

# FORMAX<sup>®</sup>

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## FD 2300 EXT AutoSeal<sup>®</sup> FEEDER



### **Topicality**

The information provided in this manual corresponds to the series version of the machine at the time of publication of this document. We reserve the right to make changes in accordance with the progress of modern technology.

All technical performance data and production speeds that are mentioned depend on the paper that is used, the print and finishing, the static charge and climatic conditions as well as the expected folding accuracy and professional operation.

Should you have any questions, please contact your Formax Dealer.



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## Safety

### 1. Basic safety instructions

The machine has been built in accordance with state-of-the-art standards and the recognized safety rules.

All hazardous points at the machine are equipped with safety devices. Nevertheless, residual risks cannot be generally precluded when performing certain functions. Therefore failure to observe the safety instructions may lead to injuries to the operator or bystanders, or the machine and other property may be damaged. Pictographs and explanations in this manual warn of possible remaining risks.

The machine must only be used in technically perfect condition in accordance with its designated use and the instructions set out in the operator's manual, and only by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any malfunctions, especially those affecting the safety of the machine, should therefore be rectified immediately.

#### 1.1 Transport and storage

The following instructions and warning are applied to the packing to ensure appropriate and safe transport:

**Top! Transport in upright position only!**



**Protect from humidity!**

**Fragile! Handle with care!**

These instructions and warnings must also be observed for transport within the user's premises. For transport to other premises or for return shipment the machines must be packed and provided with the same markings.

#### 1.2 Organizational measures

The operator's manual must always be available near the machine. In addition to reading the operator's manual, observe and instruct the user in all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection.

The operator's manual must be supplemented by instructions covering the duties involved in supervising and notifying special organizational features, such as job organization, working sequences or the personnel entrusted with the work.

Personnel entrusted with work on the machine must have read and understood the operator's

manual and in particular the chapter on safety before beginning the work. This applies especially to persons working occasionally on the machine, e.g. during set-up or maintenance.

Check whether the personnel is carrying out the work in compliance with the operator's manual and paying attention to risks and safety factors.

For reasons of security, long hair must be tied back or otherwise secured, garments must be close-fitting and no jewellery - such as rings - may be worn. Injury may result from being caught up in the machine or from rings catching on moving parts.

Observe all safety instructions and warnings attached to the machine. See to it that safety instructions and warnings attached to the machine are always complete and perfectly legible.

In the event of safety-relevant modifications or changes in the performance of the machine during operation, stop the machine immediately and report the malfunction to the competent person.

Take the necessary precautions to ensure that the machine is used only when in a safe and reliable state.

Never make any modifications, additions or conversions which might affect safety.

Adhere to prescribed intervals or those specified in the operator's manual for routine checks and inspections.

Any work on and with the machine must be executed by reliable personnel only.

Statutory minimum age limits must be observed.

Employ only trained or instructed staff and set out clearly the individual responsibilities of the personnel for operation, set-up, maintenance and repair. Make sure that only authorized personnel works on or with the machine. Do not allow persons to be trained or instructed or persons taking part in a general training course to work on or with the machine without being permanently supervised by an experienced person.

Work on the electrical system and equipment of the machine must be carried out only by a skilled electrician in accordance with electrical engineering rules and regulations.

### **1.3 Selection of personnel, basic responsibilities**

## **1.4 Standard operation**

Before starting up the machine, make sure that nobody is a risk and that there are no foreign objects in the machine.

Operate the machine only if all protective and safety-oriented devices, emergency shut-off equipment and noise reduction hoods are in place and fully functional

Avoid any action that may be detrimental to safety.

In the event of malfunctions stop the machine immediately and prevent further use. Have any defects rectified immediately by authorized personnel.

## **1.5 Special work, maintenance, repair**

Observe the setting, maintenance and inspections activities and intervals set out in the operator's manual.

Pull the power plug for maintenance and repair work or before opening the electrical cabinet.

If the machine is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by attaching a warning sign to the main switch.

Check the safety features for proper function after completion of the maintenance or repair work.

Always tighten any screw connections that have been loosened during maintenance and repair.

## **1.6 Treatment of electrical equipment**

Always keep the electrical cabinets closed.

Switch off the machine immediately if trouble occurs in the electrical system.


The electrical equipment is to be inspected and checked at regular intervals. Defects such as loose connections or scorched cables must be repaired immediately by authorized service personnel.


