

STI SLAT LOADER

Ver. 1.0

for the
STI Lab-Top Capsule Bander

OPERATION MANUAL





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SCHAEFER TECHNOLOGIES, INC.

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OPERATION MANUAL

INTRODUCTION AND GENERAL RECOMMENDATIONS

INTRODUCTION

This User's Manual has been compiled to provide the user with information about how to use and maintain the machine correctly. It is compulsory to read this manual. It is our intention that the information contained in this manual will be a valid aid for your work. This information is based on data and on our best current knowledge. Carefully read this manual, including the recommendations and suggestions. No part of this manual may be copied or passed to third parties without the prior written consent of Schaefer Technologies, Inc.

We advise you to carefully read this manual, as it is essential to install, check and service the machine correctly in order to keep it in a perfectly efficient working order. The manual contains information which will help you to get to know the machine in detail. Please don't hesitate to contact us if you find that an explanation has been omitted or is unclear.

NAMEPLATE

For any servicing or overhaul operations not included in this manual or for any other technical problem which may arise, our Technical Personnel are available to provide you with information and to discuss any necessary action to take. When contacting us, please indicate the serial number on the machine's nameplate.

PRELIMINARY REMARKS

- The drawings and designs which show the system should be considered as reference and not necessarily faithful in every detail.
- The system dimensions and specifications contained in this manual are not binding and may be changed without warning.
- The designs and all of the other documents supplied as part of the system are the property of Schaefer Technologies, Inc.

The system is covered by a warranty and a contract of purchase. During the period in which the machine is under warranty, any repairs which have not been authorized by Schaefer Technologies, Inc. and are carried out on the same machine will automatically make the warranty void.

The user must take particular note of the safety warnings and information indicated by the following symbols and labels in this manual.



Electrical Current Specification - Single Phase

120 VOLTS

Electrical Voltage Specification. 120 volts



Warning – Hazardous Voltage



Warning – Avoid injury. Do not operate with guards removed. Replace guards before operating machine. For the safety of the Personal .DO NOT modify of remove any of this equipment's guards, safety devices or warning labels.



Warning – Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in injury or damage to the equipment.

GENERAL SAFETY REGULATIONS

- THESE SAFETY REGULATIONS HAVE BEEN DRAWN UP FOR YOUR OWN SAFETY. The strict observance of the safety regulations will reduce the risks of accidents for both you and or others.
- DO NOT attempt to move, install or operate the system without having first read and fully understood this manual. If in doubt, ask your supervisor.
- Make sure that all of the guards and protective covers are in place BEFORE starting the machine.
- NEVER leave tools, mechanical parts or other unsuitable material on or in the machine.
- If a failure should occur, push the emergency stop button.
NEVER WORK ON THE MACHINE WHILE IT IS RUNNING.
- Pay particular attention even when the main switch is in the “OFF” position, because the electrical power supply cables are still live.
- BEFORE restarting the production cycle after carrying out maintenance operations or repairs on the machine, make sure that all of the guards and protective covers are fitted correctly.
- Always be cautious, remember that your safety and that of fellow workers depend on you.
- When moving or lifting components of the machine, make sure that all the regulations for these operations are respected.

SPECIAL WARNINGS

- The personnel who operate this machine must know and observe the general safety regulations. If these regulations are not observed, this may cause injury to workers and damage components of the machine.

- The maintenance operations must be carried out with the machine at a standstill. Use approved machine Lockout-Tagout procedures prior to servicing. Failure to follow operating instructions could result in personal injury or damage to the equipment.
- The user must make sure that all of the instructions in the manual are followed to the letter.
- Any tampering with the safety systems of the machine done for any reason, will be at the user's own responsibility and risk.
- Do not ever try to bypass the safety systems or make them ineffective.
- For the machine smooth operation it is absolutely necessary to observe the speed, temperature and tension limits, along with all the indications given which the client must in any case respect.
- Furthermore, the environmental conditions must be taken into account for the installation of the machine.
- The national laws governing the use of this type of machine must also be observed.

WARNING

Schaefer Technologies, Inc. declines any responsibility for damage which may derive from the non-compliance with the above-mentioned warnings.

The manufacturer's warranty will become null and void if the machine is tampered with, modified or has its fixed and moving protective guards removed or is used for purposes other than those for which it was designed. The manufacturer disclaims all responsibility for any accidents or damage that may arise.

