USE AND MAINTENANCE MANUAL

WRAPPING MACHINE

SMART

PLC Version

"TRANSLATION OF THE ORIGINAL INSTRUCTION"

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SALES AGENTS AND SERVICE ORGANISATIONS

The Sales Agent and Service Organisation in your area is:

TO BE FILLED IN BY THE AGENT OR AREA REPRESENTATIVE

The machine subject of this publication was designed by ILAPAK S.p.A. (Nova Milanese; Milano; Italy), which is a company of the ILAPAK group.

ILAPAK ITALIA S.p.A. puts its proper Assistance Service at disposition of the customers in order to solve whatever problem regarding the use and the maintenance of their machines. **The customers can signal their requests to the related commercial ILAPAK companies.**

SPARE PARTS

It is recommended to use exclusively original spare parts.
The requests for spare parts should be made at the related commercial ILAPAK Company, observing the standards contained in the catalogue of the spare parts and nominating always the type and serial number of the machine.

INTRODUCTION

WARNINGS FOR USE OF THE INSTRUCTIONS

PURPOSE AND LIMITS OF THE INSTRUCTION AND MAINTENANCE MANUAL

This manual is destined to all the operators in charge of the use, maintenance and surveillance of the machine during its working life.
The purpose of the manual is to supply the information regarding:

- The technical features of the machine
- The preparation of the working site regarding the environmental characteristics and the feeding sources
- The accident prevention standards, use and calibration of the safety devices
- The use of the machine as provided in the project
- The ordinary and extraordinary maintenance
- The availability of the spare parts

The manual cannot replace the specific preparation, which the operators should have carried out previously on equal appliances or who will be accompanied on this machine by already skilled staff.

KEEPING OF THE MANUAL

The use and maintenance manual is considered integral part of the machine and should be kept for future reference till the final dismantling of the machine.
The manual should always be available for consultation and should be kept with care; in case of damaging which compromises also partially the consultation, the user has to ask a new exemplar to the constructor.

UPDATING OF THE MANUAL

This manual has been prepared at the same time with the realization of the referred machine and cannot be considered inadequate only because successively updated (also for similar machines) according to new experiences.
ILAPAK ITALIA S.p.A. has the right to modify together with its production also the related manuals, without the obligation to update the previous supplied ones. Possible integrations sent to the users, under the form of "**UPDATING",** have to be kept together with the manual.

COLLABORATION WITH THE USER

ILAPAK ITALIA S.p.A. is at disposition of its customer to supply further information regarding the use and the maintenance of their machines as well as considering improving proposals for the manual in order to make them always more suitable to the requirements of the customers.

MACHINE IDENTIFICATION DATA

The main identification data of the machine are printed on the proper plate with the EC marking installed outside the machine.

The plate notes the following data:

- Name of manufacturer and his address
- Type of machine
- Serial number
- Construction date
- Feeding voltage
- Absorbed power
- EC marking

Another plate, fixed inside the electrical panel, notes furthermore the values in relation to the electrical supply

- Serial number of the electrical panel
- Nominal voltage
- Frequency
- Number of phases
- Frequency
- Full load current
- Number of the wiring diagram
- Short-circuit interruption power

NOTE In case of a technical assistance request or an order of the spare parts, nominate always the type and serial number of the machine a/o the data in relation to the electrical supply.

Machine identification

EC STAMPING AND SAFETY STANDARDS

The machine bears the EC stamp indicating conformity with Directive 2006/42/EC, and subsequent modifications, of the European Community Council.

NOTE: The stamp is affixed to the machine nameplate.

The original copy of "EC Statement of conformance" is handed over to the customer at the time of machine delivery.
This document shall be carefully kept by the Customer, and produced upon request by the concerned Authorities.
The "EC Statement of Conformance" is to be considered an integral part of the machine, and shall be transferred to the new owner whenever the machine is re-sold.

SAFETY RULES

The following safety rules should be observed during installation, operation and maintenance of the machine. Lack of compliance with the following rules may result in impaired effectiveness of the machine safety features.

The staff in charge of the use, the maintenance and the surveillance of the machine should be instructed by the employer regarding the accident risks, the safety devices installed on the machine and the general accident prevention rules, provided by the international norms and the laws of the country where the machine is installed.

ILAPAK denies any liability for machine damage or injuries to the operator third parties arising from the lack of compliance with the safety rules listed hereafter.

- **MACHINE DISPLACEMENT DURING INSTALLATION MUST BE CARRIED OUT ONLY BY SPECIALISED PERSONNEL, AND BY USE OF SUITABLE LIFTING AND TRANSPORTATION EQUIPMENT.**
- **MAKE SURE THAT ALL NECESSARY PRECAUTIONS ARE TAKEN DURING LIFTING OR TRANSPORTATION OF THE MACHINE, AND THAT ALL THE INSTRUCTIONS CONTAINED IN THIS MANUAL ARE CAREFULLY ADHERED TO.**
-  **MACHINE CONNECTION TO THE ELECTRICAL POWER MEANS SHALL BE CARRIED OUT ONLY BY SKILLED PERSONNEL.**
-  **BEFORE CONNECTING MACHINE TO THE ELECTRICAL POWER MAINS, MAKE SURE THAT THE MAINS ELECTRICAL CHARACTERISTICS CORRESPOND TO THOSE SPECIFIED ON THE MACHINE NAMEPLATE. ALSO, MAKE SURE THAT THE MAINS IS PROVIDE WITH A SUITABLE GROUND WIRE, AND THAT THE VOLTAGE MEASURED ON THE NEUTRAL WIRE IS ZERO.**
-  **THE WIRES OF THE ELECTRICAL CONNECTION CABLE SHALL HAVE A MINIMUM CROSS-SECTION OF 4 SQUARE MM.**
- **THE MACHINE SHALL BE OPERATED ONLY BY SKILLED AND AUTHORISED PERSONNEL.**
- **THE MACHINE OPERATOR SHALL MAKE SURE THAT ALL THE INSTRUCTIONS GIVEN IN THIS MANUAL ARE CORRECTLY FOLLOWED.**
-  **JAW MOTION REPRESENTS THE GREATEST DANGER FOR THE OPERATOR WHEN THE MACHINE IS RUNNING. IN ORDER TO PROTECT THE OPERATOR, THE MACHINE IS PROVIDED WITH A SAFETY DEVICE THAT PERMITS MACHINE OPERATION ONLY WHEN THE PROTECTION GUARDING ARE CLOSED.**

-  **IN CASE OF MAINTENANCE OR REPAIR ACTIONS REQUIRING THAT THE MACHINE OPERATES WITH PROTECTION GUARDING OPEN (SAFETY DEVICE CUT OUT), PROCEED WITH EXTREME CAUTION TO PREVENT HAZARDS OR INJURIES TO THE OPERATOR.**

-  **IN CASE OF DANGER FOR THE OPERATOR, OR WHENEVER IT IS NECESSARY TO IMMEDIATELY STOP THE MACHINE, PRESS THE RED EMERGENCY STOP PUSH-BUTTON. THIS BUTTON STOPS THE MACHINE AT ONCE IRRESPECTIVE OF THE KIND OF WORKING OPERATIONS IN PROGRESS.**

- **THE USER IS RESPONSIBLE FOR THE OPERATIONAL SAFETY OF ANY AUXILIARY EQUIPMENT NOT SUPPLIED BY ILAPAK.**

- **ANY ACTION ON THE MACHINE WHICH MAY INTERFERE WITH THE SAFETY DEVICES IS CARRIED OUT AT THE OPERATOR'S RISK.**

-  **IN CASE OF MAINTENANCE OR REPAIR ACTIONS REQUIRING OPENING OR DISABLING OF PROTECTIONS, PROCEED WITH THE UTMOST CARE AND IMPLEMENT ALL THE APPLICABLE SAFETY MEASURES. THESE ACTIONS SHALL BE CARRIED OUT ONLY BY AUTHORISED PERSONNEL.**

-  **MAKE SURE THAT THE ELECTRICAL POWER SUPPLY IS DISCONNECTED AND THE PNEUMATIC SYSTEM IS DISCHARGED BEFORE CARRYING OUT ANY ADJUSTMENT/CALIBRATION OF THE MACHINE.**

-  **MAKE SURE THAT THE MACHINE IS DISCONNECTED FROM THE ELECTRICAL POWER MAINS BEFORE CARRYING OUT ANY CLEANING OR LUBRICATION OPERATION. POSITIVELY AVOID DIRECTING WATER JETS ON THE MACHINE, INSIDE IT, ON THE CONTROL PANEL, AND ABOVE ALL INSIDE THE ELECTRICAL CABINET.**

- **DO NOT EMBODY MODIFICATIONS IN THE MACHINE WITHOUT PRIOR AUTHORISATION BY ILAPAK.**

- **ANY MODIFICATION SHALL BE EMBODIED BY ILAPAK AUTHORISED PERSONNEL ONLY, AND RECORDED IN THE APPLICABLE TECHNICAL DOCUMENTATION. ANY TAMPERING OF THE MACHINE, OR MODIFICATION PERFORMED BY THIRD PARTIES VOIDS ANY RESPONSIBILITY OF ILAPAK IN CASE OF MALFUNCTION OR INJURY TO THE OPERATOR.**

CLOTHING

The clothing of the operator or the person, who carries out maintenance on the machine should be according to the legal safety rules in the country of application. In general, the operator should wear accident prevention shoes, and it is forbidden to wear moccasins, clogs, slippers or any kind of footwear that could compromise the mobility of the person. Use proper thermo-protective fireproof gloves when working in areas, which are characterised by heat emission.

NOTE: The parts of the machine that can reach high temperatures (even up to 250°C) are the seal cutting group and the sealing rollers.

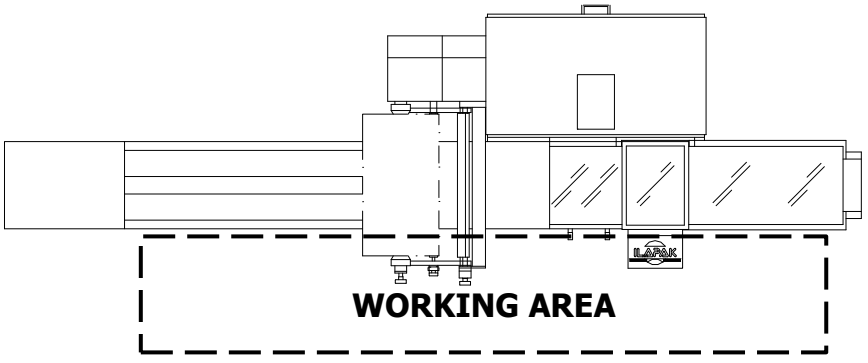
NOTE : When working on the machine, don't wear bracelets, watches, rings or chains which can dangle or hinder movements. Pay maximum attention, when working near moving parts of the machine, that the proper clothing is suitable and avoid hitching up with these devices (sleeves, shirt tails, hair, etc.)

ACCESS TO THE WORKING ZONE

The working area should **never** be occupied so that nothing interferes with the freely movement of the operator. The immediate access to the machine from the staff in charge should be guaranteed in emergency cases.

It is forbidden to have access to the working area to people who are not directly in charge with the operation of the machine. This should be signalled with proper signs.

ATTENTON During the maintenance operations, in particular way when you work with protections or disconnected safety devices, it is necessary to pay the maximum attention that the working area is not accessible to people, who are not directly in charge with these operations. At the end of the maintenance interventions verify that no used tool remains inside the accident prevention guards or inside the working area.



MACHINE USE DESTINATION

MACHINE APPLICATION

THE CARRERA 500 PC IS A HORIZONTAL WRAPPING MACHINE CONTROLLED BY PC WITH ROTATING SEALING JAWS.
MULTI-AXLES TECHNOLOGY WITH 3 INDEPENDENT MOTORIZATIONS FOR: FEEDING UNIT, PULLING ROLLERS, LONGITUDINAL SEALING AND ROTATING SEALING JAWS
THE WRAPPING MACHINE MODEL CARRERA 500 PC IS DESIGNED TO WRAP FOOD PRODUCTS AND INERT MATERIALS.
IT MAY NOT BE USED TO WRAP PRODUCTS WHICH MIGHT REPRESENT A SAFETY HAZARD FOR THE OPERATOR OR SEVERELY DAMAGE THE MACHINE

- **POSITIVELY DO NOT WRAP GAS-CONTAINING BOTTLES, CONTAINERS OR JELLIES OF THE FOLLOWING MATERIALS: GUN POWDER OR SIMILAR MATERIALS, FLAMMABLE FLUIDS, GLUES, SOLVENTS, ETHER, ALCOHOL, GASOLINE, CATALYST AND CORROSIVE ACIDS, ETC.**

- **POSITIVELY DO NOT WRAP ANY CHEMICALS OR OTHER MATERIALS WHICH MAY REACT AT THE SEALING TEMPERATURES AND RELEASE POISONOUS, FLAMMABLE OR EXPLOSIVES GASES, ETC.**

THE MACHINE SHOULD BE USED FOR THE WRAPPING WITH EXACTLY DEFINED CHARACTERISTICS AND WITHIN THE LIMITS ESTABLISHED BY THE SUPPLYING CONTRACT, DRAWN BETWEEN THE PURCHASER AND THE CONSTRUCTOR. THE USE OF THE MACHINE TO OBTAIN HIGHER PRODUCTION VALUES OR DIFFERENT FROM THE ESTABLISHED ONE IS CONSIDERED AS AN IMPROPER USE AND THE CONSTRUCTOR DENIES EVERY LIABILITY FOR DAMAGES CAUSED TO THINGS OR PEOPLE AND DOESN'T ACCEPT ANY KIND OF GUARANTEE ON THE MACHINE.

ILAPAK DENIES ANY LIABILITY DERIVING FROM IMPROPER USE OF THE MACHINE.

VALUATION OF RISKS

Risks linked to the installation site of the machine

On the installation site of the machine there can be some risky situations, which could compromise the correct operation.

FLOOR

The surfaces where the machine is placed on should guarantee during time the correct placing and levelling; for example some asphalt floor under high temperatures condition and in presence of soluble liquids can present an accelerated wear and tear with possible formation of holes corresponding to the supporting points and therefore making the machine position unstable.

TEMPERATURE

The established environmental temperature should be guaranteed (from 2 to 35 °C); high temperature peaks could cause machine operation problems (for example cooling difficulty of the motors).

POLLUTING MATERIAL

The potential damage coming from the use in the working area with polluted material should be preventively valuated; for example:

- DUST which could accelerate the wear and tear of the seals;
- PVC which thermal degradation, generating HCl, can cause aggressive emissions of the metal surfaces without proper protections.

MAGNETIC FIELDS,

Determined by the passage of electrical power lines near the electronic appliances installed on the machine. They can cause disturbances and malfunctioning.

WARNING The user should assure the suitability of the installation place of the machine, in order to save its integrity during time.

RISKS LINKED TO THE FEATURES OF THE MACHINE

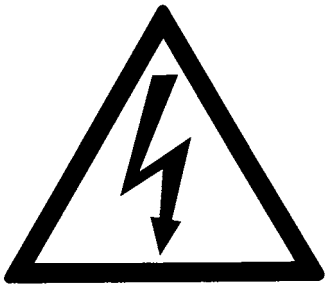
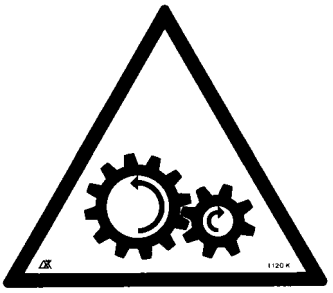
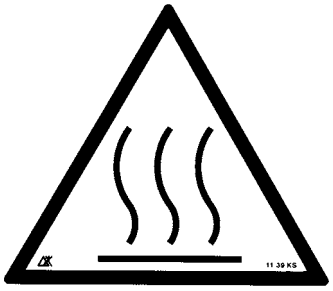
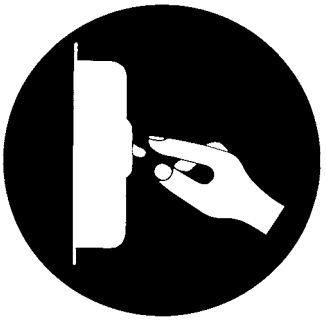
According to the 2006/42/EC standards, all the areas of the machine characterised by intrinsic with the working process or with the structure of the machine have been analysed. The most suitable measurements have been taken to reduce, as well as to eliminate possible risks to people in charge, equipping the machine with a series of standard protections, fixed and movable, which stop the access to the dangerous areas during the working. However, the best safeguarding for the operator's safety is that the operator himself pays attention and has a good sense and that the greatest experience during time using the machine, can improve the safety margins during the operation.

RESIDUE RISKS ZONES AND OPERATIONS

The areas of the machine or the procedures, which, even with suitable safety measurements present a high danger degree are defined residue risks, for example the presence of high voltage, high temperature or moving parts. All the areas with residue risks have been marked with proper name plates according to the ISO standards;

WARNING SIGNS

In compliance with the EC regulations, and in order to highlight the machine areas requiring special operator's attention, or involving particular hazards for operator safety, the following warning signs are used.

		
LIVE LINE		**MOVING GEARS**
		
	HOT SPOT	
		
CUT/SEVER HAND AND FINGERS		**PUT TENSION OFF BEFORE WORKING INSIDE**

RESIDUE DANGERS

-  **DANGER OF ACCIDENT DURING THE LIFTING AND TRANSPORT**
  Indication of the point where to introduce the forks of the forklift on the pallet used for the transport of the machine.

-  **DANGER OF CONTACT WITH HOT SURFACES**
  These instructions prescribe the use of the specially provided DPI. The related danger sign appears near the hot areas.

-  **DANGER OF SQUEEZING - INFEED CONVEYOR END**
  There is the danger that your hands may caught and crushed where product lugs return upward at the end of the infeed conveyor. Therefore, avoid working in this area, and pay much attention if working there cannot be avoided.

-  **DANGER OF SQUEEZING - ADJUSTMENT OF PRODUCT GUIDES**
  Adjustment of the product guides shall be such as there is a gap of less than 5 millimeters or of more than 25 millimeters between the guide and the pusher.
  If the product to be wrapped requires that the distance between the guide and the pusher is set a value between 5 and 25 mm, pay much attention as you run the risk that your hands are caught between the guide and the pusher.

-  **DANGER OF SQUEEZING - CONVEYOR AREA**
  Lug overturning creates a serious danger for your hands. They may be crushed. Pay much attention when working in this area.

-  **MANUAL HANDLING OF LOADS: FILM REELS CHANGE**
  The loading of reels weighing between 18 and 36 kg shall be made by two people.
  Load the heavier reels by use of a suitable equipment (not supplied with the machine).

-  **DANGER OF SQUEEZING – FILM INTRODUCTION**
  The operations related to the film introduction and unwinding in the area of the film unwinding rollers have to be carried out very carefully and with stopped machine in order to avoid danger of hand squeezing and hand trapping

-  **START WITH STAFF IN THE DANGEROUS AREAS**
  The access for maintenance inside the machine body is protected by key-locked guarding doors.

ENVIRONMENTAL USE CONDITIONS

NOISE LEVEL

The noise emitted by the wrapping machine during operation is 73 dB as resulting from the measurements carried out by using a sample machine.

TEMPERATURE AND HUMIDITY

The machine can be used in rooms with room temperature included between 2 and 35 °C and with a related humidity lower than 80 %.

OPERATIONAL SITE

The machine should be used protected against atmospheric conditions (rain, hail, snow, fog, etc.). Should the machine be used in corrosive sites, it is necessary to intervene on the modality and the maintenance periods, adapting it in order to avoid an excessive wear and tear of the components.
The machine should not work in explosive places and has to be installed in an area not classified according to the Directive ATEX 1999/92/CE.

ILLUMINATION

The room where the machine is placed should be illuminated in such a way to individuate easily the buttons and the devices for the control and the emergency stop.
The illumination should allow carrying out under safety condition the ordinary maintenance operations; the user should carry out these interventions according to the legal rules regarding the modality of the illumination.

VIBRATIONS

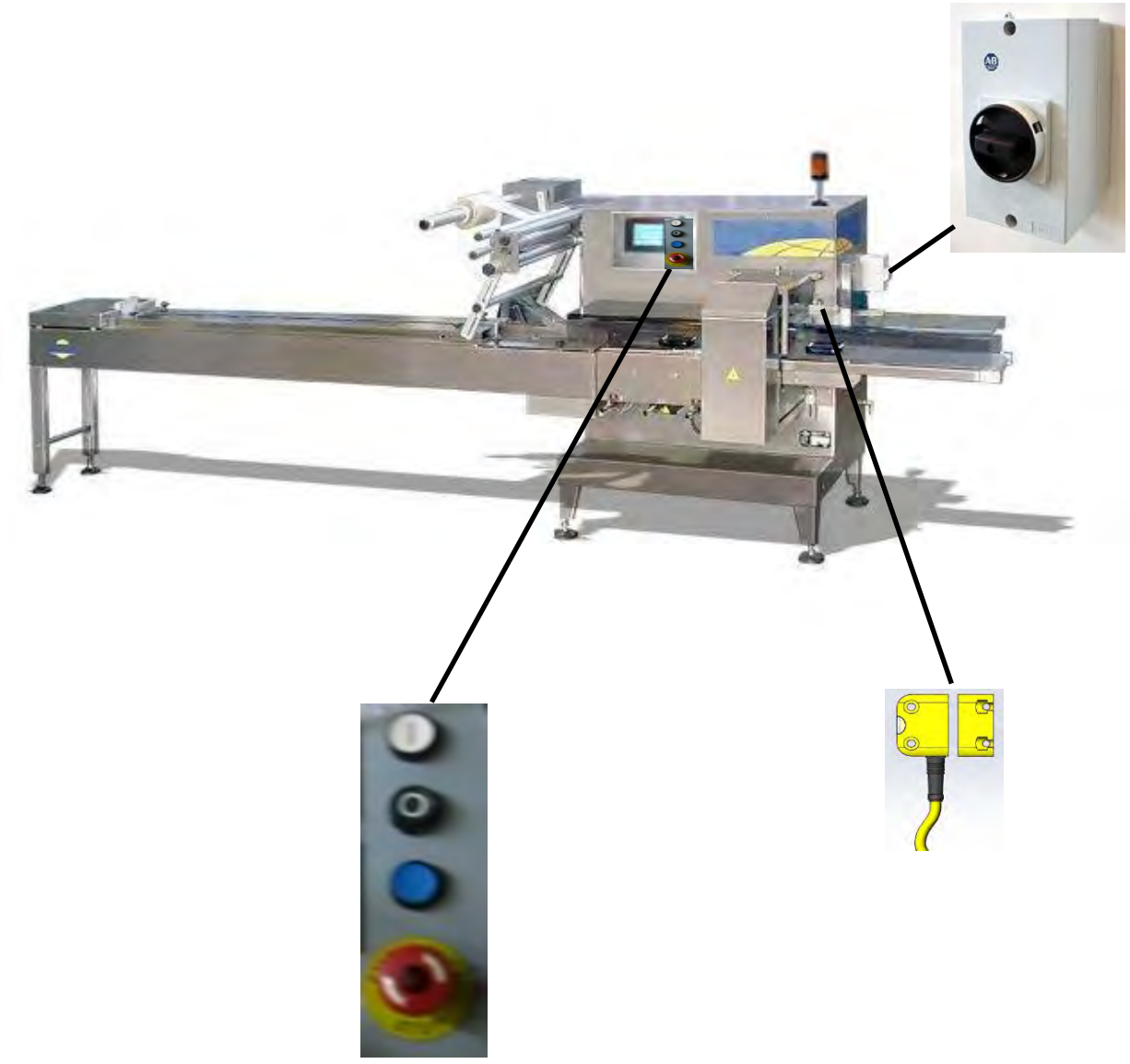
Under normal use conditions, following the indications from this manual, the vibrations may not cause danger situations. In case of anomalous vibrations, stop immediately the machine and get in touch with the assistance service.

RESIDUE AND ENVIRONMENTAL CONTAMINATION

If the used material for the production is elaborated according to the recommendations of the constructor, there won't be noxious substances, as regards the EN 626-1 standards. In case of using toxic or noxious plastic materials, the user has to install proper fume aspiration hoods and the training of the operators for a correct treatment of these materials. The user should observe the legal standards and community rules also for the treatment and the lubrications used on the machine.

SAFETY DEVICES

The safety devices fitted to the machine are shown in the following picture.
When the safety guards are opened while the machine is in operation, pilz stops the main motor and cuts off the power supply.
When pressed, emergency stop buttons interrupt machine operation and cut off the power supply.
Main switches is a safety device that cuts off electrical power supply to all machine components when the door of the electrical cabinet is opened.



MACHINE INSTALLATION

INSTALLATION SITE REQUIREMENTS

The machine should be installed on a supporting floor that can bear the weight of the machine on the several supporting points, without a decline during time; furthermore the floors should be on spirit level, non-slipping and shouldn't present roughness
The installation site should allow the operator to go around the machine without any hindrances and to carry out easily the normal working operations and service operations (maintenance and interventions on the machine). Furthermore it is extremely important, that the protection guards and the doors of the electrical power boards can be opened without hindrance and in a complete way. For this purpose the **minimum** distance according to the building walls or to a possible hindrance should be about 2 meters.

EXTERNAL INSTALLATION REQUIREMENTS

The installation site should be prepared for the connection of the electrical installation, the earthing, the pneumatic installation and possible coolant installation of the machine to the outside net. The electrical and earthing installation of the installation site should be realized according to the standards.

UNPACKING

The machine is shipped using packaging or proper protection means according to the used kind of transport; pay particular attention when unpacking in order to avoid damages to people or to the machine and to dismantle the packaging materials according to the legal rules in force in the country where the machine will be used.
At receipt, control visually regarding possible damaging deriving from the shipment or missing parts.
In case of damaging or missing part, get immediately in touch with the forwarding agent.

MACHINE UNPACKING AND POSITIONING

ATTENTION The lifting operations of the parts composing the machine should be carried out by staff in charge of these functions (crane operators, truck drivers, etc.) and with the assistance on the ground by a person in charge with the signalling if the overall dimension of the load doesn't allow a sufficient visibility; the staff should be equipped with the necessary individual accident prevention protections.

The access to the area where the lifting operations are carried out is forbidden to the staff, who is not in charge with this operation, using the most proper means (barriers, signs, etc.). The capacity of the used lifting means should be suited to the mass to be moved; the movement should be carried out slowly under good illumination conditions and with sufficient free space to work under safety conditions.

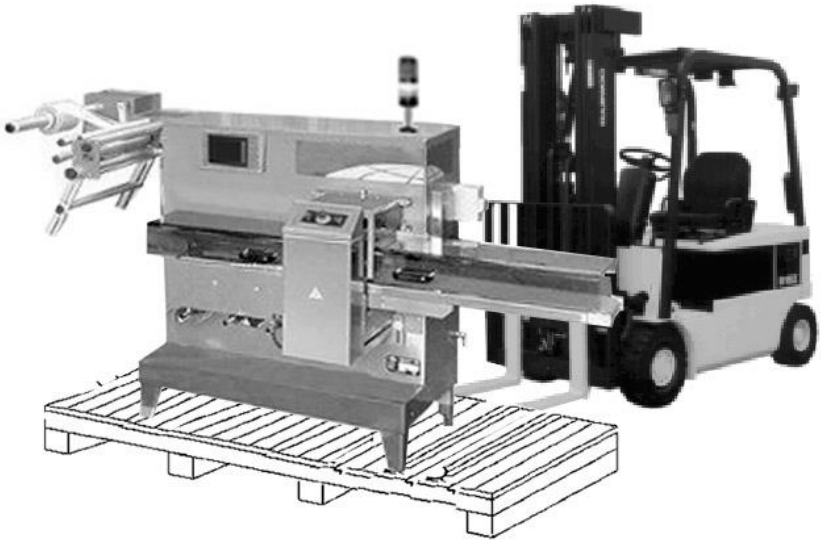
For no reason, the staff in charge with the operations is authorized to pass under the load or at its proximity. This is valid also for the staff in charge with the signalling on the ground.

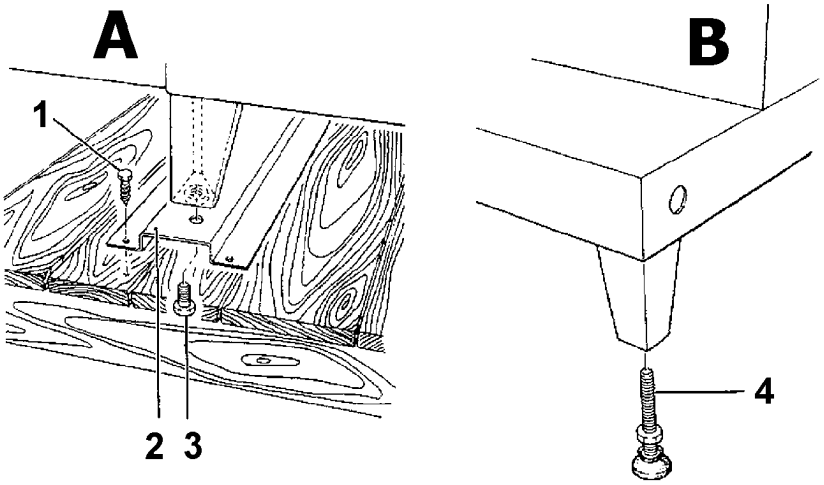
Carefully follow this procedure when unpacking and positioning the machine:

- Remove covers and protections, if any from the shipping crate
- Remove the infeed conveyor.
- By use of suitable equipment , lift the pallet to which the machine is secured, taking care to operate from the back side in order to avoid any risk of machine overturning.
- The lifting points of the forks are indicated on the pallet.
- Carry the pallet to the location where the machine is to be installed, and lower it to the ground.
- Remove the screws (1) attaching the support channels (2) to the pallet.
- Operating from the back of the machine, position the forklift under the base plate, and lift the machine at a height sufficient to permit pallet removal.
- Remove the four bolts (3) that attach the support channels to the machine, and replace them with the four adjustable feet (4).
- Lower the machine to the ground, remove the forklift, and carry out machine levelling as described in the following paragraph

ATTENTION: ☺ **SCRAP PACKING IN THE FIT DUMP**

☹ **DON'T LEAVE PACKING IN THE ENVIRONMENT !!**





OPERATE FROM BACK SIDE

1. Attachment Screw,
2. Support channel to Pallet
3. Support Channel Attachment Bolt, Support Channel to Machine
4. Adjustable foot

WARNING The instructions supplied in this chapter are a synthesis of the procedures established during the assembling of the machine and are destined to technical staff, already in possession of the necessary knowledge for this operation. However the staff should always be accompanied by specialised ILAPAK staff. The purpose of these instructions is to supply a general description of the methods, used for the connection of the main groups, composing the machine.

LEVELLING

The machine has to run in perfect horizontal direction and should transmit only a minor quantity of possible vibrations on the floor where it is installed; for this purpose, after having placed it on the operation site, proceed with the levelling acting on the proper supporting feet on the base and acting on the four adjustable feet, using as reference the counter plane. At the end of the procedure, block the four feet by means of the related lock nuts.

