



Operating Instructions

Version 1
Number of sheets 13



Folding Module TriFold 360

Notice

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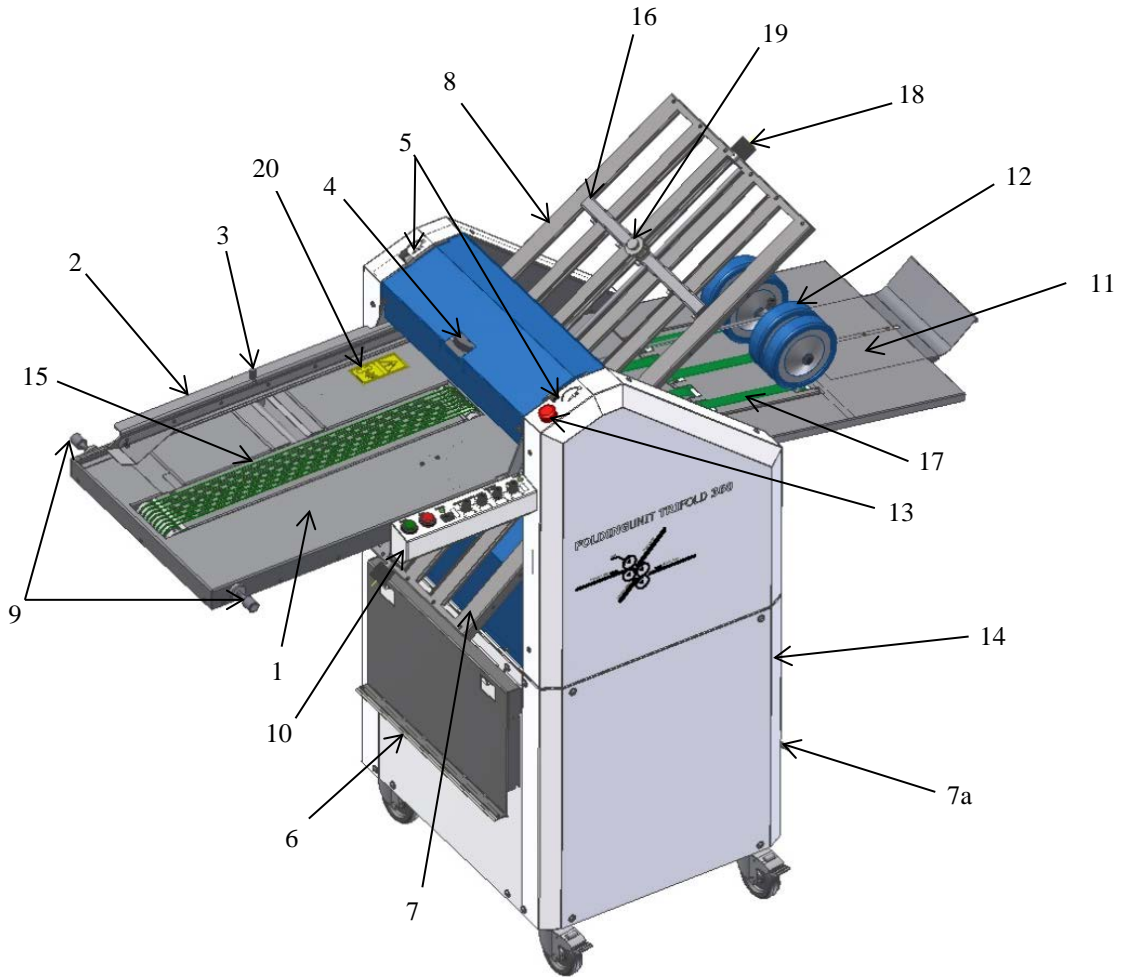
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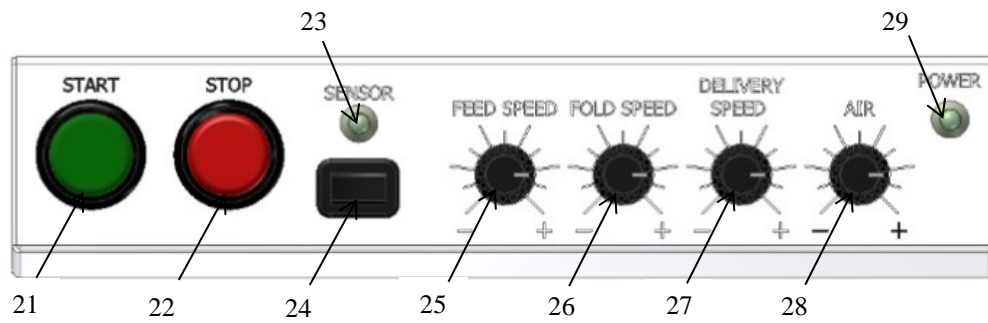
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1. MACHINE DESCRIPTION



