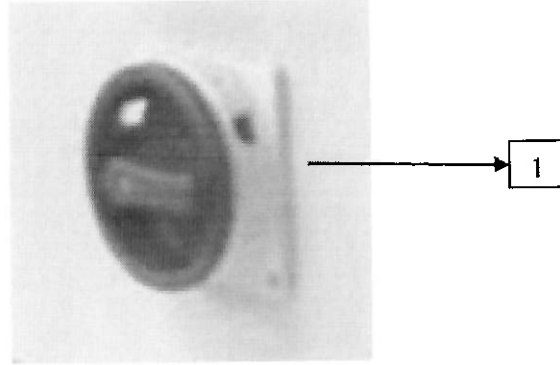
SECTION 05

Cleaning

CLEANING

SECTION 5

Explanations



Cleaning should be made when the machine is idle as a principle and main switch should be in (1) closed position..
Air valve should be off position

Caution

Wafer Batter Production Plant machine should be completely controlled in order to prevent possible damage or occurrence of error, which may result from wrong assembly or tools and cleaning materials remaining from cleaning.

Cleaning Periods

These are related to degree of contamination and therefore it depends upon production conditions on baking section.

Particularly, periodical cleanings of exposed components should be made as soon as needed.

CLEANING

SECTION 5

Cleaning tools and materials

Proper cleaning tools are industrial vacuum cleaner, cloths, hand brushes, plastic paint knife, warm water and cleaning tools appropriate for food.

These instructions are applied on 8-hour operations.

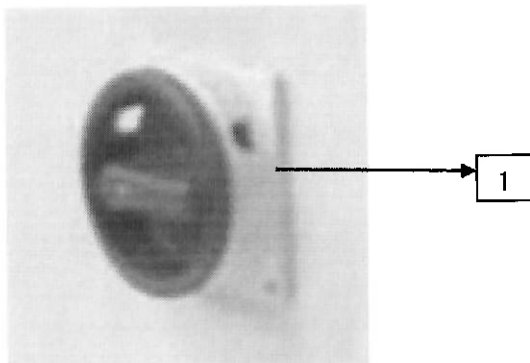
In case of shift working, these cleaning tasks are performed at the end of each shift.

All components in contact with product are cleaned.

SECTION 06

Lubrication

Explanations



Lubrication should be done when the machine is idle as a principle and main switch should be in 1 closed position.

Important

After each lubrication, leaked oil should be cleaned.

It should never contact with product and packaging material.

In order to avoid from damages and failures of machine, packaging machine and the tools and materials used for lubrication should be checked after each lubrication process.

Lubrication intervals

The intervals mentioned in the following instructions are applied in normal production conditions.

More short-interval lubrication is necessary for quite dusty products or highly dry packaging sections.

Lubrication degree

In the following instructions, different suppliers are recommended for special applications.

They are suitable for normal operating conditions. Under pretty climatic operating conditions, it is necessary to consult oil suppliers.

Basic requests on Lubricators

Mineral oils

In general, mineral oils contain foam retardant and corrosion preventing additives. EP-added oils (high pressure) are recommended for especially heavy load gears. They prolong life cycle of helical gears and chain gears.

Synthetic oils

Because of high aging resistances, synthetic oils are especially suitable for lifelong lubrication of gears.

Oils suitable for food FDA/USDA-H1

In case occasionally they contact with food technically

Caution

Never mix mineral oils and synthetic oils!

Lubrication oils and lubrication greases are in different classes and degrees. So they should not be mixed.

Oil level control

Caution

Oil level should be checked at regular intervals when machine is idle.

Information on oil level

Do not fill in excess amount.

Excessive hydraulic pressure may distort felts and bearings.

Oil change

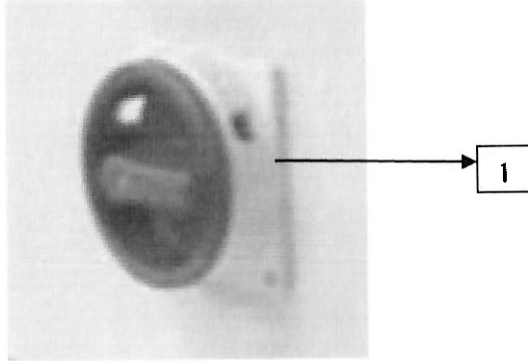
Usually bearings needs lubrication of the horizontal flowpack machine.

Bearings lubrication time concerned revolutions per minute and bearing choise. Suggestion time is 2000 hours. Should be checked bearings 2000 hours later and if it need lubrication will change the oil.

SECTION 07

Mechanical Inspection

Explanations



Please Note



Settings and new regulations should be performed when the machine is idle as a principle and main switch (1) should be in closed position.

Important

In order to avoid from damages and failures of machine, packaging machine and the tools and materials used for cleaning should be checked after each cleaning process.

Controls



Exception : Perform acoustical control against an unexpected noise when the machine is in operation.

Controls should be performed regularly and properly. In case of any defect, machine should be immediately taken to maintenance.

Measurements should be performed by only experts.

Most of machine failures results from insufficient lubrication and attention .

It is necessary to keep the machine clean and in good condition not only for hygiene but also for guaranteeing efficient operation and minimization of production loss.

Replacement of Cut – Seal Knives and Their Settings:

- a) If there is still hardship in cutting after all adjustment suggested are made(for example increasing the jaws pressure excessively..),it means the blades should be replaced.

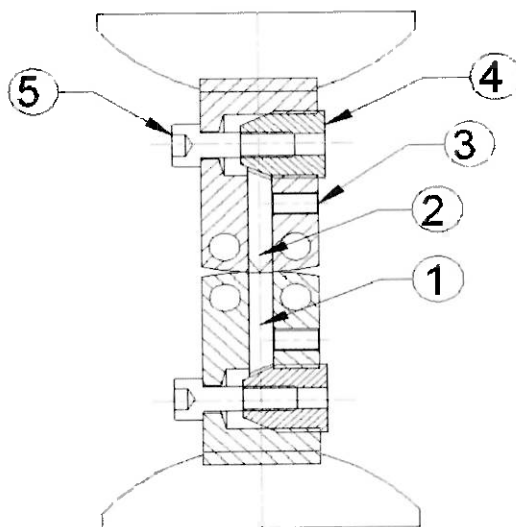
When replacement is not made,jaw works noisily and the life time of the other parts gets shorter.

- b) To make sure which blade got dull:

- If blades are abraded,cutting edge of blades becomes circular.
- If lower blades are abraded,there exist deep cuts on the lower blades resembling the edge of cutting blade.

- c) Loosen the fixing screws (3) to remove the blade abraded and take blade out.

SECTION 7



- 1) Lower Blade
- 2) Upper Blade
- 3) Fixing Screw
- 4) Special Bolt
- 5) Fixing Bolt

Figure -1 Adjustment
of Blades

of
explained in the machine adjustment.