STI SLAT LOADER

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SPECIFICATIONS

Dimensions:	12" deep 29.25" wide 25" high
Weight:	Approximately 60 Lbs.
Electrical Supply:	120v - 50/60Hz, 1 Amp (220 v – single phase with additional transformer)
Capsule Sizes:	00EL through 4
Capsules / hour:	Up to 2,400 CPH when using 15 cavity slats – can vary depending on operator experience
Room Condition:	21°C - 26°C (70-78 F) @ 35-60% relative humidity

1 DESCRIPTION OF THE SYSTEM AND TECHNICAL DATA

DESCRIPTION OF THE MACHINE

The STI SLAT LOADER is designed to remove the labor intensive process of manually orientating and loading the filled gelatin or vegetable based capsules into the 10 or 15 cavity slats for the STI LAP-TOP Capsule Bander. Due to its compact size the STI SLAT LOADER can be placed on a work bench or cabinet base. The loading cycle is semiautomatic requiring only the loading of the slat rack, filling of the capsule hopper and the removal of the filled slat. The loading operational process is controlled by the machines HMI.

2 INSTALLATION

UNPACKING AND CHECKING THE CONSIGNMENT

The Slat Loader is shipped in a tote.

When the packed machine has been placed in the correct position, unpack it as follows:

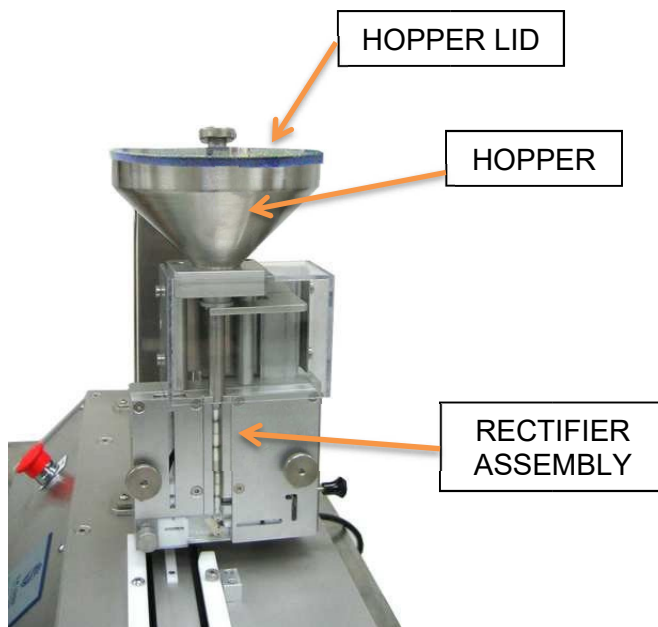
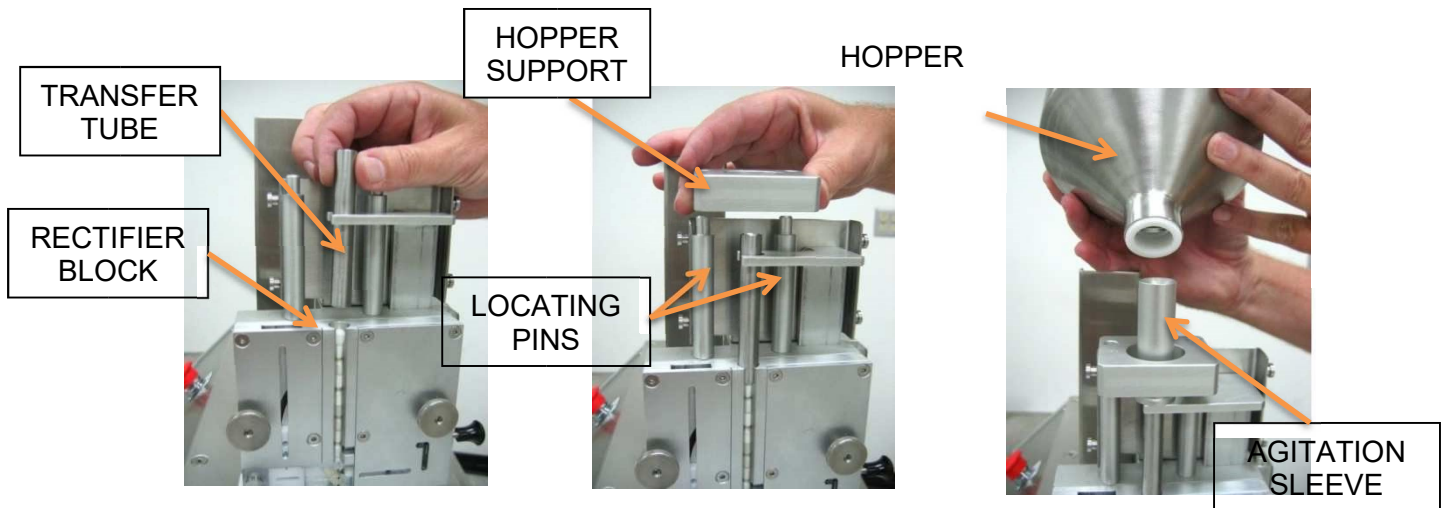
- Open the tote and remove the Slat Loader.
- Unpack all components.
- Inspect for damage.
- If the Slat Loader has been damaged during transportation, immediately inform the Insurance Company and do not proceed with the unpacking until authorized to do so by the same Company.
- Check that the contents of the packaging correspond to the items on the consignment note.