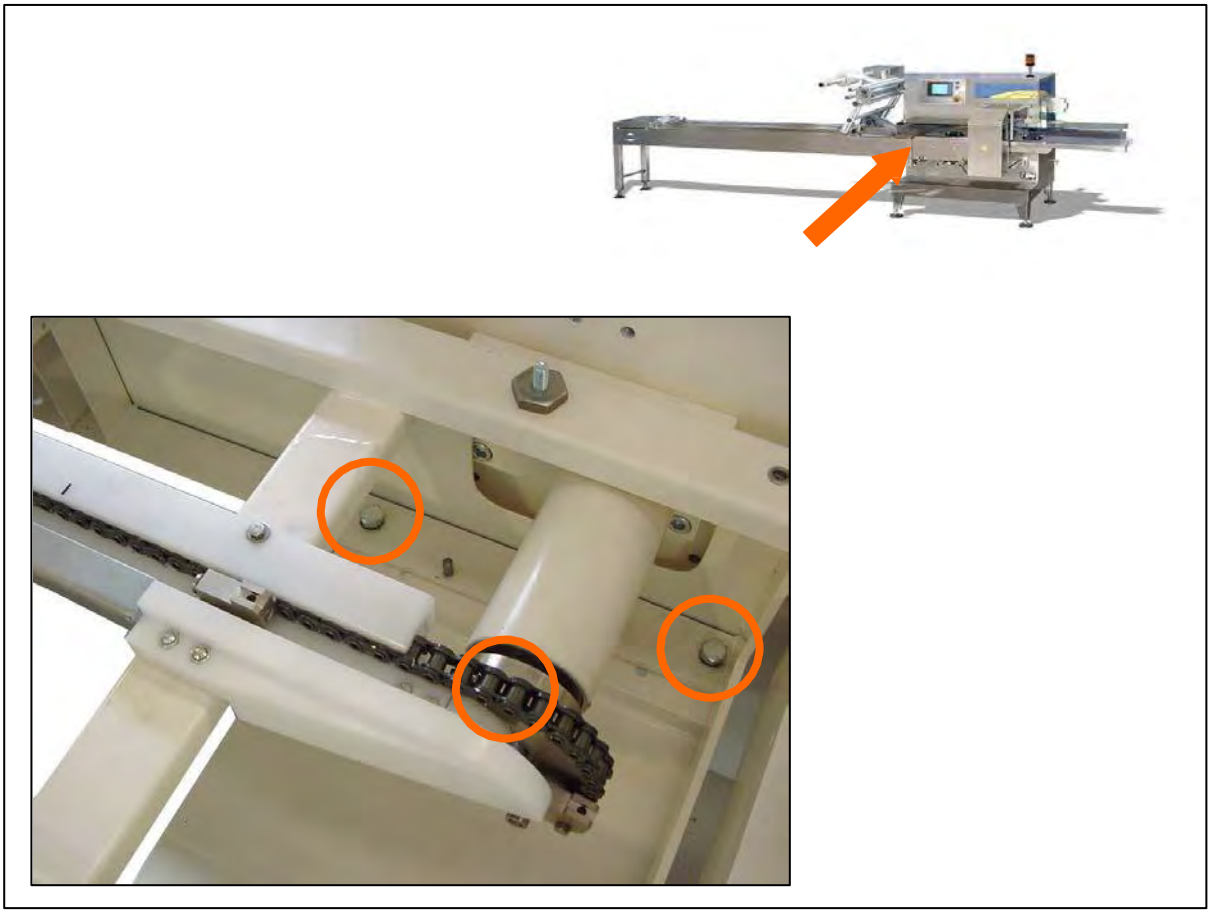
WARNING The levelling of the machine should be carried out with exact precision in order to avoid torsion phenomenon, an incorrect parallelism of the planes and unexpected loads on the elements. The constructor declines each responsibility for damages or malfunctioning of the machine, deriving from an incorrect levelling or from a missing execution of the established periodical checks.

Fix the machine on the floor bolting the proper supports .

ATTACHMENT OF INFEED CONVEYOR

Attach the infeed conveyor according to this procedure:

- Place the infeed conveyor on its support casting on the machine body making sure that it rests on the casting correctly.
- If necessary, level the infeed conveyor by adjusting the two support feet.
- Insert the two paper pins for infeed alignment (these pins are supplied with the machine) then install the four attachment bolts with their washers

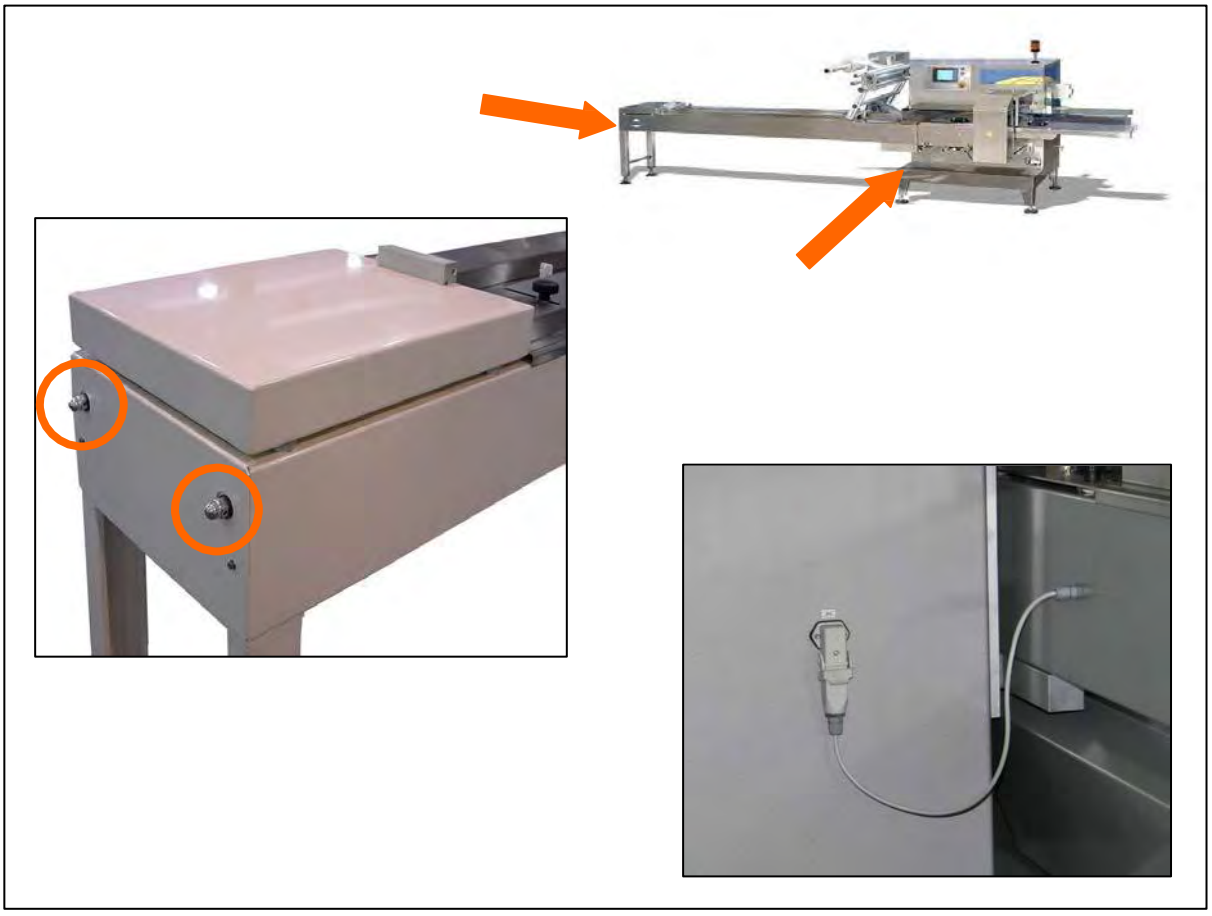


- Connect the infeed conveyor chain by following the next procedure:
- Remove the four nuts and remove the end guard from the infeed conveyor.
- If necessary, slacken the chain using the two side tensors.
- Join the chain ends on the sprocket by use of the special link and the relevant retaining clips.

- Adjust the chain tension by use of the special side tensors, making sure that the chain is not too tensioned, and that distance "X" measured between the end of the tensor and the sprocket shaft is the same for both tensors.

CAUTION. A too tensioned chain may result in bending of the sprocket shaft and damage to the infeed conveyor.

- Plug the electrical connector of the auxiliary control panel of the infeed conveyor into socket on the left (or right) side of the machine



HANDLING

After the first installation of the machine the wrapping machine has to be handled according to the following indications:

1. Machine not barycentric, nor longitudinally, nor transversally;
2. Use the pallet equipped with the machine;
3. Introduce the forks in the indicated points on the pallet;
4. Provide a protection cage if the machine could undergo collisions during the transport.

ELECTRICAL SYSTEM CONNECTION

CAUTION: Connection of the machine to the electrical mains power is carried out by the user under his/her full and sole responsibility, and in compliance with the following instructions:

1. Make sure that the mains power characteristics correspond to those of the machine.
2. Open the electrical cabinet and connect the power supply wires to the terminal board by referring to the applicable interconnection diagrams shown in Section wiring diagrams of this manual.
3. Connect the end of the power supply cable to a mains circuit breaker (thermal or magnetic) according to the machine connection sequence.

EARTHING

The machine should be earthed by means of a centralised line, available on the installation site. The main earthing joint with the outer line is realized inside the electrical board.

PNEUMATIC SYSTEM

The machine pneumatic system is designed to the closing of sealing – propelling rollers

In addition to other optional devices such as:

- Air gusseting
- Quality Control

The system is fed directly from the air supply line available at the machine installation location, through the filter-pressure regulator that is normally set at a pressure of 6-7 bars.
The system is fully controlled by selector valves whose closing and opening is electronically commanded according to the operating parameters set by the operator.
Each selector valve is also fitted with a pressure regulator that regulates the compressed air discharge pressure.

COOLANT INSTALLATION CONNECTION (OPTIONAL)

The machine can be equipped with a coolant installation, provided with a specific water input and output; Check that the water inlet and outlet pipe on the machine are correctly connected from the distribution block to the users.

CLEANING

Carry out an accurate cleaning of the machine at the end of the installation; remove the dust and the present residues with particular care to the sliding surfaces. Furthermore check that there aren't any oil remnants near the tank of the lubrication installation.
Use a compressed air blowing device and a dry cloth for the cleaning in order to remove the dust and also a non-aggressive solvent.

MACHINE DEMOLITION

The machine demolition should be performed by staff specialised in the electric and mechanic field. The standards in force concerning these operations are often different in the various Countries, so it is recommended to analyse and apply all the provisions stated by laws at the moment the machine is to be dismissed. The machine has been realised using non-dangerous materials, (steel, plastics, rubber), which won't give any problems for recycling or disposal at the end of the service; anyway, it is necessary to have a deep knowledge of the machine construction features and great technical skills to disassemble the machine, besides the specific tools. It is strongly recommended to contact ILAPAK assistance service, in order to obtain the maximum safety conditions in carrying out this job.

WARNING It is necessary to provide for the oil recovery and its differentiated disposal according to the antipollution standards.

MACHINE CONTROLS

PUSH BUTTONS AND OTHER ELECTRO-MECHANICAL DEVICES

Push buttons and switches are located on the console except for the mains isolator switch on the door of the electrical cabinet on the rear of the machine.

White push button POWER UP / START (3)
With the mains isolator on, powers the machine up or resets power after one of the following events:

- use of the EMERGENCY STOP push button
- opening of an interlocked guarding during operation of the machine
- mains cut-off

Sets the machine in motion after powering up; in specific conditions executes also the following functions:

- reset an alarm or error message on the display screen
- initialises co-ordination (synchronisation) of the "axes" when in a non-synchronised condition.

NOTE: Synchronising of the axes will take place automatically upon pushing the START button, each time the axes are not any more in their "normal" positions, in particular after:

- turning on the mains;
- a mains cut-off;
- a size change;
- operating one single axis separately;
- a film rupture;
- operation of the "electronic safety clutch", i.e. when a product has got caught in the sealing jaws.
- co-ordinated start of all motors (under normal operating conditions); the machine will accelerate continuously up to the speed set on the speed control potentiometer.

Black push buttonPOSITIONAL STOP (1)
makes the machine come to a halt in a pre-defined position with open sealing jaws (so that the film will not be burnt). Normally, after pushing this button the machine will reduce speed and approach the correct position at lower speed.

Emergency stop button EMERGENCY STOP (2)
Stops the machine with **IMMEDIATE** effect independent of its momentary position;
In agreement with EC- and other international regulations the operation of the emergency stop push button has the following effects:

- Power off the complete machine;
- cut all outputs from the electronic control system;

NOTE: The emergency stop button must not be used other than in case of **real danger or any other emergency situation** necessitating an immediate machine stop.
Using the emergency stop button for "normal" machine stoppages violates the safety regulations and may lead to damage on the machine and/or the products to be wrapped.

Blue button (4)
reset

SIGNAL LAMPS

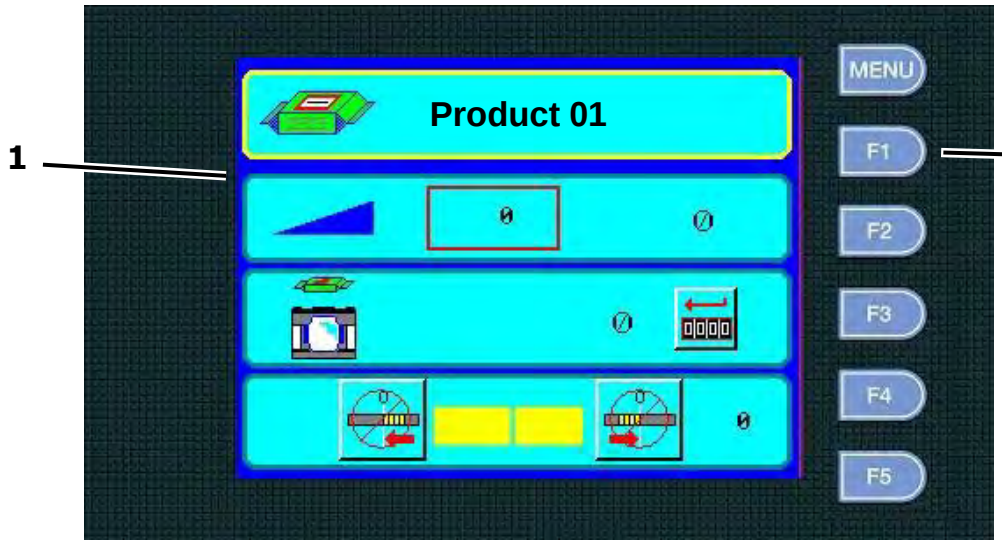
The signal lamps are located on top of the machine in the form of a "light column" and are intended to signal different machine conditions which are detailed below:

- **Orange Light**
  flashing
  For machines with automatic product indexer: machine in standby mode, i.e. machine will start automatically upon arrival of products.
- **Green Light**
  For machines with normal work
- **White Light**
  For machines with stop:You may stop the machine by pushing this button.

USER INTERFACE

DISPLAY

The display screen is divided into the following main areas:

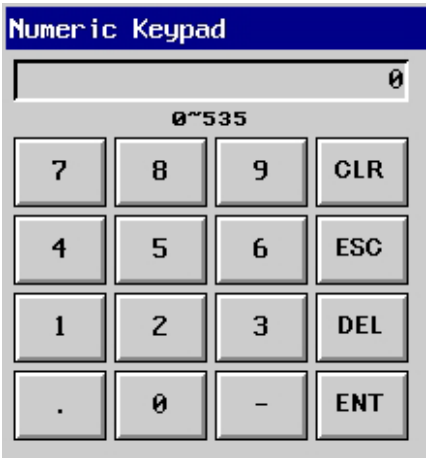


1. **Area of adjustments and data display**
   This area displays selected menu page with the parameters and their "values" (i.e. settings).
2. **Area of operative buttons** with permanently allocated functions.

OPERATIVE KEYS

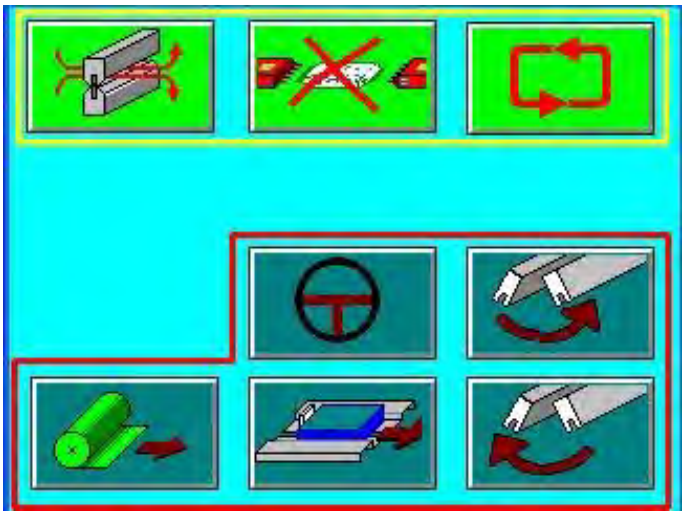
Button	Description
	Key displaying "Operative keys" list.
	Key displaying "JOG" page.
	Key displaying "MAIN" page.
	Key displaying "INDEX" page.
	Key displaying "ACCESSORIES" page.
	Key displaying "SERVICE" page.

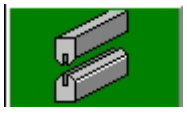
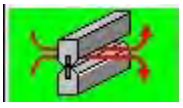
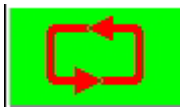
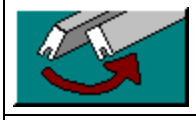
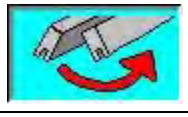
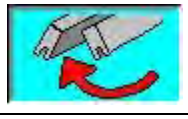
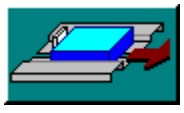
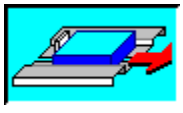
MULTIFUNCTIONAL KEYBOARD



0 … 9	Keys for insertion of numerical values.
-	Key for insertion of sign "–" (minus) for negative value (– nn).
.	Key for insertion of sign "." (full stop, comma) for decimal values.
CLR	Key deleting the ALL the numerical values entered.
ESC	Press to exit from the keypad without saving.
DEL	Key deleting the LAST numerical value entered.
ENT	Confirm Key.

JOG PAGE



Deactivated	Activated	Description
		Function used for the test phases and the service operations at the machine. With deactivated function during the machine running, all the axes of the machine are rotating synchronized, while the jaws remain in complete opening position. Also the jaw closing movement is activated with this key.
		No-product / no-bag: enables and disables the function which prevents the machine from producing empty bags if one or more products are missing from the infeed.
		Selection of operating mode (“Manual” or “AUTOMATIC”); (only in combination with an OPTIONAL automatic product indexer).
		Active the function “JOG” (impulse motion)
		Moves forward axis “jaws”, in slow motion, independent from the other motors, **activated** only with pressed key and while the machine is stationary
		Moves reward axis “jaws”, in slow motion, independent from the other motors, **activated** only with pressed key and while the machine is stationary.
		Moves forward axis “product infeed” in slow motion independent from the other motors; **activated** only with pressed key and while the machine is stationary.
		Moves at the same time the film unwinding roller, the longitudinal sealing rollers and discharge belt forward in slow motion independent from the other motors; **activated** with pressed key only and while the machine is stationary.

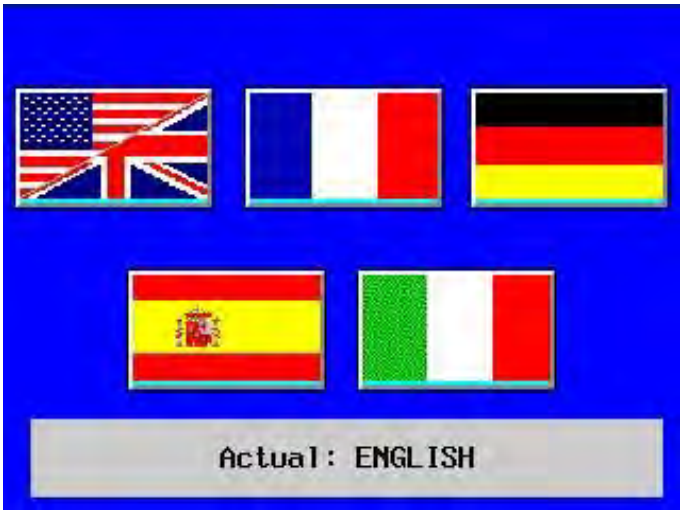
PRELIMINARY OPERATION

LANGUAGE SELECTION

Within limits the language of the operator interface can be selected and/or changed.
In order to turn on a different language from the one appearing upon power up proceed as follows:

- With key F5 open SERVICE page;

- Touch key "**Language selection**".
- In the window listing the available languages select the desired language.



USER PASSWORD

The "Master" password (set by manufacturing company) is supplied at delivery of the machine.

The setting of this code also allows the creation of a new user password (to be set directly by the user and called password "operator"), and after its setting, it allows to carry out the same operations which can be executed by means of the "master" password (included the creation of another new password).

Therefore the main aim of the "master" password is to re-enter the functions protected by means of the code, in case password "operator" , entered by the user of the machine, will be forgotten.

The "Master" password should therefore be accessible by the person in charge of the production, only.

NOTE: Without password the operator is always entitled to changing data temporarily, however, without memorising them and thus overwriting existing data.

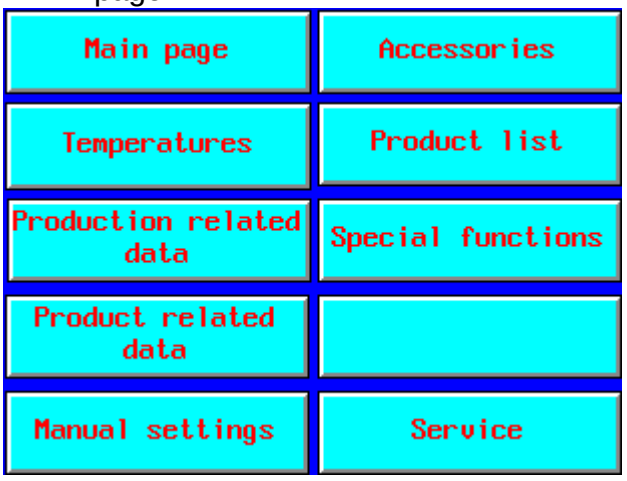
The following table lists those functions that are accessible with each protection level.

PROTECTION LEVEL	ACTIVATED FUNCTIONS
Password "Operator" **(defined by the user – initially the code set by the factory is 33333333)**	– Page "PRODUCTS LIST" **Save**  **, test.**
Password "Master" **(defined by ILAPAK and can't be modified 00251200)**	– exceeds the password "Operator" defined by the user – same functions of password "Operator"

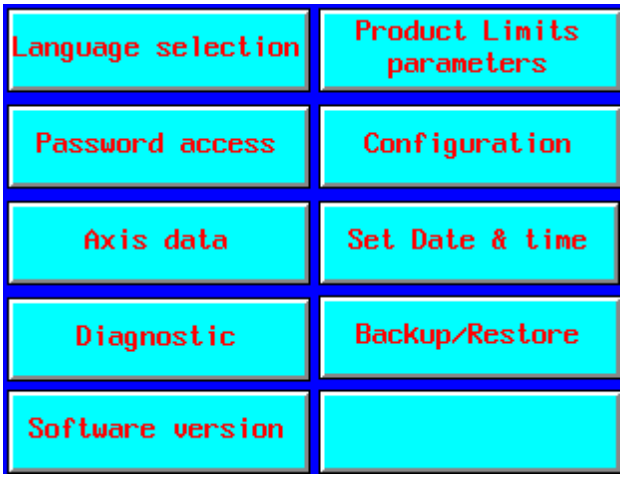
ENTERING THE PASSWORD

Enter the password as follows:

1. With **F3** key open INDEX page.



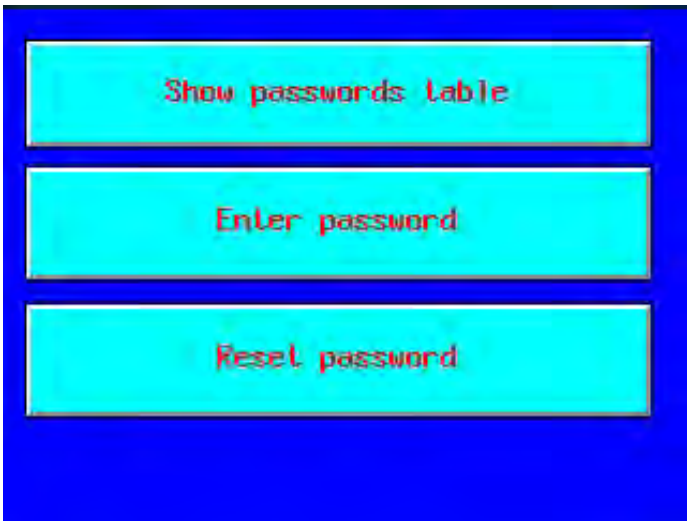
2. Touch key "**Service**".



3. On page "Service"

   touch key "**Password access**".

4. With the following window visualized



touch key "**Enter password**" and digit the "Master" password (defined by ILAPAK) or the "Operator" password.

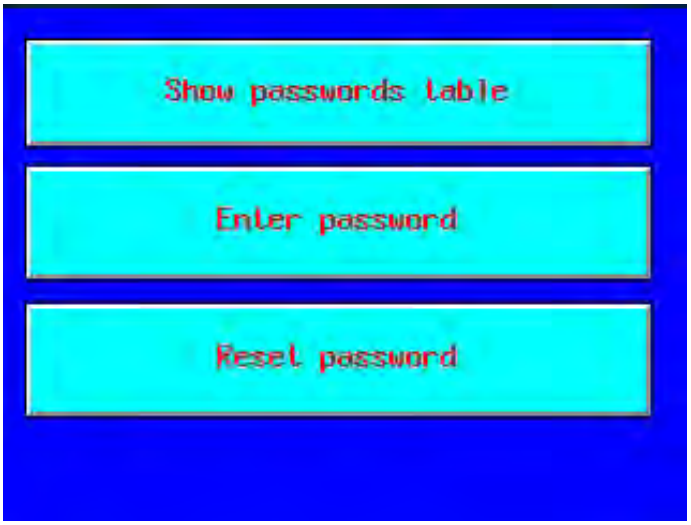
Each entered numeric value will be displayed in the window through an asterisk.

5. Confirm the entered code with ENT .

DEACTIVATION OF THE PASSWORD

To deactivate the possibility to use the protected functions by the password mode and resetting the normal use conditions, proceed as follows:

1. With the following window visualized.

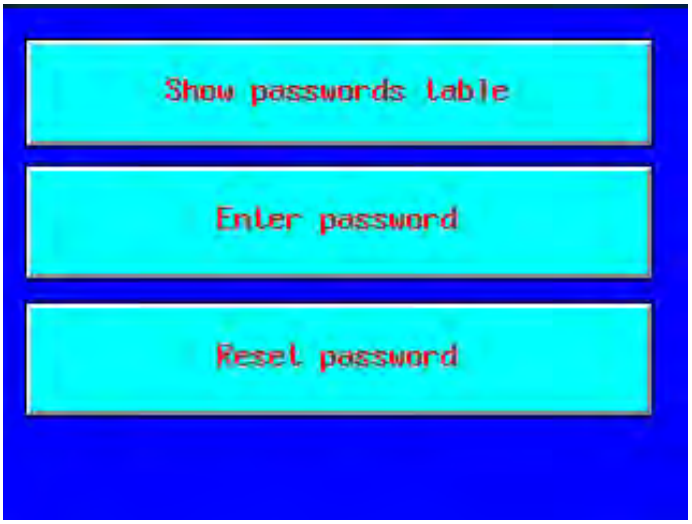


touch key **"Reset password".**

MODIFICATION OF PASSWORD "OPERATOR"

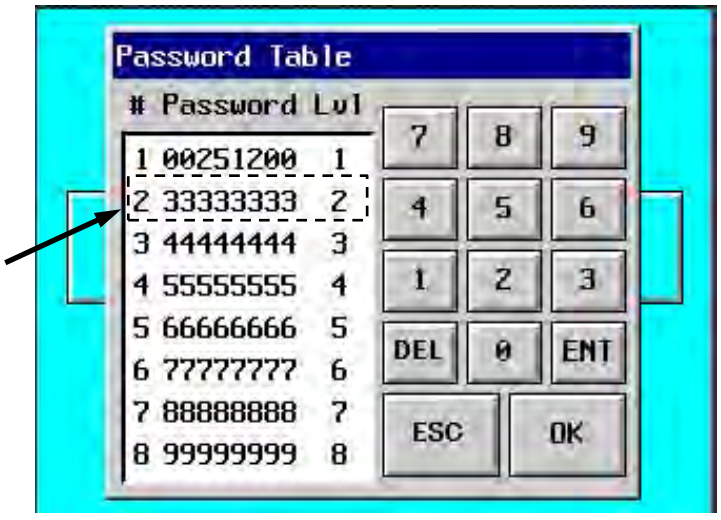
In order to change the existing password "Operator" as follows:

1. With the following window visualized.



touch key **"Show passwords table";**

2. Digit the "Master" password
3. Touch key **"**Show **passwords table"**

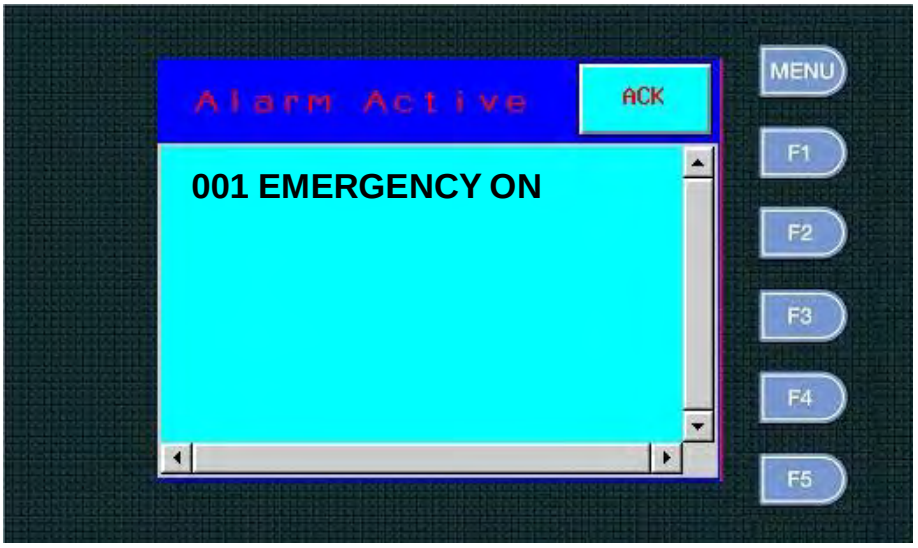


4. Digit the new password in the LVL 2, confirm the entered code with ENT .
5. Confirm page with OK .

OPERATION CYCLE START

1. Make certain that the machine is connected to the compressed air line.
2. If the machine is equipped with a water sealing cooling system, make certain that it is connected to the installation and the related tap is open.
3. Make certain that the EMERGENCY stop buttons are unlocked.
4. Switch the machine on with the proper main switch;
5. Check the signaling condition of the luminous column;
6. Touch ILAPAK LOGO;

7. Operator's panel: display of the ALARM ACTIVE page



8. Press key 

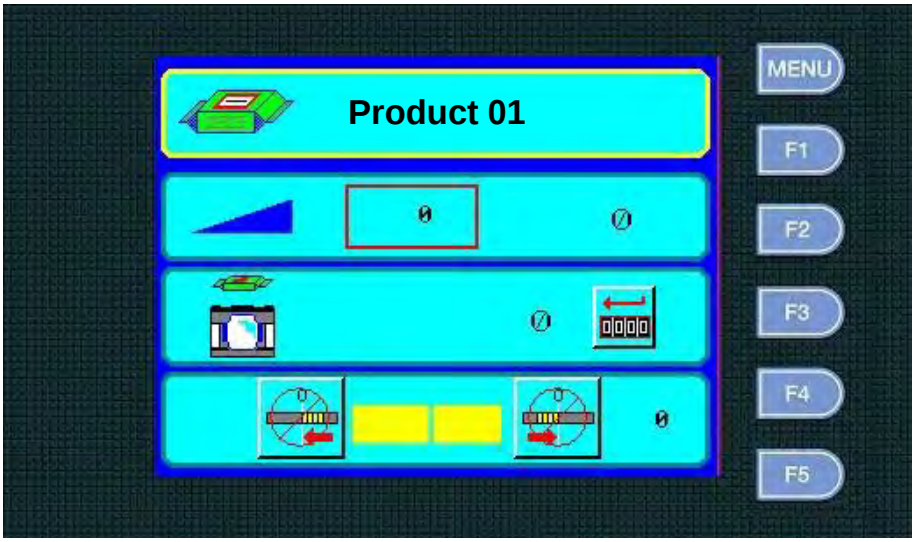
to delete possible non-active alarm signals;

9. Press once the green electric feeding pushbutton in order to reset the power unit of the safety circuit;
10. Check if the loaded product corresponds to the one under production;
11. Press the green pushbutton to start the machine;
12. Load (manually or automatically) the products on the table of the wrapping machine;

MAIN PAGE

The machine running is confirmed by the display of the following "main" page.