- d) Clean the hole before replacing the new blade.
- e) Adjust the blade as it is

Replacement of Heat Sealing Bars Resistance:

- a) Replacement of Jaw Heaters and Termocouple

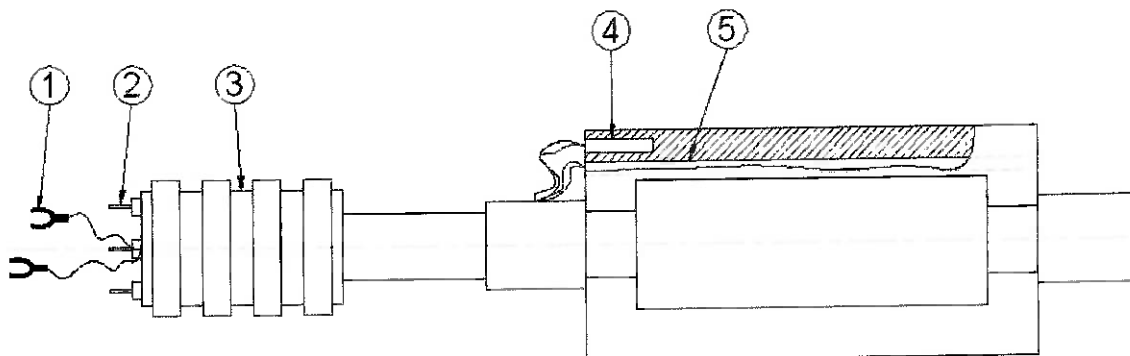


figure - 2 Jaw Heaters

- Make sure that main switch is on "0" position.
- Remove protection cover.
- Remove heaters (5) and the tip (1) of termo-couple (4) from connection terminal.

SECTION 7

- Remove the defective part from its place .
- Place new part (make sure (+) and (-) tips are connected right).

b) Replacement of Pulley Heaters and Thermo-couple

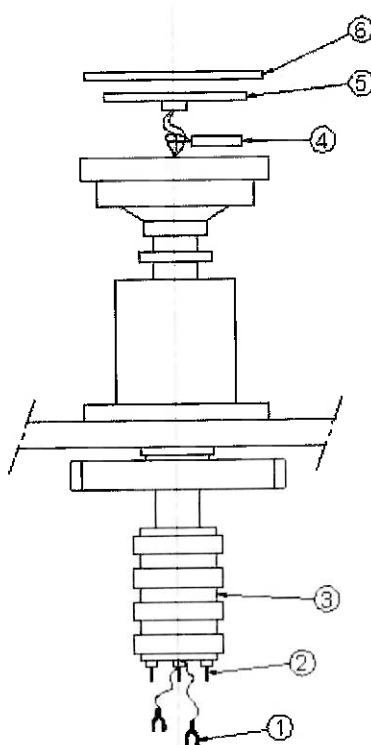


figure – 3 Pulley Heaters

- Make sure that main switch is on "0" position.
- Remove protection cover.
- Remove heaters (5) or thermo-couple (4) disk cover (6)
- Remove heaters (5) and the edges of thermo-couple (4,1) from connection terminal (2).
- Remove the defective part from its place
- Place new part (make sure (+) and (-) tips are connected).

- 1) While cleanless, lubrication(oiling) and any maintenance is in process, the machine should be disconnected to high air pressure and electricity.
- 2) After turning off main switch, wait till the machine cools down.
- 3) After switching off air key and main switch, put ewery where warnings since nobody starts brush daily
- 4) Clean machine's dirty parts by warm water.
- 5) Clean the area between pulley group and cutting-sticking jaw by a severe brush daily.
- 6) Clean the places when its is necessary according to its periodic schedule.

Maintenance Table

Majority of breakdowns occur when lubrication is performed insufficient and with nocare.

Reason of keeping your machine clean is to provide efficiency in work place and prevent production losses but only hygen reason.

SECTION 7

Operation hours	Activity
8	Daily, clean the area between jaws and cutting. Sticking pulleys by a brass brush Remove intensive water in pressured air conditioner
100-200	Control function of security devices and switches.
	Slightly lubricate chains and control their tightness
	Clean the cooper rings through which electricity goes to heaters in moving parts and pulley system. Control the level of depreciation on coals touching cooper rings and clean them.
1000	Control sharpness pf blades.Adjust their position or switch with new ones if necessary.
	<ul style="list-style-type: none"> • Control security devices if necessary(emergency stops and pressure switches) • Control the level of deprecation of moving belts or change them • Control the level of depreciation of feeding and output band and control their tightness.
2000	Control the level of oil in gear boxes
	Control all the roler bearing and their places and change if necessary

The order cleanliness an switching of depreciated parts should be performed when necessary.

Spare Parts and Replacement

Descriptions

you will have a separate spare part catalog which will help you to place spare part order as well as these operating instructions .

Depending upon the type of the machine, It is photo catalog which includes knocked-down montage pictures .

Precondition for fast and accurate part supply is that you place a detailed order. In this way, you will not lose time. Enjoy your orders !

Necessary Information for Part Order:

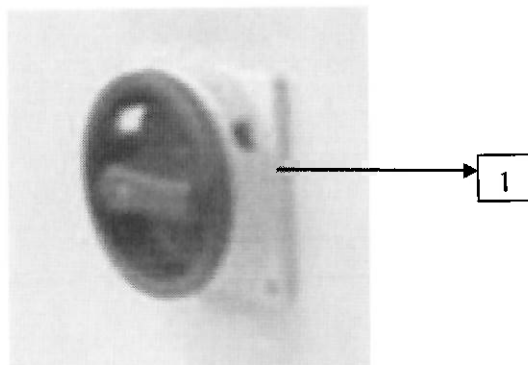
- a) See machine type, machine number and ID plate
- b) Part description, ex. "shaft", "sprocket"
- c) Embossed writing on defective part.
- d) Print date of spare catalog
- e) Part number and position number, which clearly describes spare parts.
- f) Desired amount

address:

İkitelli OSB.Mah. Heskoop D Blok Sokak
Heskoop Sitesi D Blok no:30-31-32
Başakşehir / İstanbul
Telefon : 0212 / 554 22 66
Faks : 0212 / 643 33 57

SECTION 08

Functional Description / Adjustments



ADJUSTMENTS SECTION 8

Please Note



Settings and new regulations should be performed when the machine is in operating as principle and main switch should be in 1 closed position.

Descriptions

One of the most important conditions of problem-free production is accurate adjustment of machine parts.

The following description and adjustment information is limited to main machine parts with a direct impact on the product.

- The setting chapter in this section is for information purpose about change instructions on part and size change and desired condition of unit or parts.

See also size changed section.

New settings and size change should be checked according to these instructions after disassembly and assembly for cleaning and maintenance purpose and should be corrected if necessary.

Real operating conditions on the machine should be in hormany with the conditions defined in this section..

- Indentification sequence of components and units in this section was prepared according to production flow sequence .
- Functional conditions of all units are defined according to width, length and height of product.
- Settings and regulations are made by only trained personnel wrong setting and installations may cause serious machine damages.
- No result of setting or regulation should be made without being clearly estimated.
- Before setting defective unit or component, its first position should be marked or written down.