ITEM#	DESCRIPTION	QTY.
SLM031	HOPPER LID	1
SLM028	HOPPER	1
SLM 027	HOPPER SUPPORT	1
SLM 032	AGITATION SLEEVE	1
	TRANSFER TUBE (SIZE SPECIFIC)	1
	DBIN0365 DBIN0204 DBIN0301 DBIN0366 DBIN0272 DBIN0277	SIZE 00 & 00EL SIZE 0 SIZE 1 SIZE 2 SIZE 3 SIZE 4
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- If any parts are missing, stop unpacking the machine and immediately inform Schaefer Technologies, Inc.
- Make sure that all the covers and panels are correctly fixed and that no parts have worked loose.
- Place the Slat Loader on table.
- Positioning the machine: Place the STI Slat Loader on the work bench or table capable of supporting the weight of the Slat Loader.
- Install the items listed above (refer to assembly instructions on Page 7).
- Electrical connections: **Before connecting the electrical cord, make sure the power knob is in the "OFF" position.** Connect the system to the electrical power supply using the supplied cable.

- Read the Manual before turning on the unit.

Assembly Instructions for the Hopper Top and Bottom, Transfer Tube, Hopper Support, Agitation Sleeve & Hopper Lid



Hopper Assembly

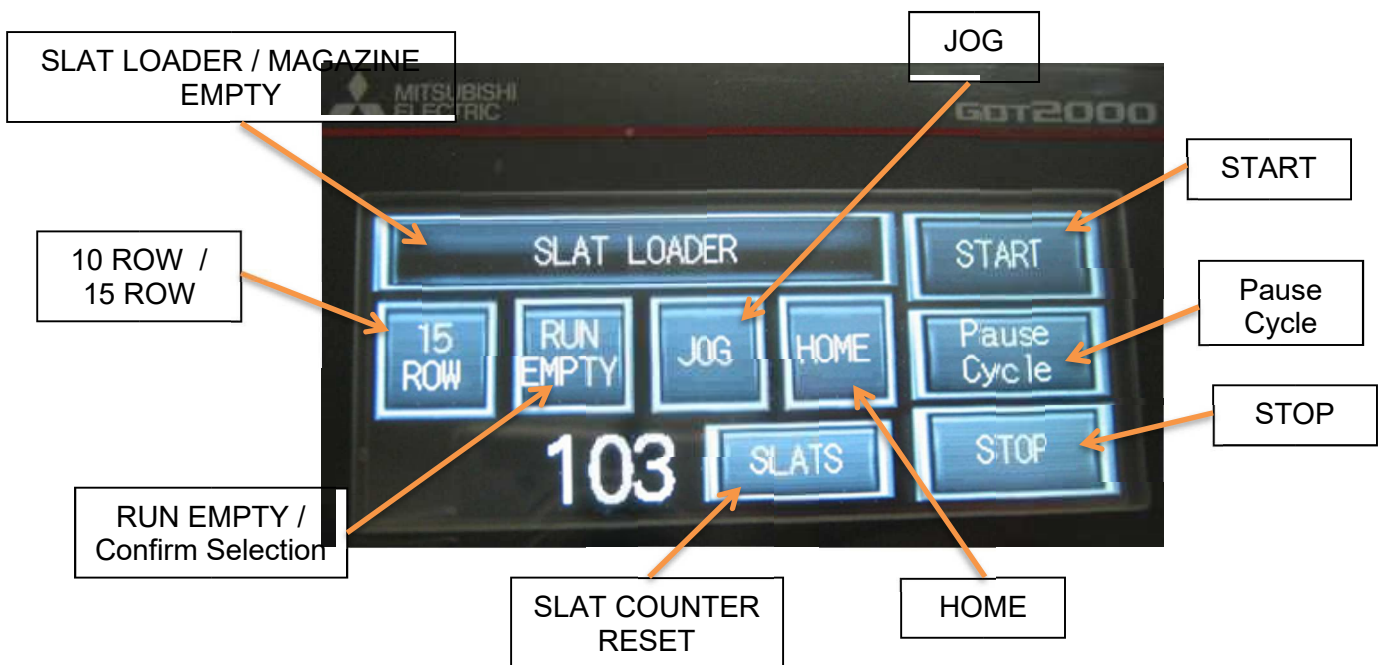
1. Insert the Transfer Tube into the Rectifier Block
2. Position the Hopper Support (letter "F" on top surface and facing front) and locate on the on the (2) pins
3. Insert the Agitation Sleeve (large diameter down) over the Transfer Tube into the Hopper Support
4. Place the Hopper Bottom over the Agitation Sleeve and slid down into the Hopper Support.
5. Place Hopper Top on the Hopper Bottom.
6. Place the Hopper Lid on top of the Hopper Top.

3 MACHINE OPERATION

MACHINE CONTROL PANEL / HMI

- HMI Display
 - SLAT LOADER: displayed when magazine has slat present. EMPTY MAGAZINE / SLAT LOADER displayed and flashes when slat is not present.
 - 10 ROW / 15 ROW: toggles between selection
 - RUN EMPTY / Confirm Selection: allows the machine to cycle with the slat magazine empty

- JOG: when the machine is stopped initiates one revolution of the rectifier mechanism (JOG not available in Pause Cycle condition)
- HOME: sends the slat advance arm to the HOME (slat pickup) position
- START: Starts the slat loading process
