



***Operating and maintenance instruction***  
**BSR 550 *basic***

Translation from the original operating manual  
Please keep for future use

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# 1 Preface

The BSR 550 *basic* is a product which is state of the art with regard to safety for operating staff and operational safety. The BSR 550 *basic* can nevertheless pose risks if it is used by insufficiently trained staff, improperly or otherwise than as intended. We point out possible risks in Chapter 3 'Safety for the BSR 550 basic' and by means of safety information throughout the documentation.

The present documentation helps users to work safely on and with the BSR 550 *basic*. It contains safety information which absolutely needs to be heeded!

All persons working on and with the BSR 550 *basic* must have the documentation to hand when working and heed the information relevant to them.

The documentation must always be complete and perfectly legible.

BOGRAMA accepts no liability for technical or printing defects in this documentation. Neither is any liability accepted for damage directly or indirectly attributable to the supply, service or use of this documentation.

## 1.1 Identification

BSR 550 *basic* is clearly identified by the content of its type plate.

CE identification according to:

- System directive 2006/42/EC
- Electromagnetic compatibility directive 2004/108/EC
- Low voltage directive 2006/95/EC

## 1.2 Customer service

- Please contact our customer service department in the case of technical problems:

Telephone: +41 52 396 27 70

Mail: [info@bograma.ch](mailto:info@bograma.ch)

Mettlenstrasse 1

CH-8488 Turbenthal

## 1.3 Liabilities

The information in this documentation describes the features of the product, without assuring these.

No liability is accepted for damage arising due to:

- Use of the BSR 550 *basic* otherwise than as intended.
- Failure to heed the documentation.
- Unauthorised modifications to the BSR 550 *basic*.
- Improper work on and with the BSR 550 *basic*.
- Operation of the BSR 550 *basic* with defective safety equipment or improperly installed or non-functioning safety and protective equipment.
- Deficient monitoring of BSR 550 *basic* wearing parts.
- Improperly carried out repairs.
- Catastrophes, the impact of foreign bodies and force majeure.

## 2 Use as intended

The BSR 550 *basic* die-cuts printed materials in the job, pharmaceutical, packaging, labelling and digital printing field. The machine consists of a lifting table which lifts the sheets of paper to the desired height. Using the transport belts, the individual sheets of paper are transported to the register table, laterally aligned via the inclined belt and transported to the punching cylinders where the desired die-cutting takes place. Air nozzles are located on the output side of the punching cylinders. These are responsible for blowing away excess paper. The die-cut products are transported onto the deliver unit via the positioning blocks which are equipped with small wheels.

The BSR 550 *basic* is intended solely for the processing of products in the contractually defined field of application. Any other use requires the written consent of BOGRAMA AG.

In the case of use otherwise than as intended, persons can be put at risk of injury and a risk of material damage to the BSR 550 *basic* can arise.

The decommissioning / circumvention of safety equipment is prohibited (except authorised for service and maintenance).

Authorised persons are those authorised by the operator for certain activities in the area of BSR 550 *basic* (e.g. maintenance, repair, operation). These persons must fulfil the requirements necessary for the respective activity (e.g. read the operating and maintenance instructions, safety training, special training for the respective activity, potentially specific training).

Furthermore, in the case of non-compliance with use as intended the liability and guarantee claims are precluded. The BSR 550 *basic* may only be operated subject to the conditions of use prescribed in the documentation.

### 2.1 Target group and prior knowledge

This documentation is intended for installation, operating and maintenance staff of the BSR 550 *basic*.

The operating and maintenance staff must be determined by the operator.

The installation, operating and maintenance staff must fulfil the following pre-requisites:

- Basic technical knowledge (only installation and maintenance staff)
- Reading and understanding of these operating and maintenance instructions
- The operator must take the following steps to obtain the knowledge necessary for operation of the BSR 550 *basic*:
  - Product initiation (written confirmation by trained persons)
  - Regular safety training
  - Inspection, maintenance, cleaning and repair may only be undertaken by technical experts with product-specific training and mechanical and/or electrical training.
  - Experts with product-specific training must be commissioned and made responsible for the planning and surveillance of work.

## 2.2 Content and purpose of this documentation

This documentation contains the relevant information for installation, repair, operation, maintenance and disposal of the BSR 550 *basic*.

This documentation should enable people to work on the BSR 550 *basic* without risk.

Compliance with the information contained in this document aims to prevent danger and damage to the BSR 550 *basic*.

## 2.3 Usage restrictions

The usage restrictions for the BSR 550 *basic* are as follows:

- Room temperature: Min. 10°C - Max 35°C
- Air humidity: Max 60% (non-condensing)
- Height: Max.1000m above sea level

## 2.4 Format sizes

Minimum sheet format:	210 x 297 mm
Maximum sheet format:	550 x 750 mm
Minimum die-cut format:	55 x 65 mm
Maximum die-cut format:	530 x 730 mm
Minimum grammage:	80 g/m <sup>2</sup>
Maximum paper thickness:	0.5 mm



## 2.5 Technical Data

Electrical data	Voltage	400 VAC / N / PE
	Control voltage	24 VDC
	Fuse in supply lines	16 A
Noise emission	Acoustic power level	$L_W = 78 \text{ dB(A)}$
Air pressure	ISO 8573-1:2010 7/4/4	6 bar
Ambient air temperature		min. 10°                      max. 35°
Air humidity		
Formats 1)	Maximum sheet format	550 x 750 mm
	Minimum sheet format	279 x 210 mm
	Maximum die-cut format	530 x 730 mm
	Minimum die-cut format	55 x 65 mm
Punch thicknesses	Max. product thickness	0.5 mm
	Min. product thickness	approx. 80 gm <sup>2</sup>
Electrical data	Power	5 kW
	Overall current	13.5 A
Work speed 2)	Belt speed	max. 110 m / min
	Products / hour max.	8'000
Weight and dimensions	Width	approx. 1235 mm
	Height	approx. 1650 mm
	Length:	approx. 5'644 mm
	Weight	approx. 2'400 kg
1) Further punch thicknesses on request.		
2) The average work speed is dependent on the punching sheet used and the nature and quality of the product material.		

## 2.6 Principle

The BSR 550 *basic* corresponds to the state of the art and the applicable health and safety regulations. However, the following risks can occur in the event of incorrect operation or misuse:




- Endangerment to the life and limb of users or third parties
- Endangerment of the BSR 550 *basic* and other material assets of the operator
- Endangerment of the efficient use of the BSR 550 *basic*

### 3 Safety at the BSR 550 *basic*










This documentation is compiled according to applicable EU regulations and contains safety information. The operator of the BSR 550 *basic* is responsible for ensuring that operating staff receive the necessary safety information and also read the documentation. Individuals are personally responsible for complying with the safety information.

This chapter contains a general introduction to the safety information and a description of the warning and safety information of the safety labels according to 2006/42/EC located on the BSR 550 *basic*. Important accident prevention information can also be found here.