ADJUSTMENTS SECTION 8

Adjustment of Packing Film

Selecting Photocell and Feeding on the Photocell Screen:



Packing film materials are divided into 2 groups, speckled and unspeckled.

If the materials that will be used in machine is unspeckled, photocell option on photocell screen should be passive position.

If the materials that will be used in machine is speckled, photocell option on photocell screen should be active position.

If the machine will be, un feeding , feeding option on photocell screen should be passive position.

If the machine will be worked with feeding, feeding option on photocell screen should be active position.

Setting Package Size and Cutting Points:



Distance between spots should be written on the package length menu on package size screen.

ADJUSTMENTS SECTION 8

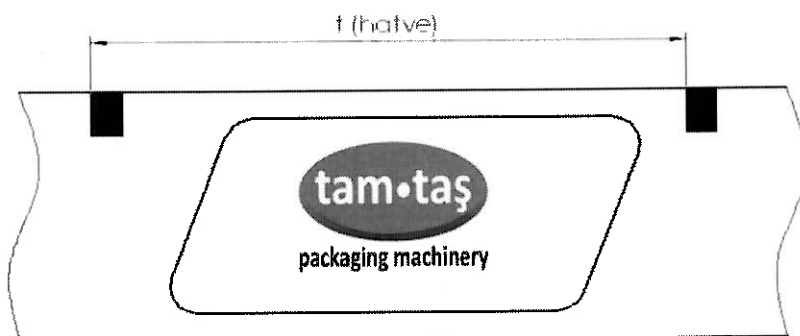
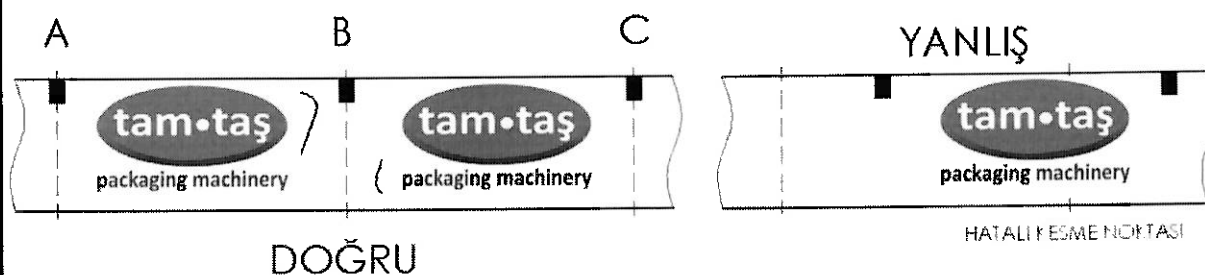


figure 1- Speckled Packing Film

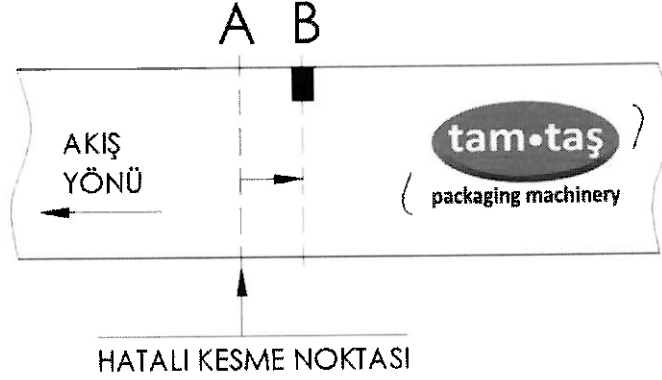


figurel – 2 Cutting Points

- Make sure that photocell choice is made completely to have package length cut where it is intended on A,B and C position. (figure – 2)
- We have to make sure that color photocell sees the points that will be cut completely.

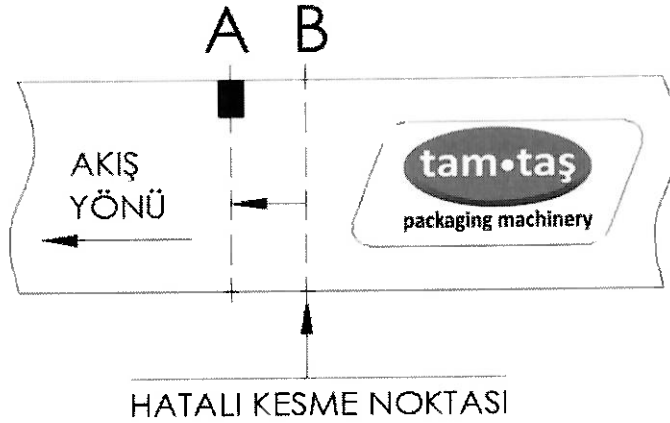
ADJUSTMENTS SECTION 8

A Defective Cutting Point:



Üsteki gibi, herhangi bir A noktasında hatalı kesme gerçekleşiyorsa, bunu düzeltmek için Paket-Ölçüler sayfasındaki benek kaydırma değerini (+) yönünde, B doğru kesme noktasına gelinceye kadar artırınız.

B Defective Cutting Point:



Üsteki gibi, herhangi bir B noktasında hatalı kesme gerçekleşiyorsa, bunu düzeltmek için Paket-Ölçüler sayfasındaki benek kaydırma değerini (-) yönünde, B doğru kesme noktasına gelinceye kadar azaltınız.

Display Machine Speed on the Size Control Screen:

ADJUSTMENTS SECTION 8



Note – 1 : speed value will be packaged per minute.

Note – 2 : speed value can not be changed on size control screen.

Packaging speed of the machine can only be changed by main engine potensiyometer on electricity panel .

ADJUSTMENTS SECTION 8

Display Reduction Rate on the Size Control Screen:



Reduction rate is viewed like above on the screen.

This parameter proportion shows how much flowpack material will progress in one main machine circuit.

Note – 1 : in this system, spool discs turn around a tour at clam's a complete tour .

