



Semi-automatic Turning-in Case Maker MDA 750-S

Operating Guide

Introduction

The following guide describes the operating procedures of this machine and was designed to improve the user experience.

It includes important safety and operational recommendations. Carefully reading these instructions will prevent accidents, unnecessary repairing and downtime costs and help increasing the reliability and service life of this product.

This operating guide supplements the applicable Regulations for Accident Prevention and Environmental Protection.

They must always be at hand (on site) when the machine is being used.

This guide must be read and observed by all operators dealing with the machine, whether:

- **Operating:** including assembly, troubleshooting, removing waste, precaution, removing additional material.
- **Cleaning:** maintenance, inspection, repair and/or,
- **Transporting**

Make sure these operating instructions are read and observed carefully.

In addition to the Operating Guide, always observe the applicable Regulations for Safety and Accident Prevention valid in the country of use and on site.

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1. Basic Safety Instructions

1.1 - Warning and Safety symbols

Special attention must be paid to important messages with the following words:

NOTES – important instructions for appropriate use of the product

ATTENTION – important safety messages on accident prevention

DANGER – important instructions to prevent serious physical injury or property damages

1.2- Intended use

This machine was designed according to generally recognized technical standards and safety rules. During its operation, physical injuries to the user and third parties or damages to the machine and other assets may occur.

All personnel handling the machine must be and aware of any eventual danger that may occur. The machine must only be used in technical perfect condition in accordance with the applicable safety rules. Make sure any malfunction that may affect safety is immediately solved.

This machine is exclusively designed for glue coating. Any other use is not deemed appropriate and the manufacturer is not liable for damages or accidents resulting from such use.

1.3– Safety guidelines on site (user's liability)

Be sure to keep this operating guide constantly at hand and near the equipment!

In addition to this guide, please observe all other regulations, standards and accident prevention rules.

Supervising instructions and reports must be included in this operating guide in order to comply with specific operating requirement. It is highly recommended that information on job organization, work procedures and supervisors is added to this operating guide.

The supervisor of the teams in charge of operating the machine must read and pay special attention to the safety instructions chapter before starting and operating this device. This is especially important for the persons in charge of assembly and maintenance procedures before operation.

Attention: Loose clothing, rings, jewelry and long and loose hair must be contained as they might cause serious accidents.

Please make sure all safety instructions are kept at hand in the machine!

If any relevant safety or operation change is noted in the machine, please keep away from the device and immediately report to your supervisor.

No changes must be made to the equipment during assembly or disassembly that might interfere with safety without prior authorization of the manufacturer! This also applies to the assembly and installation of safety devices.

DO NOT make any changes to programming of the operating system.

Duly compliance with the general instructions described and specified in the guide referring to quality control and inspections must be assured.

1.4– Training

All required training must be provided only by a skilled certified instructor with clearly defined qualification for operation, assembly, maintenance and repair of the machine.

Make sure only authorized personnel have permission to operate the machine.

Electrical maintenance must be carried out only by qualified electricians or personnel duly trained under the supervision and guidance of a licensed electrician according to applicable electrical regulation.

1.5– Safety instructions for machine operation

Be sure all workplace safety rules and guidelines are followed!

Take all necessary measures to ensure the machine is operated only if safety procedures are observed.

Before operating the machine, make sure all protection and safety devices, such as emergency button, fairing assembly are in the proper position and effectively working.

Note: Check for defective parts and malfunction at least once per shift.

If you notice any malfunctioning, safely move away from the machine! Make sure all problems are immediately repaired!

Ensure no physical damage can be caused to anyone near the machine before you start it.

1.6– Maintenance Safety Rules

Always observe the guidelines contained in this operating guide including operation, maintenance and inspection of the machine specially for replacing parts! Such tasks must be performed only by qualified personnel.

Machine operators must be informed in advance about maintenance and repair works to be performed in the machine!