#### 3.1 Signal words used in safety information

	<b>Danger!</b>	Safety information marked <b>DANGER</b> indicates an <b>immediate risk</b> to the life and health of persons! <i>Immediate risk to the life of persons</i>
	<b>Warning!</b>	Safety information marked <b>WARNING</b> indicates a <b>hazardous situation</b> which could have an impact on the health of persons! <i>Risk of damage to persons (serious injury) and, if applicable, additional material damage</i>
	<b>Caution!</b>	Safety information marked <b>CAUTION</b> indicates a <b>potentially hazardous situation</b> which can predominantly lead to material damage! <i>Risk of material damage and, if applicable, additional slight risk of injury</i>

## 3.2 Symbols used in safety information

	<b>Danger!</b>	This safety information indicates possible risks due to electrical voltage. <i>Non-compliance with this information can lead to life-threatening injuries and material damage.</i>
	<b>Caution!</b>	This safety information indicates a <b>possible hazardous crushing risk!</b> <i>Risk of injury to persons and, if applicable, additional material damage</i>
	<b>Warning!</b>	This safety information indicates a <b>possible risk due to suspended loads!</b> <i>Non-compliance with this information can lead to life-threatening injuries.</i>
	<b>Warning!</b>	This safety information indicates a <b>possible crushing hazard</b> between fixed and moving parts! <i>Risk of damage to persons and, if applicable, additional material damage</i>
	<b>Warning!</b>	This safety information indicates a <b>possible risk due to forklifts!</b> <i>Non-compliance with this information can lead to life-threatening injuries.</i>
	<b>Caution!</b>	This safety information indicates a <b>possible tripping hazard!</b> <i>Risk of damage to persons and, if applicable, additional material damage</i>
	<b>Warning!</b>	This safety information indicates a <b>possible hazard of objects being pulled into machinery!</b> <i>Risk of damage to persons and, if applicable, additional material damage</i>
	<b>Warning!</b>	This safety information indicates a <b>possible fire hazard!</b> <i>Risk of damage to persons and, if applicable, additional material damage</i>
	<b>Warning!</b>	This safety information indicates a <b>possible risk of collapse!</b> <i>Non-compliance with this information can lead to severe injuries.</i>



**Note**

Indicates the obligation to wear protective gloves!  
*Non-compliance with this information can lead to personal injury.*



**Note**

Indicates the obligation to wear safety shoes!  
*Non-compliance with this information can lead to personal injury.*



**Note**

Indicates the obligation to wear a protective helmet!  
*Non-compliance with this information can lead to personal injury.*



**Note**

Indicates the obligation to wear hearing protection!  
*Non-compliance with this information can lead to personal injury.*



**Note**

Indicates the obligation to read the documentation!  
*Non-compliance with this information can lead to staff malpractice.*



**Note**

Indicates additional information or cross-references!

### 3.3 Residual risks

Even with maximum care in construction and building of the BSR 550 *basic* or the entire system and in consideration of all safety-related situations residual risks can occur which were evaluated by means of a risk evaluation.



**Warning!**

Heed the risk of crushing between the lifting table and the side plate.



**Warning!**

Both deflection shafts are not covered behind the lifting table. Heed the risk of pulling in and crushing in the area of the chains.



**Warning!**

Heed the risk of crushing between the lifting table and the stack retaining plate.



**Warning!**

Heed the risk of crushing between the stack retaining device and the side plate when adjusting the stack retaining device.



**Warning!**

Heed the risk of pulling in and crushing between the transport belt and the paper stack and/or the lifting table.



**Warning!**

Heed the risk of crushing between the construction and parts of the lifting table and between both parts of the construction.



**Warning!**

Heed the risk of cutting at the sharp ends of the paper retaining device.



**Warning!**

Heed the risk of crushing between the side plate of the operating and drive side and the paper retaining device / inclined belt.



**Warning!**

Heed the risk of pulling in and crushing between the tensioning rolls on the underside of the register table.



**Warning!**

Heed the risk of crushing when opening and closing the vacuum slit on the underside of the register table.



**Warning!**

Heed the risk of crushing when lifting the positioning rollers.



**Warning!**

Heed the risk of crushing when reinstalling the positioning rollers (when closing the locking lever).



**Warning!**

Heed the risk of pulling in and crushing between the rollers when removing the maintenance plate.



**Warning!**

Heed the risk of pulling in and crushing between the four cogs of the magnetic cylinder when changing the punching sheets.



**Warning!**

Heed the risk of crushing between the protective hood and the lateral cover when closing the hood.



**Caution!**

Heed the risk of crushing in the area of the rails when adjusting the air nozzles.



**Caution!**

Heed the risk of crushing when unlocking and fixing the positioning blocks.



**Caution!**

Heed the risk of crushing between the wheels of the positioning blocks and the transport belt.

---



**Warning!**

Heed the risk of crushing between the side plate and the rails for the positioning blocks.

---



**Caution!**

Heed the risk of crushing between the outlet roller and the transport belt.

---



**Warning!**

Heed the risk of crushing when dismantling and joining the roller and output unit.

---



**Warning!**

Heed the risk of crushing when lifting the printing rollers.

---



**Caution!**

Heed the risk of crushing between the printing roller and the transport belt.

---



**Caution!**

Heed the risk of crushing when shifting the output unit.

---



**Warning!**

Heed the risk due to electrical voltage when opening the switching cabinet.

---





**Warning!**

Regularly clean electrical equipment.



**Warning!**

Heed the risk of tripping around machines. (cables, hoses, paper residue, etc.)



**Note**

The operating and maintenance staff must regularly be instructed regarding operation and risks on the system.



**Note**

The operating staff must wear the relevant personal safety equipment.



**Note**

Reading the operating instructions is obligatory.

### 3.4 Safety information for the operator



**Note**

Ensure that every person working on the BSR 550 *basic* for the first time has read and understood this documentation. Indicate particularly the importance of heeding the safety information in this documentation and the BSR 550 *basic*. Keep the documentation close to the BSR 550 *basic* and pass the documentation on to new staff. Ensure that nobody without expert knowledge works on the BSR 550 *basic*.







**Note**

Operating staff must be instructed on safe working on the BSR 550 *basic* at regular intervals! Heed the national employee protection regulations!



**Warning!**

Ensure that the information affixed on delivery of the BSR 550 *basic* remains easily legible! Absent and damaged warning plates must be replaced immediately!

	<b>Danger!</b>	Transportation, set-up and installation may only be performed by licensed experts! If service, maintenance or cleaning work is performed on the BSR 550 <i>basic</i> , it needs to be safeguarded from unauthorised commissioning!
	<b>Caution!</b>	Only use original spare parts! Otherwise, guarantee clauses and product liability risks can be affected! Please contact the customer service department if anything is unclear!
	<b>Danger!</b>	Subsequent addition of equipment by third-party manufacturers is not permitted; neither is the modification of safety equipment without the consent of BOGRAMA AG or the manufacturer of the respective additional equipment!
	<b>Note</b>	The operator of the BSR 550 <i>basic</i> undertakes to define staff responsible for the operation, maintenance, repair and servicing of the BSR 550 <i>basic</i> !

### 3.5 Safety information for operating staff



**Danger!**

The BSR 550 *basic* may only be operated by relevantly qualified staff! This staff must be familiar with all safety information and the relevant measures contained in this documentation and on the BSR 550 *basic* for operation, maintenance and cleaning.



**Danger!**

The electrical equipment of the BSR 550 *basic* includes devices which generate hazardous voltages and control rotating mechanical parts. Keep away from current-conducting areas!



**Danger!**

The power supply to the BSR 550 *basic* must be switched off before cleaning, maintenance and repair work!



**Danger!**

Before performing repair or maintenance work, the electrical and pneumatic supply of the BSR 550 *basic* must be safely disconnected, i.e. durably and safeguarded against switch-on!

### 3.6 Personal safety equipment

The BSR 550 *basic* is executed in such a way that people working in automatic operation on the BSR 550 *basic* do not require any additional safety equipment exceeding the required standard at the operator's production site (e.g. work clothing, work shoes, etc.)



#### Note

Protective gloves must be worn for transportation and installation activities and when handling in the area of the rollers.



#### Note

Safety shoes must be worn for transportation, repair and installation activities.



#### Note

Wearing of hearing protection is absolutely vital.






#### Note

People performing cleaning and maintenance work must comply with the prescribed measures for appropriate cleaning agents (e.g. gloves for detergents, spray protection, etc.).