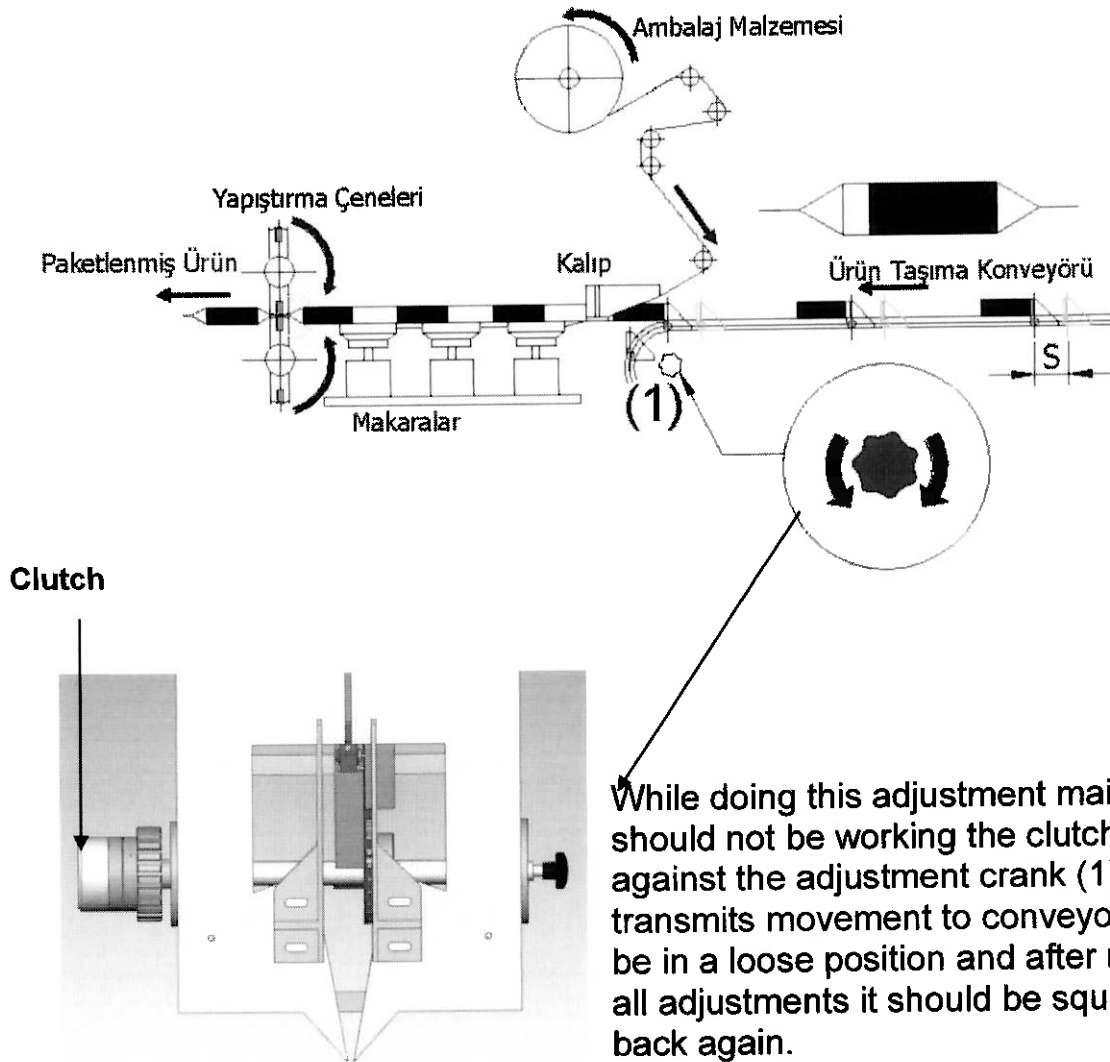
Note – 2: this parameter is a factory adjustment and it should never be changed. In case it may be eraser or changed by an accident, record the parameter somewhere safety.

ADJUSTMENTS SECTION 8

Adjustment of Product Place:

When the product comes to be glued to clamps, if clamps make pressure on product, it means that position of the flow pack is wrong.

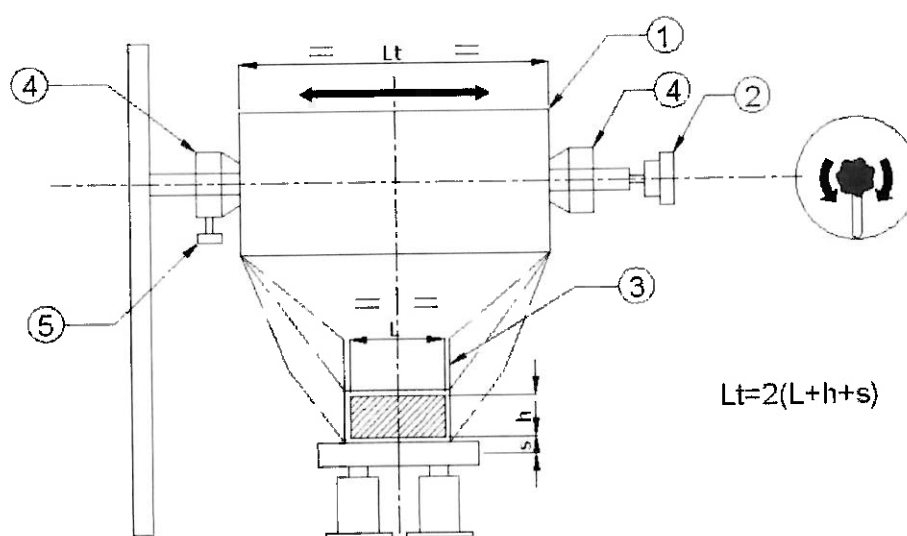
In such a situation, in order to adjust product conveyor shown below, the position of the parts on product conveyor, while the order parts are stable, should be moved by adjustment crank as much as "s" distance.



ADJUSTMENTS SECTION 8

Centring film with Respect to its Width :

To have equal sticking segments, flowpack material in mold should be reached in the middle. Control the center everytime when changing bobbin, if necessary make the necessary adjustment by turning the adjustment crank with number (2).



- 1 – Flowpack Roll 2 – Adjustment Whell 3 - Forming 4 – Fixing Block
5 – Fixing Screw.

- Remove by pushing on press (4) and pawl.
- Place new bobbin, and place cone again. Make sure that press and fixing cone place properly into the their places.
- Open the flowpack material by pulling from the roll and pass through mold(3) after cylinder.
- Open pulling and sticking discs. Connect the two sides of the flowpack material and place them between discs.
- To have the sticking segments equal turn the adjustment crank (2) and make necessary adjustment.

ADJUSTMENTS SECTION 8

Setting of Stand by Speed of the Film:

When a change was made in flowpack length. The adjustments are made by turning the crank with number (2) on figure-5 at the direction (+) or (-) to change the necessary waiting time.