1. Feed table
2. Side guide of the feed table
3. Locking screw of the side guide
4. Feed table height controller
5. Half fold flap
(to disable the top plate)
6. Deflector plate for half fold
(to disable the bottom fold stop)
7. Bottom fold plate Y - 3 mm clearance
(7a - bottom fold plate Y with 6 mm clearance, suspended on the table)
8. Top fold plate X - 2 mm clearance
9. Table locking device
10. Control panel
11. Delivery table
12. Delivery wheels
13. Alarm
14. Mobile table
15. Feed belts
16. Moving stop
17. Delivery belts
18. Fine adjustment of stop
19. Stop control
20. Warning sign



- 21. START button
- 22. STOP button
- 23. LED indicator of the feed table sensor
- 24. ON/OFF switch of feed table sensor
- 25. Feed belts speed control
- 26. Fold speed control
- 27. Delivery belts speed control
- 28. Air blowing intensity control
- 29. LED indicator of turned on machine (blinking if plates not inserted properly)
- 30. Communication cable*



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** Connection of the folding module with the GPM 450 Speed and AirSpeed 450 machines is possible for all units from serial numbers 17023670 and 17023626 for GPM 450 Speed and AirSpeed 450 respectively upwards. Creasers with lower serial numbers need first to be equipped with a cable connector. Please contact your retailer to install the connector.*

2. SAFETY RISKS

2.1. Safety Notice

When using the TriFold 360 folding module, all safety rules and procedures must be complied with and all the warnings in this document regarding health and safety must be observed. Otherwise due to the factors outlined below, serious injury or death of persons and damage to or destruction of the machine, its parts and accessories may occur.

Risk factors present:

- Rotating pulleys and moving belts
- Voltage
- Noise in processing
- Moving parts of the machine and equipment
- Sharp edges from processing
- Dust in processing

2.2 General Notes on Health and Safety at Work

This section provides the user with basic information about health and safety at work concerning operators and all other persons who come into contact with the machine. Providing that the TriFold 360 folding module is used correctly, it is a very safe machine. However, if used incorrectly, the device can be a source of hazard. When operating the machine, the operator is responsible for their own personal safety. The manufacturer cannot be held liable for personal injuries or damage to the machine caused by its use or operation not in compliance with the Operating Instructions. It is the responsibility of the owner of the machine to ensure that the machine is operated, maintained and serviced only by qualified personnel.

The machine design complies with international standards and regulations for the construction of machine tools. For machines exported to the European Economic Area (EEA), the customer will obtain a "**Declaration of Conformity**" along with the accompanying technical documentation for the machine – Operating Instructions. The machine also bears the CE mark.

The CE marking on the device signifies that the product complies with the technical requirements specified in all the legal regulations that apply to the device and that require or allow this marking. The marking also signifies that a specified procedure was followed during the assessment of the stated conformity.

With the "Declaration of Conformity" document, the manufacturer certifies that the machinery concerned complies with the requirements of Directive 98/37/CE of the European Parliament and of the Council and with the harmonised technical standards. Directive 98/37/CE of the European Parliament and of the Council is a document that defines the generally applicable basic requirements for health and safety for machinery operated at the user's facility within the EEA.

Directive 98/37/CE of the European Parliament and of the Council does not apply to machinery exported to countries outside the EEA.