### 3.7 Safety information on the BSR 550 *basic*

Safety information which indicates possible risks / residual hazards is affixed to the BSR 550 *basic*. The instructions on the safety label on the BSR 550 *basic* must be complied with under all circumstances. If the safety label fades or becomes damaged during the lifespan of the BSR 550 *basic*, it must be replaced with a new label without delay. Legibility and completeness must be verified at regular intervals. From the time when the labels are no longer immediately identifiable and comprehensible at first glance, the BSR 550 *basic* must be decommissioned until new signs are affixed.

The pictograms for warnings, prohibitions and requirements on the BSR 550 *basic* with their meaning:

Pictograms	Description
	Warning of hazardous electrical voltage Touching live parts is strictly forbidden and can lead to serious injury! Work must only be performed by expert electricians
	Warning of a risk of crushing
	Warning of a risk of cutting

### 3.8 General safety clauses and obligations

In general, the following safety clauses and obligations apply in the handling of the BSR 550 *basic*:

- The BSR 550 *basic* may only be operated in a perfect and clean state.
- It is prohibited to remove, modify, bypass or circumvent any protective, safety or surveillance equipment.
- It is prohibited to convert or modify the BSR 550 *basic* without the written approval of the supplier.
- Defects or damage must be notified to the operator immediately. These must be rectified with original parts directly.
- It must be depressurised and powered down for any activity in the area of the BSR 550 *basic*.
- Only original spare parts may be used for repairs.
- The safety information and operating information from the documentation of the components used must be heeded in any case.
- All protective, safety and surveillance equipment must be regularly verified and serviced by the operator (see maintenance schedule).
- Only instructed, trained or qualified staff may perform work in the area of the BSR 550 *basic*.
- The maintenance work must be performed and documented according to the relevant maintenance schedule.
- After maintenance or repair the BSR 550 *basic* may only be started with all safety equipment installed. It is necessary to define a responsible member of staff to verify the proper installation of safety equipment.
- The national employee safety conditions and the national safety and accident prevention stipulations apply to the operation of the BSR 550 *basic*.

### 3.9 Safety information on the BSR 550 *basic*

- Cleanliness must be heeded in the area of the BSR 550 *basic*. All objects and receptacles not necessary for production must be removed from the vicinity of the BSR 550 *basic*.
- For maintenance work, repairs and set-up work it can be necessary to equip the working area with an additional source of light.
- Spilt fluids and oils must be removed directly as falling injuries can otherwise occur due to slipping. The floor in the vicinity of the BSR 550 *basic* must be slip-resistant.
- No objects and tools may be placed on the BSR 550 *basic*. An exception is the tools necessary for assembly which were defined for personal storage areas.
- Climbing on the BSR 550 *basic* and the pertaining extensions, e.g. switching cabinets, is prohibited for unauthorised parties.

## 3.10 Safety equipment

The system is equipped with the following safety equipment:

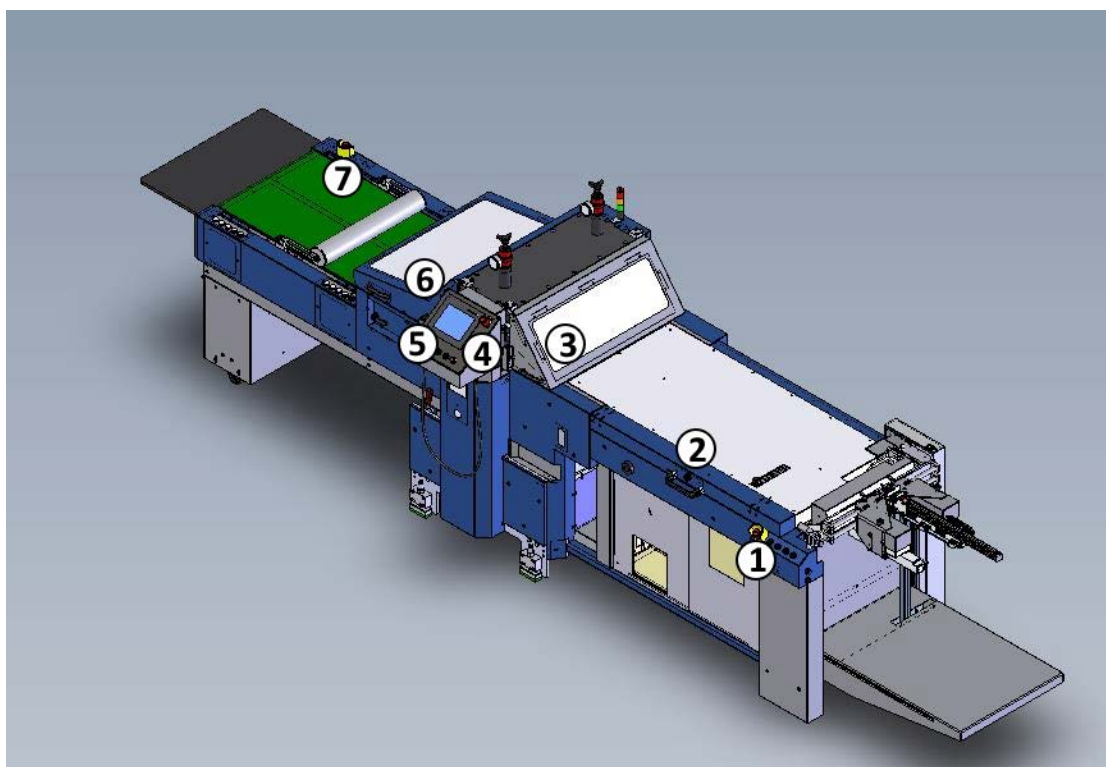


Image No.	Safety equipment
1	Emergency stop circuit feeder
2	Safety sensor protective door register table
3	Safety sensor with bolt for protective door inlet
4	Emergency stop circuit display
5	Enabling switch
6	Safety sensor with bolt protective door outlet
7	Emergency stop circuit feeder



### **Danger!**

The system may only be operated with properly functioning and installed safety equipment. Should an item of safety equipment be defective, it must be repaired without delay. The system must not be commissioned in the meantime.

Operation of the system with defective or improperly installed safety equipment is prohibited.



### **Note!**

Verify the proper functioning of this safety equipment on a daily basis!

## 4 Transportation and installation site

As it is necessary to transport the BSR 550 *basic* to the installation site, the following points must be heeded:

### 4.1 Transport



**Note!**

Transportation must only be undertaken by persons qualified / authorised for this task.

- The pressure gauges must be removed
- The transportation locks for the magnetic cylinders then need to be screwed into place.
- The output of the BSR 550 *basic* must be separated from the remainder of the machine.
- The outlet hood must be removed.

### 4.2 Execution of transportation

- Transportation must be executed with a forklift
- The forklift is positioned at the places marked by Bograma on the previously mounted pallets.