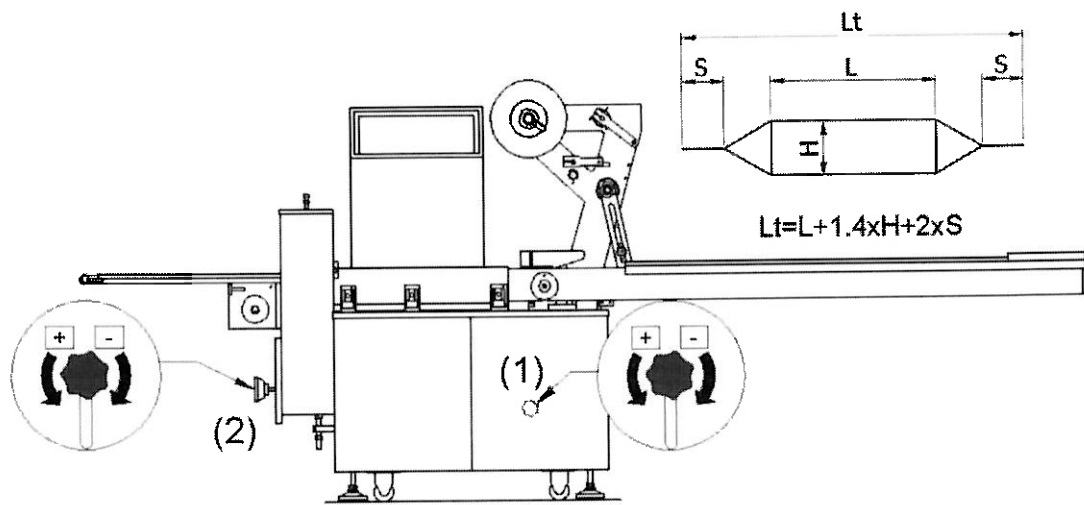
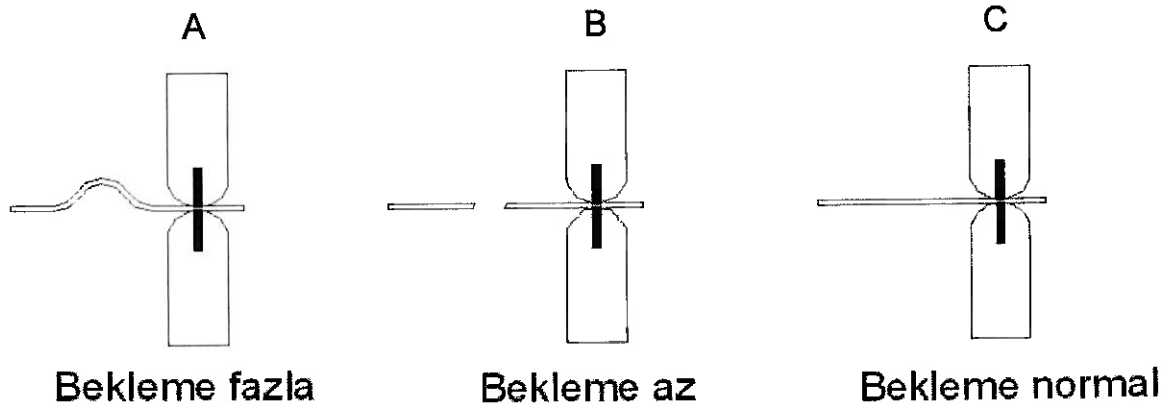


figure – 5 Flowpack Length Adjustment

- As it is shown figure-6 if the materials are getting puckered coming from the black side, the dwell time adjustment can be fixed by turning the dwell adjustment crank at (-) minus direction figure-5(2).



Şekil – 6 Dwell Time Adjustment

ADJUSTMENTS

SECTION 8

- As it seen in Figure-6 B, if the material cuts off which is coming from the back side, waiting time can be adjusted by moving the dwell adjustment crank (Figure-5 (2)) at the direction of plus (+).
- The situation seen at Figure-6 C is the most proper waiting time.

IMPORTANT: As long as a hard material comes between two clamps, waiting adjustment will be spoiled mechanically.

Making the mechanical adjustment;

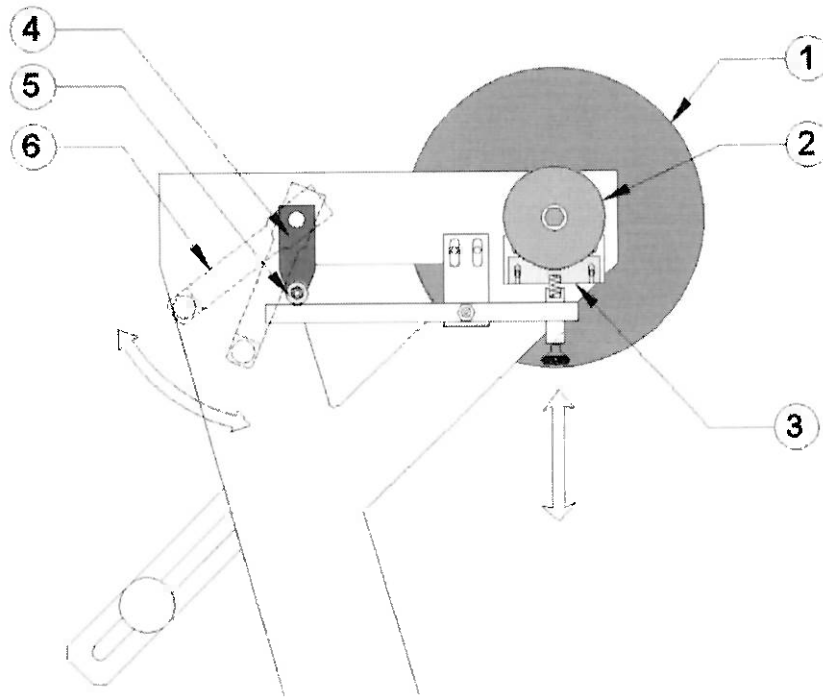
- Despite that crank is turned to (+) direction as it is in Figure-6 B, if there is no cutting off at material, the machine is worked empty or at low rotation by removing the material from machine.
- At an adjusted clamp, proper waiting time is the time that matches two clamps strike instant. Then it can be observed which clamp stops where.
- Machine is stopped at the waiting point observed.
- Propelling chain gear fixing screws with the number 10 are loosened. (8.2- Clamps adjustments – s:8/16). Upper and lower clamps are put one on one by turning around manually.
- And then, 3 screws on propelling chain gear are squeezed.
- Observing waiting instant again, if it is achieved the clamps strike at the same time, it means the waiting time is normal.
- Flowpack material is replaced at spool group again.

NOTE : Since waiting adjustment crank (+) is leaned to the end, It is taken back by turning to (-) minus direction like it is in Figure-6 C.

ADJUSTMENTS SECTION 8

Setting of the Breaking System:

Brake implementation is needed in order not to loosen the flowpack paper when flowpack paper is being pulled and stuck by spools from bobin.



1- Material Roll

2- Brake Disc

3- Brake Pad

4-Cam

5- Cam Bearing

6- Brake Crank

Brake crank with number 6 moves when it is pulled by flowpack paper in order not to be too tight or too loose. The crank moved moves the kams with number 4 and 5. As a consequence of this move, pressure brake pad with number 3 makes pressure on brake disc with number 2 and it lets the flowpack paper loosen.

When the pressure is implemented the necessary brake is made.

When the pressure is removed, paper flow moves easier.

ADJUSTMENTS SECTION 8

Adjustment of Jaws

Jaws group processes with the help of cutting and sticking flowpack material when the cutting and sticking group's rotation takes place. Clamps groups are heated by the resistance controlled by the thermo-couple and adjusted on thermostat.

In order to have a straight sticking along with all clamps width, clamps should be paralell to eachother and the distance between sticking clamps should be suitable according to flowpack paper thickness.

Adjustment of Step-Marked film and the Jaws

If the notches are opened like it is in the Figure-7 wrongly (a-b), so as to have a straight sticking like it is in Figure-7 correctly (c).