Any work directly interferes with the machine operation, production, assembly or setup, including its safety features such as inspection and maintenance. Consequently, downtime and operation activities described in this guide must always be observed.

Make sure all safety guidelines are observed before you restart the machine following maintenance and repair downtime.

Leave all handles, steps, hand rails, stairs, and platforms in a safe, clean and tidy state.

Electronic parts must be regularly supervised. Loose connections and damaged cables must be immediately replaced.

A second operator must be on site should any emergency stop is necessary.

2. Productivity

Semi-automatic turning-in case maker is designed to make hard cover for books, notebooks, daily planners, exclusive luxury packaging as well as laminated sheet to sheet in the working widths and lengths of up to 750mm.

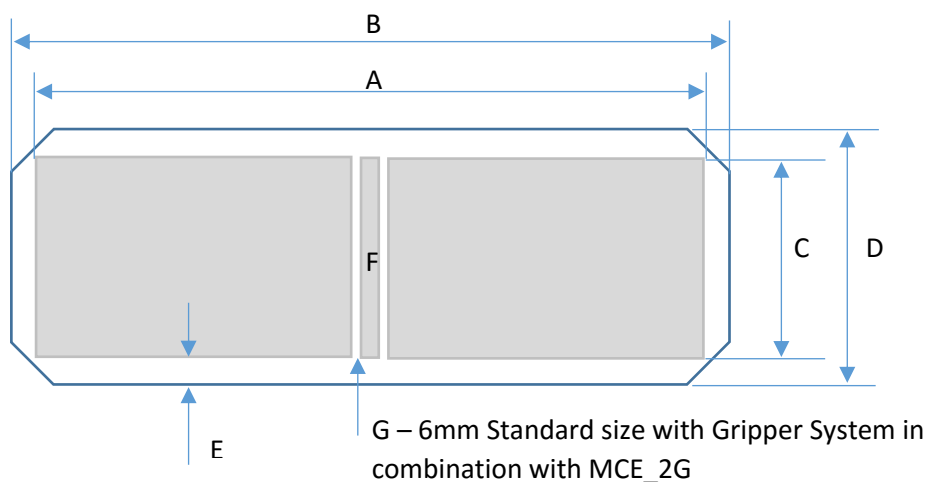
A number of different materials can be used in the machine, as long as the thickness limits listed on this guide are observed.

Productivity directly depends on the size of the material, speed setup in the machine, number of operators handling the machine and on the operational logistics. Consequently, productivity might fall should operators need to stop production for:

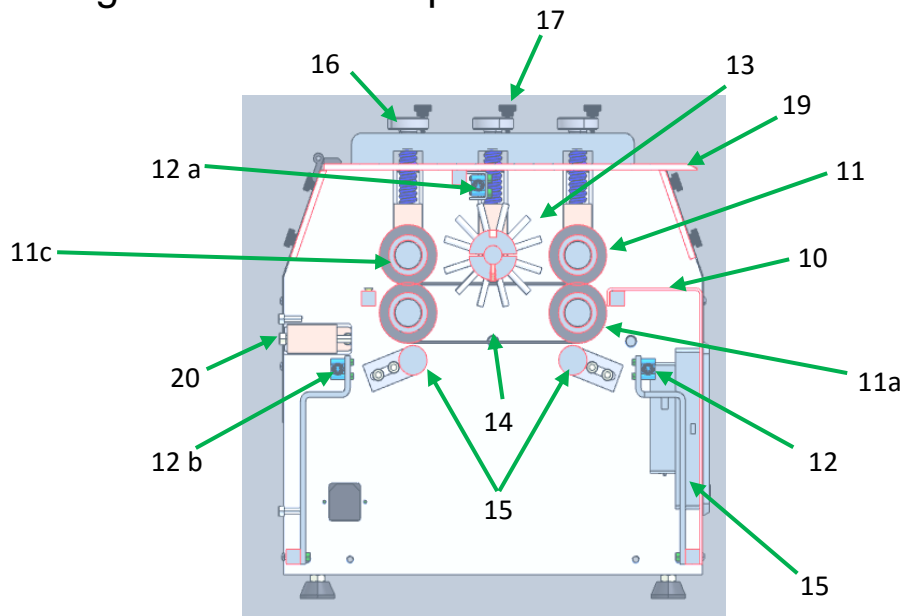
- Glue-feeding
- Printed material feeding
- Gray cardboard feeding
- Arranging finished products at the machine output slot