The customer will receive the accompanying technical documentation for the machine – Operating Instructions. The manufacturer hereby requests the user to properly train its staff so as to ensure comprehensive safety and protection as defined by the relevant laws, standards and regulations, these Operating Instructions and other documents.

The machine is designed for operation in automatic cycles.

The machine operator monitors the process and the machine's operating mode, ensures replacement of materials and checks dimensions; there is no specific defined place for the operator when working with the machine.

2.3 Safety Instructions for the Use of the Machine

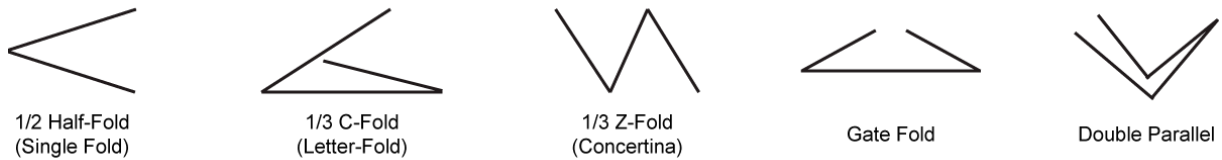
The TriFold 360 folding machine is designed only for folding paper listed in the specifications.

- a) It is prohibited to use the machine unless the operator or the individual appointed for operation have received respective training.
- b) Do not use the machine to fold foils, sheet metal and other similar materials.
- c) The machine can only be used in interior spaces (such as offices or workshops).
- d) It is prohibited to use the machine outdoors.
- e) Do not use the machine if the power cord is damaged.
- f) Do not use the machine if it emits unusual sounds.
- g) It is prohibited to connect the machine to a voltage different from that indicated on the manufacturer's identification plate.
- h) Read all the instructions before using the machine.
- i) Keep children away from the machine.
- j) Once the power cord is connected to the mains, do not put hands or fingers into the machine.
- k) Do not replace faulty electrical components with components of a different type or with different specifications. When replacing a component, the power cord must be disconnected from the mains.
- l) Covers can only be dismantled by competent personnel and after the machine has been unplugged from the mains.
- m) The yellow warning sign (position No. 20 on page 2), "***Do not open or remove the safety cover when the machine is running***", on the feed table warns the operator of possible hazards when working with folding cylinders. Exercise increased caution!



3. SPECIFICATIONS

- a) Fold speed up to 50 A4 sheets per minute, $\pm 15\%$
- b) Fold types



- c) Paper sizes SRA3, A3, A4, A5, A6
possibility to set atypical formats
- d) Dimensions of feed table
l = 690 mm
w = 360 mm
- e) Maximum paper size 620 x 360 mm
- f) Length of plates
X = 460 mm
Y = 320 mm
- g) Machine dimensions
l = 1635 mm
w = 565 mm
h = 1310 mm
- h) Paper grammage 80 to 350 g/m²
- i) Machine weight 113 kg
- j) Packing weight 148 kg
- k) Voltage/frequency 230 V/50 Hz
- l) Power consumption 350 W
- m) Acoustic pressure 76,1 \pm 3,2 dB

4. WORKFLOW PREPARATION

The TriFold 360 folding module is primarily designed for connection after creasers and for folding pre-creased paper grammage from 120 to 350 g/m². Nevertheless, the machine also is able to process non-pre-creased paper with lower grammages (at least 80 g/m²), with the creaser only used as a feeder.

4.1 Connection After the GPM 450 Speed/AirSpeed 450 Creasers

To initiate the workflow, the TriFold 360 folding module must first be connected after the GPM 450 Speed or AirSpeed 450 creaser. Proceed as follows:

1. Remove the delivery table from the creaser.
2. Put paper into the creaser and using the touch screen, feed the paper into the machine (the *Forward* button on the GPM 450 Speed machine, or the combination of buttons in the *Manual Screen* of the AirSpeed 450 machine).
3. Move the inserted paper through the machine until its front edge extends on the output from the creaser by about 5 to 7 cm.
4. Insert the folding module feed table (1) into the back part of the creaser so that it is positioned as close as possible to the paper plane.
5. Adjust the height of the feed table using the Feed table height controller (4) so that the paper from the creaser moves seamlessly under the side guide plate (2) of the folding module.
6. Secure the module in this position against movement against the creaser using the table locking device (9).
7. Interconnect the machines using the communication cable (30) and turn on the power switch. The indicator (29) signals by permanent lighting the machine status (on/off). If the indicator (29) is flashing, the bottom (7) or top fold (8) plate is in wrong position.