NOTA: All mechanical settings of the machine (provided no changes have been carried out meanwhile) as well as parameters and values appearing on the various menu pages refer to this particular product.



If it is intended to continue with this product this is considered a start of **Production** as described in paragraph "PRODUCTION". Though the machine is already set up, it is nevertheless recommended to check, for safety reasons, the **mechanical** settings and compare them to the values on menu pages "Adjustments" and "Dimensions".

If the product to be wrapped **does not correspond** to the previous one, however adjustments and data are in the product memory (the product appears in the "Product list") a **size change** has to be carried out which is described in paragraph "SIZE CHANGE".

For a product to be wrapped **for the first time** (i.e. product data not memorised and product not appearing in the "Product list") all values have to be established and a complete **new programming** is required. The latter is the object of the following paragraph.

CREATION OF A NEW PRODUCT

Setting the machine up for a completely new product should normally be carried out either in the manufacturer's place after completing the machine or during commissioning through qualified personal of the manufacturer or one of his subsidiaries or agents. This is the way one can be certain that the machine has been set to the best of its possibilities and provides output and efficiency.
Nevertheless the following sections provides complete information on all aspects of setting up a "new product" including programming the setting values of the product.
The instructions follow a certain logical sequence, which has proven to be the best way of obtaining the desired results. The individual steps should therefore be carried out exactly the described sequence.

The first operation of programming a new product is the opening of a new database based on the "default values".

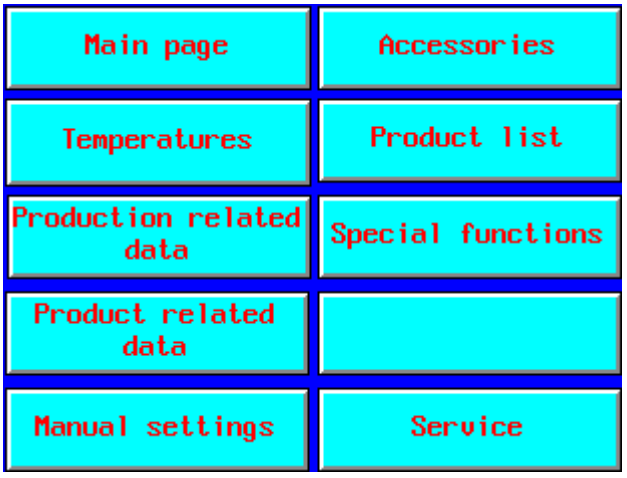
NOTE: The machine can store till 100 programs. During the programming phases at the factory, 100 default programs-products are introduced, identically among them.

It is recommended to use the first number of the available number for the storing of a new product.

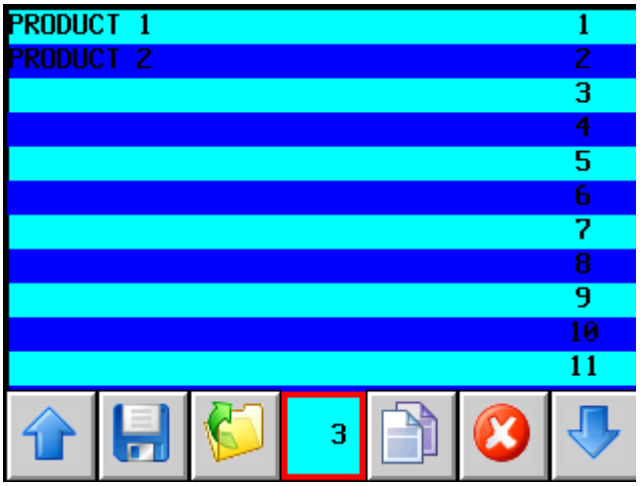
Creation of a new database

In order to create a new database proceed as follows:

1. With key F3 open INDEX page.



2. Touch key "Product list" to open page illustrated below.



3. Insert in the field 

the number of the new base product to be loaded, in this case product number 3

4. Touch key  ; successful loading of the product is confirmed with the visualization on the page of the relative message

Press  to return to the product list page;

Press  to visualize the index page.

Now proceed with the mechanical adjustments of the machine and with the introduction of the data, as described in the following paragraphs.

NOTE: At the end of the adjustment operations and setting of the parameters, remember to save the settings, as noted in paragraph "SAVING PARAMETER VALUES".

MECHANICAL MACHINE ADJUSTMENTS

The mechanical adjustments and configurations to be made to the machine before production refer to the selected product and are carried out according to its size and features.

DETERMINING THE STEP OF THE PRODUCT FEED LUGS

The feeding bed chain is equipped with hooks for fixing the product feed lugs.
These hooks are positioned so as to allow the lugs to be mounted in various steps according to the size of the product to be packed.
The step of the product feed lugs is determined by applying the following formula

$$P = \frac{L + H + S + 20\%H}{12,7}$$

where

P = Step of product feed lugs (expressed in chain links)
L = Product length (in mm)
H = Product height (in mm)
S = Thickness of jaws (generally 30 mm)
12.7 = Conversion factor equal to the length of a chain link (1/2″)

For example, for a product that is 160 mm long and 60 mm high to pack on a machine with standard jaws, the corresponding step will be:

$$(160 + 60 + 30 + (60 \times 20\%))/12.7 = 20.63 \rightarrow \mathbf{21}$$

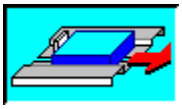
The lug step to use on your machine will be the next highest multiple of the hook step shown on the technical sheet to the one that has just been calculated.

Let's continue the example, to pack a product of a size requiring a minimum step of 21 links, a machine with a feeding chain with 1 block mounted every 8 links will require the correct step to be 24 as this is the next highest multiple of 8 after 21.

NOTE: In case of printed film, the **cut pitch** (bag length) will be determined by the distance of the printing notches.

INSERTING THE INFEED LUGS

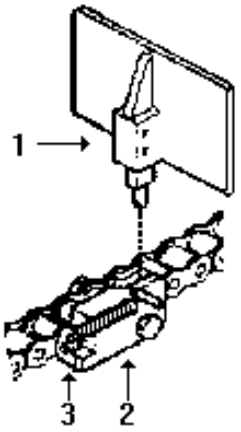
The height of the infeed lugs is determined by the height of the product whilst their width is limited by the folding box aperture. After dropping back the lugs have to pass freely through the latter and must not touch on the folding box base.
In order to insert the lugs at the previously determined pitch it is necessary moving the infeed chain. This is achieved as follows:

1. Press key  infeed forward, until the infeed chain has reached the desired position;

   Upon touching key the infeed chain starts moving immediately (though at low speed). While the chain is in motion the orange and green signal lights of the light column will flash alternately.

   CAUTION: Move the chain **solely the way described above!** Do NOT use the START key for this purpose.
2. Extract the previously used pushers by pulling and holding outwards the spring-loaded locking pin (3) and, simultaneously, pull the pusher (2) upwards and out from the carrier block.
3. Insert new pushers (1) into the blocks (2) and make sure pin (3) settles in with an audible "click".

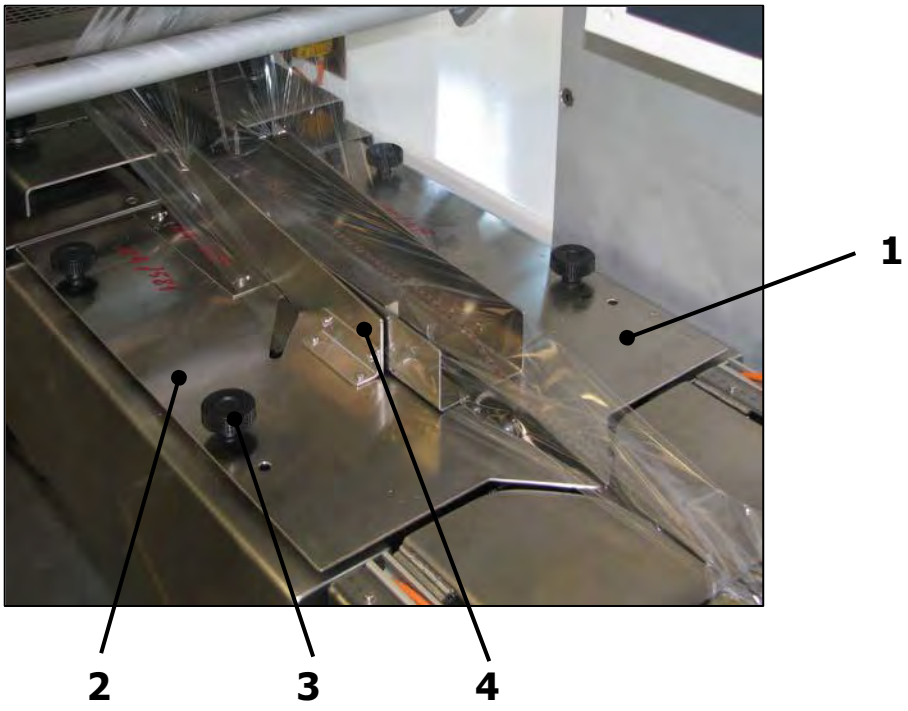
1.LUG
2.SUPPORT
3.PIN



FIXED FOLDING BOX

The fixed folding box is built on size for any established product and is numbered.
Proceed as follows for the assembling of the fixed folding box:

1. Place the back part (1) and the front part (2) in the fixing screws of the table
2. Fix the plates (1, 2) screwing the four knobs (3).
3. Check that the inner guides (4) are parallel and that the to be wrapped product passes easily.



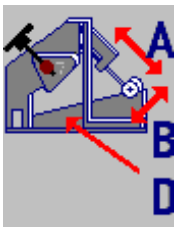
Carry the previous instructions on the contrary out for the disassembling of the folding box.

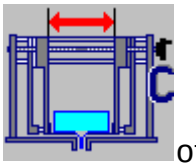
ADJUSTABLE FOLDING BOX (OPTIONAL)

For the assembling of the adjustable folding box, place it on the fixed bolts of the folding box support and block it with the knobs, in an analogous way to the fixed folding box.

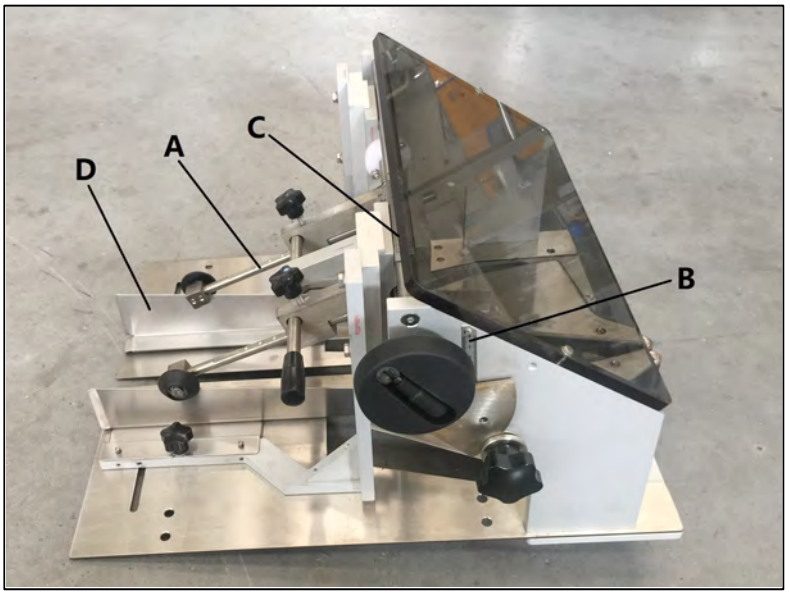
ATTENTION: The width adjustment of the adjustable folding box is in relation to physical limits as follows:

– maximum product width = 220 mm

For the adjustments "A", "B", "D" 

and "C" 

of the adjustable folding box there aren't any fixed rules; it is recommended to start from the adjustments of an already tested product with similar dimensions and to modify the adjustments according to the necessity.



ADJUSTING PRODUCT GUIDES

INFEED ASSEMBLY

1. Loosen the knobs (2) and move the feeding product guides (1) towards the outside.
2. Place two products on the conveyor belt: one partially in the folding box and the other at the end of the folding box well centred with the feeding axis.
3. Place the guides (1) near the products and lock the knobs (2)
   3.1 The guides have to be equidistant to the feeding centre.
   3.2 Check that there isn't a gap among the guides and the folding box tunnel where the product could be obstructed.

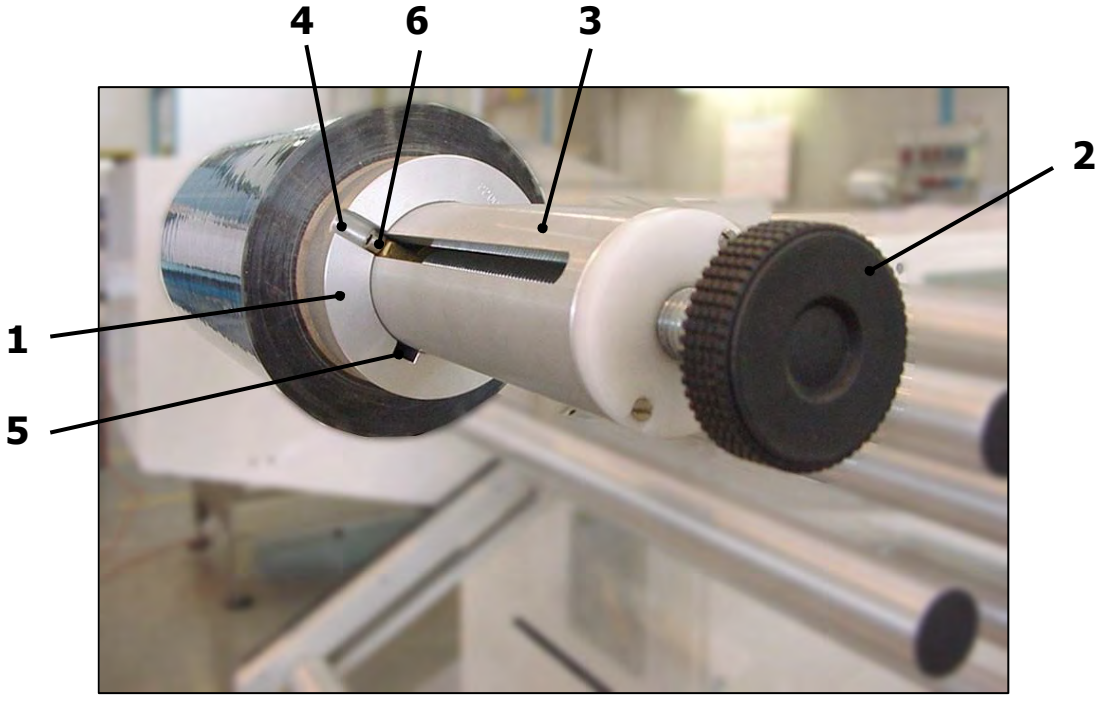
DETERMINING THE WIDTH OF THE REEL

The kind of film reel used must be defined according to its width, the value of which is calculated as follows:

2 x (product width + product height) + 40 mm

MOUNTING FILM REELS

- Loosen the front reel locking cone (1) and turn the handle (2) anti-clockwise until the retainer (6) leaves its housing (4).
- Turn the front reel locking cone (1) clockwise by about 90° to allow the retainer (6) to pass through the hole (5) in the cone
- Pull the front reel locking cone (1) off the roller (3)
- Insert the reel on the roller (3)
- Replace the front locking cone (1) by passing the retainer (6) through the hole (5) of the cone
- Turn the cone anti-clockwise by about 90° to allow the retainer (6) to be placed in the housing (4) of the cone
  Lock the reel by turning handle (2) and check it is installed correctly.



INSERTING FILM

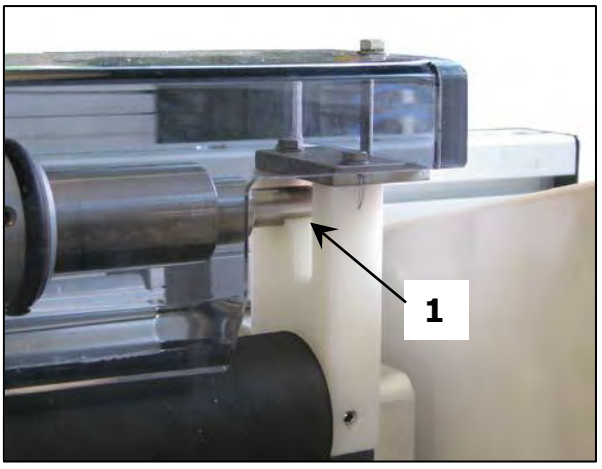
WARNING:

TAKE CARE TO AVOID GETTING BURNT IF THIS PROCEDURE IS CARRIED OUT WITH HOT SEALING ROLLERS

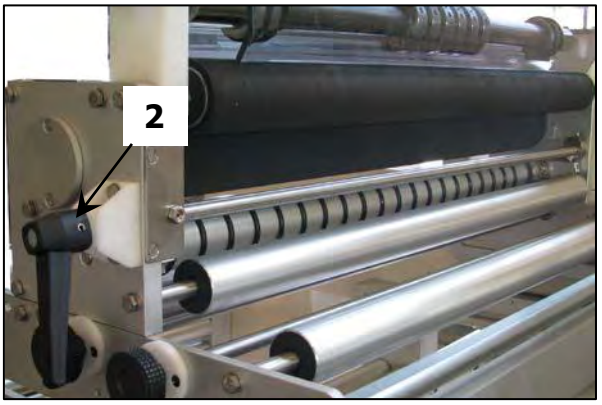
WARNING

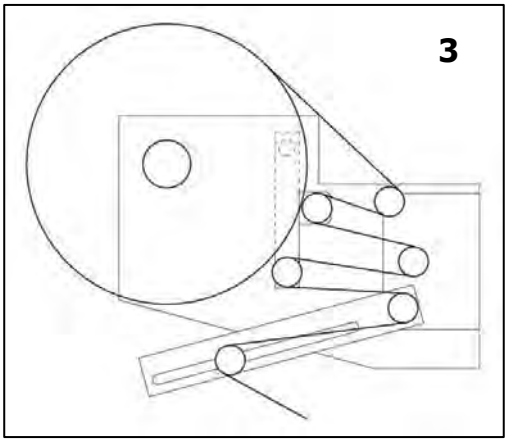
OPERATE ON THE MACHINE ONLY WITH MACHINE STOPPED, WITH EMERGENCY BUTTON PRESSED

1. Install the film reel according to the indications of the previous section.
2. (If present) Lift the film perforator unit (1)
3. Open the gummed roller rotating the handle (2) clockwise.
4. Unwind the film on the tensioning rollers according to the scheme indicated on the proper tag (3)



NOTE: The film unwinding varies according to the machine model (left or right) and the kind of film. Therefore the represented scheme in the figure is a typical one; refer to the scheme indicated on the tag installed on the machine.





5. Open Check that the drive rollers are opened.
6. Insert the film among the folding box wings and guides.
7. Take the film from the conveyor output and pull out the edges from the conveyor exit to insert them into the drive and sealing rollers.
8. Close the drive rollers, making certain that the film remains well stapled among both edges.

ADJUSTING THE MECHANICAL ARM

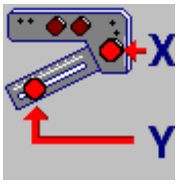
The correct creation of the bag depends on the film position in the folding box and on the removal of all the film tensions or folds.

ADJUSTMENT OF THE LEVER POSITION (1)

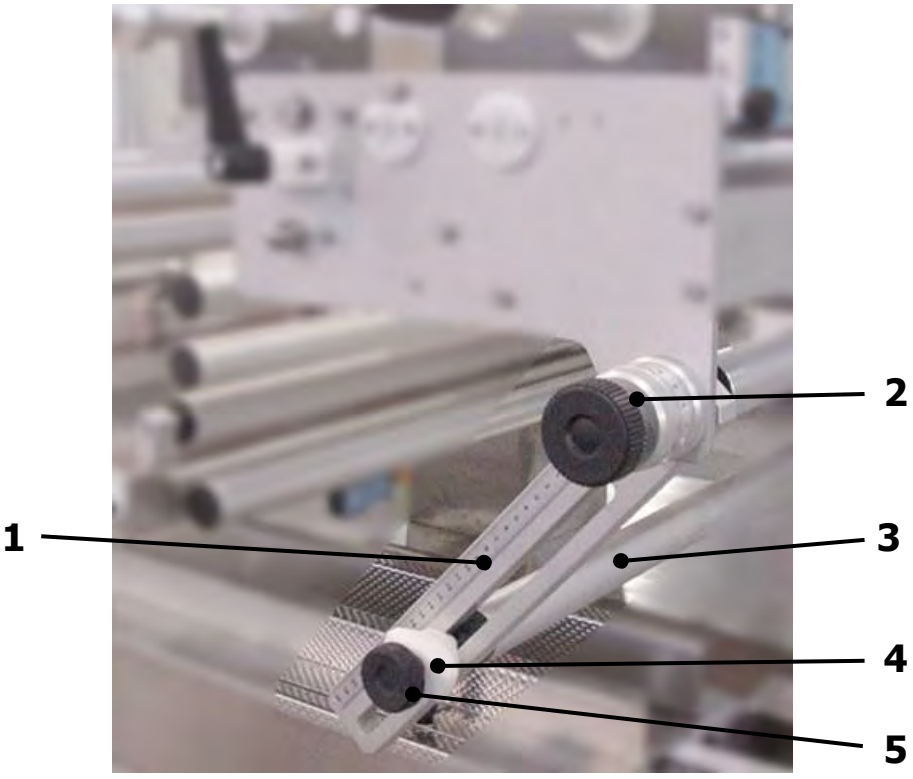
A. Unscrew the knob (2)
B. Place the lever (1) in the desired position
C. Screw the knob (2)

ADJUSTMENT OF THE ROLLER POSITION (3)

D. Unscrew the white knob (4)
E. Rotate the knob (5) to move the roller (3) and to reach the desired position.
F. Screw the white knob (4)



During the programming phase of a new product, the values "X" and "Y" can be considered correct when the film in the stretch between the tensioning roller (3) and the guide of the folding box seems well stretched and forms a correct centered inverted "U" on the folding box without folds.



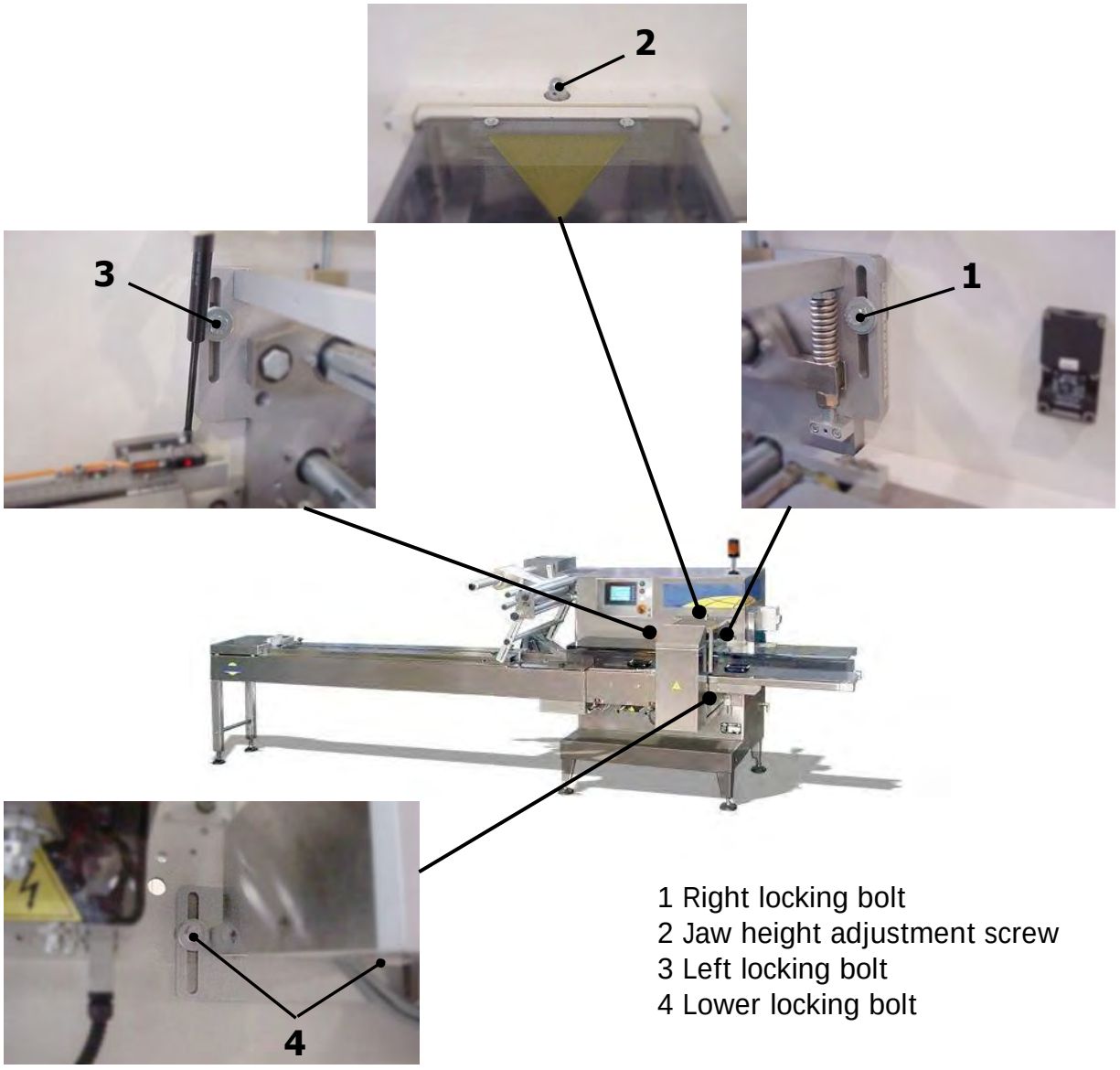
ADJUSTING THE FILM REEL BRAKE

The reel brake may be adjusted by tightening or loosening the hand wheel 1.

N.B.: Increase or decrease braking according to the width of the film reel installed: the wider the film the greater the braking.

JAW HEIGHT ADJUSTMENT

The selection of the jaw height ensures that transverse sealing is positioned as required for the height of the product to be wrapped.
Before carrying out this selection, make sure that the electrical power supply is disconnected.
Loosen the four bolts (1, 3, 4) that lock the jaw assy.
Rotate the hand-wheel (2) to change jaw height by referring to the millimetre rule and as required to attain a position corresponding to approx. half the height of the product to be wrapped.
Tighten the four bolts (1, 3, 4), and write down the jaw height data in the product chart.



1 Right locking bolt
2 Jaw height adjustment screw
3 Left locking bolt
4 Lower locking bolt

The value is visualized into the dedicated HMI parameter 

that is located into "Product related data" menu.

MOUNTING THE INTERCHANGEABLE PRODUCT SUPPORT

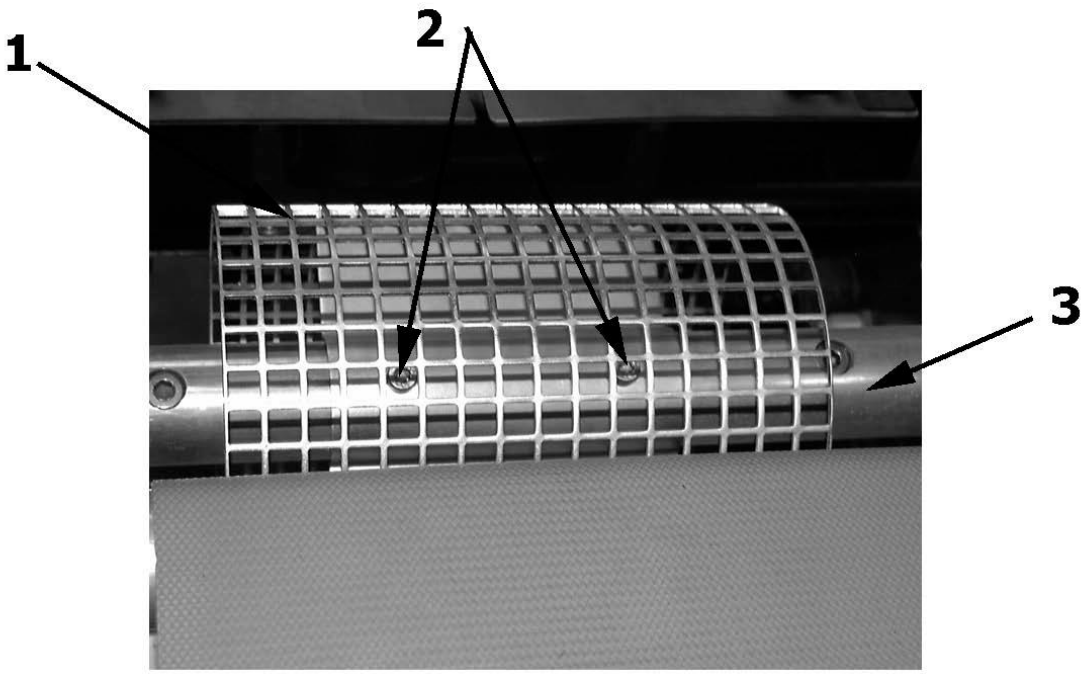
Consult the Product Sheet to identify the required product support and mount as follows:

1. Make sure the machine is in the "in phase stop" position (jaws open). If not, move it by pressing the green start button and then the red in-phase stop button .
2. Position the interchangeable product support (1) and fix with the two screws (2) to the shaft of the lower jaw (3).