Ensure that electrical cables are laid in such a way that there is no risk of tripping.


**1.7 Design of the safety instructions**


 **Warning - General hazard**

 **Warning - Electric current**

 **Warning – Rotating rollers, shafts and gears**

 **Warning - Revolving chains**

 **Warning - Revolving belts**

 **NOTE**  
Refers to special information on how to use the machine most efficiently.

## 2. Product-specific safety instructions

### 2.1 Proper handling of the machine

The Shingling Pre-Loader was designed as pre-loader for cut sheet as an input for cut sheet (paper) feeders.

Intended use of the components of the basic version of the machine:

#### ***Loader/Feeder***

For loading and feeding single sheet documents. The documents are separated by means of e. g. suction air from the bottom of the paper stack.

Only such paper sizes and paper thicknesses may be handled that are listed in the chapter "Specifications".

The Shingling Pre-Loader may only be operated by trained staff who must comply with national safety and accident prevention regulations.

It is unsuitable for handling other materials. The manufacturer/distributor is not responsible for damages resulting from such unsuitable applications. Any use beyond the scope of the intended applications of the machine is not in accordance with its intended purpose.

Responsibility lies alone with the user. Unsuitable handling of the machine and the non-observance of safety instructions put the operator's life at risk and affect the proper function of the machine.

Reading the Operator's Manual and observing the conditions for inspection and maintenance are part of the proper handling of the machine.

Installation of the machine system, i.e. assembling as well as electrical and pneumatic work, should be carried out only by skilled personnel authorized by the manufacturer or his representatives.

Repairs and service should be carried out only by skilled personnel authorized by the manufacturer or his representatives.

The interval between inspections, including safety-related functions, depends on the machine usage.

The machine needs a flat surface for installation. The machine weight should be considered when choosing a location for the machine.

The line voltage must correspond to the

voltages on the serial plate.

No harmful emissions are produced.

Read the Operator's Manual before working with the machine!

We recommend carrying out all operations and settings in the sequence mentioned in this manual.

▶ **The terms "left" and "right" in the following text always refer to the direction of paper travel. Therefore the right side is the operator side.**

## 2.2 Safety instructions for the operation of the machine

The machine may only be operated by trained staff who must comply with national safety and accident prevention regulations. The line voltage must correspond to the values on the name plate.

Repairs and maintenance work must be carried out only by trained personnel authorized by the manufacturer or his representatives.

**In case of an emergency always push the EMERGENCY button and pull the power plug.**

All hazardous points at the machine are equipped with safety devices. Nevertheless, remaining risks cannot be generally precluded when performing certain functions.

The following pictographs and explanations in this manual warn the user of these risks:



**Warning - Risk of injury!**

Never bypass or remove safety components!



**Warning - Risk of injury!**

A hand wheel clicking into place during operation can lead to injuries. Never pull out the hand wheel during operation.



**Warning - Risk of injury from electrical cables!**

Check the electrical cables regularly for breaks and cracks. Only allow trained and authorized staff to work on electrical cables.



**Warning – Risk of crushing in the material infeed area and from moving parts at the loader!**

Watch moving parts when performing adjustment work at the loader. Do not reach into the area of the feed belt while the machine is running.



**Warning - Risk of crushing from revolving belts!**

Only perform adjustment work when the machine has been switched off. Do not reach into the area of revolving belts.



**Warning - Risk of crushing from revolving suction belt!**

Risk of injury in the area of suction belt. Do not get close while the machine is running. Adjustment work should only be done while the machine is at standstill.

**Warning - Risk of crushing from rotating fold rollers!**

Do not reach into the area of the fold rollers while the machine is running. Wear close-fitting clothing and, if necessary, a hairnet. Ensure that ties and any jewellery you wear (for example necklaces or bracelets) cannot be caught up on fold rollers or be pulled in.

**Warning - Risk of crushing from rotating rollers!**

During adjustment work at the buffer station, rollers may pull in hair, clothing and limbs. Wear close-fitting clothing and, if necessary, a hairnet.

**Warning - Risk of injury when opening and closing the noise-absorbing covers!**

If the noise-absorbing covers are closed quickly, limbs can get caught up and injured. Always open the noise-absorbing covers up to the end position.

**Warning - Risk of injury from rotating rollers!**

Rotating rollers at the transfer bridge may pull in hair, clothing and limbs. Wear close-fitting clothing and, if necessary, a hairnet. Adjustment work should only be done while the machine is at standstill.