Size in mm:

	A	B	C	D	E	F
Min.	150	184	150	184	17	8
Max.	700	750	450	500	25	100



3. Legends and Descriptions



The entrance 10 supports the material down and after the sensor 12 detects its presence, the cylinders 11 and 11a start rotating. The machine works according to the desired program.

The material is driven through brush (13) which rotates to the opposite side while turning in the edges of the cover fabrics. Brush height can be adjusted with the purpose of achieving the best possible turning in according to the size of the edge. The sixteen belts (14) connect lower rubber rollers, lining up a conveyor for the material which prevents its locking inside the machine and ensures every folding is standardized. The pair of shafts (15) presses the belts to ensure the knots will remain intact.

The pressure of the top rubber rollers (11a and 11c) and brushes (13) is determined by knobs (16). Pressure level required must be enough to pull and eject the material, or else, trespass the brush on both ways and eject it. Loosen handle bolts (17) to adjust knobs. Following proper adjustment, make sure you tighten handle bolts (17) again.

The optical detector (12) senses the material and operates according to the chosen program. Accordingly, the machine releases the hard cover either from machine input or output slots.

The inner case of the machine can be accessed by rear plate (18) and it will also drive the cases towards the rear output slot. Rear plate (18) ensures hard covers made of 2 or more cardboard pieces are not torn apart by the movement in and out the machine.

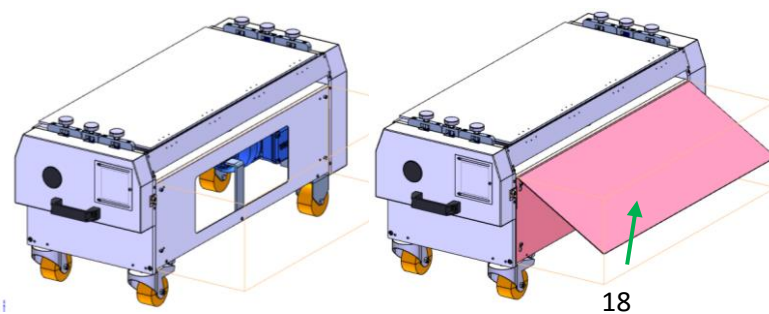
Arrow (20) shows the chain tightener responsible for balancing the stretching force when pressure is adjusted in the rollers and/or brushes.

DANGER – Roller (19) shield is open and easy to access during cleanup procedures, as well as during preparation of brushes (13) and removing any material that might get stuck inside the equipment. Make sure the machine is turned OFF before you make any adjustments to this part of the equipment.

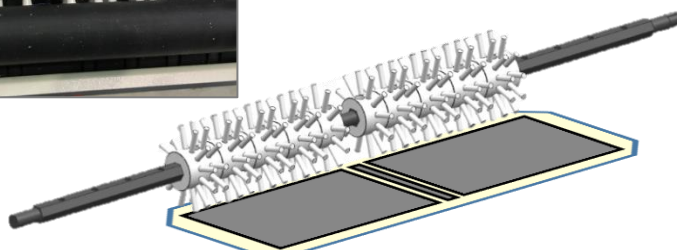
Making adjustments to this part of the machine without turning it OFF might cause serious accidents once the machine starts automatically when sensor detects movement of any material passing in front of it!

4. Assembly and Operation

The machine is delivered properly assembled and ready for use. After unpacking, you will notice the output plate is disconnected and needs to be fit at the back of the machine.