The folding module is now correctly connected to the creaser.



Fig. 1: Connection of the TriFold 360 folding module after the GPM 450 Speed



Fig. 2: Connection of the TriFold 360 folding module after the 450 Air Speed

4.2 Synchronizing Creaser with the Folding Module, Setting up the Folding Module

- Adjust the feed table side guide (2) according to paper size by sliding it to the side edge of the paper. The clearance between the side guide and the paper must be approximately 1 mm. Secure in this position by the locking screw of the side guide (3).
- On the folding module, turn off the feed table sensor by the button (24) so that in the next step, the sensor does not activate the feed belts (15) and does not turn the machine on. The sensor status (on/off) is shown by the LED indicator of the feed table sensor (23).
- On the creaser, set the desired fold and perform the paper sheet measurement. The measured sheet rolls out to the folding module feed table (1). Return the paper sheet to the feed table of the creaser.
- Activate the sensor on the folding module side guide by pressing button (24). The LED indicator of the sensor (23) lights up.
- On the folding module, set the movable stops (16) of the bottom and top fold plates (7, 8) according to the desired type of fold. There are 4 types of paper sizes indicated on the plates - **A5, A4, A3 and SRA3**. For each format, the most commonly used folds - **1/2, 1/3 C, 1/3 Z, 1/4 and GATE** are marked on the plates by gauge lines (see Chapter 3, Point b).
- The setup is performed using the movable stop controls (18, 19). The stop position for the above sheet sizes and standard formats as listed above is defined by the top edge of the movable stop (16) - see Figures 3 and 4. For different paper weights, the position of the movable stop (16) must be adjusted by turning the fine adjustment of

stop (18) using the millimetre scales on both plates. These scales also serve to set a fold for atypical formats, or less common fold types. Set the movable stop (16) to the calculated dimension by the lower edge of the stop.

Example: The paper sheet has a length of 300 mm. A one-third fold is required => $300/3 = 100$ mm. Shift the movable stop (16) on both the top and bottom fold plate using the numerical scale to a distance of 100 mm.

Notice: The folding module has two bottom fold plates (7, 7a). The choice between the two is according to grammage of processed paper. For paper grammages between 80 and 250 g/m^2 , use the plate with the 3 mm clearance. For higher paper grammage, choose the plate with the 6 mm clearance.