If the type of support to use has not yet been defined (for example during the new product programming phase), the diameter may be determined as follows:

Diameter = jaw centre to centre distance - product height

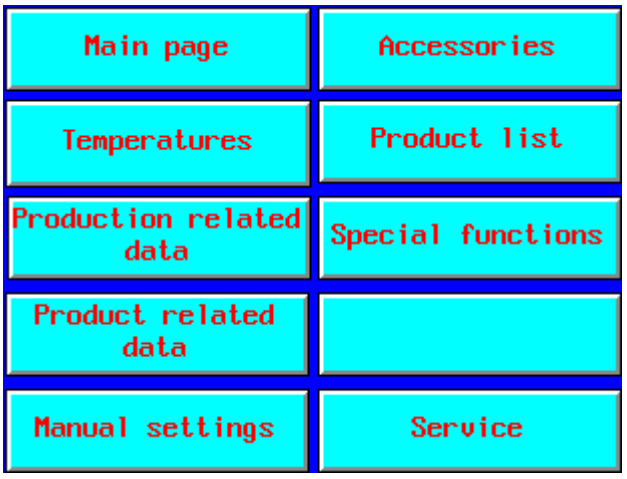
After completing mechanical adjustments, the configured parameters concerning the new product must be saved.



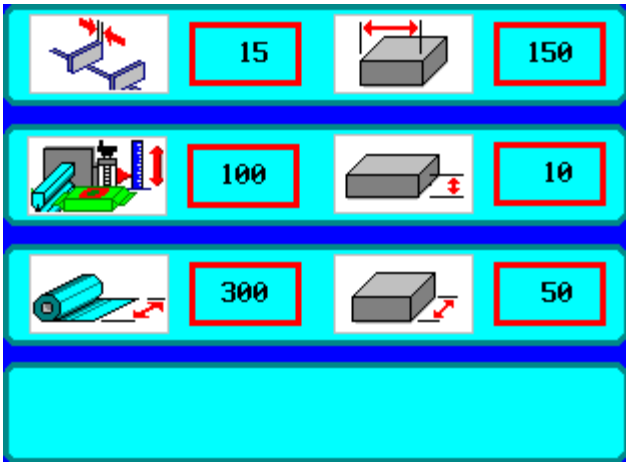
The product support to be used is visualized into the dedicated HMI parameter  that is located into "Manual settings" menu.

ENTERING PRODUCT DIMENSIONS AND ADJUSTMENTS

With key F3 open INDEX page.

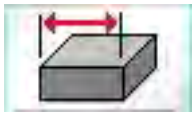
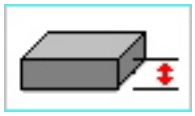
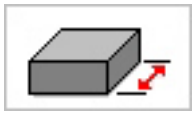


Touch key **'Product related data'** to display the following page.



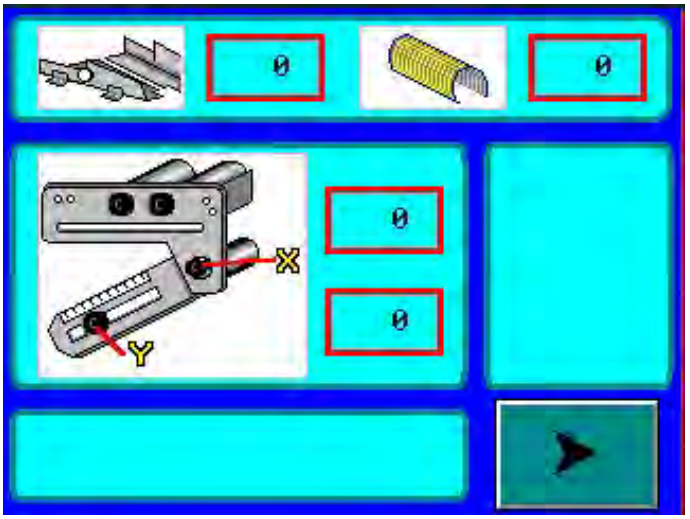
Press the keys in relation to the dimensional data fields and introduce the new values.

At the end of each introduction, confirm the just entered parameter by pressing key ENT.

-  Pusher Thickness.
-  Film reel width.
-  Jaws height position.
-  Product length.
-  Product height (only for machines with servomotor for the jaw height adjustment).
-  Product width (only in case, where the cardboard placer device has been installed) .

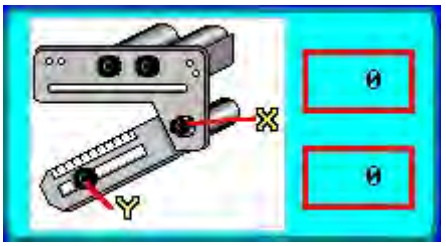
After having entering all the data of this page, with key F3 open INDEX page

Touch key **'Manual setting'** to display the following page



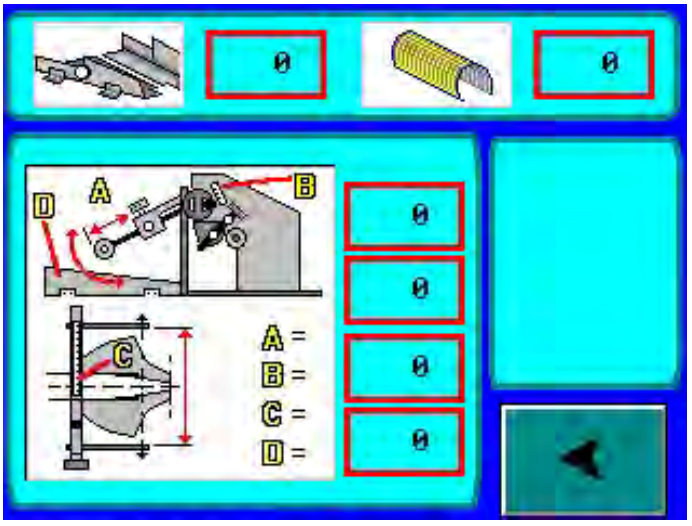
Press the area  and enter the Folding box number

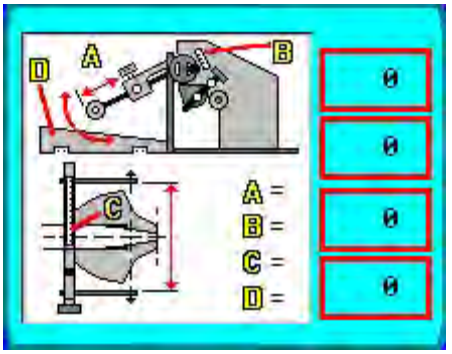
Press the area  and enter the Product Support

Press the area **"X"** 

and enter the value in degrees in relation to the oscillating lever inclination of the reel holder; enter in the area **"Y"** a value in mm in relation to the position of the tensor roll.

Touch key  to display the following page





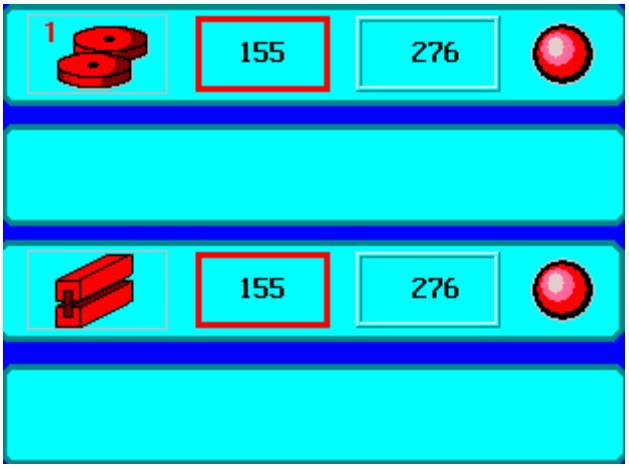
If you work with an adjustable folding box in the fields **"A", "B", "C"** and **"D"** enter the values expressed in mm.

ENTERING THE OPERATING PARAMETERS OF THE MACHINE

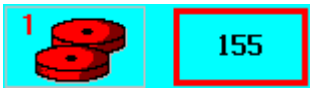
While entering the operating parameters of the machine it is necessary to move between different menu pages touching the related key on INDEX page

Information on specific accessories, which may be fitted to the machine but are not mentioned in this section, can be found in the manufacturers' documentation for the unit in question.

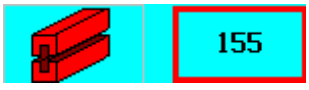
"TEMPERATURE" PAGES



The set temperatures are displayed in the first column of the page, while the actual detected temperatures by the probes are displayed in the second column.
The warning lights in the column on the right indicate the condition of the resistances (the blinking in the yellow colour indicates that the resistances are in heating phase).



Hot rollers pair Temperature.



Jaw Temperature.

NOTE: Set temperature to 20°C to suppress all the alarm conditions in relation to the temperatures.

During the creation of a new product, there can be applied some established values for the displayed parameters, for the same kind of film used for other products, which are already stored in the program.

Make certain that the heating phase is activated (enabled functional key ).

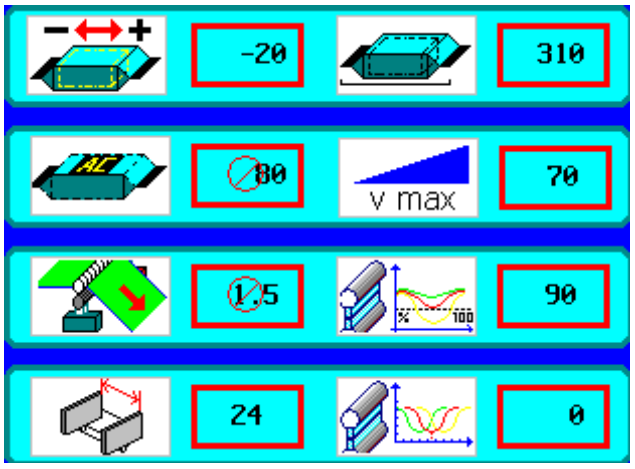
NOTE: A safety circuit stops the machine from being started erroneously before the heating elements have reached the set temperatures;

Should it, nevertheless, be necessary to run the machine while the heaters are not up to temperature yet, the safety circuit can be bypassed by deactivating the functional key.  that allows the disabling of the temperature alarm conditions.

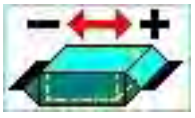
At the end of the machine running phase out of temperature limits make certain to re-activate the functional key  in order to re-activate the safety circuit and the temperature alarm conditions.

PAGE "PRODUCTION RELATED DATA"

This page allows the entering of the production data in relation to the operation of the machine. During the entering phase of a new product, it is **compulsory** to enter the data regarding the film tensioning, the length of the desired wrapping bag en the maximum speed the machine can reach during the phase production.
For the meaning and the setting of the other data in relation to the settings, which have to be carried out during the running of the machine, see the instructions of the next paragraphs.



To introduce the parameters necessary for the running of the machine, observe the following instructions:

 **PRODUCT TO BAG CENTRING** is described in the following paragraph;

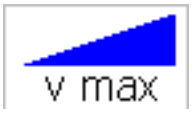
 **BAG LENGTH**

NOTE: The theoretical film cut-off length calculated according to the formula

(L + H + S) + 10%

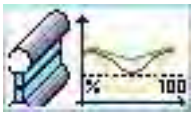
or, if panel printed, registered film is used, the pitch of the print registration marks measured over several pitches.

 **PRINT TO BAG CENTRING** is described in the following paragraph;



Maximum production speed

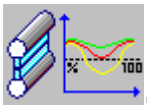
Enter the value of the maximum speed that the machine can run for this product; this setting is interesting while the remote control is in use to prevent to run machine at too high speed.



JAW SPEED ADJUSTMENT

The sealing jaws and the film of the wrapping should have the same speed during the length of their meeting, in order to obtain a correct transversal sealing.
The PC of the machine will automatically calculate the sealing phase, according to the product data and the machine data.
However, in case of very tall products, the jaws can intercept the film before having equalized their speed to the speed of the film, thus causing a breaking.

In this case it is possible to modify the starting point of the sealing phase, by operating in the following way: enter a small variation to the value quoted in field.

NOTE: This field can only be displayed upon entering of the user's password
Wrap some products at an average speed and check that the problem has been solved. If necessary, carry out some further value changes in field 

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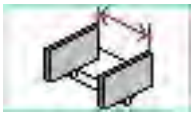
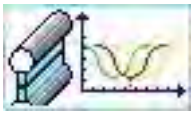
NOTE: The Jaws speed adjustment is very important for the correct working of the wrapping machine.
Therefore, if some other production problems should be verified as a result of the executed changes, get in touch with the ILAPAK servicing.



LUG PITCH



JAWS OFFSET PARAMETER

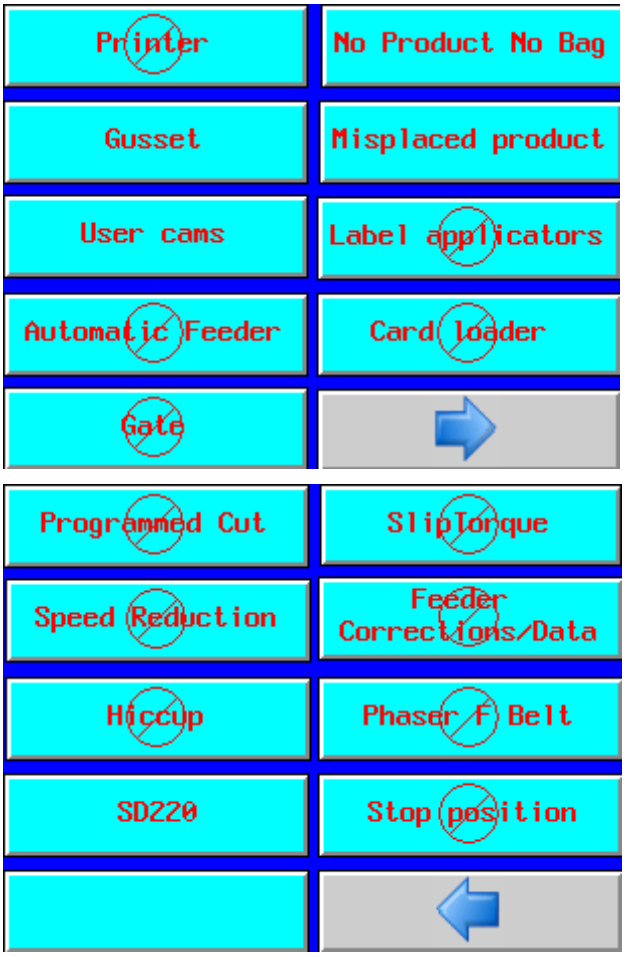
This parameter modifies the stop position of the jaws. It is used to modify the initial sealing point of the jaws.

NOTE: This parameter is usually set at default 0.

"ACCESSORIES" PAGE

Press key F3 to display Index page.

Press key "**Accessories**" to display the following page.



The display of the pages called in the following paragraphs can be performed by calling directly the desired page through the relevant key on the above mentioned page.
For the parameter setting, it is possible to start the machine at low speed or in "JOG" mode and to detect the enabling/disabling position in the box indicating current position, transferring then the value into the relevant fields.

Description of parameters 

The various functions of the operation parameters in relation to the different accessories devices, which can be installed on the machine, are described in this page.

In the column **"Start"**  are set the values in degrees of a virtual machine cycle, which determine the point where the activation of the device should start.

In the column **"Stop"**  are set the values instead, which determine the point of the machine cycle where the operation of the device is deactivated.

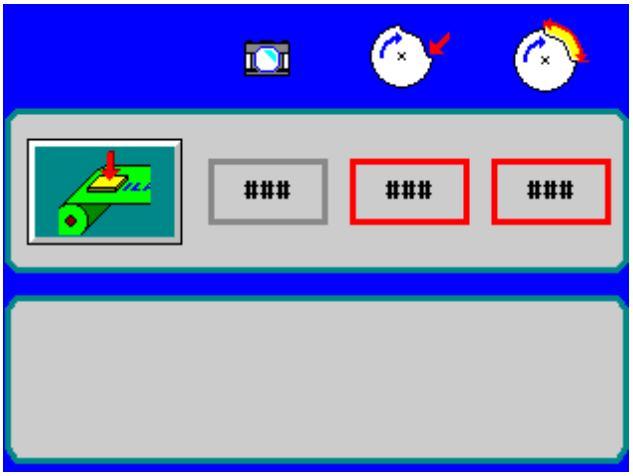
The value "**Actual"** of the machine phase (machine cycle degrees) is displayed in the first column of the page linked to the image of the camera  .

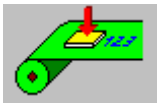
The parameter "**Time**"  defines the duration, expressed in millisecond, of the optional activation.

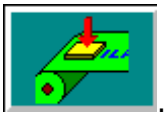
The parameter "**Duration**"  defines the duration, expressed in degrees, of the optional activation.

The parameter "**t/msec**"  allows the entering of a value that defines and advanced intervention of the option according to the set value in parameter "Start" en is generally used during production phase at high speed.

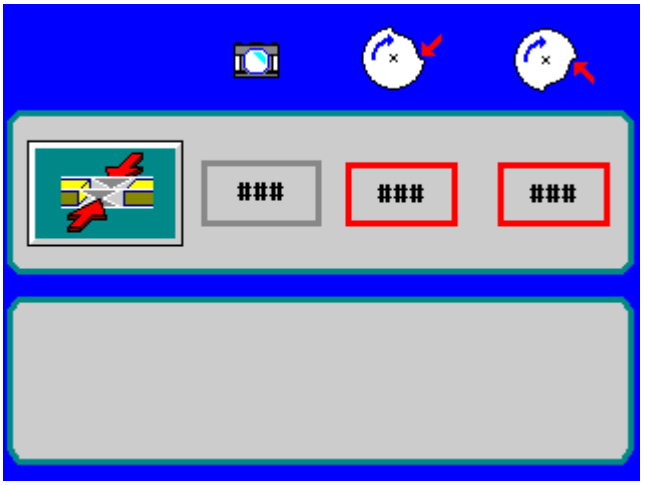
ACCESSOIRES PAGE: PRINTER



Printer 

Signal (impulse) to control a printer device at the outside.
Program the parameters "Start" and "Stop" as requested to obtain that the print marking appears on the desired point.
The control sign (not the marker device) can be activated or deactivated by means of the related functional key or directly by the selector  .

ACCESSOIRES PAGE: GUSSET



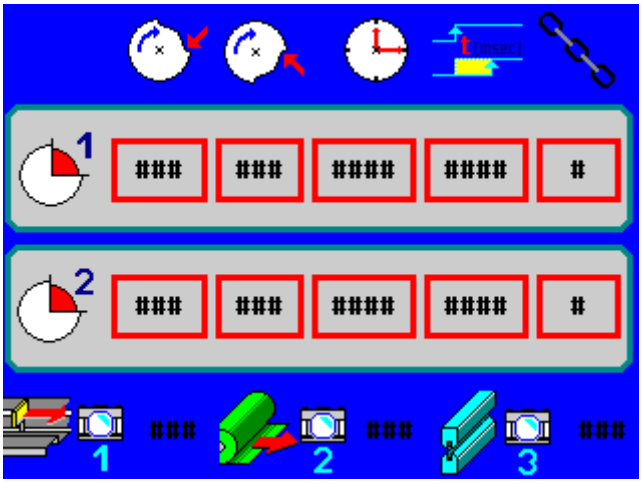
.

Gusset 

The related parameters "Start" en "Stop" determine respectively the activation an d the deactivation of the pneumatic gusset assembled on the transversal sealing group.
In order to enable the operation of the pneumatic gusset, activate the related functional key or directly by the selector  .

Program the parameters "Start" and "Stop" in relation to the characteristics of the product to be wrapped.

"USER CAMS" PAGE



The page "User cams" allows the programming of four independent main cams, which can be used for the control of the peripheral unit installed on the machine a/o on the auxiliary appliances.
The operation of the cams can be synchronized with one of the reference axles (feeding axis, film axis, jaw axis) , which angular position (expressed in degrees of a virtual machine cycle) is displayed in the lower page part.
Furthermore, according to the requirements, the duration of the operation of each main cam can be configured both according to an established angle of the machine cycle, as well as according to a fixed established time.

– The parameter "**Start**"  defines the position (referred to a point of the machine cycle) where the option operation has to be activated.

– The parameter "**Stop**"  defines the position (referred to a point of the machine cycle) where the option operation has to be deactivated.
NOTE: This parameter can be displayed only when the next parameter "Temp" is set to zero.

– The parameter "**Time**"  defines the duration, expressed in millisecond, to activate the option.
NOTE: If this parameter is set, the program eliminates automatically the previous "Stop" parameter.

– The parameter "**Sincr.**"  defines the axis where the optional operation is synchronized for the positions Start and Stop:

1 = feeding motor axis

2 = film unwinding motor axis

3 = jaw motor axis

– The parameter "**t/msec**" 

allows entering a value, that defines an advanced intervention of the option regarding the set value in the parameter "Start" and is generally used in production phase at high speed.

Programming procedures

Press on the related field for the setting of the parameters.

Press on the related field to parameter "**Sincr.**"  and enter the number corresponding to the axis, where the cam should be synchronized.
Adjust the speed to the minimum value and start the machine pressing the button START. When the position of the machine cycle is obtained, where the optional operation has to be **activated**, detect the value in degrees noted in the field in relation to the position of the reference axis where the cam has been synchronized. Then stop the machine.

Press on the field in relation to parameter "**Start**"  and enter the value detected in the previous point.

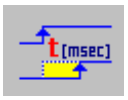
<u>Operation duration according to a machine cycle angle</u>

Adjust the speed to the minimum value and start the machine pressing the button START. When the position of the machine cycle is reached, where the optional function should be deactivated detect the value in degrees noted in the field in relation to the reference axle where the cam has been synchronised. Then stop the machine.

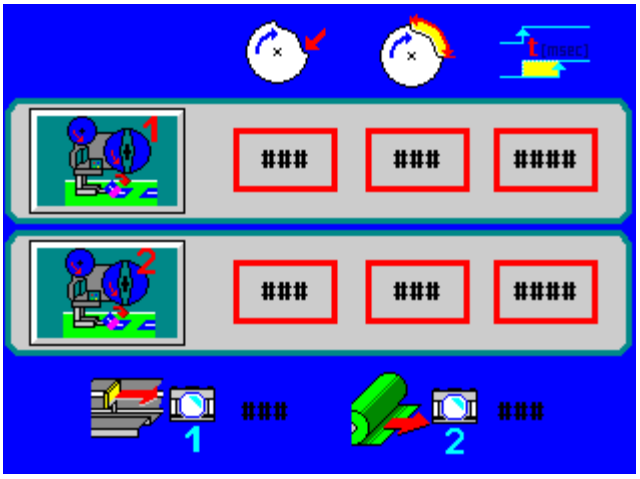
Press on the filed in relation to parameter "**Stop**"  and enter the value detected at the previous point.

<u>Operation duration in relation to an established fixed time</u>

Press on the field in relation to the parameter "**Time**"  and enter a value expressed in millisecond representing the optional operation duration.

The parameter "**t/msec**"  has to be set next, after the start of the production phase and whenever a delay of the function controlled by the cam consequently to an increase in the speed of the machine is detected.
If necessary, observe the same listed procedures, it is possible to program a second cam completely independent from the first one.
Then enable the operation of the accessory device linked to "User cam 1" or "User cam 2" activating the respectively functional keys  ,  in page "Special functions" .

ACCESSOIRES PAGE: CARD LOADER / LABELS APPLICATOR



Card Loader (or label applicator)  

The related parameters "Start", "Duration" and "Delay (t/msec)" determine respectively the activation, the duration and the anticipation of the card loader device intervention.

In order to enable the operation of the card loaders device, activate the related functional key or directly by the selector  and/or  .

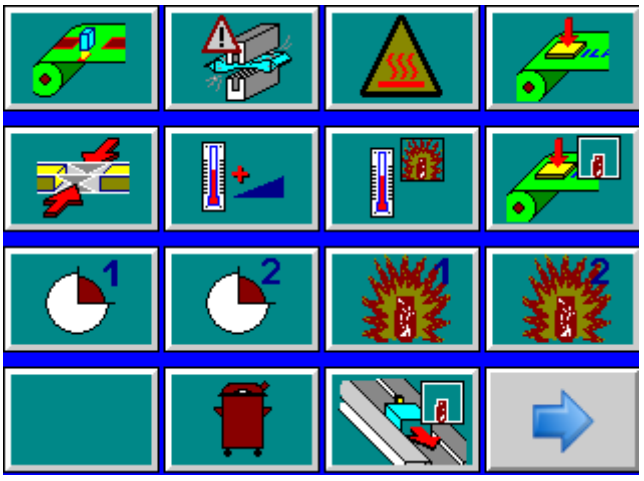
There is the possibility to stop machine with alarm in case of card loader (or label applicator) fault by activating the relative functional key  .

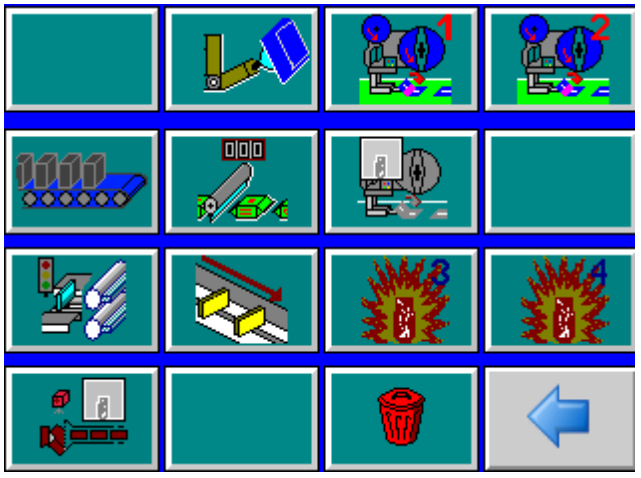
The axis linked to this function (infeed for card loader, film for label applicator) is fixed from Ilapak's service engineer and cannot be change by operator.

PAGE "FUNCTIONS"

Press key F3 to display Index page.

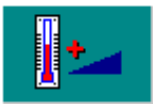
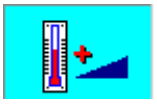
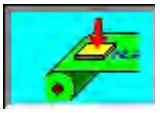
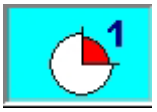
Press key **"Special functions"** and then  /  to display the following pages

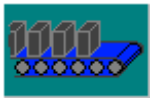
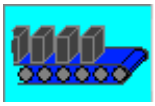
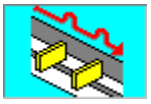




On these pages, there are the keys related to the activation or the deactivation of the options present on the machine.
The functions enabled to operation depend on the options installed on the machine; following you can find a complete list of the available functions and their related associated keys

Deactivated	Activated	Description
		(Option) Activates/deactivates the print registration system for printed film

Deactivated	Activated	Description
		(Options) Activates/deactivates the photocell system (product safety) detecting misplaced products. Stops jaws from closing when detecting product(s) within the area destined to the transverse seal and thus avoids damaging products and dirtying sealing jaws.
		Activates/deactivates the heating system of the jaws and sealing rollers
		Suppresses the alarm in relation to the temperature of the sealing groups (rollers and jaws)
		(Option) Activates/deactivates the possibility to adap automatically the temperature in relationship with the set speed.
		(Option) Activates/deactivates the accessory printer device
		(Option) Activates/deactivates the external label applicator alarm signal.
		(Option) Activates/deactivates the pneumatic gusseting device
		Activates/deactivates the user-programmable cam #1 for the running of the external accessory devices.
		Activates/deactivates the user-programmable cam #2 for the running of the external accessory devices.
		Activates/deactivates the error alarm message emitted by an external accessory device; programmable.
		Activates/deactivates the error alarm message emitted by an external accessory device; programmable.
		Activates/deactivates the back seal trim suck off device.
		Suppresses the alarm "Error lug pitching" and permits operating the machine while infeed lugs are missing or badly positioned.

Deactivated	Activated	Description
		(Option) Activates/deactivates the accessory label applicator device.
		(Option) Activates/deactivates cam operation for the reference signal to an external label applicator device
		(Option) Activates/deactivates cam operation for the reference signal to an external label applicator device
		(Option) Activates/deactivates the external label applicator alarm signal.
		(Option) Activates/deactivates the error alarm message emitted by an external accessory device; programmable.
		(Option) Activates/deactivates the error alarm message emitted by an external accessory device; programmable.
		(Option) Activates/deactivates the machine's functionality as "transport", without pack products
		(Option) Activates/deactivates the cut/precut functionality
		(Option) Activates/deactivates the stop in phase with a fixed lug position
		(Option) Activates/deactivates the "hiccup" functionality
		(Option) Activates/deactivates the test for sd220 functionality
		(Option) Activates/deactivates the "machine emptying" function (when slip torque in use)

PRE-PRODUCTION

VERIFICATION OF SETTINGS AND ADJUSTMENTS

In order to verify the previously set parameters and the exactness of the just carried out mechanical adjustments, produce now some test bags as described in the following paragraphs.

Turn function "no-product/no-bag" **OFF** with functional key  .

With functional key  **disable** product safety function.
Open page "Temperatures" and check for correct temperature setting and whether set temperatures have been reached.
Set machine speed to a quite low value, approximately 20-30 pieces/minute, in order to check the various packaging phases.
Push START button and while the machine produces empty bags optimise film tracking and film tension as follows:

– Reel brake setting – adjust if necessary
  NOTE: Setting of the brake is correct when the rocking arm stabilises in a (more or less) central position and does not rock fore and back.

– Lateral film tracking, i.e. is the film centred in the folding box and are both sides of the "fin" of equal length – if necessary adjust film reel centring
  NOTE: The result of film reel centring will only show with some delay on the folding box after some film has passed through.

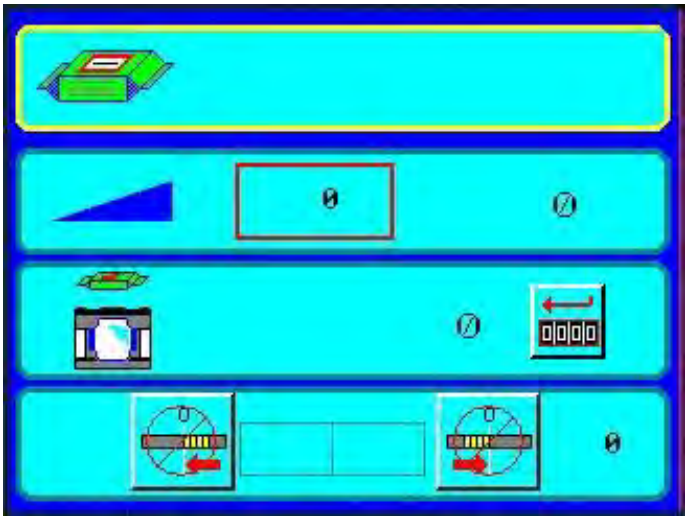
– Uniform shape and tension of and absence of folds from the "U" the film should form between approach roller and folding box).