- Pause Cycle: allows the pausing of the cycle / continuation of the cycle
- STOP: Stops the slat loading process
- REMOVE SLAT: indicator displays when the slat has finished its cycle
- SLATS: Press and hold for 2 seconds to Reset the slat count to zero
- POWER: Red Button - Push to Stop / Pull to Release. Stops all power to the HMI, Slat advance Arm, and Rectifier motor.



PRELIMINARY CHECKS

Before starting the Slat Loader, carry out the following checks:

- Check that all the panels, guards and protective covers are securely fixed.
- Check that the capsule loading hopper is filled correctly.

MACHINE OPERATION – NORMAL

- Make sure that the RECTIFIER CHANGE PARTS and SLATS are the correct size for the CAPSULES being loaded.

- With the Slat Loader plugged into the electrical supply, Pull UP the Red POWER Button to energize the HMI panel and machine functions. GOT 2000 will display for approx. 1 second and then the Control Panel will display.
- Press the Home button to return the Slat Pickup Arm to its Home position.
- Select either the 10 or 15 Row capacity setting
- Load the SLAT MAGAZINE with up to 20 slats. (make sure slats are correctly orientated and all are the same capacity)
- Load the capsule hopper with capsules.
- Zero the Slat Counter if required by pressing the “SLATS” button for 2 seconds.
- Press the START button.
 - Pickup Arm advances the slat to the 1st capsule load position and continues until the slat is filled. The P3 “Slat Done” sensor is tripped and cycle is stopped. ○ The REMOVE SLAT indicator on the HMI shows
 - Removing the filled slat will again trip the P3 sensor initiating the return of the Slat Pickup Arm to the HOME position where it will pick up an empty slat from the magazine and repeat the capsule loading cycle.
- This cycling will continue until the Slat Magazine is empty at which time the process will stop when the P1 Slat Present Sensor no longer sees the last filled slat in position. Removing the slat will return the pickup arm to the HOME position and EMPTY MAGAZINE / SLAT LOADER will flash on the HMI. Load a new slat into the magazine – requires pressing the START button to initiate cycle.