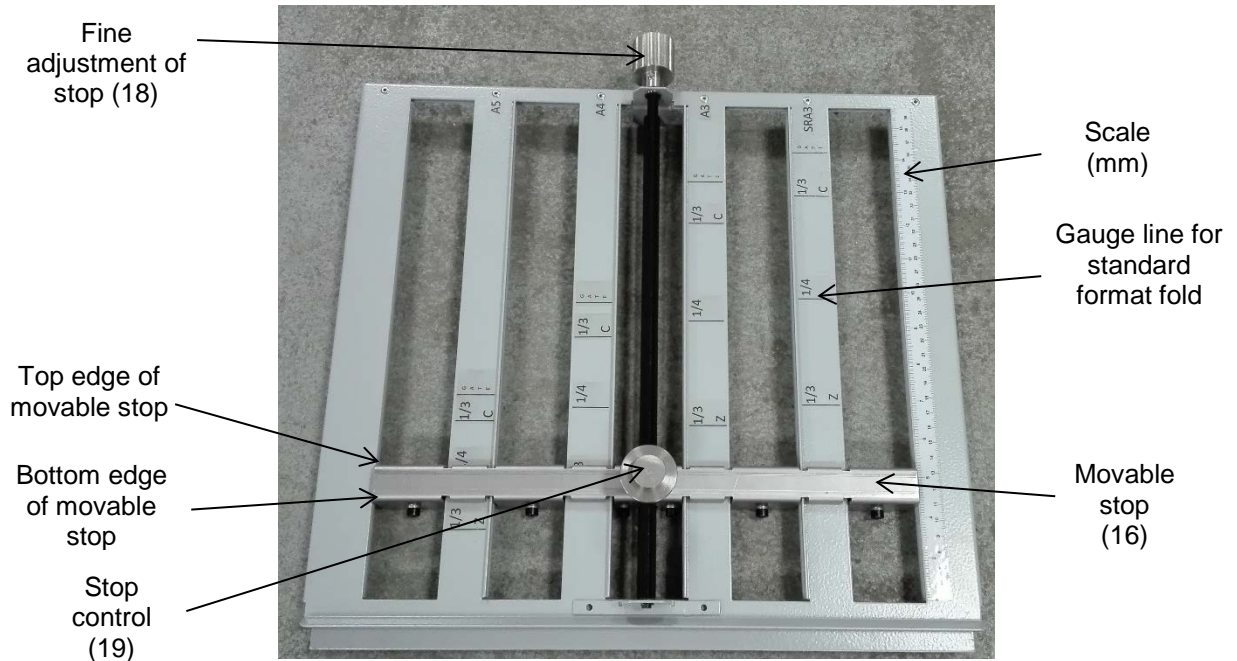


Fig. 3: Top fold plate - 2 mm clearance



Fig. 4: Bottom fold plate - 3 mm (and 6 mm) clearance

Note: When removing plates, the machine shuts down automatically for safety reasons. The LED indicator (29) is flashing to indicate that the plates have been removed from the machine.

4.2.1 Setting Up the Half Fold

The half fold (1/2 fold, single fold) can be set in two ways. The sheet can be folded by means of the top (8) or the bottom fold plate (7). If the paper is to be fold using the top fold plate, remove the bottom fold plate (7) and insert in its place the deflector plate for half fold (6). If the paper is to be fold using the bottom fold plate, switch the half fold flaps (5) in the arrow direction into the On position (Fig. 5). This will disable the top fold plate.

Notice: Operate the flaps synchronously with both hands. After the half fold operation has been completed, be sure to return the flaps to their original position.

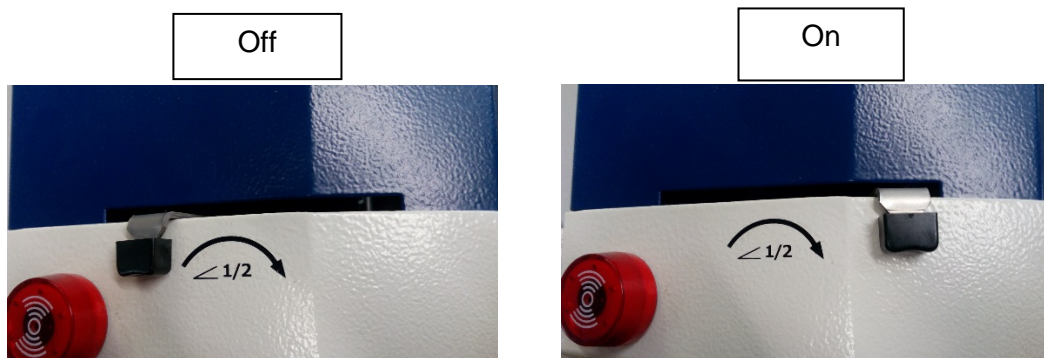


Fig. 5: Two positions of the half fold flap (for folding using the bottom fold plate)