- Seal quality, i.e. seals free from folds and hermetic. Use a particular tool for the tightness test of the sealing under pressure.

- In case of imperfect sealing, check the set temperatures in page "Temperatures"

ADDITIONAL TESTING PROCEDURES WITH REGISTERED PRINT

- Make sure all steps described above under previous paragraph have been carried out.
- Move scanning head laterally to a position where the register spot cuts the light beam of the scanning head.
- With functional key  enable print registration.
- Display the Home page.



- Start machine to produce empty bags and observe the indicator for the printed film centring correction.

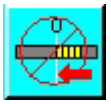
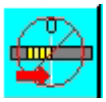
NOTE: The indicator is enabled for operation only in presence of the photocell for printed film and with the functional key  **activated.**

- While machine is in motion watch the excursion of the illuminated bar on the indicator and on which side (towards "left sector" or towards "right sector") it occurs.

NOTE: The bar illuminates each time a register mark passes the light beam of the scanning head (photocell) and illustrates that the system works properly.

The entity of the excursion is proportionate to the amount of correction to maintain the film registered (a full excursion of the illuminated bar towards "left sector" or towards "right sector" indicates a print correction equal to 5 millimetres.

The direction of the illuminated bar indicates which way the print correction operates:
- excursion towards **right sector**: cut-off setting is **short**
- excursion towards **left sector**: cut-off setting is **long**;

- If excursion comes on regularly more than 50 %, print correction has to work "too hard" (due to cut-off having been set too long or too short; in either case touch buttons  or  to change the cut-off length (bag length).
- Still with the machine in slow motion check whether the print image is centred correctly on the pack.
- If correction is required:
- Display page "Production related data" and insert in the field related to the print centring  the value in millimetres of the shifting, in order to obtain a centred print on the bag.
- For print shifting forward (toward the jaws) insert positive numbers, for shifting backward insert negative numbers (-nn).

NOTE: The entered value corresponds to the real print shifting in millimetres on the bag.

- Set machine in motion and check print position once again; if required, repeat correction.

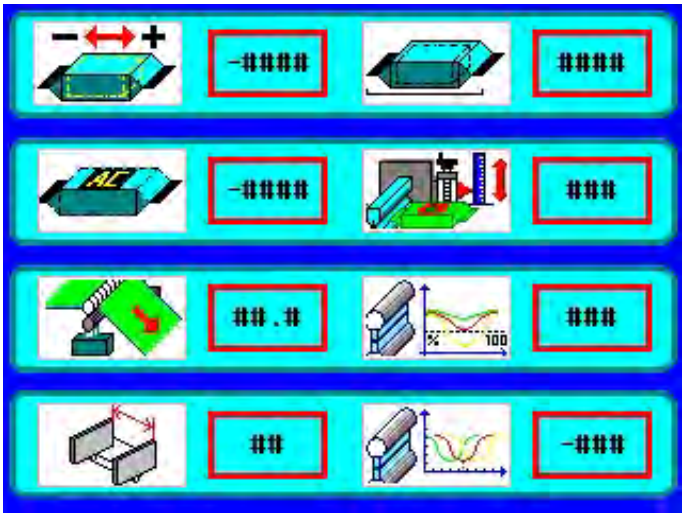
NOTE: Final and definite fine tuning of the cut-off length and the print image position should be carried out under production conditions, i.e. while the machine operates with product and at full speed

TEST RUN

According to the product dimensions, which have been previously set, the electronic control system of the machine, provides autonomously to calculate the vital operative parameters. However, the shape and the characteristics of the product can sometimes ask a series of accurate manual adjustments.
Therefore start the production of a "new product" with a test run at maximum speed, controlling in a particular way the print position and other further points as described hereafter.

For this purpose proceed as follows

- Assure that the function keys "No product No bag"  and "Misplace "  are deactivated.
- Open page "Production related data".



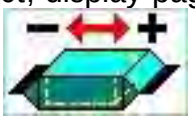
- Fill up infeed with products.
- Set the machine speed on production value, and start the machine
- Check the transfer of products from the infeed chain into the folding box and the film.
- Check the jaw speed during the sealing phase with reference to the film speed.

  NOTE: The jaws speed should never overrun the film speed (causing tears of the film itself): a slightly slow speed is to be preferred in some cases, instead.

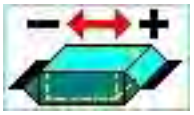
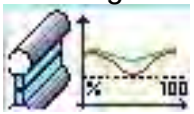
  If necessary, carry out the jaw speed adjustment as follows:

  On page "Production data" select field  inherent in compensation to the jaws speed and modify the related set default value of 100%.

  NOTE: Reducing the value slows down, increasing the value speeds up the sealing jaws in relation to the film speed.

- Confirm each modification with ENT ;
  Verify the product centring in the bag. If the product is not centred in the bag, or if you want a packaging with a not centred product, display page "Production data" and set in the field inherent in the product centring  the desired movement value for the product. For forwarding movements of the product (towards the jaws) enter the positive number, for movements in the other direction, enter the negative number (- nn)
  Confirm with ENT .
- Start the machine again for the production of further wrappings and carry out the listed verifications from the following points and if necessary the related correction actions as described previously.

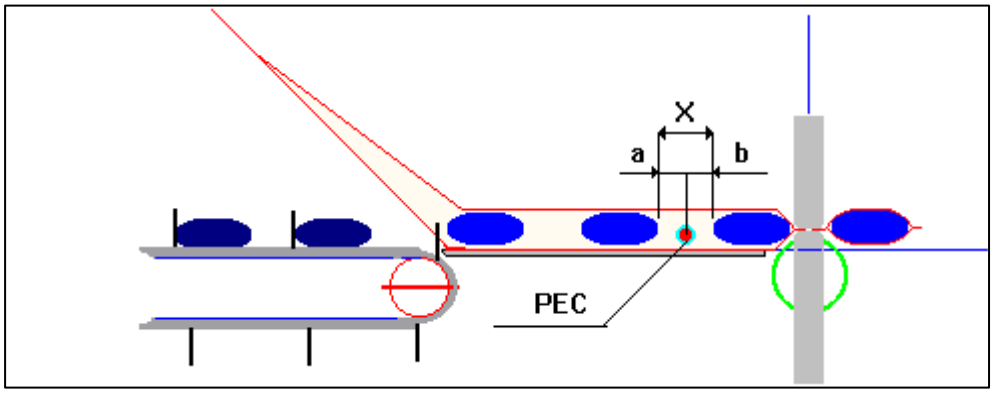
  NOTE: Remember you MUST confirm **each individual entry** with ENT .

- Verify the product centring in the bag 
- Verify the Jaw-to-film speed 
- Verify the print centring on the bag  .

ADVANCED FUNCTIONS: MISPLACE - NO PRODUCT NO BAG

Product safety system (Misplace) 

The Misplace function is used to stop one or more products that are out of phase with the action of the jaws getting caught up in them with consequent interruption of production. Two photoelectric cells located above the rollers check that, during the jaw sealing phase, no product is present inside the safety strip "x". The length of this strip is determined by a number comprising the thickness of the jaws (generally 40) and the distance between the front of a product and the back of the following product feed lug.



If a product is detected inside the "X" strip, the jaws do not cut but remain open while the film continues at the same speed.
When the last incorrectly positioned product has gone through, the jaws start sealing once more.

NOTE If more than 5 consecutive products are detected as being in an incorrect position the packing machine will stop

Introduction of the function "Product safety"

Before wrapping the products with this activated function, it is necessary to carry out some mechanical settings and set some parameters, proceeding as follows:

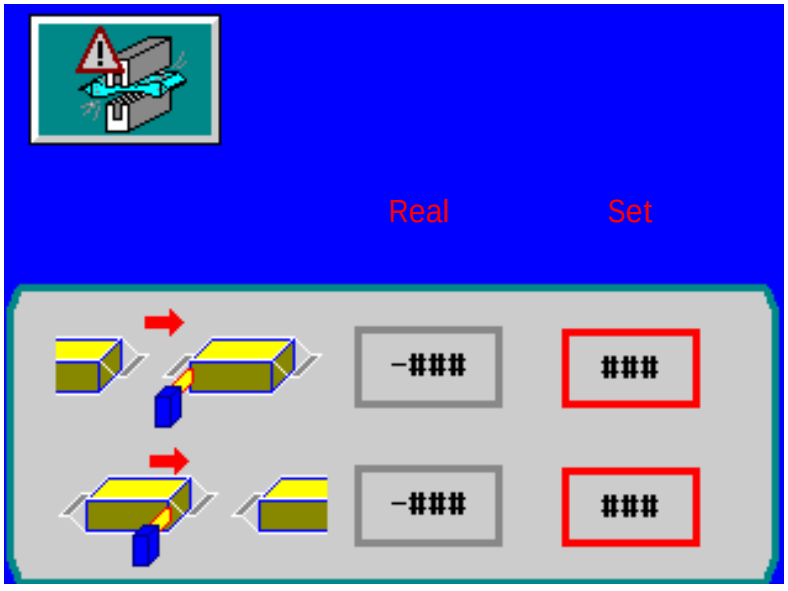
Mechanical settings

The only mechanical adjustment to make for configuring the misplace function is the positioning of the photoelectric cell support as these must be adjusted according to the length of the bag to be packed.

To adjust the position of the photoelectric cell support on the graded scale to the value corresponding to the length of the bag to be packed.

Entering parameters

In order to establish with a great accuracy the margins of the control area, an automatic detection system for the products position has been introduced and can be visualised through the operational page where you have access to as follows:
With key F3 open INDEX page.
Touch key "**Accessories**" and "**Misplaced product**" to display the following page.



"HEAD" LIMIT OF THE ZONE NEXT TO THE CUTTING

"END" LIMIT OF THE ZONE PREVIOUS TO THE CUTTING

The **"real "** distance in millimetres from the product end in closing phase in relation to the cutting position and after executed cutting, the **"real"** distance in millimetres of the next product head will be detected automatically with each sealing.

According to the detected positions and according to the desired margins, the "set" values are set, which delimit the control area inside the cutting area.

NOTE Normally to set the value in the column "Settings", a margin of about 5-10 millimetres should be subtracted from the related value, displayed in the column "real".

The minimum set value shouldn't be inferior to the half thickness of the jaws, while the maximum "set" value shouldn't exceed the minimum "real" respectively detected value.
The data noted in the previous figure, for example, delimit a control area equal to 53 mm distributed as follows: 25 mm before the cutting to verify the presence of a delayed product and 28 mm after the cutting to verify the presence of an advanced product. Each time an "real" value results inferior to the "set" value, there is a MISPLACE intervention.
In order to establish the correct "set" values, it is essential that the product position has already been optimised and that there won't be significant next future modifications. In case of remarkable product position correction, it could be necessary to revaluate the set margins for MISPLACE.

In case of MISPLACE intervention, it is possible to individuate if it is due to an advanced product (the product head enters the control area) or a delayed product (the product end hasn't still left the control area), due to the switching on of yellow lamps, placed on the right of the data boxes.
It is up to the operator to individuate the sliding cause or to revaluate the margins of the control limit introduction.

Activation of the function "product safety" (Misplace)

For the activation of the function "product safety" proceed as follows:

With functional key or directly by the selector  .

With page "Product safety" opened, fill infeed with products and set machine in operation. While products pass through the machine watch if "product safety" intervenes (jaws not closing); immediately recognise **which of the real value** on the display **has lower value respect the set value**.
Repeat the operation in order to gain more information on what is happening.

NOTE: By means of the real value you can quickly determine which of the products (the trailing or the leading) has been misplaced in which direction (forward or backward) –

If a **really misplaced product** has triggered the safety device it has obviously "done its job correctly".
Only if the triggering has been caused by a **correctly placed product** the "see-no-product-window" of the parameter next to which the yellow rectangle has come on must be narrowed as follows:

- Touch on the parameter where you see the lower value.
- **Broaden the difference** between "Actual" and "Set" values, i.e. increase the set value on icon 1 ("tail" of leading product has triggered safety) or decrease the set value on icon 2 ("head" of trailing product has triggered safety).
- Confirm each parameter modification with ENT .

NOTE: It may take several trial-and-error attempts before the product safety system has been correctly programmed; therefore, if necessary, repeat steps a. – c.).

After having ascertained the proper operation with **correctly placed products** move a product consciously in the film tube prior to the photocells (first forward, in a second test backward) and thus check the operation with **misplaced products**.
If necessary, repeat steps a. – c. once again and correct set values further.

If necessary, repeat the settings procedures, till the system intervenes each time the product is moved forward or backward and the products aren't positioned correctly.

"No product / No bag" 

The function "No Product/No Bag" allows to produce full bags only, thus preventing empty bags.
A photocell, placed on the infeed, detects the presence of product.
If the missing of one or more products on the infeed is detected at the end of the introduction of the last product in the bag, a signal to the PC is sent, which provokes the film and jaws stop; in this way the infeed continues to run, while sealing and cut-off are paused.
This product waiting condition is signalled by the lighting of the orange warning lamp.
When a new product arrives (detected by the photocell), the film synchronises again and the sealing and cutting cycle of the jaws restarts regularly.

Notes for the correct calibration of the photocell.

The calibration of the "No Product / No Bag" photocell should be carried out without product: the photocell should read the hook.

Conditions for the correct functioning

The "No Product/No Bag" is an option that can't be generalised for all the packing machines and for all the products to be wrapped. It's like saying that the mechanical systems works, but the film nature or the physic conformation of the product itself may become an impossible obstacle for its application.
Therefore, it should be assumed as a rule that the good operation of the No product/ No bag function is to be checked only during the setting of the machine, with product and film in the effective productive conditions.
The problems coming from the application of the No Product / No Bag, are based essentially on three factors:

- the first one is represented by the possibility the product has to slip on the film during the waiting stop for the next product;
- the second is, on the contrary, the difficulty a particularly tacky product has to get into a stopped film or in acceleration phase.
- the third is given by the difficulty a product has, when it stops and restarts in an asynchronous way referred to the jaws, to overrun the product support. Therefore, it is probable that a heavy and short product, or a very light film, even if helped by the final pair of rollers, will find difficulties in reaching the outgoing conveyor belt.

Operating rules

The primary rule is, where possible, to stop the rollers as soon as the hook is upside-down. This operation prevents the movement of the product inside the film. It may not be possible only if the rollers, due to the too advanced stop position, are not able to star and synchronise to the main motion before the jaws are in contact again for the next cut-

off. In this case, it is compulsory to stop rollers and jaws simultaneously after the cut-off has been executed.

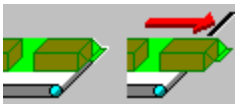
Activating the "No product / No Bag" function

The activation of this function is performed through the related key  .

Available instruments

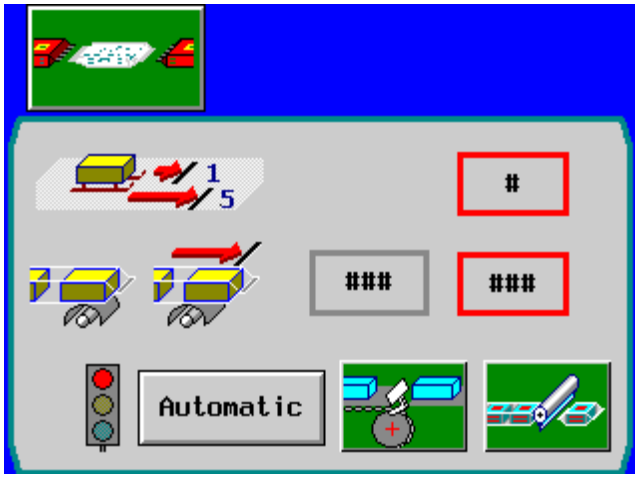
According to the product and bag lengths, the PC is able to calculate autonomously the optimal conditions for the rollers and jaws stop.
For the purpose of optimising the operating of the "No Prod/ No Bag", it is possible to intervene by selecting the values of some significant data, which meaning will be deepened afterwards. Hereafter the data are listed:

sliding coefficient  according to the product slipperiness, set a value between 1 and 5

film advance  in the maximum measure of the calculated margin

forcing the film start/stop when cutting  as an alternative to the decision autonomously taken by the PC to stop and restart the film when the hook flips-over

The electronic page dedicated to the No Prod/ No Bag is the following (it can be displayed by touching button "No prod/ No bag" in the Index page).



Operating

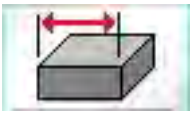
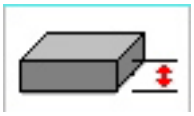
Simplifying to the maximum, it is necessary to stop rollers and jaws waiting for a product pushed by the hook into the film.
The main problems are represented by the need of stopping the jaws in "open" position, that is to say, after the cut-off, and as soon as the last presented product on the infeed has been completely introduced on the film by the hook.
The PC, according to the entered data, can take a fundamental decision:

- to start the stop cycle with the jaws in open position at the cutting, then stop the film during the hook flip-over;
- to start either the jaws stop cycle or the film stop in open position.

The fundamental condition that influences in taking such decision is related to the possibility the film has to accelerate, in order to be still synchronous when the jaws come in reciprocally contact. While in case of a film stop at the cut-off moment, the available margin corresponds to little less than a bag, in case of a stop at the hook flip-over, the margin should be assessed according to the bag position and referred to the next cut-off. To make it simpler, if the junction between a bag and the next one stops too close to the jaws, probably the film is not able to accelerate and synchronise before the cut-off.

Data needed for the automatic calculation

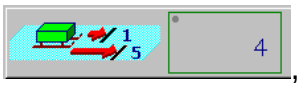
In order to allow the PC to calculate the conditions of the No pro/ No bag, first of all it is necessary to have already properly entered the data related to the product, namely:

- **product length** 
- **Product height** 
- **bag length** 

and to have found out the:

- **optimal product position** inside the wrap

Finally , it is necessary to assess a specific value of the No prod / No bag function, namely:

- **sliding coefficient** (which should be entered in the field  , which allows to define the product deceleration and acceleration according to the product slipperiness.

The datum is related to the section of the bag length inside which the deceleration of the film is performed, followed by the acceleration.
There are two possibilities:

- a very slippery product needs of an extremely smooth movement, to avoid its misplacement in the film during the film stop and start phases; therefore, it is necessary to enter a coefficient 4, or even 5;
- a very sticky product should be put into the film without slipping; therefore it is necessary that the film stops immediately at the flip-over and accelerates before the next product is put in it. In this case the coefficient to set is 3.

A low coefficient increases the limits within the PC decides to stop the film at the hook flip-over. For this reason, it is more probable to fall within this case.

The following table reports the bag length section used to accelerate or decelerate the film:

SLIDING COEFFICIENT	5	4	3	2	1
BAG LENGTH SECTION	3/8	1/4	1/8	1/16	1/32

Consequently, being in acceleration phase, a product wrapped in a bag 200 mm. long and for which a coefficient 4 has been set, moves forward for other 50 mm. after being released by the hook. This same distance is needed by the film to accelerate and to be synchronised again. As we have seen, the tail of the last product went forward 100 mm before the film got synchronised again.

Obviously, it is also necessary to take into account the production speed, as the dynamic introduced by the coefficients 1 to 3 may result not acceptable for the axes synchronisation. In case of "position" alarm related to the "film" axis, it is necessary to increase the sliding coefficient.

Hereafter are some recommendations in order to find out the correct coefficient:

- the choice of the coefficient should be done according to the film speed and the bag length;
- the coefficient that on average fits in quite all the cases is 4;
- the coefficient 3 is to be used as an alternative to 4, but only if problems about sticky products exist or if we want to be part of the cases that stop the film at the moment of the flip-over; in fact, the coefficient 4, having reduced margins, could have conditioned the PC in the choice of the film stop at the cut-off. Anyway, the coefficient 3 can imply the need to produce at lower speeds;
- the use of coefficients 1 and 2 assumes to have a very high dynamic behaviour; they are therefore to be used in extreme cases and with low speeds only;
- coefficient 5 is characterised by a remarkable product forwarding, especially if, as probable, the PC chooses to stop the film after the cut-off; due to the advanced stop position of the film and the long accelerating ramp, it may happen that the next product, pushed by the hook till the flip-over only, is not put inside in the proper position, since the hook may flip-over while the film is still accelerating; it is therefore advisable to put great attention during the product introduction phase, verifying that the position of a released product during no Prod / No bag is exactly the same as the products released in continuous run.

With this data, being in mode automatic

the PC takes its decision:

- jaws stopped after the film cut-off and film moving till the hook flip-over
- film moving after the flip-over till the next cut-off and stop with the jaws

How to change the product stop position

As stated before, one of the main problems consists in the difficulty of the product, to pass over the product support when it stops and then restarts non-synchronised with the jaws. Therefore, a short or heavy product, or transported by a very light film, even if helped by the final rollers, finds it difficult to reach the carry off belt.
A way to solve this problem is to move the product forward as far as possible during the stop in the No prod/ No bag cycle. This action has two consequences:

- the product head is capable to reach the carry off belt and is helped in its movement;
- the film stop corresponds to the product support stop and, consequently, they get synchronised again in the restart phase.

Use of the film advance

On the basis of the data and the film stopping mode, the PC identifies the so called "Calculated margin" of the film advance.
The assessment of the margin is as follows: after having accelerated the stop position in No prod / No bag, the film results synchronised when the above mentioned margin is the residual distance from the cut-off position.
Practically, if the programmer thinks it convenient, to move forward the position of the film stop during the cycle according to the value displayed by the "Film advance".

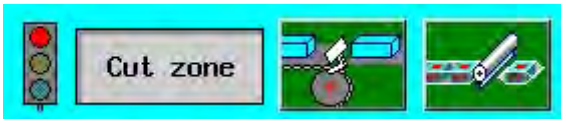
This margin gains some importance to the only purpose to move forward, toward the carry off belt, the product stopped on the jaws support. The optimum is represented by the position of the perfect middle: in this way, in fact, the film stop results almost synchronised with the jaws stop. So, the product doesn't find difficulties in passing over the support, since the latter is not stopped when the product passes by.
In any case, when the "Film advance" datum is used, it is necessary to verify the position where the product is released on the film; an exceeding forward movement may give as result the release of the next product in a wrong position.
The new product, in fact, pushed by the hook till the flip-over only, can be released while the film is still accelerating: it is therefore absolutely necessary to pay great attention to the product introduction phase, verifying that the position of a product released in No Prod / No Bag is exactly the same of the products released in continuous mode.

Finally, an exceeding infeed forces the next product to enter the film for a remarkable length when this is still stopped. It is not recommended in case of fragile or sticky products.

Forcing of the film stop cycle at the cut-off

On the contrary to what established in the "automatically" cycle, the programmer can "force" the cycle. Naturally, it is not possible to change a cycle of a film stop at the cut-off into a cycle of a film stop at the hook flip-over. The choice for the cut-off cycle has been taken because, with the other cycle, the infeed "Calculated margin" was missing. Therefore, touching key "Automatic"

we obtain: "Cutting stop"



Hereafter is stated when it may be useful to intervene in the computer decisions:

- In case if "advance margin" is near to 0; it means that the film gets synchronised an instant before the cut-off, a fact that may be not advisable in case of very low sliding coefficient and/or very high product.
- A remarkable distance between the cut-off and the successive flip-over forces the film to move forward when the cut-off has been performed, allowing the product to move towards the carry off belt; if this fact may sometimes be an advantage, in some cases it results disadvantageous, particularly when:
- the film moves forward with the support stopped;
- the last product, moving for a remarkable length inside the film during the stopping phase, forces the successive to do the same, having the film still stopped before the start.

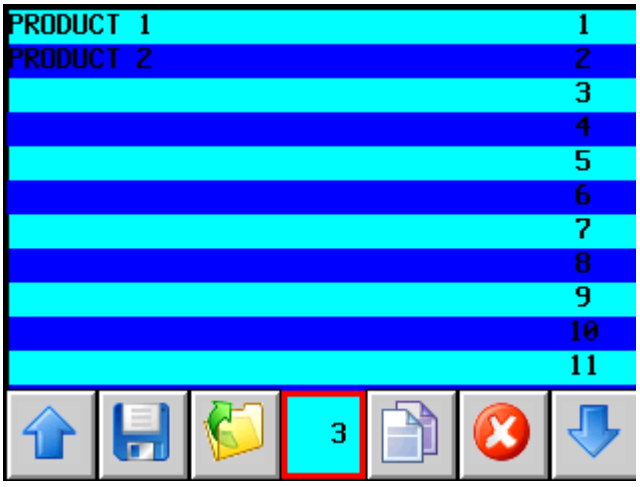
In any case, when the decisions taken by the PC are modified, it is necessary to verify the position of the product release in the film; an exceeding infeed may cause the release of the successive product in a wrong position. In fact, the new product, pushed by the hook till the flip-over only, can be released while the film is still accelerating; it is therefore necessary to pay particular attention to the product introduction phase, verifying that the position of a product released in No prod/ No bag is exactly the same to the position of the products released in continuous mode.

SAVING PARAMETER VALUES 

Now that the setting of the machine is finished and all functions have been put in operation it is **essential** saving and securing the setting data.

NOTE: The following saving operation will be not only memorise the specific product data but, in addition, an image of all the toolbars and their activated and deactivated functions.
Thus all functions will be set automatically upon reloading this particular product.

- With key F3 open INDEX page.
- Touch key "**Product list**".



- On page "Product List" illustrated below touch key  .
- Enter password then touch again key  .

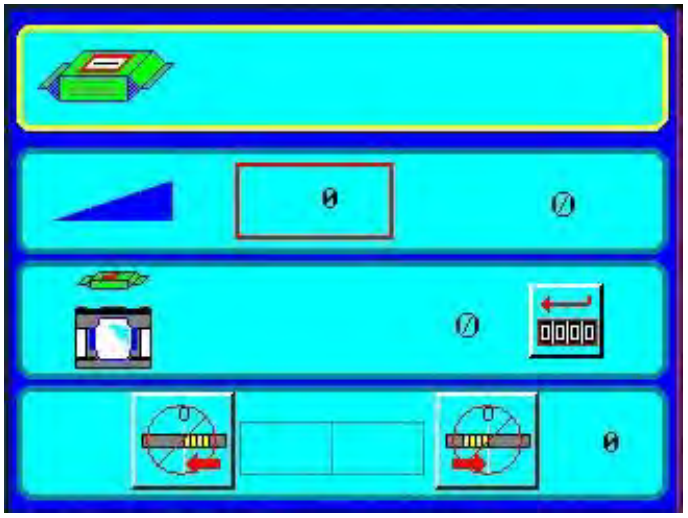
- Digit the new name (NEW PRODUCT) using the alphabetic and/or numeric keys.
- Touch key 
- When successful saving of data is confirmed in the window illustrated below

NOTE: After saving the product and setting data it is highly recommended to **enter all the values of the parameters and the mechanical settings** into the Setting Chart attached to this Section.
This is a safeguarding measure and a guarantee for an authentic set of data in case of data loss from the electronic memory.

PRODUCTION

If one has gone through all the operations described in previous paragraphs and entered the data into the operational program, the machine should now be ready for production

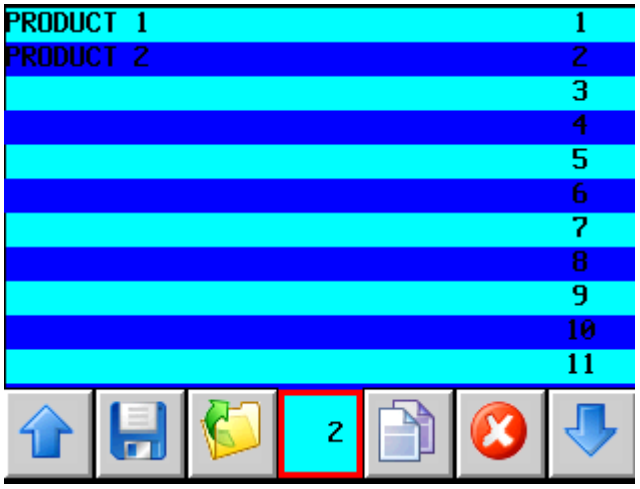
- Have all the required function been switched ON with the function keys?
- Have sufficient products been prepared for feeding the machine continuously?
- Display the Home page.
- Set the required production speed and push START button.
- Start feeding products.
- If working with panel printed film: watch the excursion of the illuminated bar in the indicator for printed film centring correction.



SIZE CHANGE 

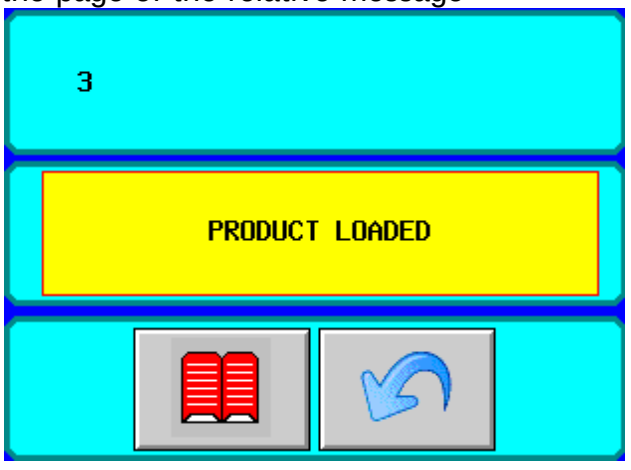
Size change means returning to and setting up the machine on a product whose parameters have **previously been established and save**.
To do so the relevant set of data has to be uploaded from the mass memory to the operating memory. Once this has been done the machine will automatically set itself to the new size whilst the non-automated settings have to be carried out manually.
For a complete size change the necessary steps are as follows:

- With key F3 open INDEX page.
- Touch key "**Product list**" to display the following page.



- Insert in the field 

the number of the new base product to be loaded, in this case product number 3
- Touch key  ; successful loading of the product is confirmed with the visualization on the page of the relative message



Press  to return to the product list page;

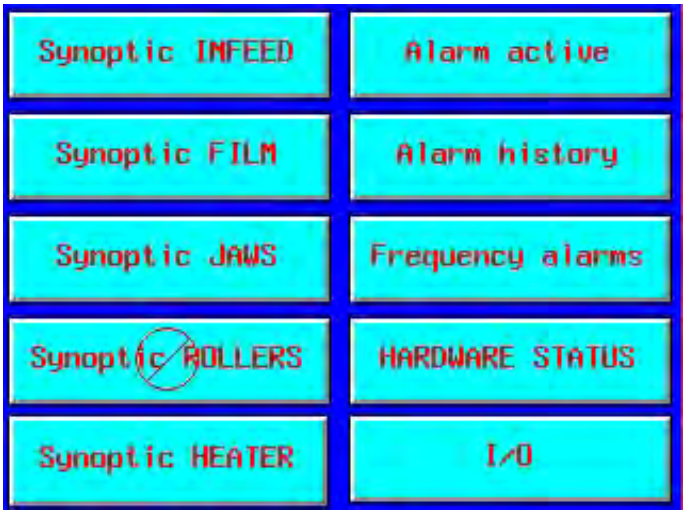
Press  to visualize the index page.