### 4.3 Installation site

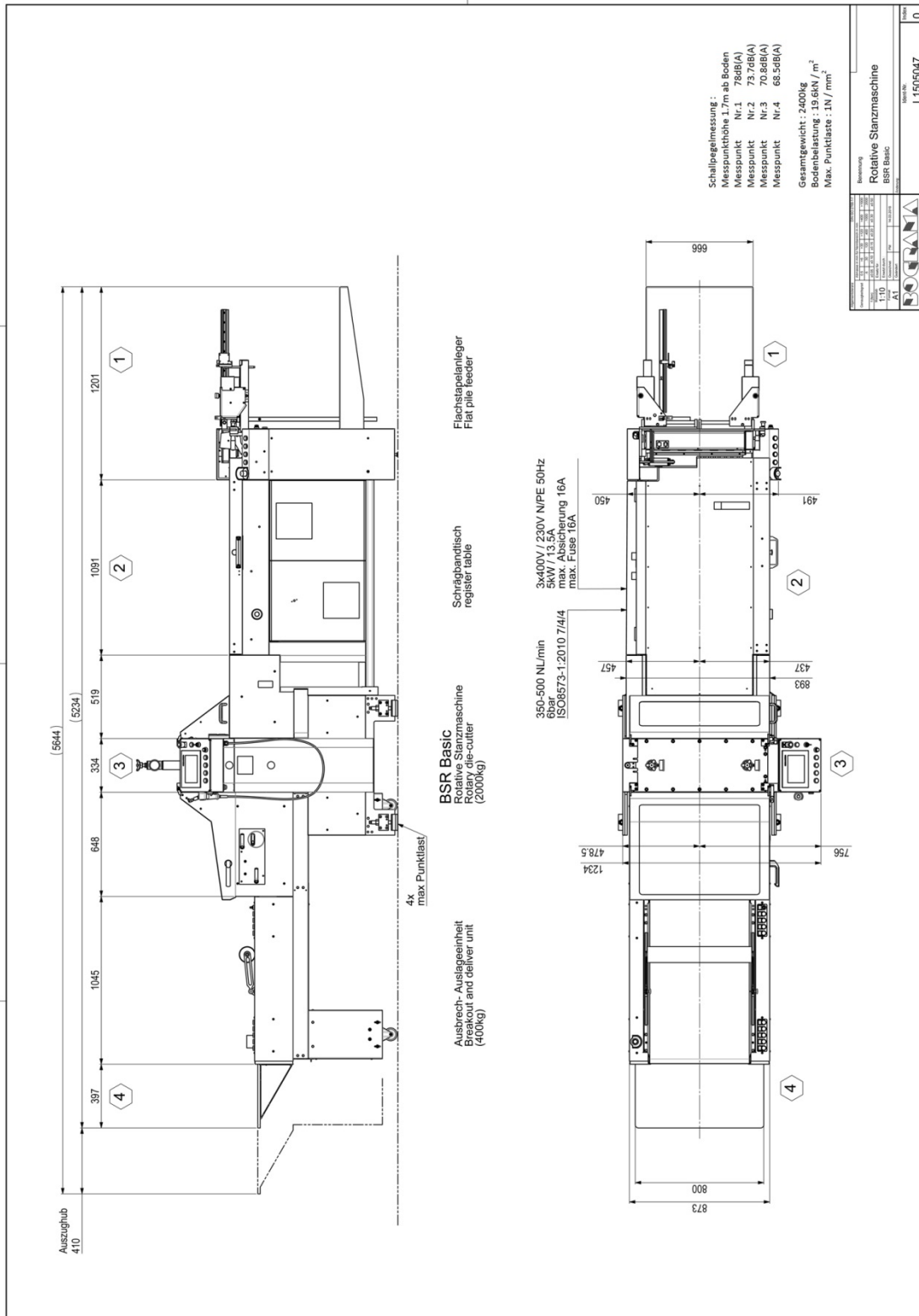
- The hall or storey floors must be even and firm, with a floor evenness according to
- DIN 18202, Tab. 3, line 3
- Floor load capacity min. 19.6kN/m<sup>2</sup>
- The point load is: 1N/mm<sup>2</sup>
- The compressed air supply must be configured with the air quality: 7/4/4 according to ISO 8573-1:2010.
- The minimum distance from the walls must be 1.6 m at the rear and 1 m at the side.



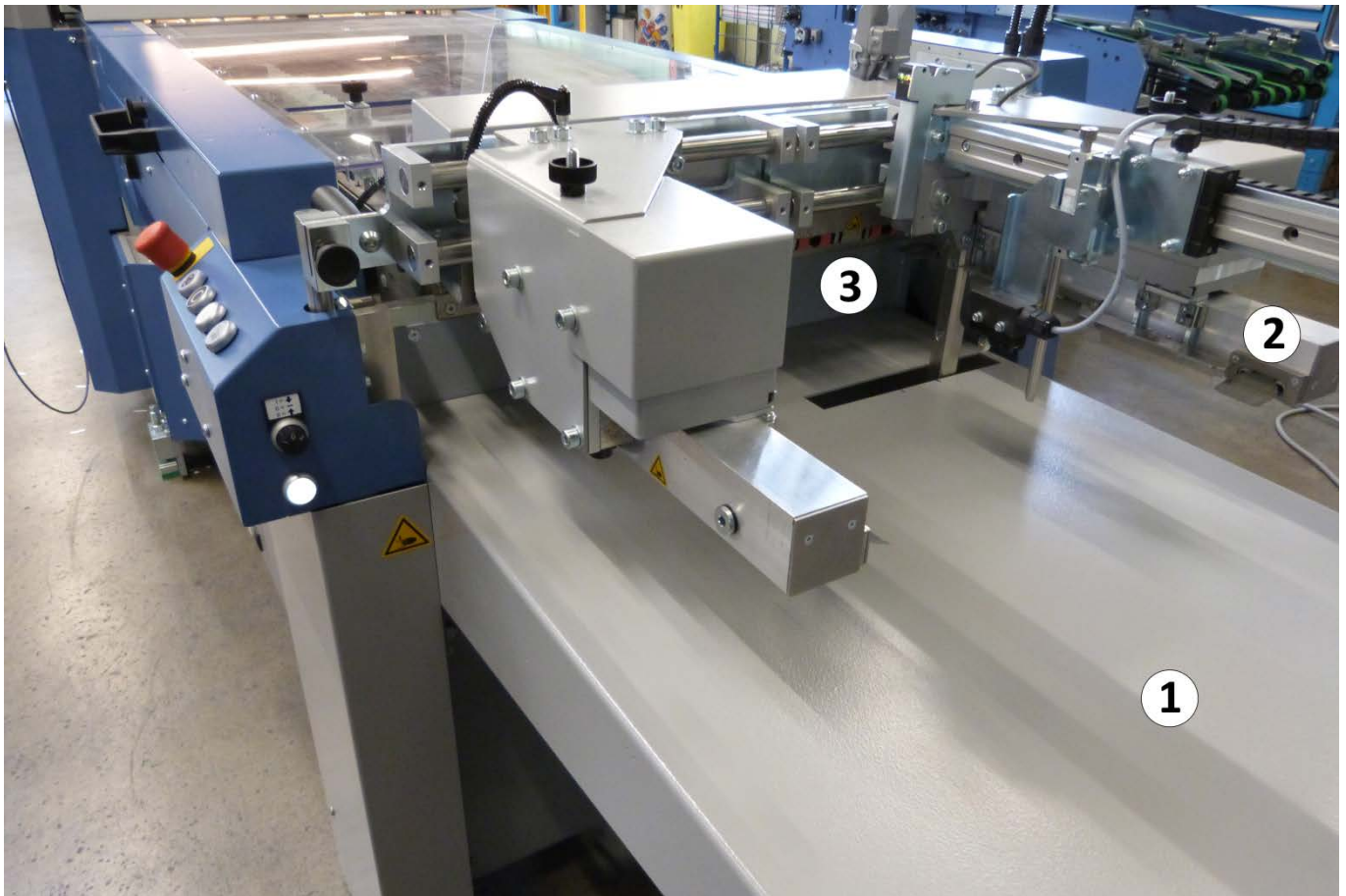
## 5 Description of the individual components

The individual components of the BSR 550 *basic* are described in this chapter.

### 5.1 Layout of the machine



## 5.2 Description of the flat pile feeder



### Main components of the flat pile feeder

(1)	Lifting table	(3)	Transport belt
(2)	Stack retaining device with ventilation		

The flat pile feeder, with lifting table, is intended for the placement of sheet material. The printed sheets are stacked on the lifting table (1) of the machine. These sheets are then automatically pulled in and transferred to the register table by the transport belt (3).