### 2.3 Safety features at the machine

The Shingling Pre-Loader is equipped with various safety features. They ensure the safety of the persons working with the machine.

► **NOTE:**  
Protection and safety devices must not be dismantled, manipulated or bypassed. Check these devices every day for proper function.

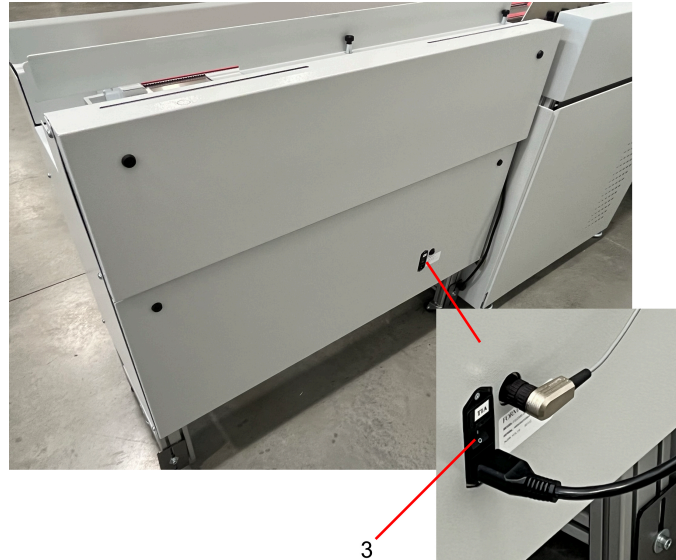
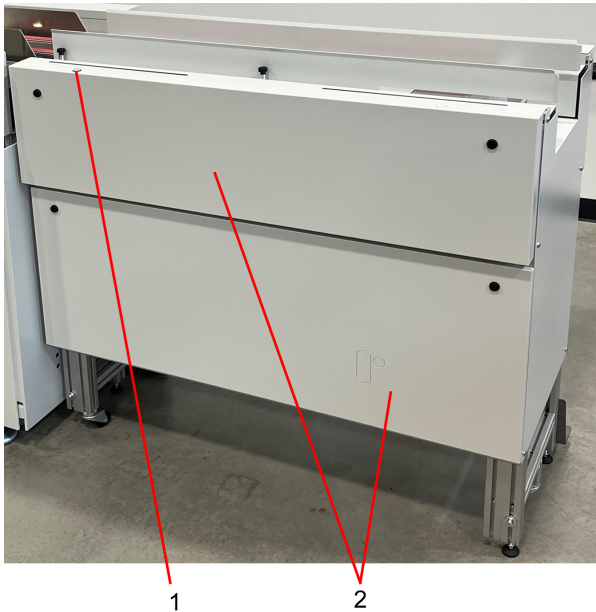


Fig. 1 EXT Loader

| Fig. | Designation                     |
|------|---------------------------------|
| 1/1  | On/Off button (Operator Side)   |
| 1/2  | Lateral noise-absorbing door    |
| 1/2  | Main switch (Non-Operator Side) |

Tab. 1

The following protective devices are provided:

The covers on the operating and service side, which can only be opened with the appropriate tool, may only be removed by authorised specialist personnel!

|                    |   |
|--------------------|---|
| <b>2.4 CAUTION</b> | <p>Perform adjustment work when the machine is at standstill. Pay particular attention to residual risks in case of adjustments which can only be performed with the machine running.</p> <p>Perform maintenance work only when the machine is at standstill. Turn the main switch to the "OFF" position and prevent it from being switched back on accidentally.</p> |
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## General description

### Description of the product

The shingling pre-loader stands for maximum productivity. It has been designed for pre-loading documents and stands out for its industrial design and simple operation.

The shingling pre-loader distinguishes itself through its reliable processing of different numbers of sheets with the same setting. It is possible to replenish the paper stack from above.

Cut sheet can be replenished manually or by a continuous forms cutter system to the shingling pre-loader.