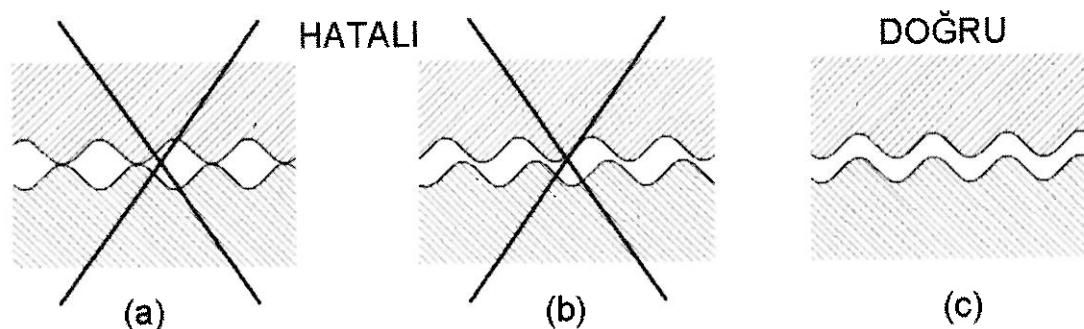


Figure – 7 Jaw Adjustment Lengthwise

ADJUSTMENTS SECTION 8

Adjusting the cutting blades of jaws:

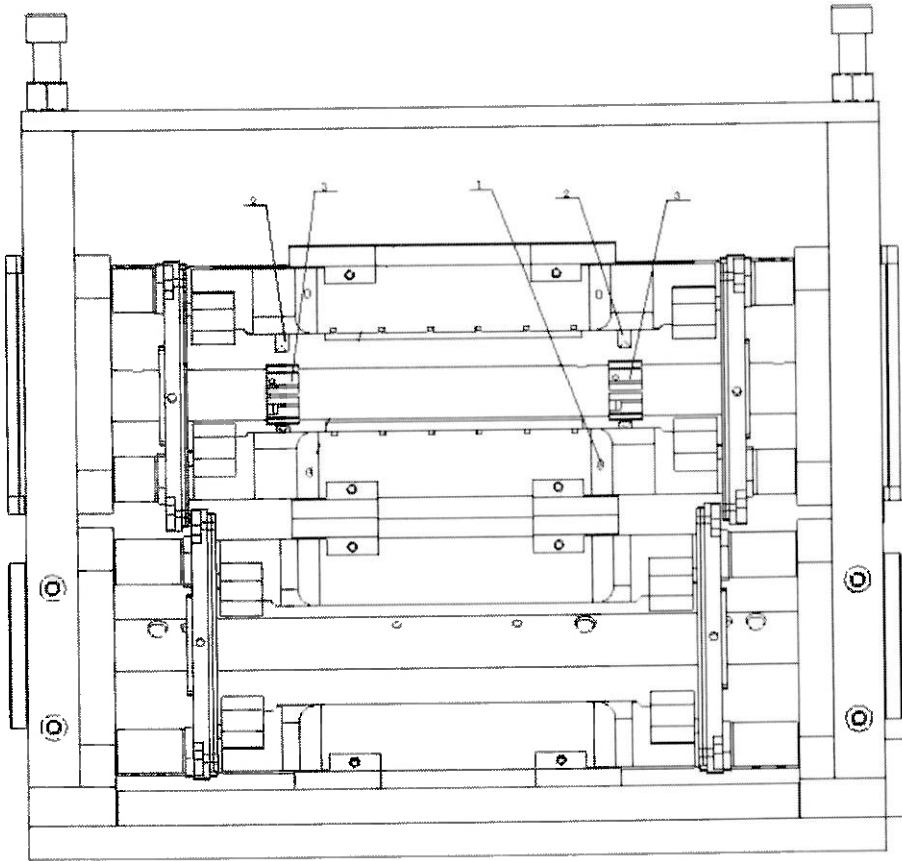


Figure-8 Blade Setting

- 1- Top of the form shown in the lower and upper jaws (1) on top of your return
- 2- as wide and thin blade using a paper, run the machine, check the cutting process.
- 3- If the blade does not cut as desired by loosening the cam number 3 of the blade to cut as desired to ensure that the cam (3) Set.
- 4- 2 No. of pins, 3 numbered keys to make sure when.
- 5- After setting the cutting process, literally, any accident during operation of the cam in order to avoid any bolt (No. 3) Thoroughly tighten

ADJUSTMENTS SECTION 8

Vertical Setting of Jaws Section

For a good sticking the thickness center of the product that will be wrapped should be in the middle. For this reason, clamp group is moved vertically till it comes to necessary position.

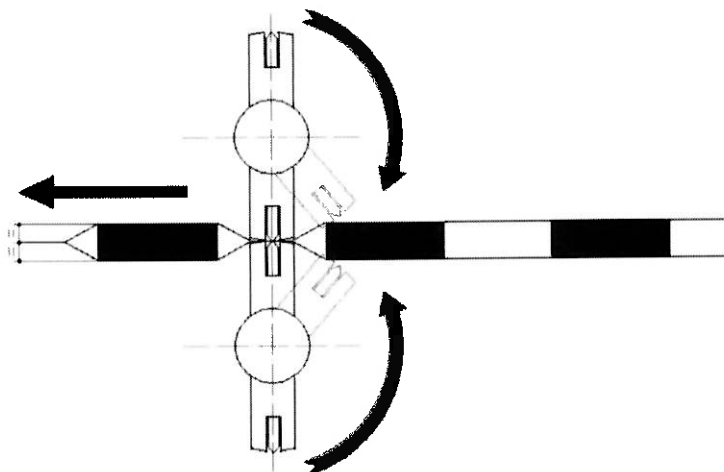


Figure-9 Clamp Group Vertical Adjustment

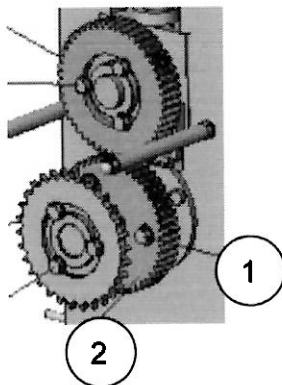
Implement the steps to adjust clamps vertically as shown in Figure-9:

- Open lateral protection covers of gear and resistance collectors.
- Loosen the clamp group fixing screws.
- Have the product axis at vertical direction and the cutting point of blades at the same height by using the clamp group height adjustment screw with number 13
- Squeeze the clamp group fixing screw.
- Stretch the trigger belt which transfers the power from main machine to clamp group.
- Place the lateral protection covers.

ADJUSTMENTS SECTION 8

The Setting of Mounting Distance of the Jaw's Gear:

An unwanted cavity between module gears cause sticking clamps to hit eachother and to have a noisy trembling working environment.



- Loosen the screws with number 1 on adjustable module gears consisting of 2 parts with number.
- Adjust the cavity level manually.
- Squeeze the screws with number 1.