### 5.2.1 Adjust product format



#### **Main components of the flat pile feeder**

##### **(4) Screwing lever for product width**

The width of the stack retaining device can be adjusted to the sheet size used with the aid of the two black screwing levers (4). You must unscrew both screwing levers, then you can set the width of the stack retaining device by pushing it backwards and forwards. To this end, you need to measure the sheet in advance and set the ruler to half of the paper width.

## 5.2.2 Air nozzles and paper sensor



### Main components of the flat pile feeder

(5) Air nozzles

(6) Paper sensor

Air nozzles (5) can be found to the left and right of the internal sides of the stack retaining device which are responsible for ventilating the stack to guarantee clean removal of the uppermost sheet.

The paper sensor (6) is placed at the rear of the paper stack, the stack height is sensed with the aid of the small roll which is part of the sensor. If the distance from the stack to the transport belt is too large, the lifting table is moved upwards with the aid of this sensor until the distance is correct again.

### 5.2.3 Transport belt



#### Main components of the flat pile feeder

##### (7) Transport belt

The sheets are transferred to the register table with the aid of the transport belt (7). Should a paper jam or another problem occur, the transport belt can be lifted (see image).



#### Note

If the transport belt is worn, it can be replaced by the operator himself. However, the transport belt may only be replaced by trained staff.



## 5.2.4 Operating elements lifting table



### Main components of the flat pile feeder

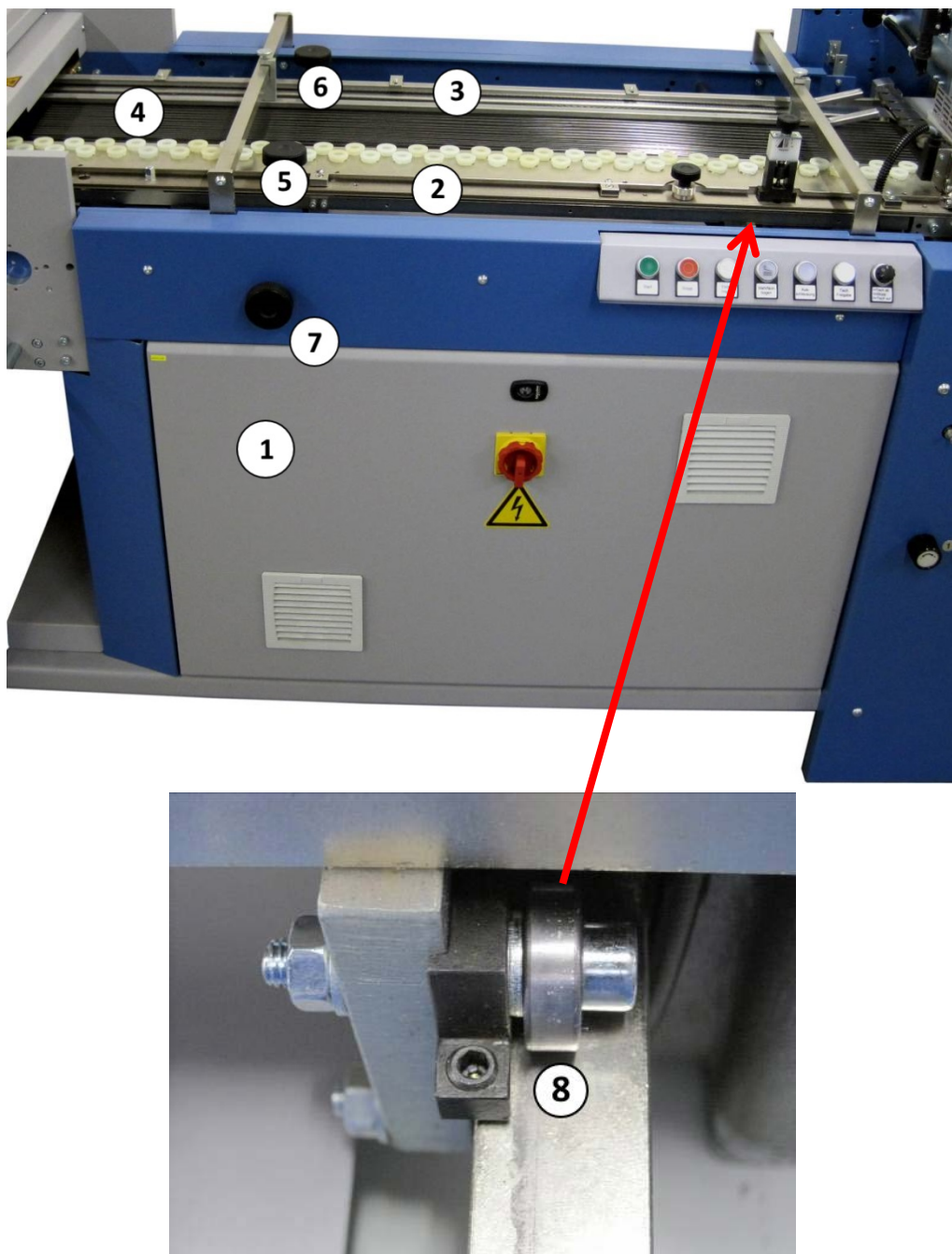
<b>(8)</b> Selector switch	<b>(9)</b> Switch for ergonomic loading
----------------------------	-----------------------------------------

The different settings can be made with the aid of the selector switch (8). If you rotate the switch to (I), the lifting table is moved downwards. With the symbol (II) the lifting table is moved upwards and stops when the paper sensor has detected the stack or the table has reached the top position. This setting also ensures that the table moves further upwards when the paper levels gradually reduce. At the setting (0) the lifting table remains at the desired height.

In order to load the table with products, the selector switch (8) needs to be put into position (I). The table moves downwards until the lower position is reached or the switch is positioned to position (0). A further possibility is ergonomic loading. This is switched on with the aid of the switch (9). An LED specifies the switching state of the function.

If the function is switched on and the switch is positioned in the (I) position, the table then only moves to a height which can be set in the display and awaits loading. If a stack is now laid on the table, the table automatically moves downwards. Consequently, the same height is guaranteed for loading.

## 5.3 Description of the register table



### Main components register table

(1)	Switching cabinet	(2)	Vacuum transportation belt / alignment ruler
(3)	Paper retention	(4)	Paper alignment grid/guiding plate
(5)	Knurled handle – alignment ruler	(6)	Knurled handle – guiding plate
(7)	Knurled handle – alignment ruler (fine settings)	(8)	Clamping part

After the sheets have been transported onto the register table from the flat pile feeder with the aid of the transport belt, they are correctly positioned there in order to subsequently forward them to the positioning rollers.

The vacuum transport belt/alignment ruler (2) sucks the sheets up so that they cannot slip. The vacuum transport belt/alignment ruler is adjusted with the aid of the knurled handle (5). The knurled handle (7) is responsible for fine settings on the vacuum transportation belt/alignment ruler. The paper alignment grid/guide plate (4) can be adjusted to the size of the paper/cardboard sheets with the aid of the knurled handle (6) and thus guarantees secure guiding of the sheet. The paper retaining device (3) ensures that the sheets of paper/cardboard lie on paper alignment grids.