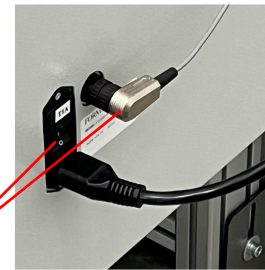
## 2. Basic components

The system consists of the following main components:

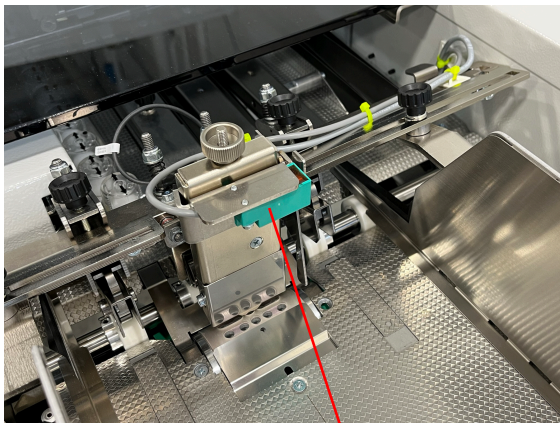
1. Shingling Pre-Loader / Cut Sheet-Loader
2. Main switch and schuko-plug
3. Stack level sensor for the sheet feeder
4. On/Off Button



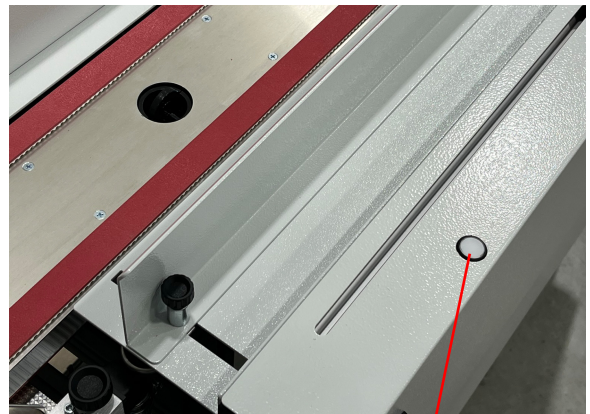
1



2



3



4

### 3. Space requirements

When choosing a location, bear in mind that additional space for the operator, for maintenance work and for material handling is needed.

When placing the system close to a wall, make sure that there is sufficient space for maintenance work. The minimum distance between wall and back side of the entire system should be 800 mm.



**4. Operating Positions**

There are no fixed workstations at the loader. The operator can load the loader from the left or right side.

**Loader:**

Loading with cut sheet paper.



## 5. Specifications

|   |   |
|---|---|
| <b>Paper sizes:</b><br>(Depending on the downstream device) | min. Length x Width: 99 x 210 mm<br>max. Length x Width: 356 x 297 mm   |
| Paper weight:   | 80 to 130 gsm   |
| Rel. Paper humidity:  | 42% to 60% rel. humidity at 20°C  |
| Electrical ratings:   | 230 V / 50 Hz<br>8 A<br>40 W  |
| Environmental conditions:                                   | Room temperature: 15 - 30°C<br>Air humidity: 40 - 80 % (non-condensing) |
| Noise emissions:  | The sound pressure level does not exceed the value of 75 dB (A).        |

|          |                                  |           |
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## Installation and start-up

### 1. Arrival at the customer

Use a fork lift to unload the shingling pre-loader, which is packaged and on pallets.



**Warning - Transport of pallets - Risk of injury!**

Always wear sturdy shoes when moving the unit.



**NOTE**

When lifting units, always observe the maximum permitted carrying force of your crane and the maximum permitted carrying weight of the ropes used.

The machine is covered with a VCI protective foil which protects it from the influences of the weather. For sea transport, the fold rollers may also have been sprayed with a thin layer of rust inhibitor. This layer can be removed with a soft cloth after the installation.

If it is necessary to store the machine before the installation, the following conditions must be observed:

### 2. Intermediate storage

- Do not remove the packaging of the machine.
- Make sure that the doors and transport paths are wide enough for the transport of the pallets.
- Make sure that the storage area is the correct size.
- Never exceed the permitted floor load.
- Store the machine in a dry, covered location where it is protected from dew.
- Make sure that the ambient conditions are observed during transport and intermediate storage (see chapter "Specifications").
- Make sure that the machine is not subject to vibrations.



**Warning - Transport - Risk of injury!**

Always secure the units during transport against tipping or dropping from lifting devices.



**Warning - Falling units - Risk of injury!**

Any units not secured correctly can slide during transit and fall over, with potential for causing injuries. Always transport the units in a sufficiently secure manner. Do not stand below

cranes or in the immediate area of the product in transit.



**Warning - Risk of injury when moving the unit!**

Always wear sturdy shoes when moving the unit.

### 3. Installation

► **NOTE**  
When choosing the installation site, make sure that the load capacity and strength of the floor must be sufficient and suitable for the weight of the machine.