DIAGNOSTIC

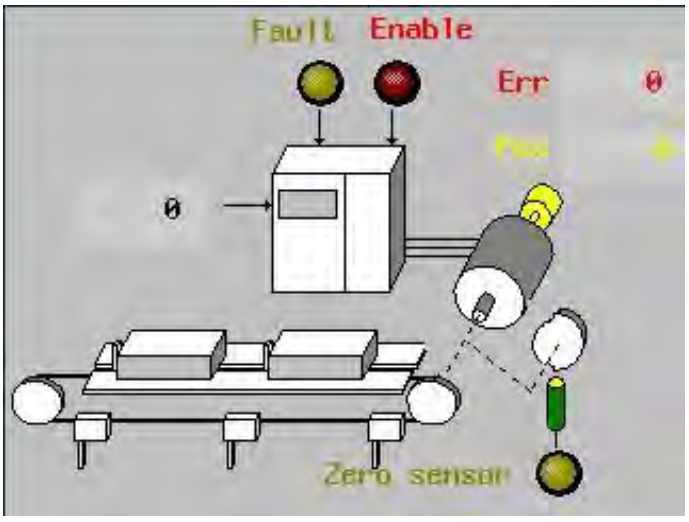
"DIAGNOSTIC" PAGE.

With key F5 open "**Service**" page .

Press **"Diagnostic"**



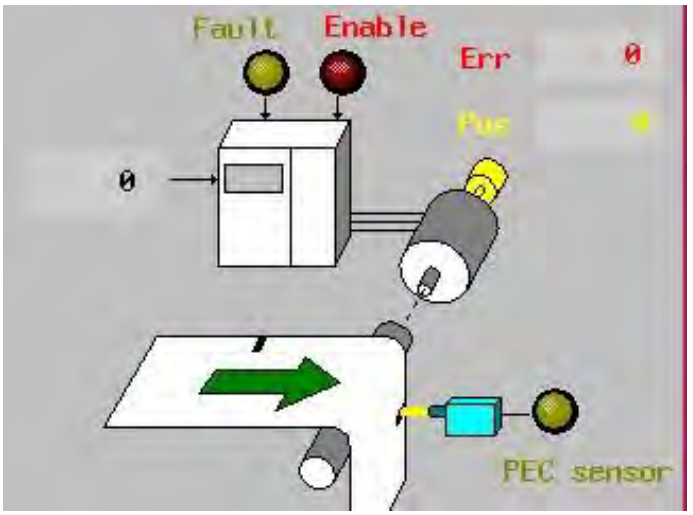
"SYNOPTIC INFEED" PAGE



LED	COLOR	TURNED ON	TURNED OFF
Fault	Yellow	Normal condition	The automatic switch or driver or thermal sensor (if present) doesn't work correctly
Enable	Red	The driver is active	Normal condition during Stop machine
Zero sensor	Yellow	The sensor detects the zero position	The sensor doesn't work correctly

FIELD	FUNCTION
Speed	Signals the speed analog reference provided by the inverter
Position	Signals the absolute encoder position
Error	Signals the position error of the chain axis

"SYNOPTIC FILM" PAGE

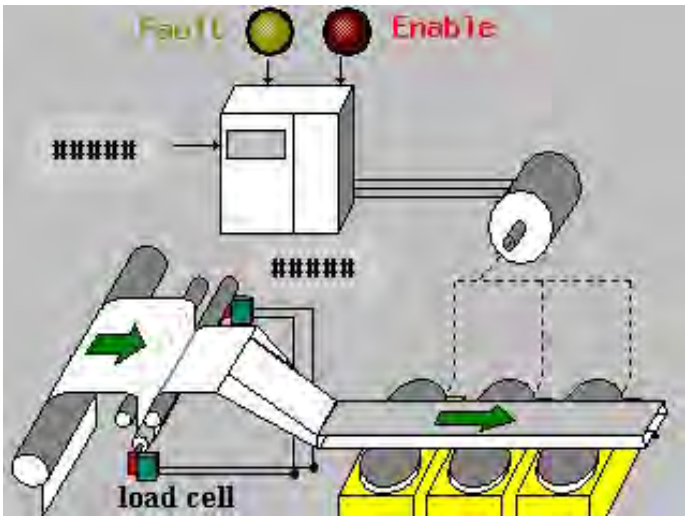


LED	COLOR	TURNED ON	TURNED OFF
Fault	Yellow	Normal condition	The automatic switch or driver or thermal sensor (if present) doesn't work correctly
Enable	Red	The driver is active	Normal condition during Stop machine
PEC sensor	Yellow	The photocell detects the printed film	The photocell doesn't detect

FIELD	FUNCTION
Speed	Signals the speed analog reference provided by the inverter
Position	Signals the absolute encoder position
Error	Signals the position error of the film axis

"SYNOPTIC ROLLERS" PAGE

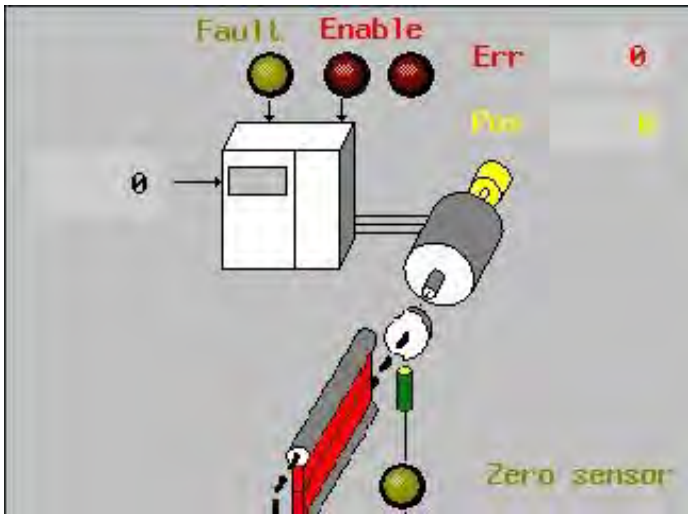
(Option)



LED	COLOR	TURNED ON	TURNED OFF
Fault	Yellow	Normal condition	The automatic switch or driver or thermal sensor (if present) doesn't work correctly
Enable	Red	The driver is active	Normal condition during Stop machine

FIELD	FUNCTION
Speed	Signals the speed analog reference provided by the inverter
Film Tension	Signal the actual strength applied at the film (mV scale 0-10V)

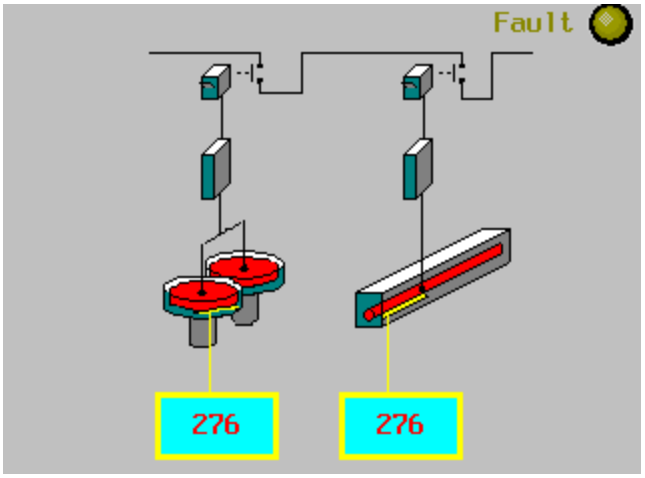
"SYNOPTIC JAWS" PAGE



LED	COLOR	TURNED ON	TURNED OFF
Fault	Yellow	Normal condition	The automatic switch or driver or thermal sensor (if present) doesn't work correctly
Enable	Red	The driver is active in forward direction	Normal condition during Stop machine
Enable	Red	The driver is active in backward direction	Normal condition during Stop machine
Zero sensor	Yellow	The sensor detects the mechanical cam to find the zero jaw position	The sensor doesn't detect

FIELD	FUNCTION
Speed	Signals the speed analog reference provided by the inverter
Position	Signals the absolute encoder position
Error	Signals the position error of the jaw axis

"SYNOPTIC HEATER" PAGE



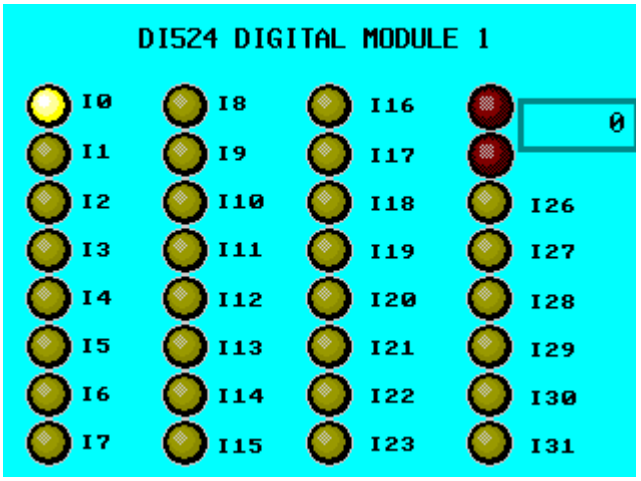
In the view fields it is possible to read the actual temperatures of the hot rollers and jaws.

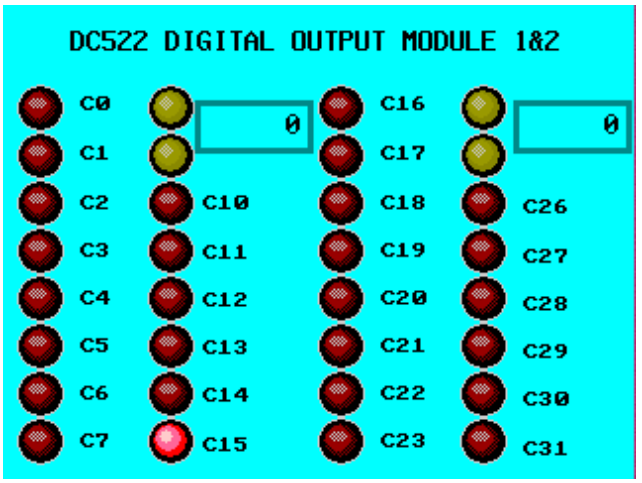
The YELLOW led Fault operates as general alarm: if it is TURNED ON indicates that no thermal intervention of the resistances protection circuit is present; if it is TURNED OFF indicates an alarm of thermal intervention of the protection switch of one or more sealing elements.

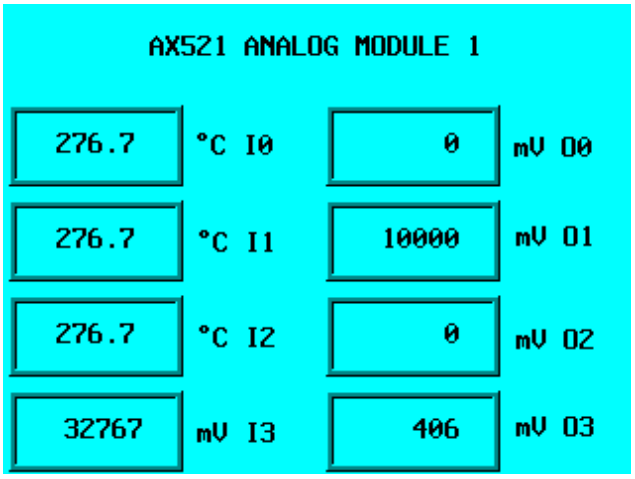
"I/O" PAGE

Service ILAPAK

LED TURNED ON Presence of signal (input / output).
LED TURNED OFF There's no signal (input / output).







"ALARM ACTIVE" PAGE

This page shows all the alarm active.

Press 

to acknowledge the alarm.

"ALARM HISTORY" PAGE

This page shows all the alarm occurred.

"FREQUENCY ALARMS" PAGE

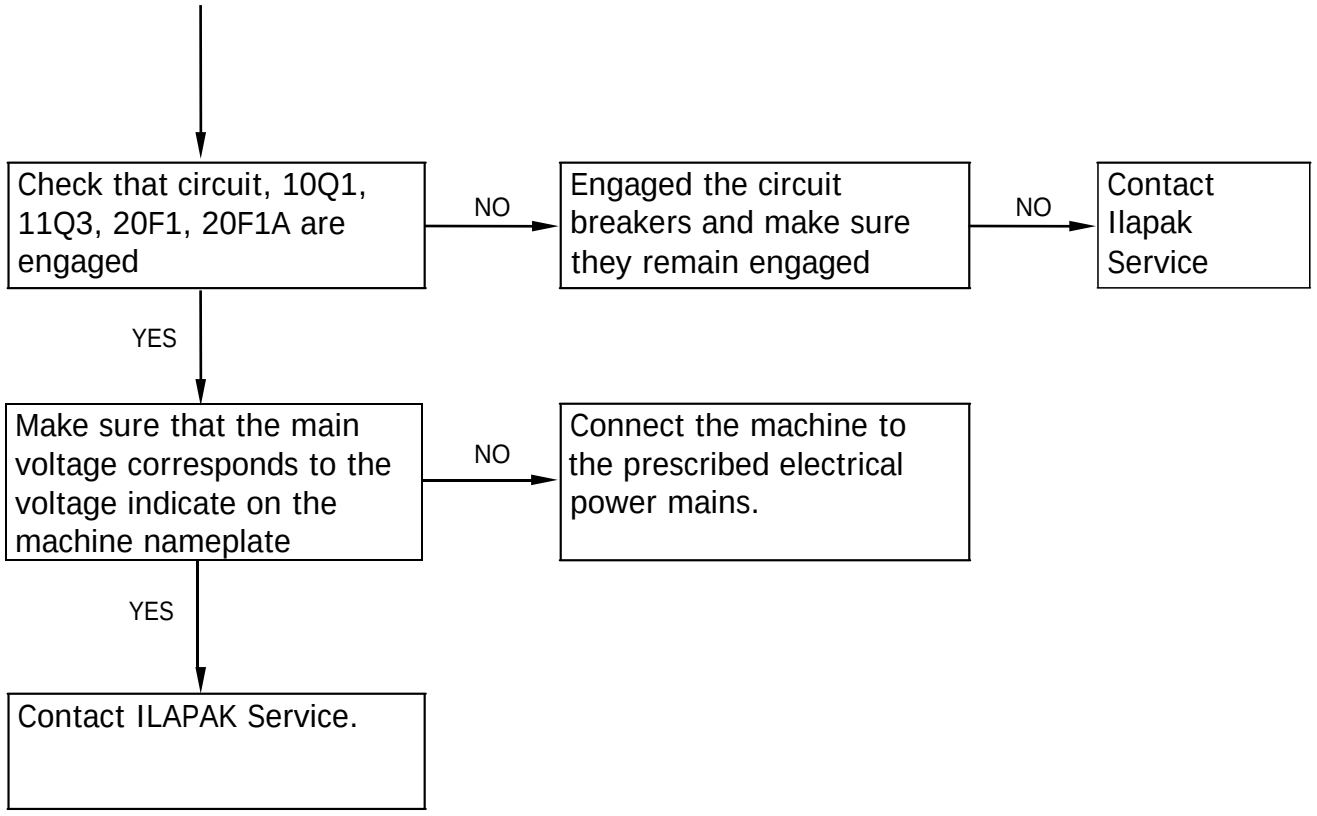
This page shows the frequency alarms list.

TROUBLESHOOTING

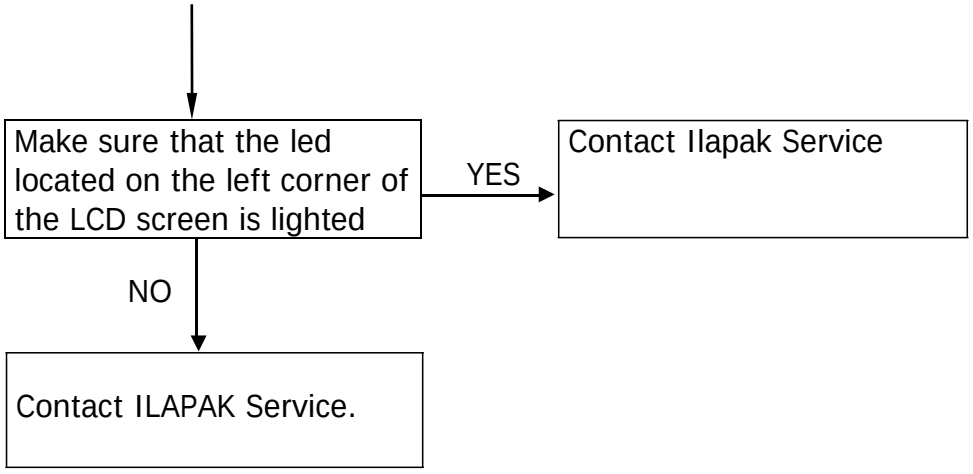
This section provides useful information for a quick location and removal of malfunctions that may occur during machine operation.
The procedure to follow to determine the malfunction cause and the relevant remedy permitting the machine to be restored to satisfactory operation are indicated in schematic form.
It is recommended that the sequence of the steps indicated here after is strictly adhered to in order to ensure that any possible malfunction cause is evaluated step by step and can be ruled out with certainty.

MACHINE MALFUNCTION DURING OPERATION

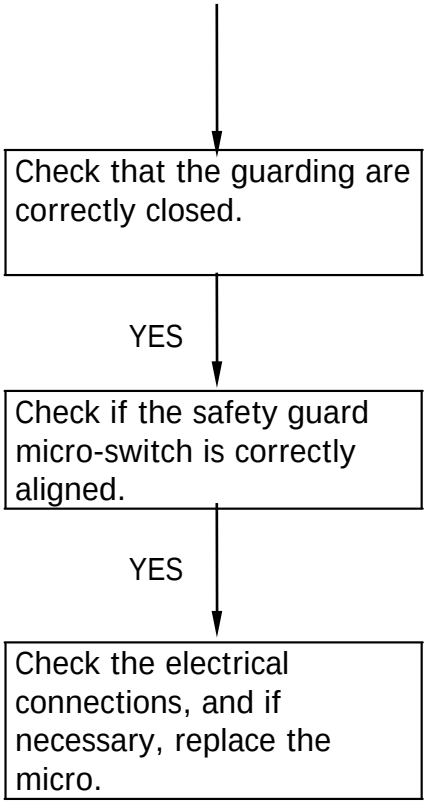
The machine does not turn – on when the main isolator is set to ON



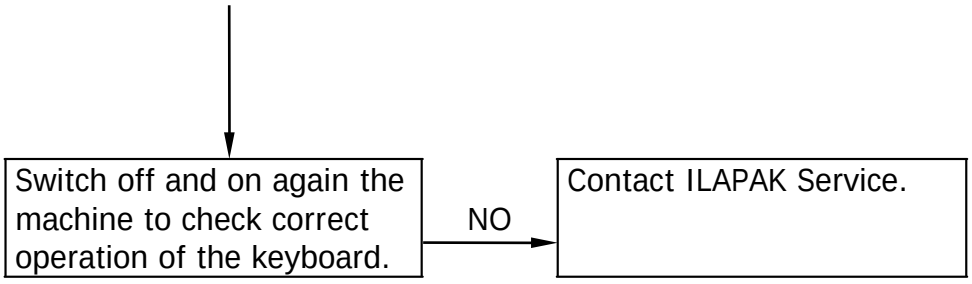
The white button illuminates, but the screen remains off when the main isolator is set to ON



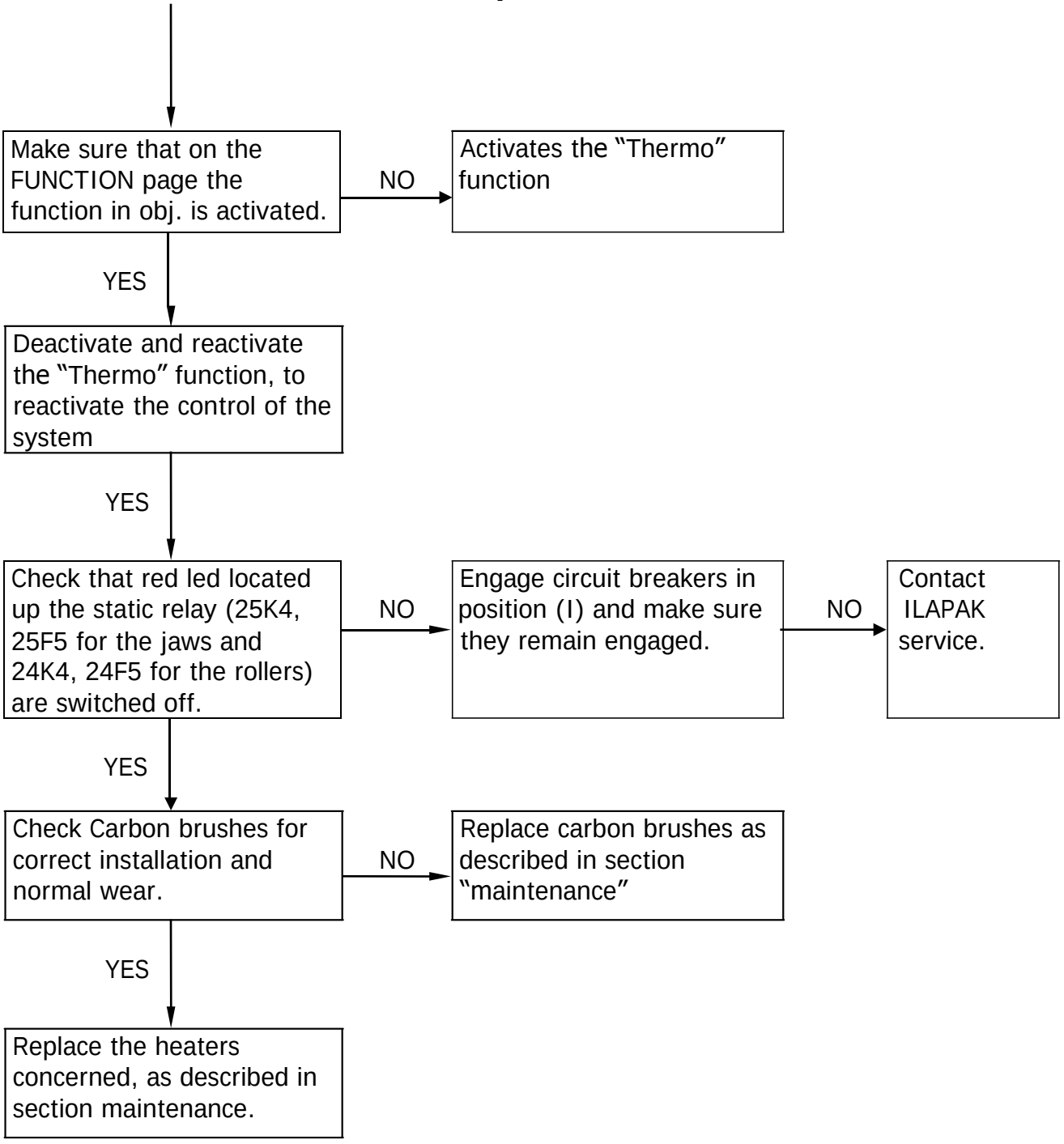
With safety guarding closed, the machine does not start.



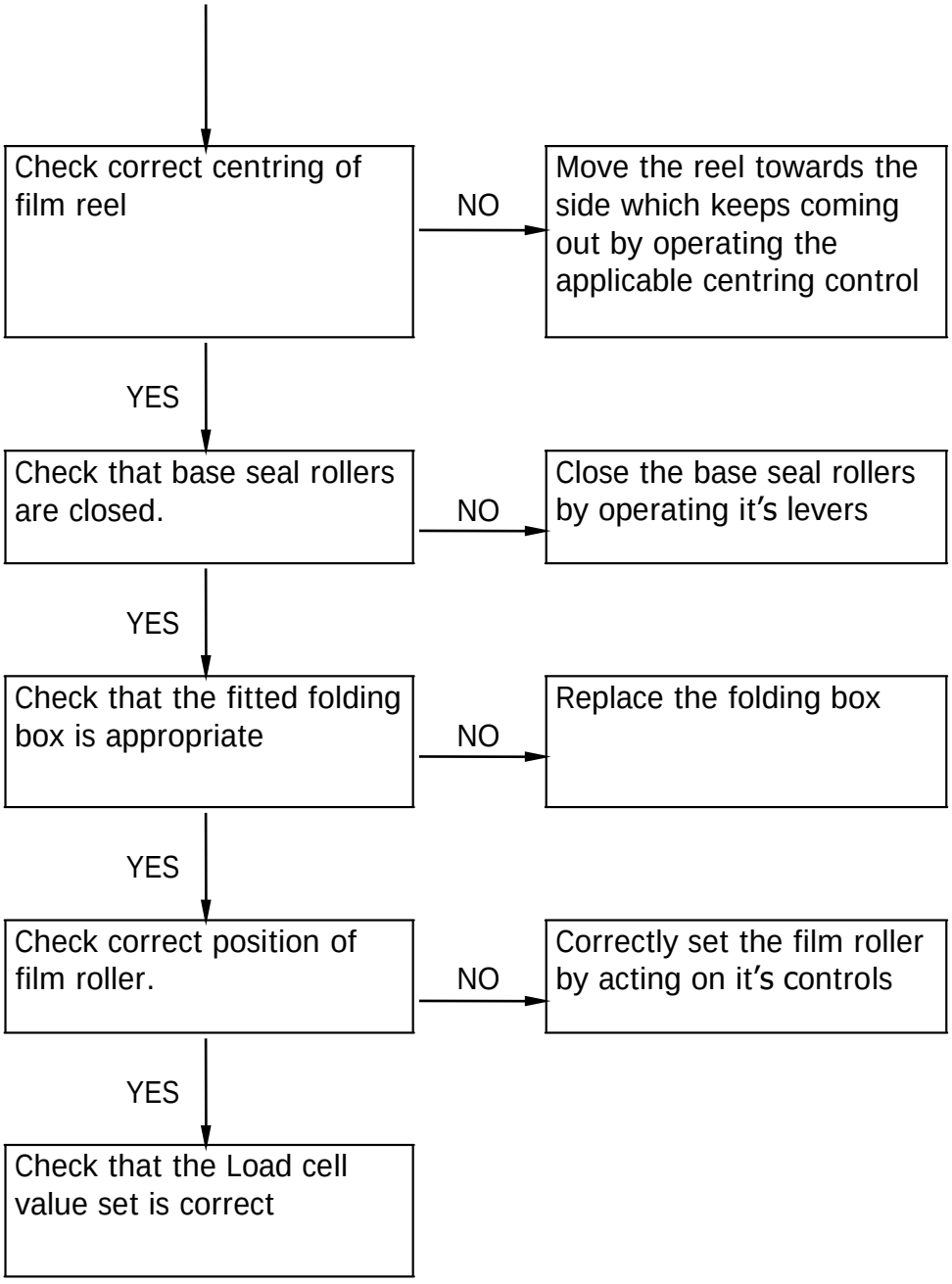
The Keyboard does not accept controls



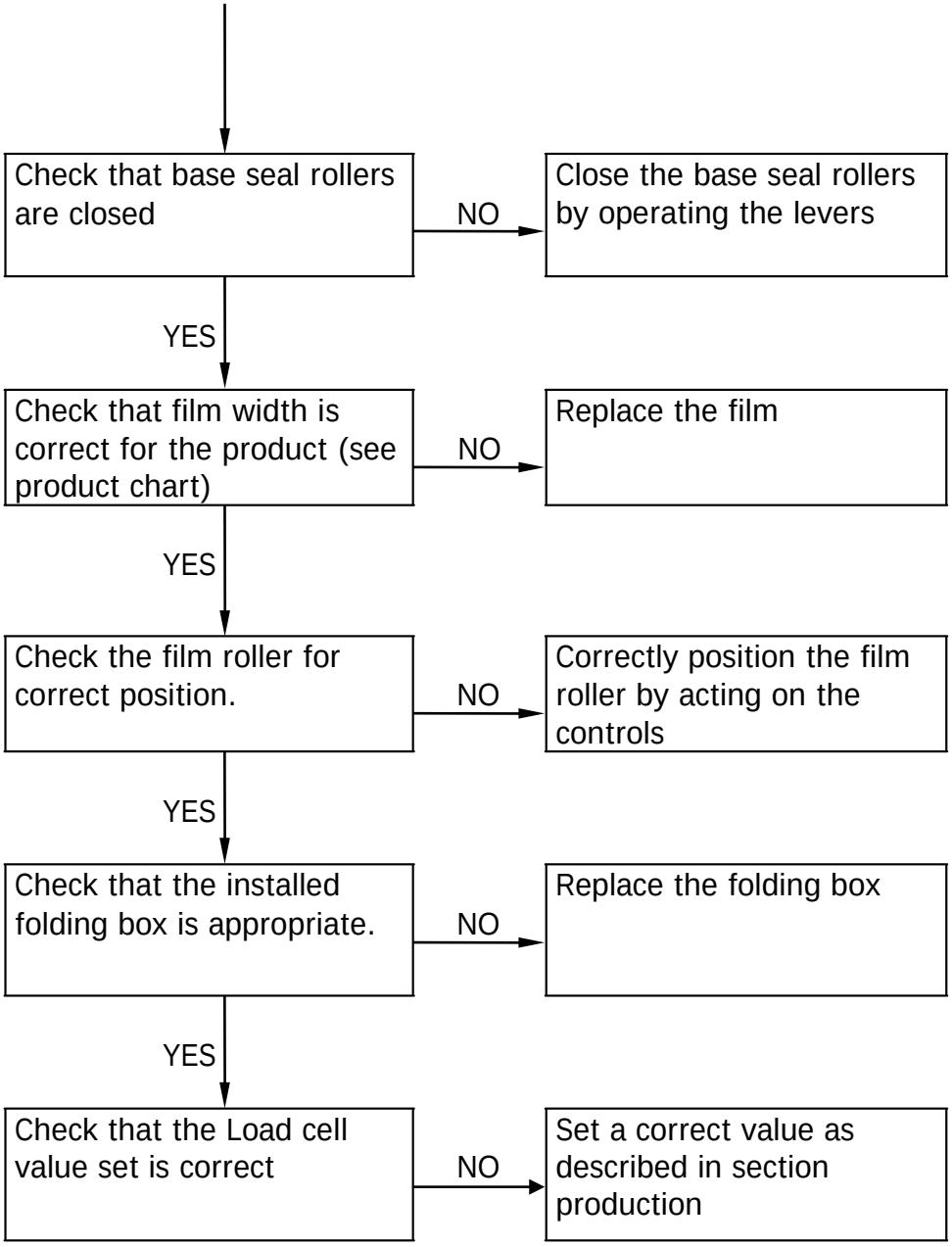
One or more heaters do not heat up



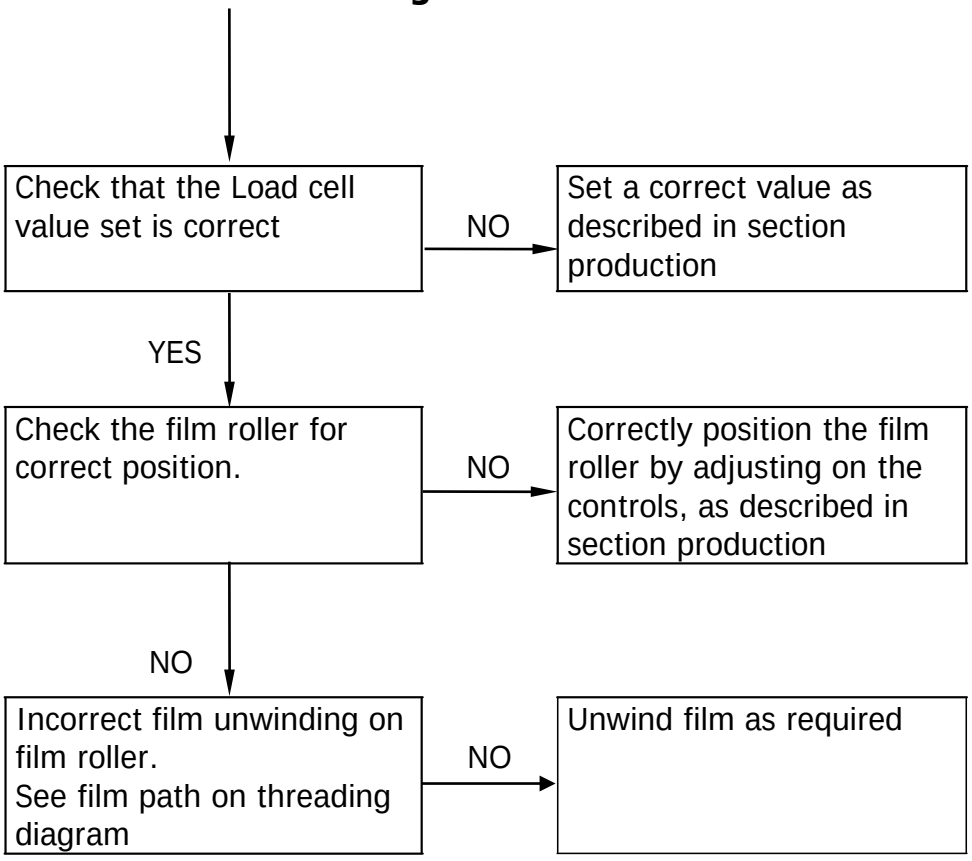
Film comes out from one side of folding box