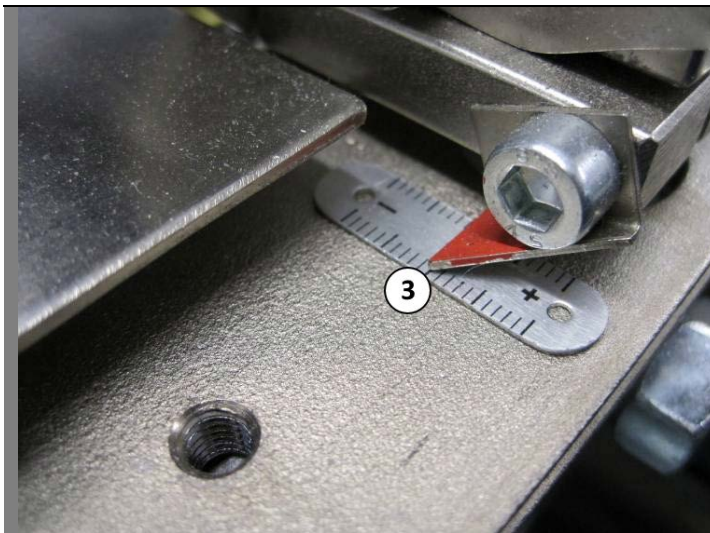
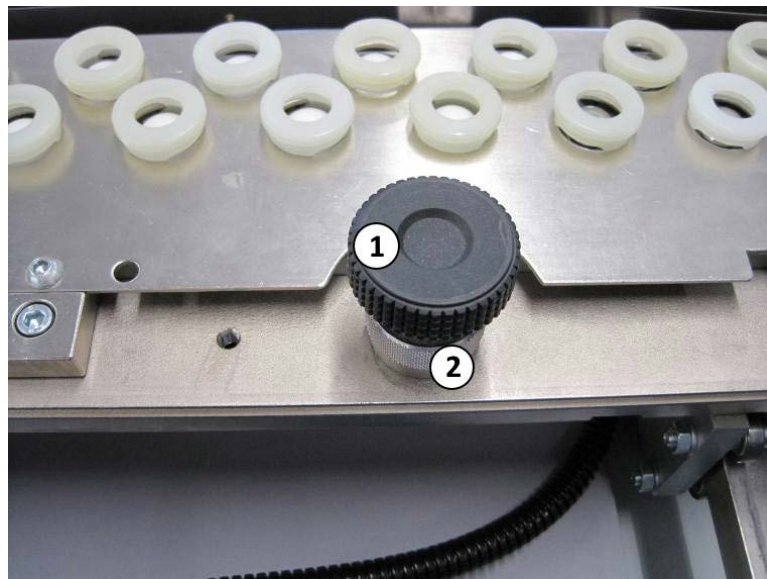
The switching cabinet (1) is located in the lower area of the register table.

#### Procedure:

- Loosen the knurled handle (5).
- Loosen the clamping section (8).
- Set the alignment ruler (2) to half of the paper width.
- Tighten the knurled handle (5).
- Tighten the clamping section (8).
- Loosen the knurled handle (6).
- Insert the guide plate (4).
- Tighten the knurled handle (6).
- Position the retaining rods (3).



### 5.3.1 Angle adjustment



Angle adjustment

(1) Knurled screw

(2) Eccentric

(3) Millimetre scale

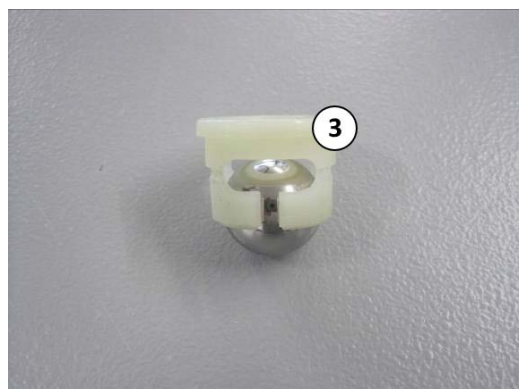
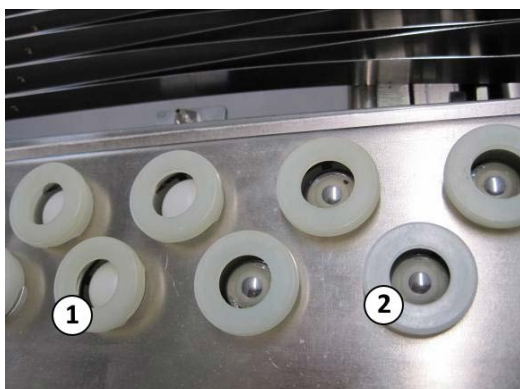
Loosen the knurled screw (1) and then rotate the eccentric (2) in order to change the angular adjustment of the alignment ruler. You can read off the setting from the millimetre scale (3).

Procedure:

- Loosen the knurled screw (1).
- Adjust the angle with the eccentric (2).
- Read the setting off the millimetre scale (3).
- Tighten the knurled screw (1)

### 5.3.2

## Set up the ball rail



Ball rail		
(1)	Plastic ball	(2) Steel ball
(3)	Ball holder	

The use of balls inserted into the available holes on the alignment ruler depends on the paper quality (light paper = plastic balls (1), heavy papers = steel balls (2), or combined plastic and steel balls).

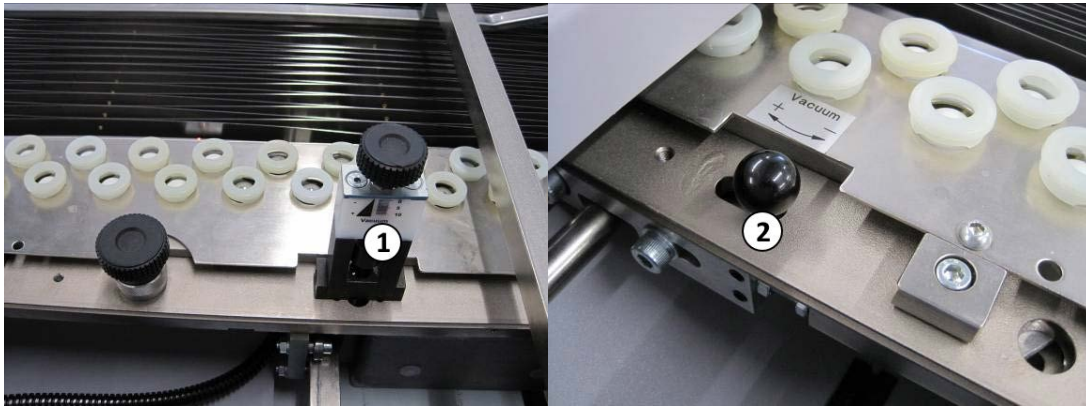
Fewer balls are generally sufficient for lengthwise formats, several balls for crosswise formats and possibly very heavy papers.

However, in both cases the first three holes (viewed in the direction of movement of the sheet) are equipped with steel balls in order to guarantee safe transfer of the sheets from the flat pile feeder.

### Procedure:

- Remove the ball holder (3).
- Change the ball if necessary.
- Replace the ball holder.

### 5.3.3 Set the vacuum



#### Vacuum transportation belt

(1) Vacuum rotary handle

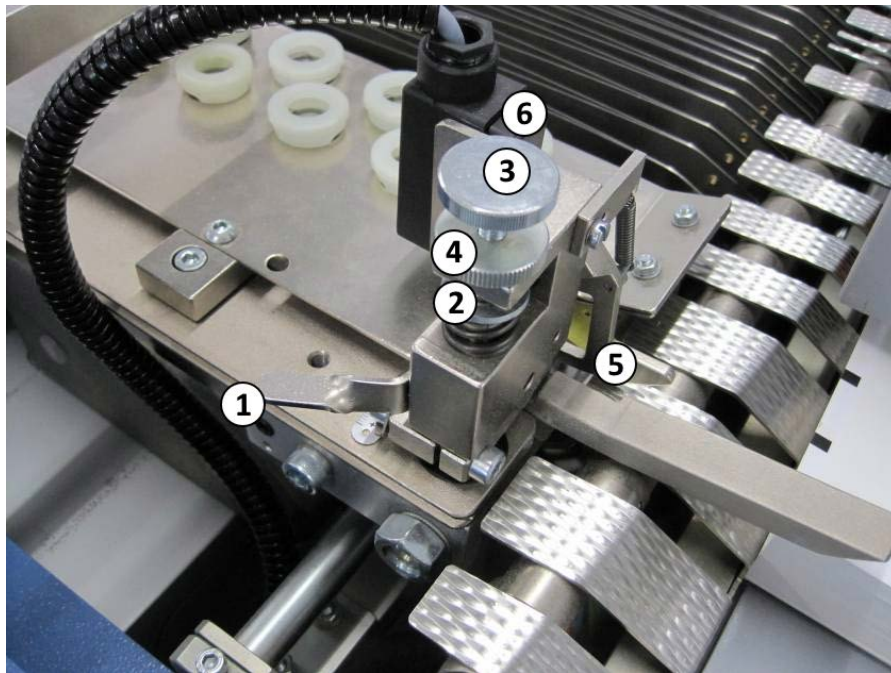
(2) Vacuum ball head

Heavy or thick papers require more vacuum than light or thin papers. The vacuum is set on the register table by the vacuum rotary handle (1) on the start of the table and vacuum ball head at the end of the table.