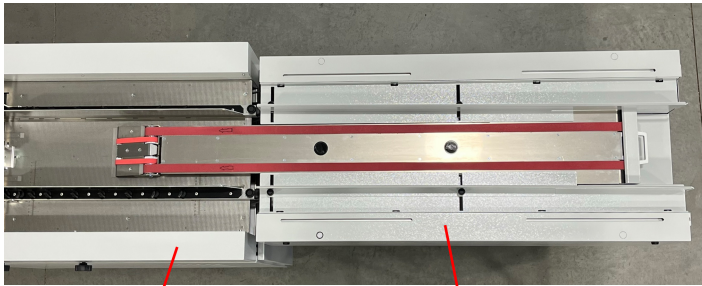
► **NOTE**  
The machine needs a firm and horizontal surface to ensure precise settings and operation.

► **NOTE**  
Installation of the machine, including electrical and pneumatical work, must only be carried out by trained personnel authorized by the manufacturer or his representative.

Proceed as follows to install the machine:

1. Remove the protective foil.
2. Check that the machine and the accessories have been delivered correctly and in full.
3. Loosen the fixing brackets and steel strap- ping used for securing the machine.
4. Use a fork lift to lift the machine components from the pallet.
5. Dispose of packaging and cleaning material in an environmentally friendly manner.
6. Observe the minimum distance from the wall. The machine must be accessible from all sides for service work.
7. Make sure that there is sufficient lighting.
8. When choosing the installation site, make sure that the machine is not exposed to direct sunlight, cold or warm drafts.

► **NOTE**  
A hand pallet truck can be used to move the equipment over short distances. Place the forks of the hand pallet truck under the pallet.



Folder In-feed Deck

EXT Loader

- Align the Loader with the infeed table of the folder.
- Roll the Loader forward into position so that it butts up with the folder.
- Adjust the feet of the loader so that the loader is level and sturdy.



Adjustable feet

#### 4. Electrical connection

► **NOTE**

The electrical installation of the machine must be carried out only by skilled personnel authorized by the manufacturer or his representatives.

The machine is connected to the local power supply by means of the power cable attached to the machine.



**Warning - Risk of injury from electrical cables!**

Check the electrical cables regularly for breaks and cracks. Allow only trained and authorized staff to work on electrical cables.



**Warning - Risk of injury from electrical cables!**

When making or breaking any electrical connection, always first turn off the main switch.



**Warning - Risk of injury from electrical cables!**

Never use force when establishing a plug-in connection.

**Warning - Risk of injury from electrical cables!**

Always close the safety lock levers after inserting the plugs. They must engage audibly.

**Warning - Risk of injury from electrical cables!**

Lay out electrical cables in such a way that they do not generate any potential obstacles for tripping over.

**Warning - Risk of injury from electrical cables!**

Do not bend electrical cables sharply or place heavy objects on them - they may get damaged.

## 5. Beginning of operation

**▶ NOTE**

The start-up of the machine after installation at the customer site should be performed only by skilled personnel authorized by the manufacturer or his representatives.

Once the machine has been installed and all electrical and pneumatic connections have been made correctly, the machine can be switched on by turning the main switch.

## 6. Disassembly and disposal

Only allow authorized and trained personnel to take care of disassembly and disposal.

**▶ NOTE**

Protect the environment!  
The handling and disposal of old components are subject to legislative rulings.



|          |                             |           |
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## Set-up and Operation

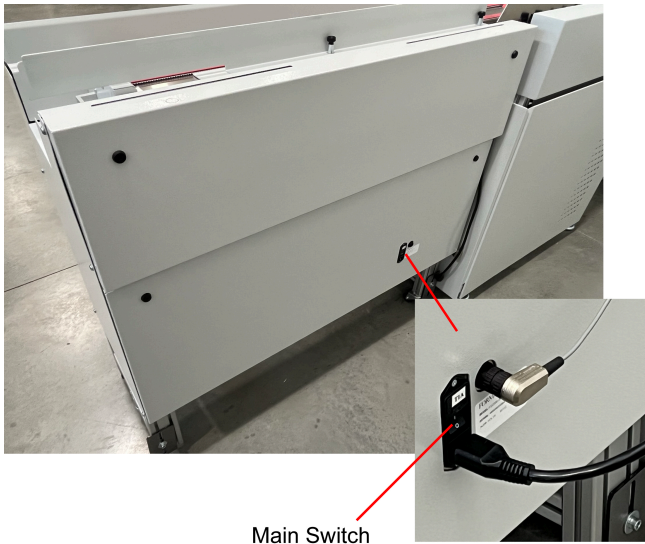
In the following chapters, setting up the machine is described in a logical sequence.