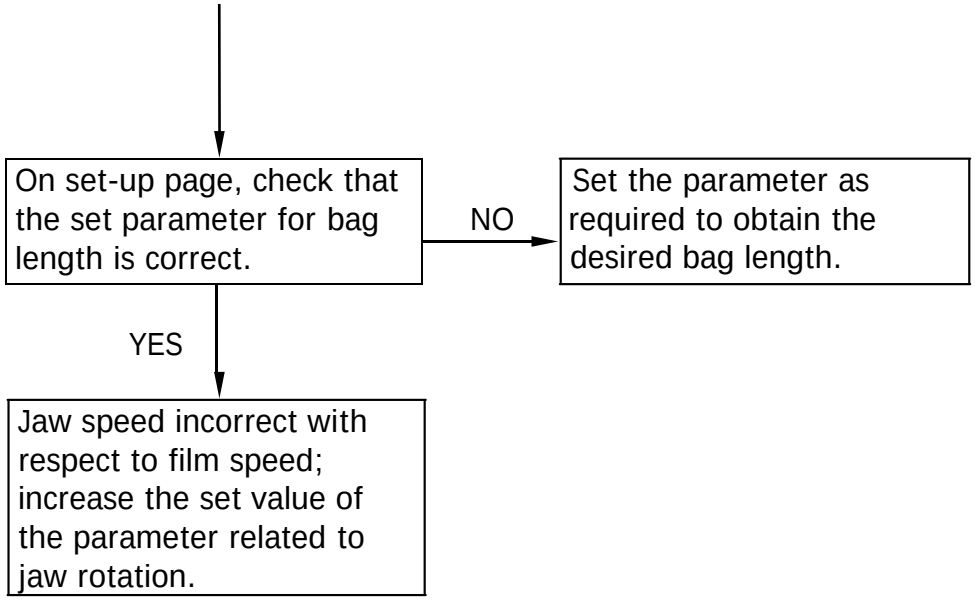
The film comes out from both sides of folding box



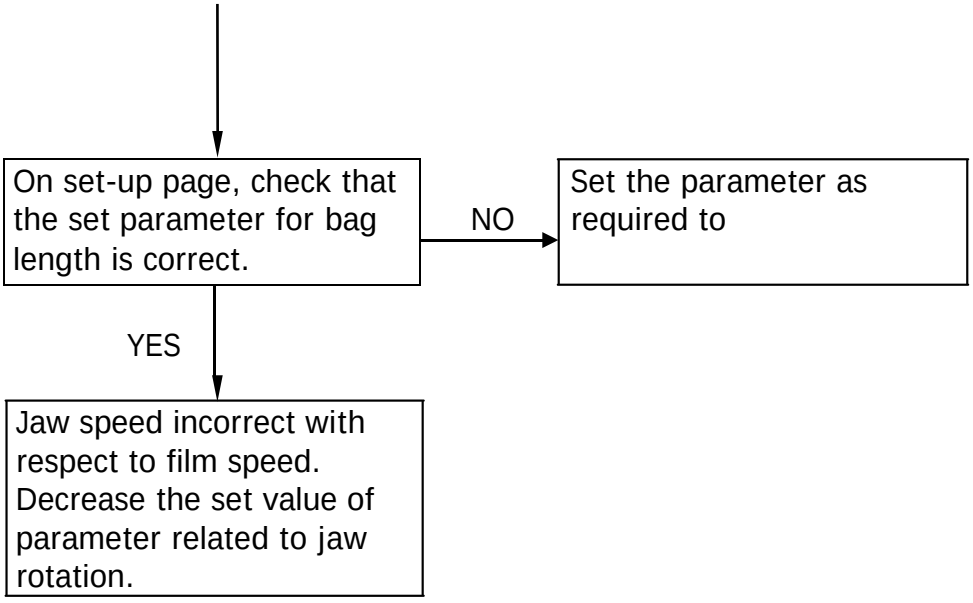
Film tears inside folding box



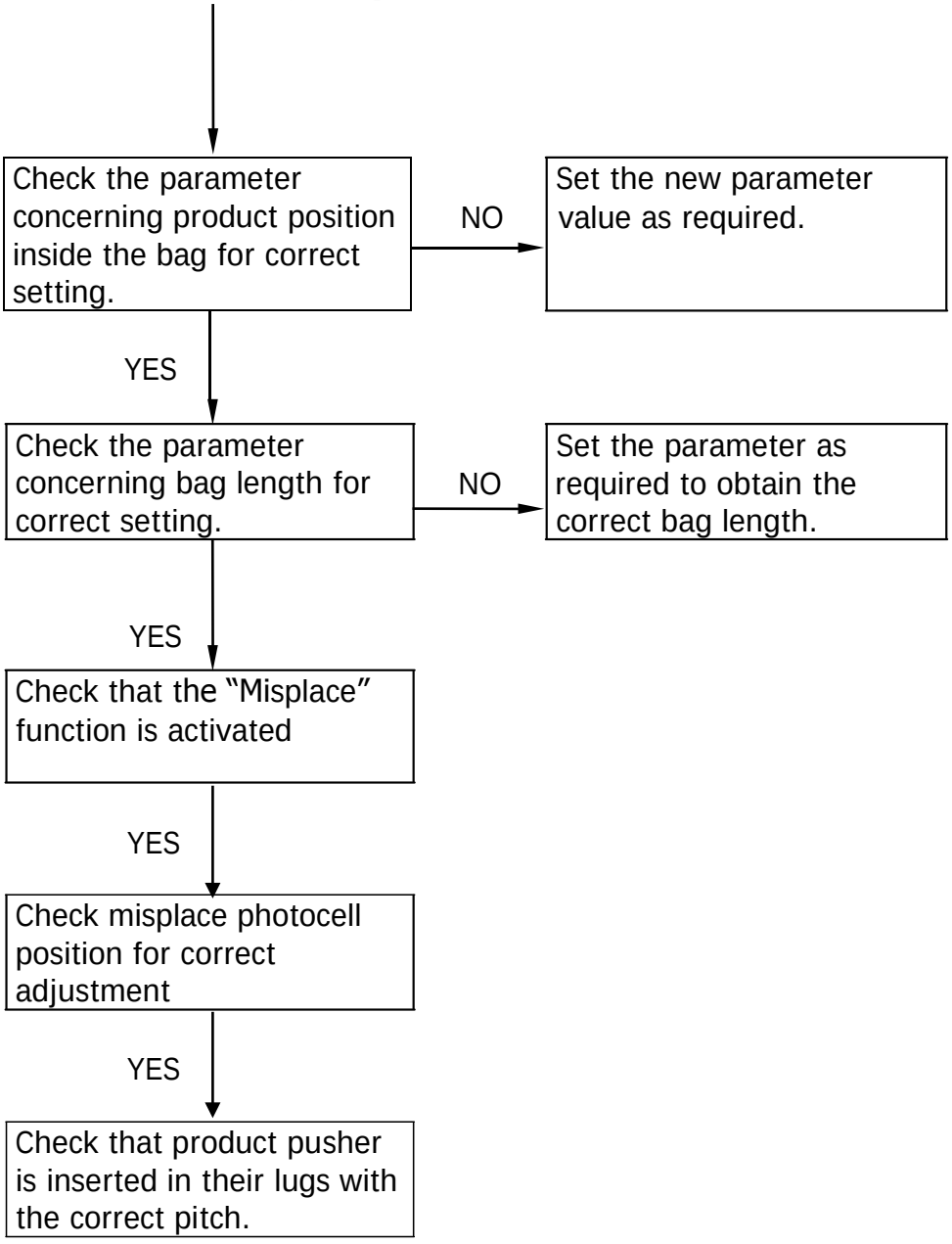
Film torn behind jaws



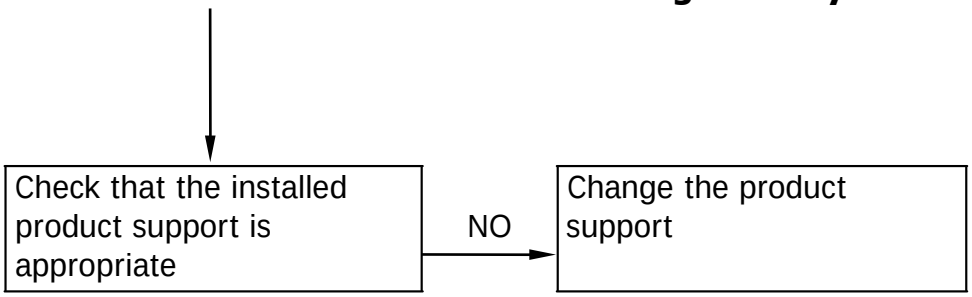
Film is torn by jaws



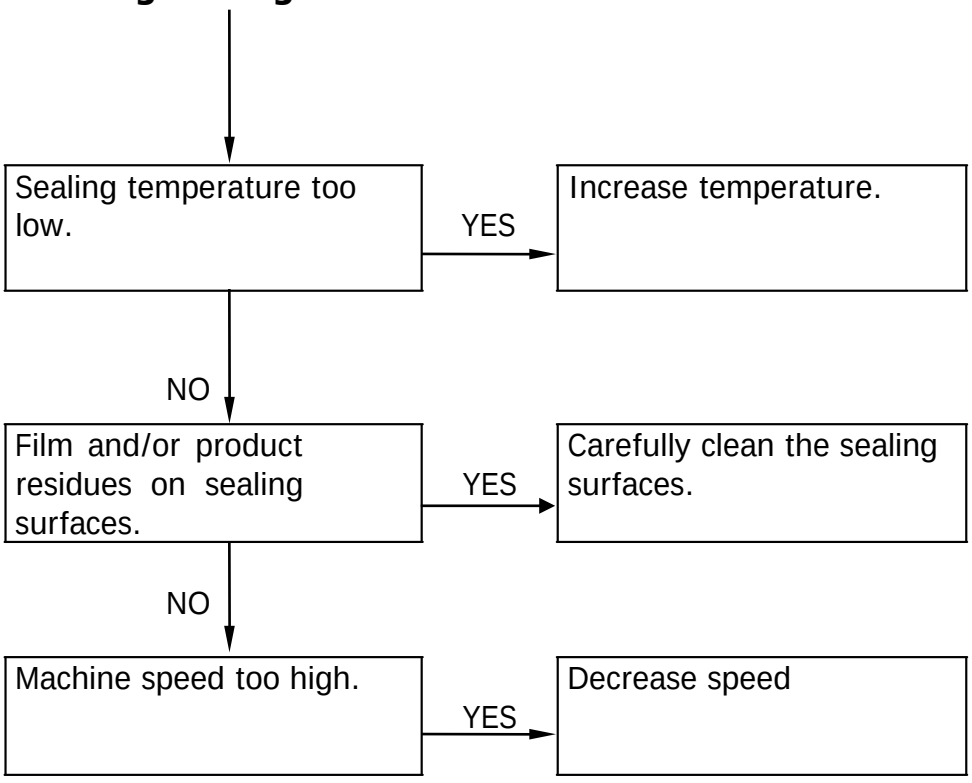
Product are caught by jaws



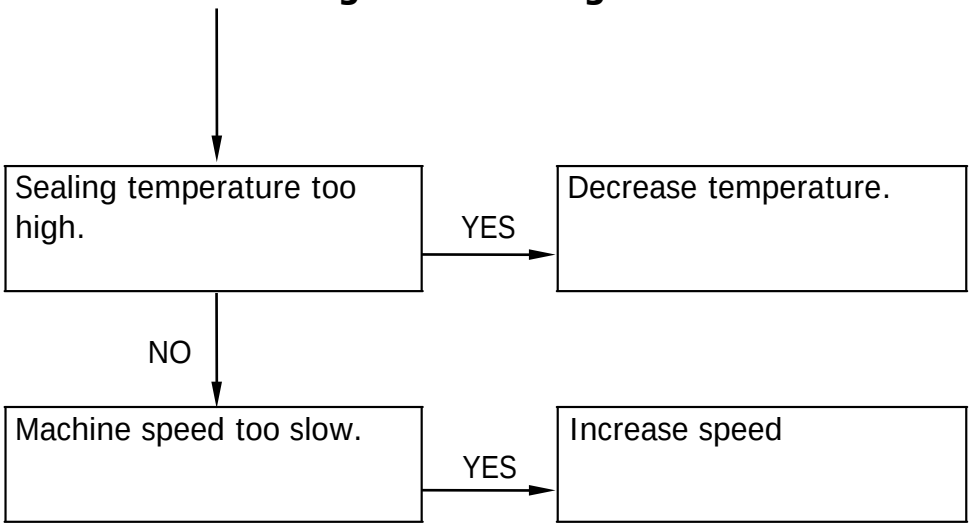
Product are not transferred to discharge conveyor belt



Missing Sealing



Film burn according to the sealing



ERROR MESSAGES

ALARM CODE	MESSAGGE	PROBLABLE CAUSE / REMEDY
1	EMERGENCY ON	Emergency button is pressed. Drives main line is off. To recover from this state, Unlock emergency button, then press START button one time.
2	COVER OPEN	Main guarding or eventual other auxiliary guarding open. Close the guarding and, press the power ON pushbutton.
4	CARTON END	Carton end sensor active. Carton reel is finished, or sensor doesn't work properly.
5	FAN OVERL. TRIPPED	Circuit breaker intervened. If the intervention of the circuit breaker persists, check the related electric circuit (refer to the electric diagrams).
6	OVERLOAD TRIPPED	Circuit breakers intervened. If the intervention of the circuit breaker persists, check the related electric circuit (refer to electric diagrams), as well as its connected heating resistors.
7÷ 10	AUXILIARY ERROR 1/2/3/4	The digital input related to the function receives no signal. The related function has been configured and enabled, but it is not used; disable the function not requested from the configuration (see Parameters Table).
11	INFEED CLUTCH ERR.	The infeed chain clutch is opened for some mechanical reasons. Check all lugs and infeed guide.
12	JAW CLUTCH ERROR	The jaws are carrying out closure with a product trapped inside them. Remove the product, then check efficiency of film pulling and the position of the product into the film. Furthermore check for eventual other obstacles (edge folder, etc.).
14	PRINTER ERROR	The digital input related to the function receives no signal. Check the status of the printer which alarm output is connected to the related reference input (see Parameters Table).
15	PRODUCT OVER LUG	Product on the feeding is out of phase or over lug. Product safety photocell has not been properly adjusted and/or positioned. Product safety photocell broken. The film is printed and does not allow to use function <Product safety> (See Instruction Manual).
16	TIMEOUT INFEED SETTINGS	Rephasing procedure of the related movement control failed because: electric power in not on, sensor of Zero point of the interested movement didn't worked because broken, the necessary movement has not been reached the sensor hasn't been properly adjusted.
17	TIMEOUT JAW SETTINGS	Rephasing procedure of the related movement control failed because: electric power in not on, sensor of Zero point of the interested movement didn't worked because broken, the necessary movement has not been reached sensor hasn't been properly adjusted

ALARM CODE	MESSAGGE	PROBLABLE CAUSE / REMEDY
18	TIMEOUT PRINT REGISTRATION SETTING	Rephasing procedure of the related movement control failed because: electric power in not on, sensor of Zero point of the interested movement didn't worked because broken, the necessary movement has not been reached sensor hasn't been properly adjusted.
26	NO PRODUCT ON INFEED	Product must be present on infeed. Check if there are some mechanical obstacles between product phase and infeed chain or check if the photocell are working properly.
27	FILM END	Check if reel in use is finished, substitute reel, check sensor regulation or check if reel in use selection is right.
28	FILM ROPTURE	Film ran off during production. The propelling rollers have been open during production or with film inserted. Film went out of the guides of the folding box and/or from the propelling/sealing rollers. Film has not been properly unwinded on the rollers.
29	JAWS SYNCRO ERROR	Jaws axis is out of position check encoder, driver, electrical connections or external mechanical causes.
30	LOW AIR PRESSURE	Insufficient pressure of air supply system, check external air supply system. Pressure switch to be calibrated calibrate as requested.
31	COOL LEVEL LOW	Insufficient liquid level in cooling system, check the liquid level refill the cooling system.
32	INFEED POSITION ERROR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant driver are not correct. Check by the Test program the operation of the encoder and eventually replace. Mechanical transmission shows troubles or failures due to external causes.
33	INFEED DRIVER ERROR	Automatic circuit breaker related to alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists replace the inverter (see Instruction Manual).
34	INFEED ENCODER ERR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant inverter aren't correct. Check by the Test program the operation of the encoder and eventually replace. Mechanical transmission shows troubles or failures due to external causes.
35	INCORRECT LUG PITCH	Make sure of the correct correspondence between real pitch and parameter. One or more product pushing lugs missing and/or not correctly positioned. The product presence photocell doesn't read reads with difficult or is broken, dirty or not properly adjusted.
36	PRODUCT PEC FAULT	The product presence detection pec (on the feeding table) is not properly positioned and/or adjusted. Photocell broken. Problems of electric connection.
37	FILM POSITION ERR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant driver are not correct. Check by the Test program the operation of the encoder and eventually replace. Mechanical transmission shows troubles or failures due to external causes.

ALARM CODE	MESSAGGE	PROBLABLE CAUSE / REMEDY
38	FILM DRIVER ERROR	Automatic circuit breaker related to the alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists replace the inverter (See Instruction Manual).
39	FILM ENCODER ERROR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant inverter are not correct check by the Test program the operation of the encoder and eventually replace mechanical transmission shows troubles due to external causes.
40	PRINTED FILM ERROR	The cut pitch indicated in parameter is very different from the distance between the film marks. The film has not print marks or it is neutral. The marks are not well readable. Printed film pec is not properly positioned the film slips on the rubber roller.
41	FILM PEC FAULT	The film photocell is continuously reading. Maybe the photocell eye is dirted or not properly adjusted.
43	JAW POSITION ERROR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant driver are not correct. Check by the Test program the operation of the encoder and eventually replace. Mechanical transmission shows troubles or failures due to external causes.
44	JAW DRIVE ERROR	Automatic circuit breaker related to the alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists replace the inverter.
45	JAW ENCODER ERROR	Encoder of the relevant drive does not work properly. One or more parameters of the relevant inverter are not correct check by the Test program the operation of the encoder and eventually replace mechanical transmission shows troubles due to external causes.
46	JAW PROXIMITY ERROR	Mechanic transmission broken. The position detection sensor does not read properly. The signal does not reach the digital interface board. The signal from the digital interface board does not reach the PC.
47	JAW SAFETY JOINT ERROR	The jaws are carrying out closure with a product trapped inside them. Remove the product, then check efficiency of film pulling and the position of the product into the film. Furthermore check for eventual other obstacles (edge folder, etc.).
64	JAW PROBE ERROR	The relevant temperature probe is broken. The probe is interrupted. Problems of electric connection. Confirm using the test program, the operation of the analogic interface board. Eventually replace the board, the flat cable and/or the PC.
65	ROLLER PROBE ERROR	The relevant temperature probe is broken. The probe is interrupted. Problems of electric connection. Confirm using the test program, the operation of the analogic interface board. Eventually replace the board, the flat cable and/or the PC
66	THIRD ROLLER PROBE ERROR	The relevant temperature probe is broken. The probe is interrupted. Problems of electric connection. Confirm using the test program, the operation of the analogic interface board. Eventually replace the board, the flat cable and/or the PC

ALARM CODE	MESSAGGE	PROBLABLE CAUSE / REMEDY
67	UP JAW PROBE ERROR	The relevant temperature probe is broken. The probe is interrupted. Problems of electric connection. Confirm using the test program, the operation of the analogic interface board. Eventually replace the board, the flat cable and/or the PC.
68	LOW JAW PROBE ERROR	The relevant temperature probe is broken. The probe is interrupted. Problems of electric connection. Confirm using the test program, the operation of the analogic interface board. Eventually replace the board, the flat cable and/or the PC.
70	SECOND ROLLER NOT RISING	Heating element interrupted. Relays in solid state after failure. Interruption on the related electric connection. Failure on the output digital interface board. Eventually replace the board, the flat cable and/or the PC.
71	THIRD ROLLER NOT RISING	Heating element interrupted. Relays in solid state after failure. Interruption on the related electric connection. Failure on the output digital interface board. Eventually replace the board, the flat cable and/or the PC.
72	UPPER JAW NOT RISING	Heating element interrupted. Relays in solid state after failure. Interruption on the related electric connection. Failure on the output digital interface board. Eventually replace the board, the flat cable and/or the PC.
73	LOWER JAW NOT RISING	Heating element interrupted. Relays in solid state after failure. Interruption on the related electric connection. Failure on the output digital interface board. Eventually replace the board, the flat cable and/or the PC.
75	SECOND ROLLER OVERLIMIT	Temperature of the concerned element differs from the set value for more than 20 øC. During first machine operation or after a remarkable change of the set temperature value, it is normal to have this message displayed.
76	THIRD ROLLER OVERLIMIT	Temperature of the concerned element differs from the set value for more than 20 øC. During first machine operation or after a remarkable change of the set temperature value, it is normal to have this message displayed.
77	UPPER JAW OVERLIMIT	Temperature of the concerned element differs from the set value for more than 20 øC. During first machine operation or after a remarkable change of the set temperature value, it is normal to have this message displayed.
78	LOWER JAW OVERLIMIT	Temperature of the concerned element differs from the set value for more than 20 øC. During first machine operation or after a remarkable change of the set temperature value, it is normal to have this message displayed.
80÷ 95	ALARM 1÷ 15 FROM PLC	Alarm condition setted by plc configuration, check device connected to plc, its program ,and wiring connection to find the reason.
96÷ 104	BELT 1÷ 9 DRIVER ERR	Automatic circuit breaker related to the alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists, replace the inverter.
109	VACUUM PUMP	Automatic circuit breaker related to the alarmed inverter intervened. Check vacuum device, motor and electrical connections.

ALARM CODE	MESSAGGE	PROBLABLE CAUSE / REMEDY
116	SLIP T. DRIVE ERR	Automatic circuit breaker related to the alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists, replace the inverter (see Instruction Manual).
117	EXTRA AXIS DRIVE ERR	Automatic circuit breaker related to the alarmed inverter intervened. Alarm for inverter overload or under load. Drive thermal switch intervened. If the intervention of the circuit breaker persists replace the inverter (see Instruction Manual).
123	PRODUCT SAFETY	Product on the feeding is out of phase. Product safety photocell has not been properly adjusted and/or positioned. Product safety photocell broken. The film is printed and does not allow to use function <Product safety> (see Instruction Manual).
124	MISPLACE PRODUCT PEC ERROR	The product safety photocell (close to the jaws) is not properly positioned and/or adjusted. Photocell broken. Electric connection troubles and/or photocell supply. Check relevant electric connections (see electric diagram).
125	LUG PEC FAULT	Lug detection photocell isn't work properly, is broken, dirty, or not setted check electrical connection and board.
144	LABEL APPLICATOR ALARM	The carton loader/label applicator(s) is not running proberly. Check the device in order to find the problem.

MAINTENANCE

GENERAL

The SMART flow-wrapping machine was designed and manufactured to include high-quality, best-on-market to ensure a long operating file.
It is, therefore, recommended that careful periodic maintenance actions be scheduled by considering the workload of the machine and the environment where it is installed.
To this end, a few maintenance procedures to be carried out at periodic intervals are described hereafter. However, it is left to the judgement of the specialist tasked with machine maintenance to change intervals as necessary.

SAFETY CONDITION

During the maintenance of the machine, it is often necessary to work on it with open guards or with disconnected safety devices; therefore it is important, that the working area is not accessible to people, who are not in charge with these operations.
If there should be carried out maintenance interventions or repairs, where the access doors have to be opened or where the protection guards have to be removed, be very careful and apply specific safety measurements.
At the end of the maintenance interventions, check that no tool which has been used, is inside the accident prevention protections or in the working area.

ATTENTION

- **the maintenance operations of the machine should be carried out by skilled staff in charge of these operations; the staff should be equipped with the necessary equipment and where necessary of indiviual accident prevention protections.**
- **prohibit the access to the areas of the maintenance operations to the entire staff, who are not directly in charge with this job, using the most suited means (barriers, signs, etc.).**
- **carry out the maintenance operations as indicated; if you work in a different way or use different means, it is possible to cause damages to people or things not responsible to Ilapak.**

PUTTING IN MAINTENANCE CONDITION

Before starting whatever maintenance operation it is necessary to place the machine in maintenance condition, proceeding as follows:

- Press the machine stop button STOP to exclude the electrical current to the main motor.
- Exclude the pneumatic installation, removing the fast connection.
- Exclude the electrical current of the machine placing the general switch in position "0".
- Lock the general switch in "0" position.
- If present, remove all the keys from the control board.
- If possible, highlight with indication panels the maintenance condition of the machine.

PERIODICAL MAINTENANCE

The periodical maintenance conditions, indicated in table A should be carried out at established time intervals, in order to guarantee an always correct and constant operation of the machine.

DETAIL	KIND OF INTERVENTION	FREQUENCY (see note)				
		100 hours	400 hours	1200 hours	2500 hours	5000 hours
MACHINE						
Base, cover and main components.	Cleaning	*				
Sliding parts	Cleaning	*				
Base and feeding	Level check				*	
MECHANICAL PARTS						
Bolts and nuts	Tightening check				*	
Reel brake group	Wear and tear check and level operation			*		
Belts	Tension check		*			
SAFETY DEVICES						
Emergency stop button on panel	Efficiency check		*			
Emergency stop button on feeding	Efficiency check		*			
Safety switch for guards to be opened	Efficiency check		*			
ELECTRICAL INSTALLATION						
• Input cables in the main isolator switch	Terminals fixing check				*	
• Earthing connection cables	Terminals fixing check				*	
• Cables on fuses, remote control switches, thermal relays and other components in the power box	Terminals fixing check				*	
• Cables on the heating resistances and power motors	Terminals fixing check				*	
• Cables on solenoid valves, end strokes and proximity	Terminals fixing check				*	
• Heating resistances	Absorbing check		*			
ADAPTORS						
• Oil	Level check			*		

DETAIL	KIND OF INTERVENTION	FREQUENCY (see note)				
		100 hours	400 hours	1200 hours	2500 hours	5000 hours
CONTROL BUTTONS AND SELECTORS						
• Buttons and selectors on the panel	Operation check				*	
• Controls and indicators on the electrical panel	Operation check				*	
PNEUMATIC INSTALLATIONS						
Pressure regulator	Condensation drainage	*				
Pressure regulator	Filter cleaning			*		
Different components	Efficiency check				*	
COOLANT INSTALLATION (OPTIONAL)						
• Cooling areas	Check and possible decalcification					*
• Piping	Check for possible drawn				*	

Table A - Periodical maintenance

NOTE Frequency maintenance interventions
100 running hours correspond to a weekly rate
400 running hours correspond to a monthly rate
1200 running hours correspond to a three-monthly rate
2500 running hours correspond to a six-monthly rate
5000 running hours correspond to a yearly rate

MACHINE MAINTENANCE

Frame cleaning and main components

Weekly or every 100 running hours clean the machine from dust and possible processing residues. The cleaning of the machine as well as to preserve the machine from decline constitute also an excellent means to inspect the various components and to identify possible upcoming defects;
Because of machine design, general cleaning is a very easy and quick operation.

WARNING

MAKE SURE THAT THE MACHINE IS DISCONNECTED FROM THE ELECTRICAL POWER SUPPLY DURING CLEANING.
WATER JETS MUST NEVER BE USED ON THE MACHINE, INSIDE IT, ON CONTROL PARTS AND ABOVE ALL IN THE ELECTRICAL CABINET.

Infeed Conveyor

- Clean the steel surfaces painted by use of the electrostatic method with a damp cloth or a sponge. Use mild detergents.
- Wash the stainless steel surfaces painted by use of the Steel-It method with a cloth or a sponge. Use mild detergents.
- Wash the stainless steel surfaces (chain, shaft, gears, etc.) with warm or cold water using mild detergents or disinfectants.
- Do not use high pressure steam jets or water jets as the machine components that are less protected might be damaged.
- Remove the lower guarding of the infeed conveyor and the folding box, then clean the area with a vacuum or a blast of compressed air.
- Feeding bed chain: in order to avoid that product residues get attached to the chain due to the lubrication, it is necessary to use a silicone spray lubrication.

Machine Body

- Clean the steel surfaces painted by use of electrostatic method with a damp cloth or sponge. Use mild detergents.
- Wash the stainless steel surfaces painted by use of Steel it method (nickel plated or anodised components of film reel mounting) with a cloth or a sponge, using mild detergents.
- Wash the stainless steel surfaces (nickel plated or anodised components of the longitudinal sealing system, etc) with warm or cold water using mild detergents or disinfectants.
- Do not use high pressure steam jets or water jets as the machine components that are less protected might be damaged.