Procedure:

- Rotate the vacuum rotary handle (1)
- Rotational direction right (+) = more vacuum
- Rotational direction left (-) = less vacuum
- Push the vacuum ball button (2)
- Pushing direction right (-) = more vacuum
- Pushing direction left (+) = less vacuum

### 5.3.4 Set double sheet control



#### Alignment belt

(1)	Opening handle	(2)	Opening
(3)	Knurled screw	(4)	Clamping nut
(5)	Trigger lever	(6)	Switch

You need to reset the double sheet control for each new product with a different paper thickness. You need to place the new piece of paper correctly in the opening (2). Using the knurled screw, you need to set the trigger (5) so that the product runs through the trigger without activating it. You need to tighten the clamping nut (4) after this setting.

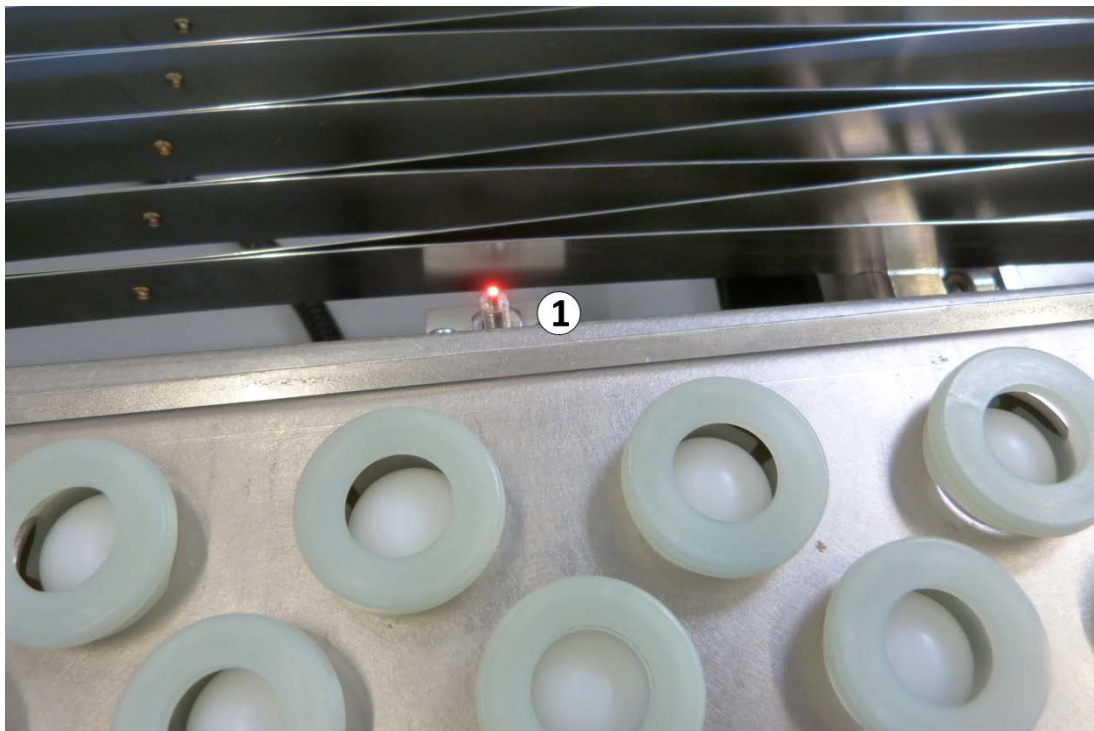
The double sheet control should be set in such a way that, as soon as two sheets are transported together, the trigger (5) recognises this and the machine is thus stopped.

#### Procedure:

- Press the opening handle (1).
- Push a piece of paper into the opening (2).
- Place the triggering lever (5) with the knurled screw (3) onto the product.
- Tighten the clamping nut (4).



### 5.3.5 Control sensor



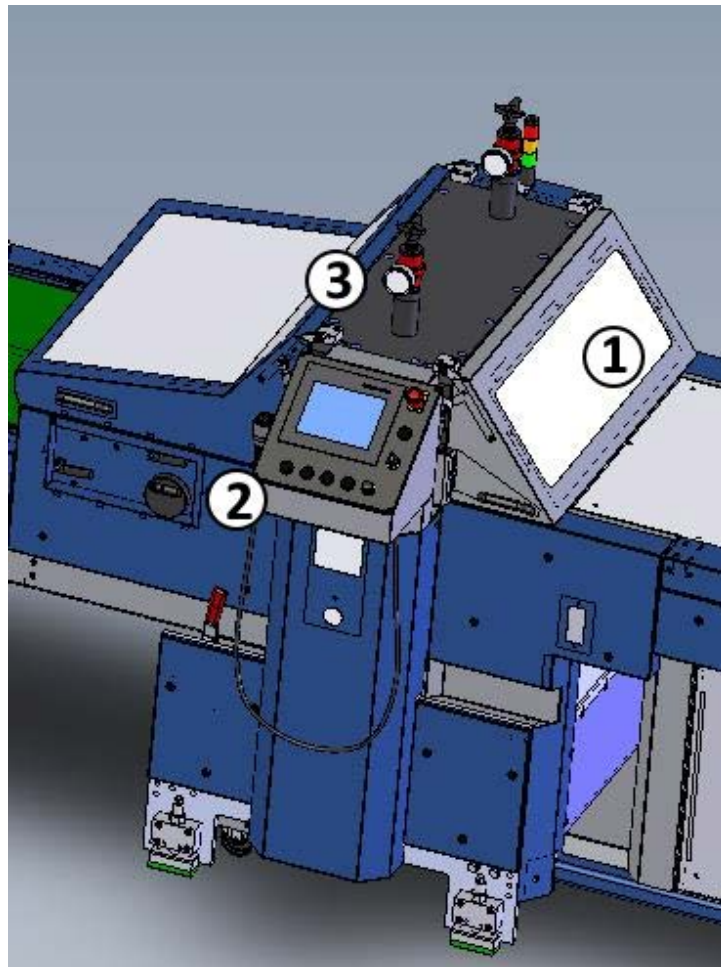
#### Control of the paper sheets

- (1) Sensor for controlling the sheets of paper (LS1)

With the aid of the sensor (1) a paper jam is recognised, whether the desired number of sheets has been attained if work takes place with the pre-setting counter and also whether the sheet is in the correct position to be die-cut correctly.

The machine is stopped automatically in the case of a paper jam. If the sheet is in a position in which it cannot be correctly die-cut, it is rejected.

## 5.4 Description of the positioning rollers



### Main components die-cutting area

(1)	Positioning rollers	(2)	Enabling switch
(3)	Punching cylinder		

The paper/cardboard sheets are transported from the register table via the positioning rollers (1) to the punching cylinders (3). The sheets are die-cut into the desired shape there.