► **Note**

We recommend to carry out all operations and settings in the sequence mentioned in this manual.

► **Note**

The terms "left" and "right" always refer to the direction of paper travel.



The main switch is located at the rear of the loader station and has to be set from "0" to "1" by pressing the switch.



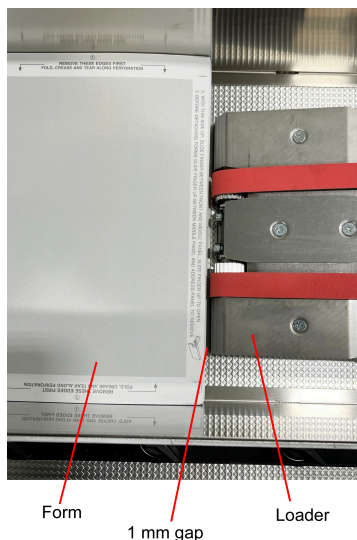
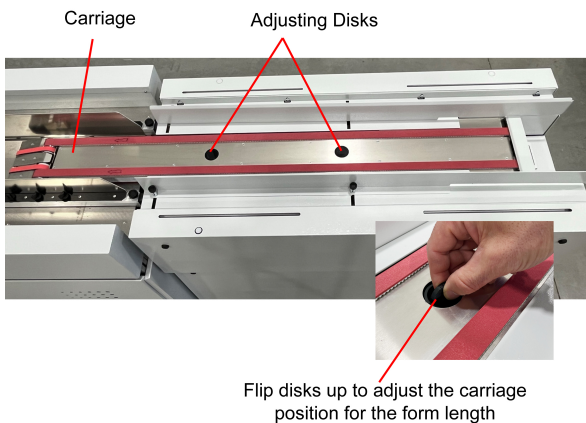
## 1. Shingling Pre-Loader

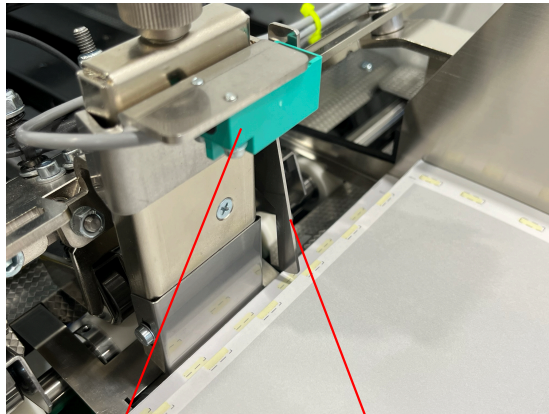
This high capacity shingling pre-loader transports the documents to the feeder in a defined sequence. Due to the shingling loader, the paper stack on the feeder always has a constant height, thus contributing to the reliability of the system. The system processes the sheets in start-stop-operation.

**Functional principle:** A sensor continuously monitors the height of the stack in the feeder. As soon as a minimum height is registered, the shingling loader automatically loads the feeder with paper. This process is repeated automatically in recurring intervals. Thus the feeder is always loaded with the optimum number of sheets.

### Setting LoaderSheetSize

- Flip the adjusting disks to adjusting position and turn them counter-clockwise.
- Manually move the carriage to the left or to the right until the format length is set.
- Place a small stack of sheets on the feeder deck.
- There should be 1mm between the loader ramp and the sheet stack. **Important**, the sheets should be able to fall into the feeder stack without jamming.
- With the sheet size set, turn the adjusting disks clockwise and return them to their original position.





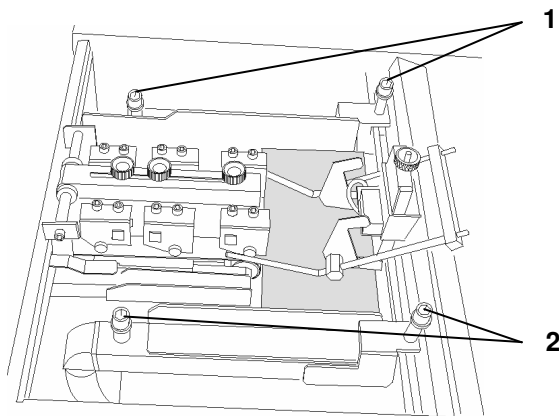
Sensor

Actuating Arm

### Setting the Paper Stop / Stack height sensor

The loader fills the feeder with material and the level is controlled by an an arm with sensor accuator.