Before starting the machine, make sure brush (13) is adjusted according to the hard cover width as long as no bristles remain on top of the two smaller edges. Adjusting the brush width according to the book case size will prevent the accumulation of glue in the rubber rollers.



Connect the power cable to the electrical network supply and turn the main switch on to start the equipment. Check that the equipment is suitable for the electrical supply.



5. Operating the machine

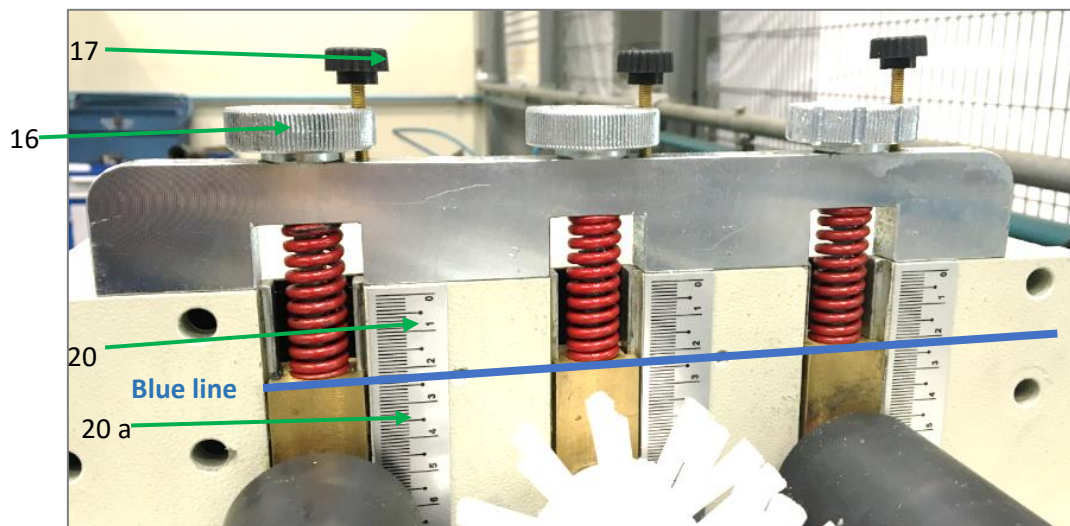
The machine is extremely easy to operate.

Before start-up, make sure the pressure on rubber rollers and brush height are properly adjusted.

Loosen handle bolts (17) and rotate knobs (16) to adjust pressure on rubber rollers.

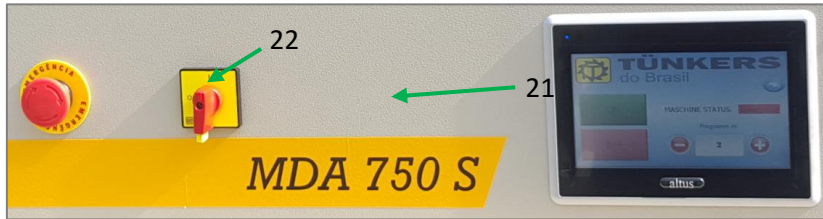
Rule (20) and roller brackets (20a) can be used to set up tensioning as well as the cardboard itself positioned between rollers.

Optimal pressure on rubber rollers shall be exerted when the distance between rollers is nearly identical to the thickness of the material being used. Low pressure will not be enough to properly pull the material and exceeding pressure might accumulate dirt in the material.



Brush (13) turns in the edges and is positioned 10mm above the rubber shafts. However, the height of the brushes might need adjustment when the material is changed or if the size of the edges changes. The blue line showed in the picture above indicates the proper positioning of the rollers and the brushes.

Be sure to start the machine pushing the main switch (21) and select the desired program on the touch-screen panel, according to the table below.



Programs:

1	2	3	4	5	6	7
					2 x Nr. 2	3 x Nr. 2

After choosing desired program and adjusting the machine, as instructions described on chapter 4, manually place the material in front of the optical detector to automatically start the machine rollers.