4.2.2 Adjusting the Control Panel Controls

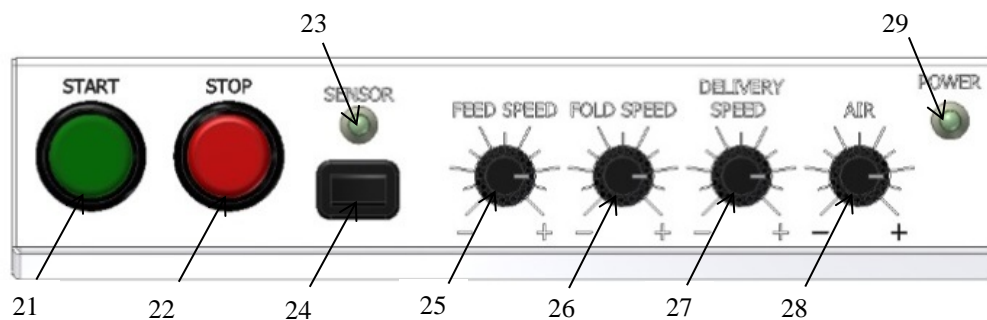


Fig. 6: Control panel

The default setting of the control panel (10) is at half power (Figure 5). This setting should be suitable for most common paper fold types.

- The **START** (21) and **STOP** (22) buttons are designed primarily for machine testing while not connected to creaser. When the folding module is connected to a creaser, the machine automatically turns on the sensor on the feed table on detecting incoming paper.

- For lower grammages, higher feed speed (**FEED SPEED**) as well as higher fold speed (**FOLD SPEED**) can be set. In turn for lower grammages, it may be useful to reduce the paper suction power (**AIR**) on the feed table, so eliminating the risk of the paper becoming wavy.
- For higher weights, it is recommended to reduce the fold speed so as to ensure the effect of a fold wave.
- A lower fold speed also is useful for glossy paper as at high speeds of the folding cylinders, the paper may slip, with inaccurate folding as a result.
- The speed of delivery belts (**DELIVERY SPEED**) is to be chosen according to paper size and fold type so that the folded paper overlays and no gaps emerge between the individual folded sheets.

4.3 Adjusting the Delivery Wheels

Move the delivery wheels (12) to a position so that the processed paper is folded continuously and the folded paper overlays correctly. Set the position of the rear delivery wheels (12) on the axis so that the folded paper wholly fits just before these delivery wheels (12). When the position of the delivery wheels and the speed of the delivery belts (17) are set correctly, the folded paper forms on the delivery table (11) a regular line - Fig. 7.

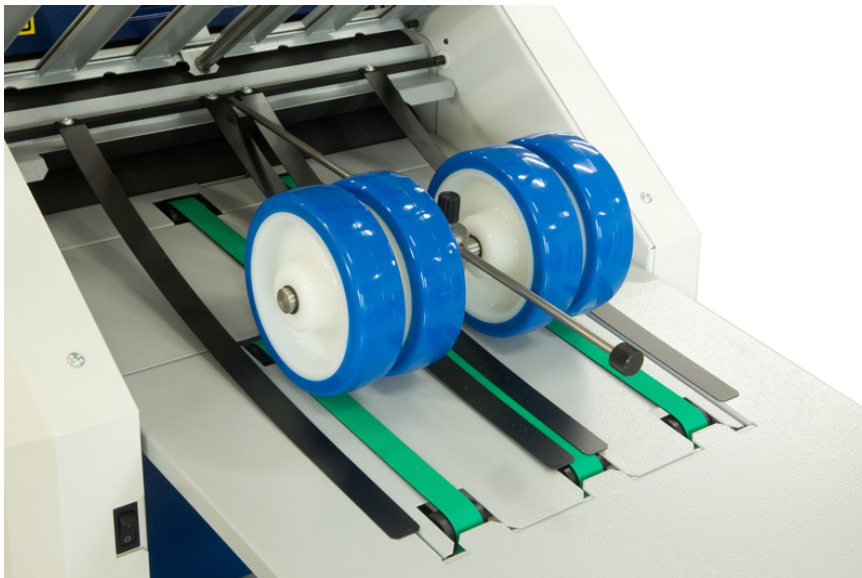


Fig. 7: Delivery wheels in correct position for folding the 1/3 Z format.

6. OPERATING MODE

Once everything is ready according to the above procedure, proceed to actual processing of your order and press the **START** button on the creaser. The creased paper automatically triggers on reaching the sensor on the feed table side guide (2) the operation of the folding module. The folding module automatically shuts off when no more paper comes out of the creaser to the feed table for a period of 10 seconds. If you need to quickly suspend or terminate the folding process, press the **STOP** button (22) on the control panel display (10).