The stack level should be approx. 5 to max. 10mm.



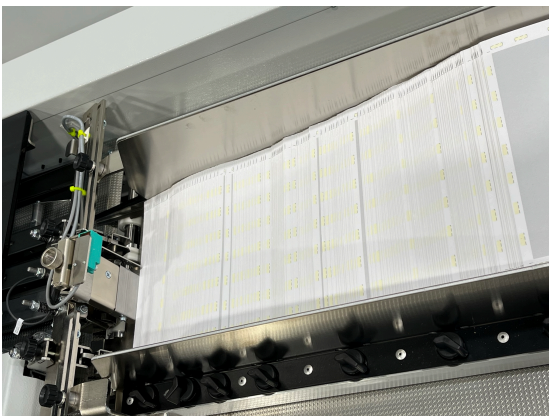
### Adjusting the air guides

The air guides have two functions:

To position the paper stack correctly and to maintain there gap. Air is blown into the lower section of the paper stack so that it floats on a cushion of air.

To adjust the air guides, loosen the thumb screws (1) and (2) at the left and right air guide. Set the air guides to the paper width.

The paper stack should be able to move easily between the air guides, with very little side play, but without being pinched. Observe the exact parallel setting of the left and right air brackets.



### Pre-loading paper

To prevent jams during paper transport from the shingling loader to the feed table, the machine should be loaded in such a way that the sheets are fanned out evenly.







|          |  |           |
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## Maintenance

### 1. Safety instructions for cleaning and maintenance

Regular and proper cleaning contributes to a long life of the machine and a consistent quality. Therefore it is important to clean the machine in regular intervals. The intervals between maintenance jobs depend on the workload. It is recommended to clean the machine once a week, above all the filters of the compressors.

**Warning - Electrical current!**

Before cleaning and maintenance jobs always pull the power plug.

**Warning - Risk of injury!**

Perform maintenance work only when the machine is at standstill and secured against being switched back on.

**Warning - Risk of injury!**

Exercise caution in the vicinity of rotating shafts and rollers!

## **2. Safety instructions**

- Cleaners as well as substances and solvents used for cleaning may be explosive, flammable, caustic, poisonous, detrimental to health, aggressive and environmentally hazardous.
- Only use cleaners with a flashpoint above 55°C. Caution when handling these substances!
- Any oil and grease soiling on the floor in the area of the machine must be removed immediately. This soiling presents a risk of slipping.
- Ensure adequate room ventilation during all cleaning work.
- Do not use any naked flames or other ignition sources.
- Never smoke, eat or drink when handling substances.
- Always wear protective gloves and safety glasses.
- Note the applicable accident prevention regulations, safety rules and safety data sheets of the manufacturers.
- To avoid potential self-ignition, you must keep soiled cleaning cloths, cotton waste, and other auxiliary materials separate.
- Leaked substances and waste must be disposed of immediately in the proper manner.
- Do not use any cleaners that might damage painted or plastic parts of the machine.
- Check all safety features for proper function after completion of the cleaning and maintenance work.

### 3. Maintenance work

#### Daily maintenance

- Remove paper or print powder from all fixed and movable parts of the machine.
- Use compressed air to clean the fold plates when paper with a high degree of powder has been folded. Carefully remove deposits in the control box with a vacuum cleaner.

#### Weekly maintenance

- Clean the air filter of compressor and fan using brushes or air.
- Check timing and flat belts for damaged spots.
- Empty the condensed water from the compressor container.

#### Monthly maintenance

- Clean the filter pads in front of the fans in the control box.
- Check the oil level in the compressor and fill it, if necessary.
- For the oil change in the compressor please see the maintenance schedule of the manufacturer of the compressor (is enclosed with the compressor).

▶ **NOTE**  
As the machine is equipped with gear-motors, the drive needs no lubrication of any kind.

▶ **NOTE**  
Use only special cleaning fluid from FORMAX for cleaning the belts.

▶ **NOTE**  
Do not use pointed objects for cleaning!

▶ **NOTE**  
Do not use any caustic liquids or solvents such as Aceton or Toluol! They would damage the non-metal parts of the rollers!