Make sure the hard cover is centralized in the input table. The reference point is the input sensor located in the middle of the brush, or else, the material must be divided in two equal parts starting from the sensor. Previous adjustments made to the brushes will ensure bristles and edges do not get in contact therefore preventing the accumulation of dirt.

6. Maintenance

Maintenance activities can be easily undertaken.

Make sure to perform regular cleaning of the roll coaters and maintaining its bearings duly lubricated.

Because of the inevitable glue build-up in the upper rubber rollers, cleanup procedures must be performed once or twice a day.

7. Troubleshooting

7.1 The material does not return properly to the front of the machine.

Action required: Make sure to reduce speed.

7.2 The material is not properly ejected, constantly looping back and forward.

Action required: Activate emergency stop, remove back plate and wipe out the dirt build-up in the sensors using a damp cloth.

7.3 The material is lifted up by the brush.

Action required: Make sure to lift the brush up, rebalance the pressure on the rubber rollers and use the chain tightener to properly adjust the tension on the chain.

7.4 The material continues to be lifted up after 7.3 step is performed.

Check if the minimum cardboard thickness required of 1,5mm is observed. Depending on the quality of the cardboard material, its thickness will not be within specified requirements. If so, be sure to increase the thickness of the grey cardboard.

7.5 Progressing dirt building up in the rubber rollers.

Please review chapter 4 and check if the brush bristles were correctly selected according to the case size.

Check the possibility of reducing the glue coating on the laminated sheet.

7.6 The equipment will not start up.

Check if the emergency stop is activated.

Make sure the power cable is properly connected to the power supply.

Make sure inner circuit breakers are working properly. They can be found by removing the lateral fairing which gives access to the control panel.

7.7 Connection belts 14 (Chapter 3) are escaping the channels.

Make sure the pair of shafts (15) is firmly bearing against the rubber rollers.

7.8 Machine delivers a marked laminated product.

All parts in contact with the material, while inside of the equipment, are made of rubber. Therefore, first make sure the material being used in the laminating process is not susceptible to marks resulting from handling and use.

Check if the table where the material is being laid has no residual dirt that might damage it. Make sure to keep the working area always tidy and clean.

8. Material Handling and Care

Pasteboard or Cardboard

The automatic motion of the material requires high quality features to be maintained, which will assure proper functioning of the equipment.

Variations in moisture and temperature might also damage rigid cards (cardboard) causing rippling or bending the material.

Make sure moisture in storage area is controlled using a dehumidifier to avoid planimetry of the material.

Recommendations given by cardboard manufacturers include cutting and properly packing the material for protection against moisture. Unpacking is advised only when the machine is being loaded.

Should these measures cannot be observed, our suggestion is using high performance cardboard resistant to temperature or moisture variation.

Coated paper

Given the great variety of material available, it is not possible to assure all kinds of paper will be suitable for this machine.

Following recommended care (including moisture and packing) described in the pasteboard/cardboard instructions is advised. These measures will avoid bending of the material until it is ready to be loaded in the machine.

Most of the coating is laminated for printing protection. Thus, make sure the plastic being used is positioned towards the opposite end of the fiber and check if it is not over tightened in the laminating machine. This action will prevent the edges of the rolled sheets are pulled back or even rolling the entire paper and eventually making it completely unusable.

Coated paper, preferably in the working widths of 150/170 gr/m², and Percalux are the most usual coatings. Our recommendation is using similar materials with equal malleability, porosity and mass.

Quality features:

Pasteboard/Cardboard Rigid Material	Coated Paper/ Other Papers
<ul style="list-style-type: none">- Proper stiffness;- Smooth and uniform surface;- Perfect planimetry;- Precise measure and thickness;	<ul style="list-style-type: none">- Precise cuts;- Adequate edges- Low pressure rolling- Proper grammage

Working width: 1,5 to 4mm

9. Service Parts

Please send an e-mail to maquinadecola@tuenkers.com.br in order to get the up to date version of all explosion drawings.