SECTION 09

**Error Detection
Recovery**

SECTION 9

Explanations

It is necessary to recover as soon as no-observed errors, which manifest themselves by means of visual signs, occur (e.g. such as defects on wafer sheets and cracks on product).

Errors whose cause has not been known yet are detected by means of systematic research procedure and thus, time is saved.

This systematic procedure has two goals:

1. To help customer to try to detect place of error and identify its reason clearly
2. To provide a checklist which will help customer to get prepared for questions to be asked by service staff member of manufacturer

• **Error identification systematic /Procedure**

Note

Write down the following sequence by writing all issues and information completely. Collect facts, not assumptions.

1. Error identification

What is different from standard?

- On which part?
- How did error appear?

Where was error seen?

- On defective part
- On packaging machine
- On other machines

When was error seen?

- First occurrence
- How often
- Frequency (Rarely, continuously, regularly)

How much

- How many parts were affected?
- How big is error?
- Inclination (Does error tend to increase or decrease?)

2. Definition of change

a) Machine

- Basic settings
- Adjusted parts
- Replaced parts
- Power components
- Pneumatic parts

b) Product / Production

c) Packaging material / Viscosity

d) Personnel

- Operating personnel
- Maintenance personnel

e) Environment

- Related units in front of/behind it
- Like corridor

f) When and what:

- Repaired.
- Changed.
- Dismantled.
- Added.
- Installed.
- Cleaned.
- Replaced.

3. Probable reasons

List reasons of error occurrence:

- Changes.
- Experiments.
- Expertise.

4. Investigation into possible reasons

By taking changes made into account, possible reasons are found and listed based on experts' knowledge and experiments.

5. Evidence

How can I clearly prove that possible reasons are also facts?

6. Measurements

- Comparison of possible reasons presented by error identification.
- Investigate the most probable reason at first.
- Change only one condition at every time.
- Write down observed changes exactly.

Error detection

Descriptions

The following error reminders are arranged for operating personnel to work on machines of TAM-TAŞ

Measurements made in the rest of instruction book are added.

Thank you for information that you will give for optimal use and development of this list. For this reason, there is an empty table at the end of this section.

Please record your findings and send a copy of them:

TAM-TAŞ

İkitelli OSB.Mah. Heskoop D Blok Sokak

Heskoop Sitesi D Blok no:30-31-32

Başakşehir / İstanbul

Telefon : 0212 / 554 22 66

Faks : 0212 / 643 33 57

For all important errors, texts containing possible reasons and proper measurements have been formed. In occurrence of error, the text below appears on touch screen.

Main Drive

Problem	Possible Reason	Measurements	Safety Measures
Machine not operating	Security protection of jaw may have opened the circuit		Move the jaws till they come to their place by flywheel.
	Control the feeding energy		
	They may be not power	Check fuses	Find reason of error before activation of fuses
	Stop button has remained pressed	Check the button	Release it if so
Machine stopped while it was operating	There may be mechanical tightness		
	Motor may be jammed because of an abraded or broken part		Never re-operate the machine without detection and recovery of problem
	Motor may be jammed because other mechanical parts		Check the mechanical parts
Folding of film as wrongly	Roll of flowpack material may have been opened wrongly		Adjust the position of flowpack and control conic fixing part.
	Stop of flowpack material may be wrong		Adjust stopping.
Rolling flowpack material in a wrong way.			Adjust position of folding tunnel or change flowpack material

SECTION 9

Problem	Possible Reason	Measurements	Safety Measures
Inappropriate film length	Stop of flowpack material may be wrong		Adjust it
			Check the package length value on package measurements screen
			Control the other device of photocell system
			Decrease to value gradually on adjustment page, package measurements screen and observe results
	Photocell may not be working		Control its adjustments and condition
	The pressure of pulling pulley may be insufficient		Increase pressure.
	Jaw waiting adjustment may not be suitable.		Adjust it

SECTION 9

Problem	Possible Reason	Measurements	Safety Measures
Film stuffs leaves from pulleys	Width of flowpack material may not be enough		Control it
	Folding tunnel may not be holding the flowpack material in the middle of it.		Put the bobbin in the middle
	The pressure of pulling pulleys may not be enough		Increase pressure
Irregularity of the film as longitudinally	Working temperature may not be suitable		Adjust in on thermostat
	Pulley may be dirty		Clean them by brass brush
	Between rings and coals may be dirty		Clean by fabric and alcohol.
	Pulley resistance pr termo-couple may be broken		Change them if necessary
Irregularity of film ends as transversal	Working temperature may not be suitable		Adjust it on thermostat
	Jaws may be dirty		Clean them by brass brush
	Between rings and coals may be dirty		Clean by fabric and alcohol..
	Moving parts may not parallel to each other		Adjust it

SECTION 9

Problem	Possible Reason	Measurements	Safety Measures
Irregularity of film ends as transversal	Distance between jaws may not be suitable		Adjust it
	Pulley resistance or termo-couple may be broken		Change them
Irregularity of cut-seal	Jaw bow pressure may be insufficient		Increase pressure
	Blades may be dull		Change it
Machine to give alarm	When warnings are not given spot on photocell 3 times		check your settings and connection spots photocell
	encoder does not work in the desired shape		Check encoder connection
	reel servo error may have occurred		Motor Connection, mechanical compaction, and whether the power supply voltage check.
	Feed servo error may have occurred		Motor Connection, mechanical compaction, and whether the power supply voltage check

In case any circumstance occurs which you can not cope with,
contact TAM-TAŞ

SECTION 9

FILL OUT

Problem	Possible Reason	Measurements	Safety Measures

SECTION 9

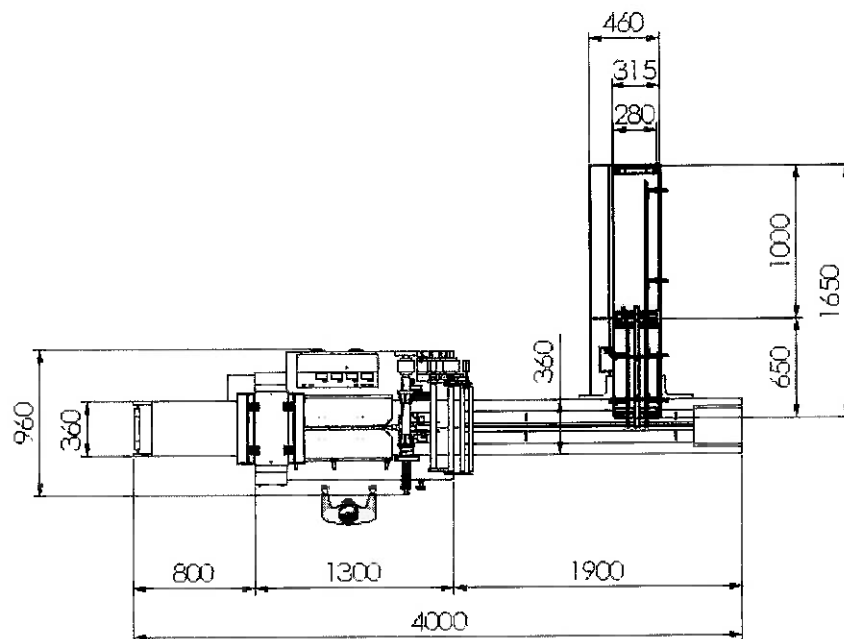
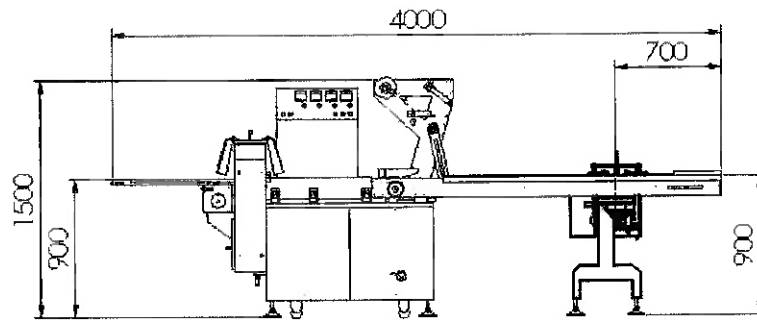
FILL OUT