MACHINE OPERATION – CLEARING A CAPSULE MIS-FEED OR JAM

- In the event of a capsule misfeed that requires “No Guard Removal”, pressing the Pause Cycle button will halt operation. Clear the misfeed and press the Pause Cycle button to continue normal operation.
- In the event of a capsule misfeed that requires a “Safety Guard Removal” to clear, Press the STOP button, and then press the POWER button to power down the machine.
 - Remove the slat
 - Remove any guards required to clear the jam ○ Replace all safety guards.
 - Turn on POWER by Pulling the RED POWER BUTTON
 - Press the HOME button initiating the return of the Slat Pickup Arm to the HOME position where it will pick up an empty slat from the magazine
 - Press the START button to initiate the loading cycle.

4 CHANGING CAPSULE SIZE

The following Gelatin or Vegetable Based capsules can be used with the STI SLAT LOADER :

CAPSULE SIZES

Sizes	00EL THRU 4
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To change the size of the capsules it is necessary to change the following components:

- Capsule rectifier loading group
- Slat

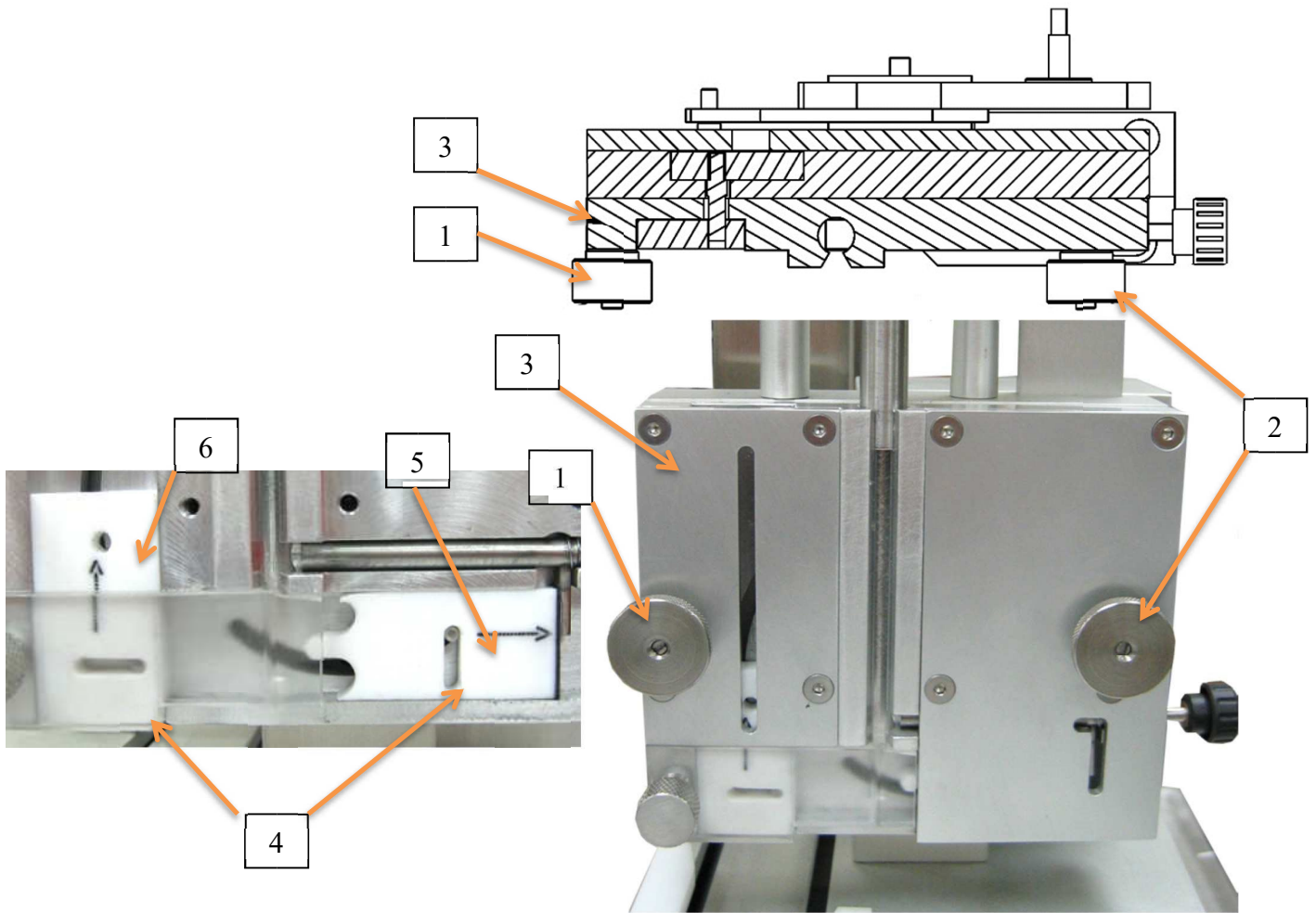
The necessary components for changing capsule size are supplied as a kit.