- If the two machines are connected with the communication cable (30) - see page 3, the creaser turns off automatically also if there is a paper jam in the folding module

(for example due to the plates getting clogged up - see Chapter 7). To unlock this status, press the STOP button (22) on the control panel (10).

***Notice:** If both the machines are connected by a communication cable and one of them is shut down with a line switch, the other machine does not work as well.*

- For older versions of creasers without a connection between the two machines by means of a communication cable, the creaser must be switched off manually when the plates have been blocked so that no more paper is fed into the folding module.

***Note:** During the workflow, the alignment of the paper output line must be monitored and, if necessary, the folded paper removed to avoid paper pileup and misalignment.*

7. TROUBLESHOOTING

If paper gets jammed or crumpled in the folding module, the machine turns off automatically after 6 seconds and the alarm (13) rings. If the folding engine stops, the machine automatically shuts off after 2 seconds already, and the alarm (13) rings.

Both these failures are most often encountered when two sheets of paper with heavier paper grammage are loaded into one of the plates at the same time, or due to excessive folding speed with heavier stock.

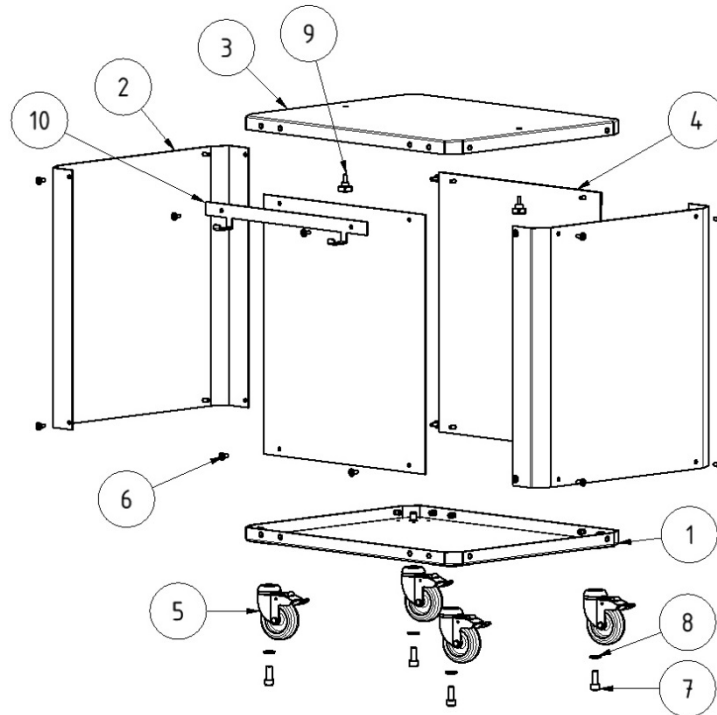
Remove the crumpled paper from the folding module as follows: Turn off the machine with the power switch and remove both the top (8) and bottom fold (7) plates to access the crumpled paper. Remove the paper and fit back the stops. Turn on the machine with the power switch.

8. DISPOSAL OF THE MACHINE

After the end of service life, it is prohibited to dispose of the machine with common waste. The machine must be disassembled, and metallic, non-metallic, plastic, rubber and electronic parts sorted. These parts are to be disposed of at the respective recycling points. Some parts of the device may contain hazardous substances that are harmful to human health and the environment.

APPENDIX 1: TABLE

The mobile table is an integral part of the TriFold 360 folding module.



POSITION	PCS	DESCRIPTION
1	1	Table base
2	2	Side cover
3	1	Top cover
4	2	Front/rear cover
5	4	Wheel with brake
6	24	Screw M6x14 VS+L
7	4	Screw M10x25 VS
8	4	Washer Screw KRG1A 25
9	2	M6x15
10	2	Attachment of Y plate

Note: If there is a need to connect the folding module after a creaser made by a competitor, it is possible to manufacture on demand an equivalent table with a height that fits the height of the paper output of the creaser concerned.