Problem	Possible Reason	Measurements	Safety Measures

SECTION 10

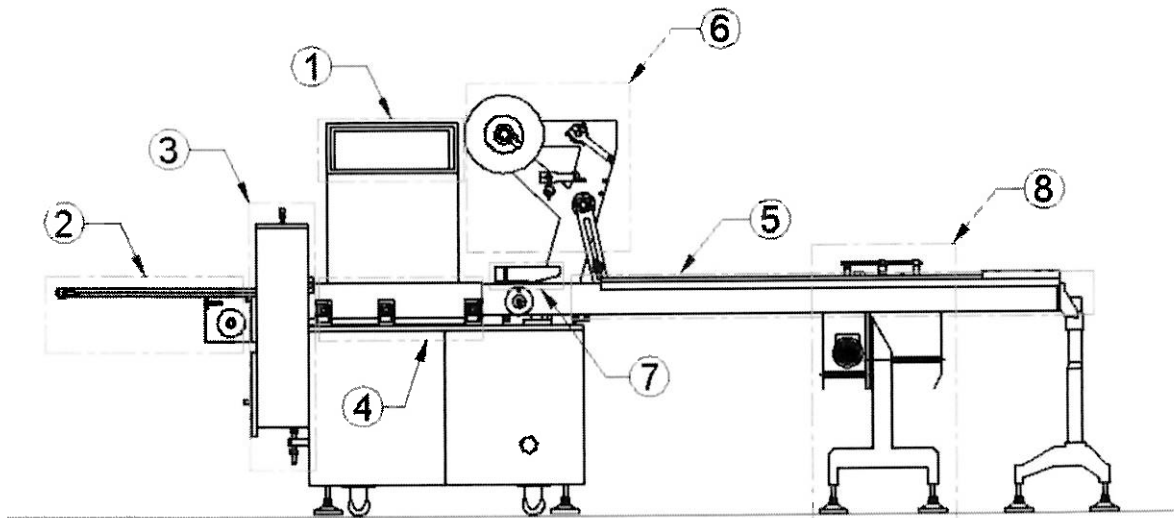
Drawing List
Equipments List

TM 100 Diagram



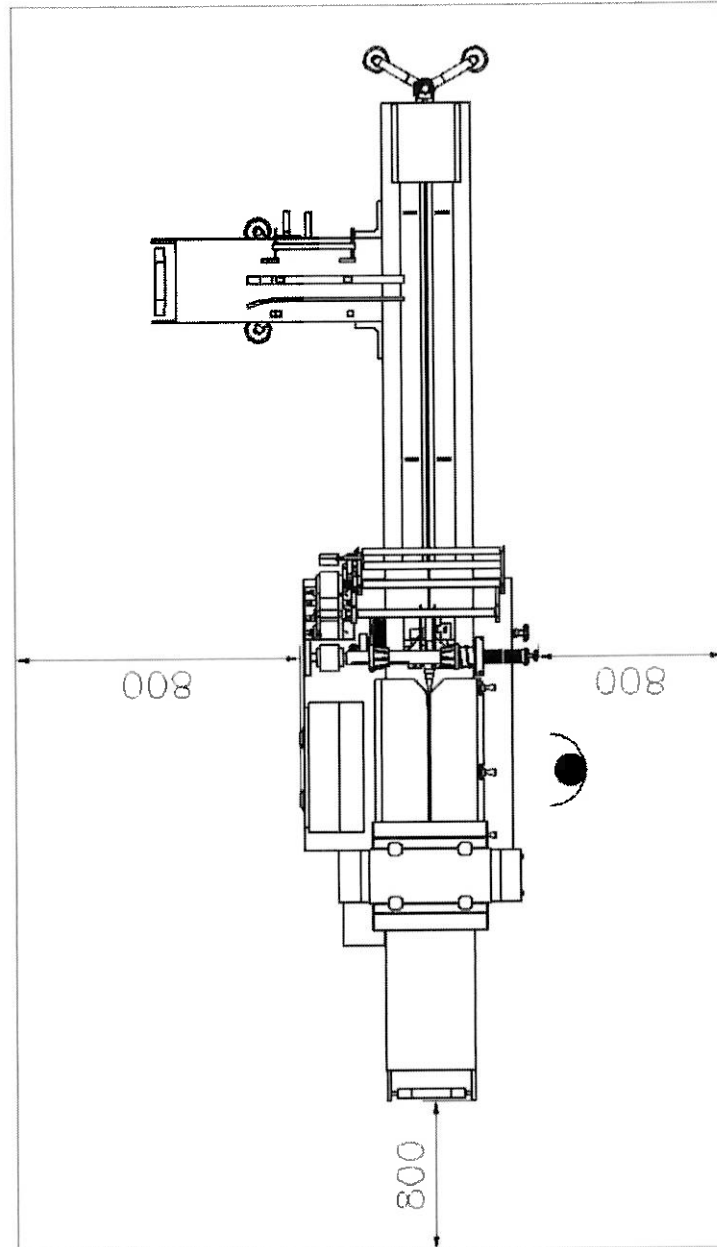
At least, it needs 10 m² space to install the machine.

TM 100 Machine Section's Description



- 1) Control Board
- 2) Output Band
- 3) Jaw Section
- 4) Pulley Section
- 5) Conveyor
- 6) The Film Rolls Section
- 7) Forming Tunnel Section
- 8) Feeding Band

TM 100 Installation Area



SECTION 11

Additions
Special Equipment

Special Equipments

Operating instructions OMRON Encoder E6C2-CWZ1X

Operating instructions Omron NT21-ST121-E Touch Screen

User manuel LS SV-IC5 Soft driver

Operating instructions Omron R88A-MCW151-E Motion Controller Option Card

Operating instructions Omron N1875 Temperature controller