CHANGE PART ASSEMBLIES	
Item Number	Description
SLC-SZ00	SIZE 00 Rectifier Assembly
SLC-SZ00EL	SIZE 00EL Rectifier Assembly
SLC-SZ0	SIZE 0 Rectifier Assembly
SLC-SZ1	SIZE 1 Rectifier Assembly
SLC-SZ2	SIZE 2 Rectifier Assembly
SLC-SZ3	SIZE 3 Rectifier Assembly
SLC-SZ4	SIZE 4 Rectifier Assembly
Recommended Spare Parts	
Item Number	Description
SLE913	Fuse
DBIN0367	Locking Pin Assembly
SLE111	Knob for Rectifier
SLE901	Photo Eye

CHANGING THE CAPSULE RECTIFICATION AND LOADING GROUP

To change the capsule rectifier and loading group, proceed as follows:

- Unscrew the knobs (#1 and #2) and remove the rectifier and capsule loading group assembly (#3).
- Fit the new loading group, making sure that the two equalizer pins (#4) for the horizontal (#5) and vertical (#6) slides fit perfectly into their slots in the rectifier housing, then secure the loading group by screwing down the knobs (#1 / #2).



5 CLEANING AND MAINTENANCE (see SOP)

WARNING:

Before cleaning or servicing the machine make sure that the stop button has been pushed and the machine has been unplugged from the electrical supply.

- The anodic treatment of the external metal surfaces protects the Slat Loader from the corrosive action of atmospheric agents.
- The external metallic surfaces of the machine must be periodically cleaned with a damp cloth and a neutral detergent. **Do not use alcohol, solvents or active detergents** to clean the plastic parts of the machine.
- All bearings are sealed and “do not require lubrication”

IMPORTANT:

At the end of each production cycle of a specific product, in accordance with Good Manufacturing Practice standards, we recommend thoroughly cleaning all the parts which come into contact with the product, in order to avoid any kind of contamination. See

6 TROUBLE SHOOTING

In the following table, we list some of the problems which could arise during the production cycle along with the corresponding checks and solutions.

PROBLEMS	CHECK	SOLUTION
When the machine is turned on the display does not light up	<ul style="list-style-type: none"> -Check the power supply – check the fuses in the back of the machine -Check the protection fuse of the PLC power supply 	<ul style="list-style-type: none"> -Restore power supply -Replace the fuses
The capsules break during the orientation phase	<ul style="list-style-type: none"> -Check that the heads and the bodies of the capsules match exactly and that they are in a good condition, the capsule may be too dry or have got damp -Check that the removable (transparent) cover is fitted correctly 	<ul style="list-style-type: none"> -Replace the capsules with suitable ones in a good condition -Fit the cover correctly
The capsules are not oriented in the correct position	<ul style="list-style-type: none"> -Check that the vertical and horizontal orientation container are not damaged and are in the correct position -Check that the removable (transparent) cover is fitted correctly 	<ul style="list-style-type: none"> -Position the container correctly or replace them - -Check the tolerances of the capsules employed, against those of the enclosed table -Fit the cover correctly
The capsules are not fed into the orientation group	<ul style="list-style-type: none"> -Check that the capsule orientation duct is not blocked 	<ul style="list-style-type: none"> -Remove any pieces of broken capsules previously squashed