Clean the Lexan panels of the safety guards and the display of the interface with a proper product suited to the glass cleaning; don't use solvents of any kind.

Clean the inside of the electrical power panel using an exhauster.

Longitudinal sealing and propelling rollers

Remove film or product debris from the rollers and their housing by a blast of compressed air or by use of vacuum cleaner.

Jaws

Make sure that the jaws are constantly clean, and that there are no film or product debris trapped between them, that may impair the sealing characteristics. To clean the jaws use a brass brush. Besides, make sure that the brush is moved only in the direction of the grooves on the jaw.

Discharge conveyor belt

Clean with a damp cloth or sponge, using mild detergents.

CAUTION: DO NOT USE SOLVENTS, as they may damage the belt.

Jaw and roller heater rotary collectors

WARNING BEFORE PROCEEDING TO CLEAN THE ROTARY COMMUTATORS, MAKE

SURE THAT ELECTRICAL POWER SUPPLY IS DISCONNECTED

- Periodically, clean with a cloth soaked with alcohol.

WARNING **DON'T DISPERSE THE USED CLEANING CLOTHS IN THE ENVIRONMENT BUT DISPOSE THEM ACCORDING TO THE LEGAL ANTIPOLLUTION STANDARDS.**

Levelling check

Every six months or every 2500 running hours verify the levelling of the machine and of the feeding bed as indicated at the beginning section and reset them, if necessary.

MECHANICAL PARTS MAINTENANCE

Bolts and nuts tightening check

Every six months or every 2500 running hours carry out a complete check of the correct tightening of all the bolts and nuts installed on the machine, and if necessary, reset them.

Wear and tear check and reel brake operation:

Every three months or every 1200 running hours control the wear and tear condition of the brake block and if necessary replace it. Verify that the lever system, which controls the brake works correctly.

Check of transmission belt tension

WARNING MAKE SURE THAT ELECTRICAL POWER SUPPLY IS DISCONNECTED

BEFORE STARING THIS PROCEDURE.

Every month or every 400 running hours verify the tensioning of the transmission belts; if necessary act on the related tensors.
Pay particular attention not to pull the chains in an excessive way, since this can cause an overload of the related bearings.

Check of motor belt

Every month or every 400 running hours verify the tensioning of the transmission belts of the motors; if necessary, adjust the pulling by acting on the related tensors.

MAINTENANCE MOTOR – ADAPTORS – VARIATOR

Check and oil replacement

Every three months or every 1200 running hours control the oil level in the above mentioned components.

REPLACE THE OIL IN THE ADAPTOR AND IF PRESENT IN THE VARIATOR EVERY SIX MONTHS OR EVERY 2000 RUNNING HOURS.

MAINTENANCE OF SAFETY DEVICES

ATTENTION: Verify the efficiency of the safety devices when their perfect efficiency cannot be guaranteed. if there should be a malfunctioning of a safety device and the problem cannot be solved, then the machine should be put out of order and ask for the intervention of the assistance service.

Efficiency check of the emergency stop button

Every month or every 400 running hours verify the correct functioning of the emergency stop buttons, proceeding as follows:

- Start the machine in the automatic mode
- Press the emergency stop button on the control panel and verify that:

The machine stops immediately;
The general electric feeding is excluded (green indicator switched off);
The button remains in downward position;
(for electronic machines only) on the video appears the corresponding alarm message.

- If there should be an anomalous function, look for the causes and intervene in the appropriate way.
- Repeat the verification for the second emergency stop button, placed near the back part of the bed.

Efficiency check of the safety switches

Every month or every 400 running hours verify the correct functioning of the safety switches, placed on the guards that can be opened, proceeding as follows:

- Start the machine in the automatic mode
- Open the guard during the cycle without entering inside the guard with upper limbs and verify that:
  The machine stops immediately;
  The general electric feeding is excluded (green indicator switched off);
  The button remains in downward position;
  (for electronic machines only) on the video appears the corresponding alarm message.
  If there should be an anomalous function, look for the causes and intervene in the appropriate way

ELECTRICAL INSTALLATION MAINTENANCE

Cables fixing check

Every six months or every 2500 running hours check the fixing of the cables in the related terminals indicated hereafter.

ATTENTION

- **The maintenance operations of the electric installation should be carried out by skilled staff; the staff should be informed about the features of the electric installation of the wrapping machine and should have at disposal the wiring diagrams contained in the section "wiring diagrams" of this manual.**
- **Before starting whatever intervention on the electrical parts disconnect the machine from the outer feeding line.**

- Input feeding cables in the general isolator switch.
- PE earthing connection cables on the main line and on the derivations.
- Cables on fuse, contactors, thermal relays and other components in the power box.
- Cables in the bypass boxes at the input and output from the terminals.
- Heating resistances feeding cables for jaws and sealing rolls
- Power motors feeding cables.
- Feeding cables for solenoid valves, end and proximity switches, pay particular attention to the cables, which for their features of the fed component, can move during the operation; they should be replaced immediately in case of tear and wear signs.
- If installed, verify the correct intervention of the differential, acting on the related test pushbutton, placed on the button itself.

Maintenance pushbuttons, control selectors and indicators

Every six months or every 2500 running hours verify the correct operation of all the pushbuttons, control selectors and indicators, installed on the wrapping machine. This control should be carried out on operational pushbuttons and selectors.
Proceed to a systematic check of all the controls, verifying that their activation correspond to the carrying out of the control itself.

PNEUMATIC INSTALLATION MAINTENANCE

Condensation drainage and pressure regulator filter cleaning

Every week or every 100 running hours drain the possible formed condensation inside the collection basin, installed on the pressure regulator filter group. For the drainage, unscrew the drain screw, placed at the bottom of the basin, let the condensation flow and screw the drain screw on again; the condensation drainage can be carried out with installation under pressure.

Every three months or every 1200 running hours clean the filter installed inside the condensation collection basin. The cleaning of the pneumatic installation filter should be carried out at established due date or if there should be a pressure fall at the end of the filter regulator group. Proceed as follows:

- **Close the sleeve valve, pulling the control device downwards in order to drain the installation.**
- **Remove the basin from the filter regulator rotating anti clockwise.**
- **Remove the filter unscrewing the support base and clean it from possible foreign bodies, then install again proceeding on the contrary as indicated for the disassembling.**
- **If the filter should be replaced use an original spare part with a filtering capacity of 40 μm.**

WARNINGS

- **Never remove the basin for the filter cleaning with pneumatic installation under pressure.**
- **Carry out the condensation drainage and the filter cleaning also for other filtering groups, installed on the machine.**

Efficiency check of the pneumatic installation components

Every six months or every 2500 running hours carry out an accurate check of the pneumatic installation components condition of the machine, in order to identify possible wear and tear and provide for the risk of sudden breakage.

ATTENTION

THE PNEUMATIC INSTALLATION CHECK WITH RUNNING WRAPPING MACHINE SHOULD BE CARRIED OUT VERY CAREFULLY IN ORDER TO AVOID ACCIDENTS. TAKE CARE WHEN DISCONNECTING AND CONNECTING AGAIN THE AIR FEEDING PIPES IN THE PNEUMATIC DEVICES (CYLINDERS, SOLENOID VALVES) SINCE THERE COULD BE SOME SUDDEN MOVEMENTS OF THE LINKED COMPONENTS. THESE INTERVENTIONS SHOULD BE CARRIED OUT BY SKILLED STAFF WITH A DEEP KNOWLEDGE OF THE MACHINE OPERATION.

The controls to be carried out are the following.

- **Air feeding pipes:** check the presence on drawn or signs, which indicate wear and tear close to the connections; replace them if necessary. Carry out a complete control starting from the input of the air- distributor-solenoid valves-user line.
- **Connections:** check the installed connections condition on all the pneumatic components on possible air drawn; replace the o-ring seal between connection and component if necessary.

COOLANT INSTALLATION MAINTENANCE (OPTIONAL)

Water circulation check

Each year or every 5000 running hours, carry out an accurate check of the coolant installations. In particular it is necessary to verify that the water can circulate freely inside the coolant circuits, which are used for the sealing plans area. If the temperature of the rollers plan surfaces increases incorrectly, it is necessary to verify if the water circulates without any impediments in the heat exchanger.
If there is a reduction in the coolant capacity, then the cause can be lime scale formation inside the components of both circuits. The feeding and the outer discharge of both circuits should be disconnected in such a case and let circulate (at closed ring) some water with a commercial product for the removal of limestone, paying attention that it is not particularly aggressive for rubber and metals.

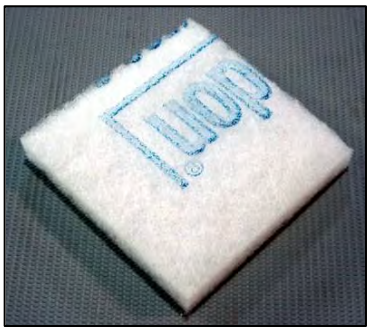
Coolant circuits piping check

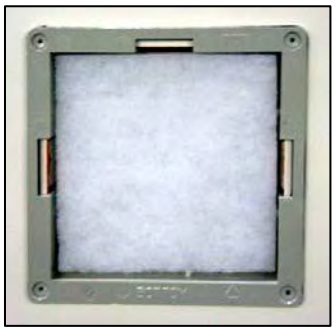
Every six months or every 2500 running hours check the condition of the flexible and rigid hoses of both coolant circuits of the blowing device. It is necessary to verify accurately the pipes condition in order to identify some wear and tear signs and to provide for sudden breakage risks.
Furthermore check the piping connections and the blocking bands, screwing them if they were eventually unscrewed.

AIR CLEANING FILTER REPLACEMENT

- Open front panel (1) then remove/replace the filter;
- Remove the air filter;

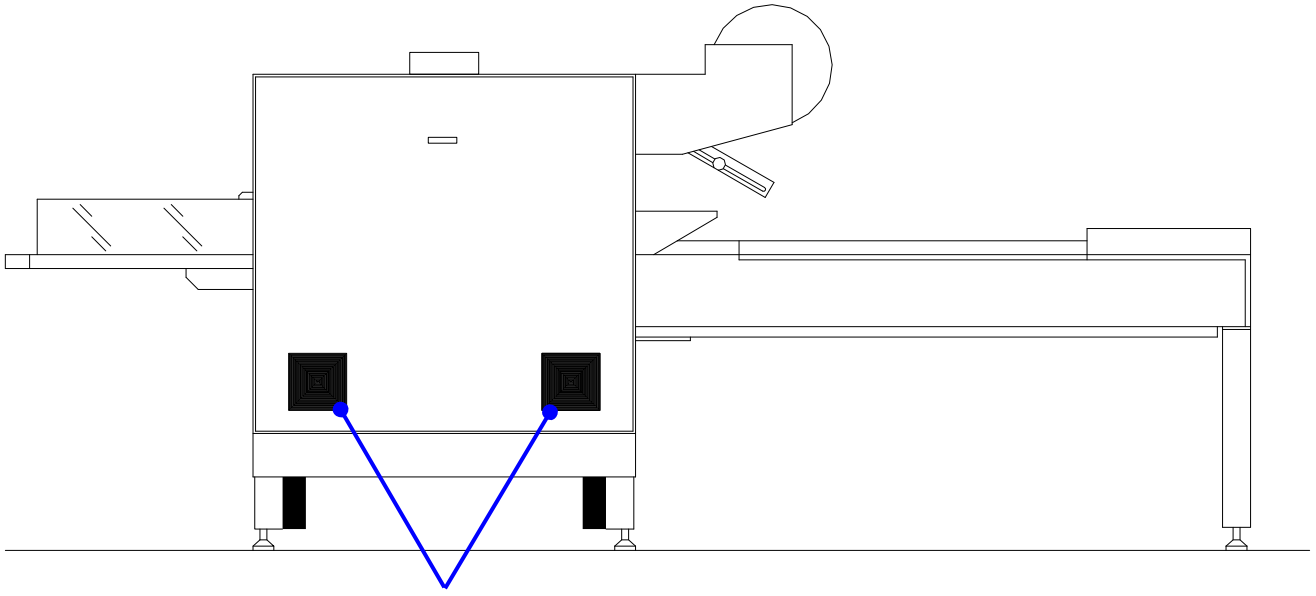
- Install a new air cleaning filter;
- Close the front panel.





- The air cleaning filter is disposable. The standard usable interval is about 4 months. However, if the colour of the filter turns to dark brown, replace the filter at once.

CARRERA 500 PC LAYOUT



FILTER

REPLACEMENT OF COMPONENTS

NOTE:

The instructions for the replacement of the main sealing group components are noted hereafter. At the end of each replacement and always when the position of the blade, of the leaf or of the jaw is modified, it is necessary to carry out the adjustment of the cut and/or alignment of the jaws. These adjustments should be carried out with hot jaws. PAY ATTENTION IN ORDER TO AVOID BURNS.

Replacement of Upper Jaw Knife

- Rotate the jaws to the open position to facilitate knife removal.
- Loosen the grub screws (1), screw (2), cones (3), and pull the knife (4) out of the jaw.
- Install a new knife in its housing in the jaw, and hand-tighten grub screws (1).
- Rotate the jaw to the closed position to allow the knife to move down and contact the lower jaw anvil.
- Adjust the knife position as required by tightening the cone (3), and then fully tighten the screw (2) and grub screws (1).
- During machine operation, check the knife for correct adjustment.
- If cutting off or sealing is not as required, adjust as specified in the following paragraph.

Adjustment of Upper Jaw Knife

WARNING: THIS OPERATION MUST BE PERFORMED WHEN THE JAWS ARE HOT.

THEREFORE, EXERCISE THE UTMOST CARE TO AVOID BURNS.

- Loosen grub screws (1) and screws (2) where knife needs to be adjusted.
- Adjust the cones (3) to raise or lower the knife until a correct position is obtained.
- Fully tighten screws (2) and grub screws (1).

Replacement of Lower Jaw Anvil

- Slightly turn the jaws toward the open position, and loosen the grub screws (5).
- Pull the anvil out of the jaw housing.
- Insert a new anvil making sure that it is correctly placed in the housing, then lock it in position by tightening grub screws (5).

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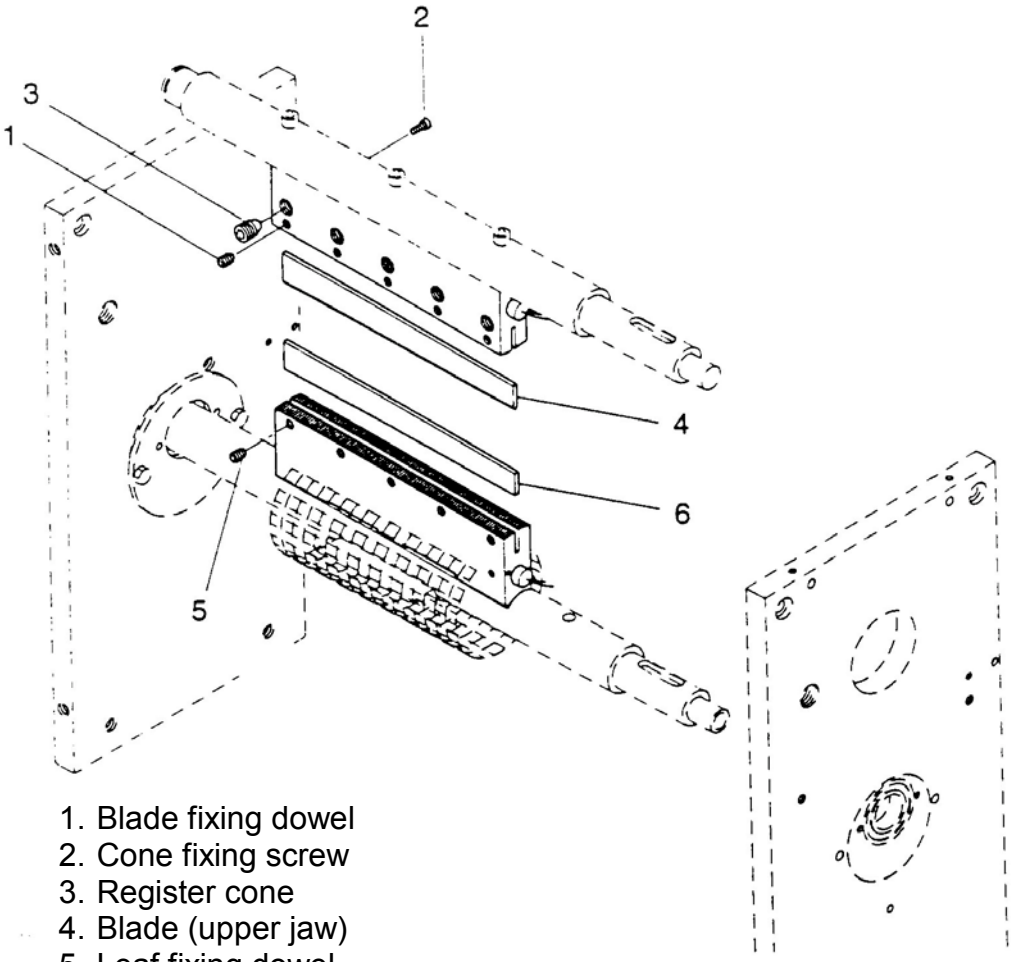

1. Blade fixing dowel
2. Cone fixing screw
3. Register cone
4. Blade (upper jaw)
5. Leaf fixing dowel
6. Leaf (lower jaw)

REPLACEMENT OF HEATING RESISTANCES CARBON BRUSHES

WARNING: BEFORE PROCEEDING TO REPLACE CARBON BRUSHES, MAKE SURE THAT ELECTRICAL POWER SUPPLY IS DISCONNECTED. IF THIS PROCEDURE SHOULD BE ACCOMPLISHED WHEN THE MACHINE IS HOT, EXERCISE THE UTMOST CARE TO AVOID BURNS.

Jaw Heater

1. Gain access to brushes (1) installed on the jaw shafts by removing the components shown in figure.
2. Loosen stop screw (2), and pull out the carbon (3) by opening the brush.
3. Replace the carbon, and secure it by tightening screw (2).

Sealing Roller Heaters

1. Gain access to the brushes by removing the guarding as shown in the follow figure.
2. Proceed as detailed in points 2 and 3 of the previous paragraph.

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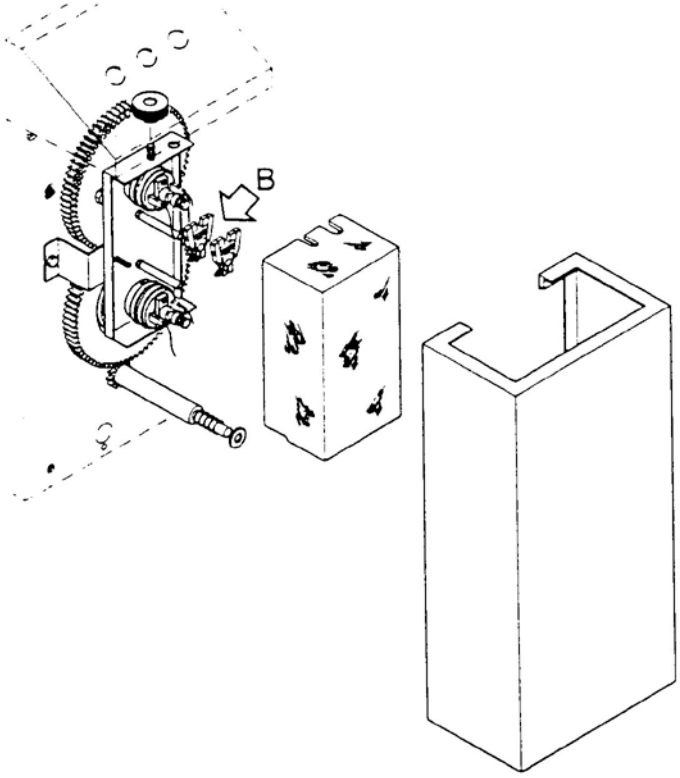

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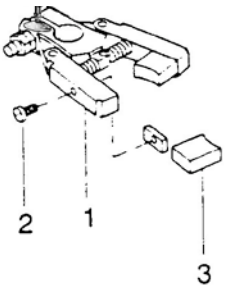

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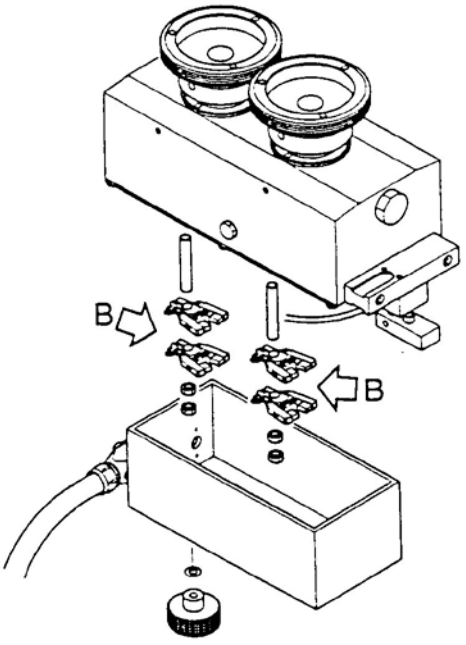


1. Brushes
2. Stop screw
3. Carbon

Replacement of heater resistances

WARNING 	BEFORE PROCEEDING TO REPLACE HEATERS, MAKE SURE THAT ELECTRICAL POWER SUPPLY IS DISCONNECTED. IF THIS PROCEDURE SHOULD BE ACCOMPLISHED WHEN THE MACHINE IS HOT, EXERCISE THE UTMOST CARE TO AVOID BURNS.

Upper Jaw Heater

1. Remove the protection guards as necessary to disconnect the heater wires (4) from the terminals on the collector (5).
2. Cut the ends of the electrical wires to facilitate pulling out.
3. Loosen grub screw (13) that secures the heater.
4. Remove probe (11).
5. Remove the three screw (1) that attach upper jaw (2) to shaft (3), and remove the jaw.
6. Pull out the heater (6) from the jaw.
7. Insert a new heater in the jaw and pass the wires through their hole in the shaft. Push the wires in until they come out of the collector (5).
8. Fit terminal crimp ends to the wires, and connect them to the relevant terminals on the collector (5).
9. Fit again the upper jaw on the shaft by securing it with the three screws (1).
10. Tighten grub screw (13), and reinstall probe (11).
11. Install the protection guarding.

Lower Jaw Heater

The replacement procedure applicable to the lower jaw heater is similar to the one applicable to the upper jaw, described in the previous paragraph. Therefore, refer to follow figure, and proceed as specified above, making sure that you remove the interchangeable product support if installed.

Sealing Roller Heaters

1. Remove the three screw (1) and cover (2).
2. Remove the protection guard as necessary to disconnect the heater wires (3) from the terminals on the collector (4).
3. Pull heater (5) out of the rollers, and remove it by sliding out the relevant wires.
4. Install a new heater by passing the wires through the shaft and pushing them in until they come out of the lower end, and reconnect to the collector (4).
5. Reinstall the guarding, fit cover (2), and secure it with the three screw (1).

Replacement of Temperature Probes

WARNING 	BEFORE PROCEEDING TO REPLACE HEATERS, MAKE SURE THAT ELECTRICAL POWER SUPPLY IS DISCONNECTED. IF THIS PROCEDURE SHOULD BE ACCOMPLISHED WHEN THE MACHINE IS HOT, EXERCISE THE UTMOST CARE TO AVOID BURNS.

Upper and Lower Jaw Temperature Probe

Jaws having a width of less than 325 mm:

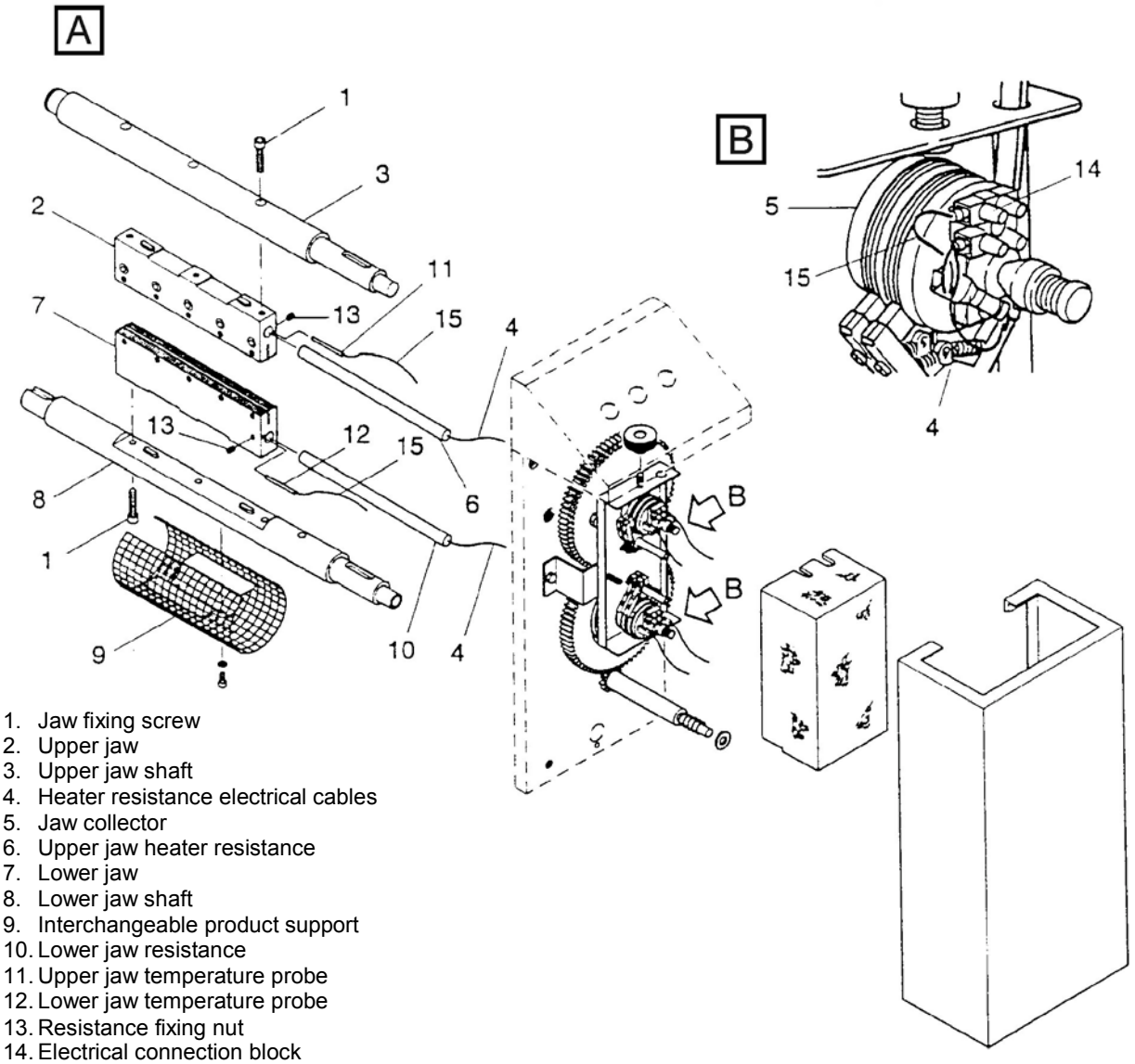
1. Remove the protection guards so that the probe electrical wire (14) can be disconnected from the terminals on collector (5).
2. Remove the temperature probe (11 or 12) from the jaw, and replace it with a new probe making sure that electrical connection is correctly restored.
3. Install the protection guards.

Jaws having a width of more than 325 mm:

4. Remove the three screw (1) attaching the jaw to the shaft, and remove the jaw.
5. Remove the protection guards so that the probe wire (14) can be disconnected from the terminals on collectors (5).
6. Remove the temperature probe (11 or 12) from the jaw, and replace it with a new probe making sure that electrical connection is correctly restored.
7. Install the jaw back on the shaft securing it with the three screws (1), and making sure that the crimp profile of the jaws match perfectly.
8. Finally, install the protection guards.

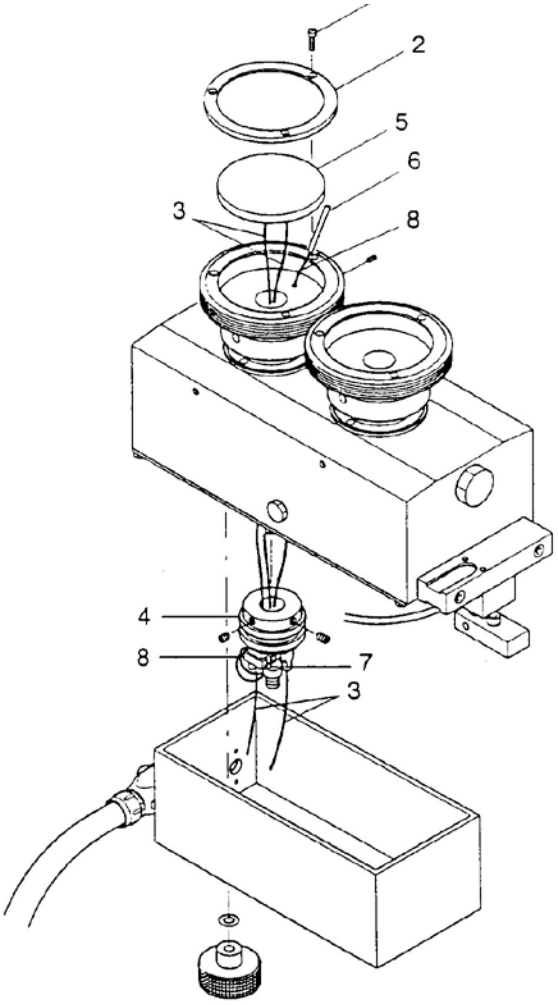
Sealing Roller Temperature Probe

1. Remove the three screws (1) and the cover (2).
2. Remove the guarding as necessary to disconnect probe wire (7) from the terminal on collector (4).
3. Loosen grub screw on probe and pull probe (6) out of the rollers, then remove it by sliding out the relevant wire.
4. Install a new probe by passing the wires into the roller shaft and pushing them in until they come out of the lower end, and can be connected to the terminal on collector (4). Tighten locking grub screw.
5. Reinstall the guarding, install cover (2), and secure it with the three screws (1).



1. Jaw fixing screw
2. Upper jaw
3. Upper jaw shaft
4. Heater resistance electrical cables
5. Jaw collector
6. Upper jaw heater resistance
7. Lower jaw
8. Lower jaw shaft
9. Interchangeable product support
10. Lower jaw resistance
11. Upper jaw temperature probe
12. Lower jaw temperature probe
13. Resistance fixing nut
14. Electrical connection block
15. Jaw temperature probe electrical cable

Replacement of Upper and Lower Jaw Heaters and Temperature Probes



1. Screw
2. Cover
3. Heater resistance electrical cables
4. Collector
5. Heater resistance
6. Temperature probe
7. Temperature probe electrical cable

Replacement of Sealing Roller Heater and Temperature Probe