The enabling switch (2) is required if you want to move the punching cylinders manually with the hood open. This is necessary, for example, if you want to change the punching sheet. With the aid of the enabling switch, the rollers can be moved into the desired position in order to change the punching sheet.

### 5.4.1 Positioning rollers

---



**Warning!**

The printing rolls of the positioning rollers are pre-set ex works and should not be adjusted.

---



**Caution!**

The printing rollers are set to the position of the positioning rollers and the sensor.

---



**Caution!**

The position of the stops for the mounting rails and the position of the print roll holder on the mounting rails may not be changed.

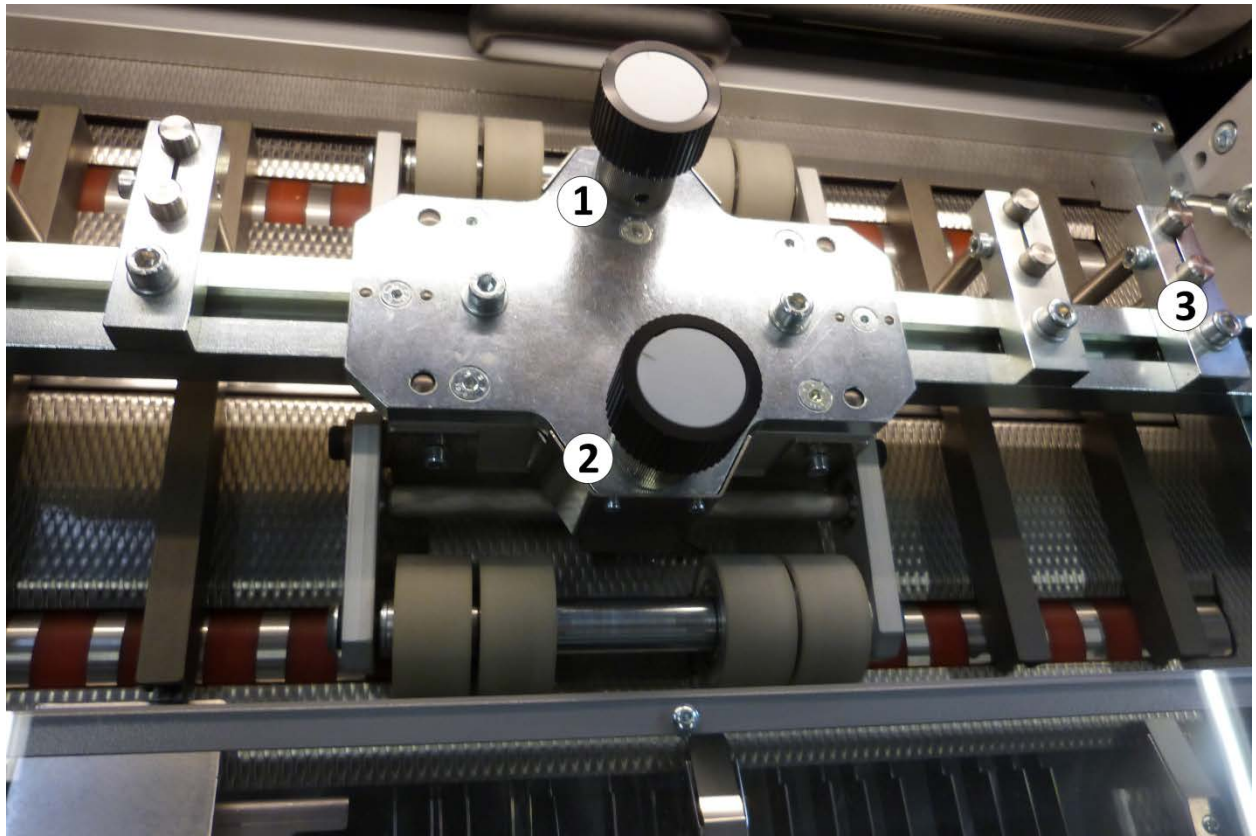
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**Warning!**

The holders of the individual printing rolls may not be loosened or shifted. In the case of non-compliance, BOGRAMA AG cannot guarantee the defect-free running of the BSR 550 *basic*.

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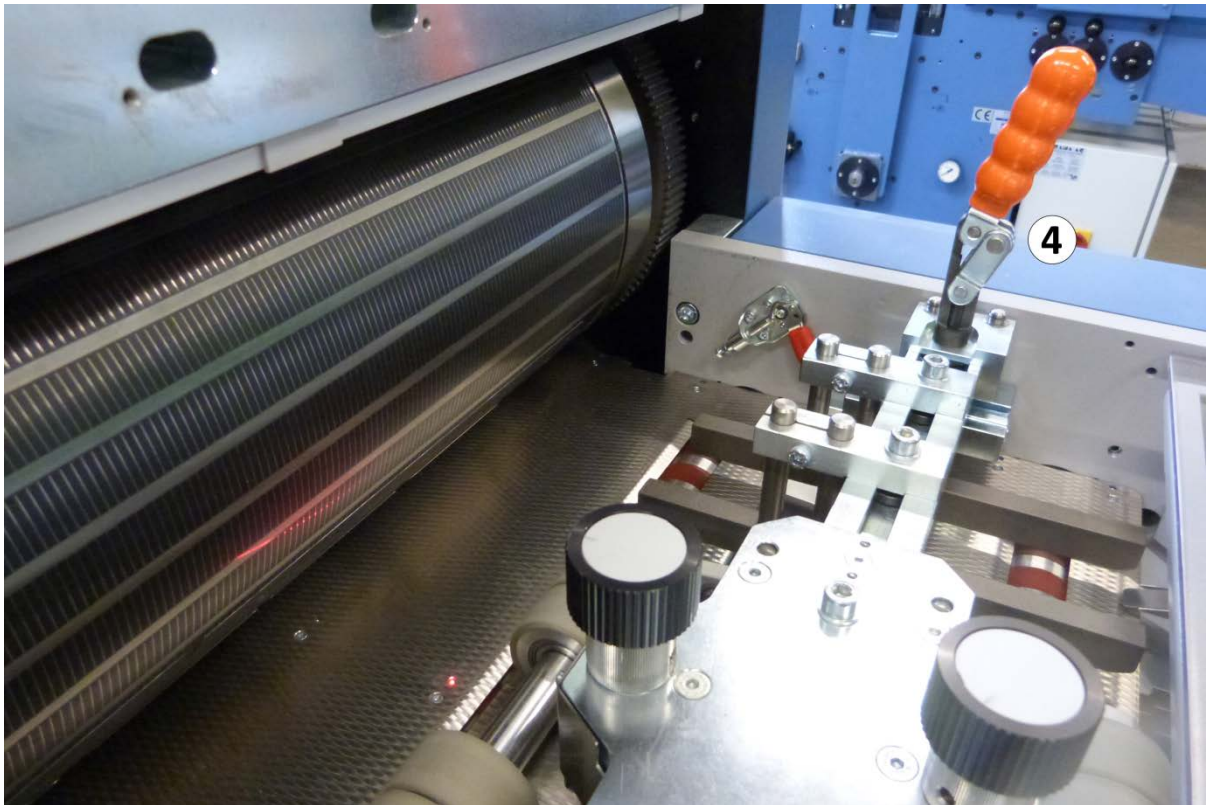
#### Positioning rollers

- |     |                           |     |                 |
|-----|---------------------------|-----|-----------------|
| (1) | Adjusting screw           | (2) | Adjusting screw |
| (3) | Fixing screw for retainer |     |                 |

You should only set the contact pressure on the respective product on the positioning rollers. This happens on the adjusting screws (1 + 2). For thin products, you need to reduce the pressure somewhat when the product starts to warp.

You only need to reset the retainers in individual cases. This should be installed in such a way that the external edges of the product are retained by the holders below.

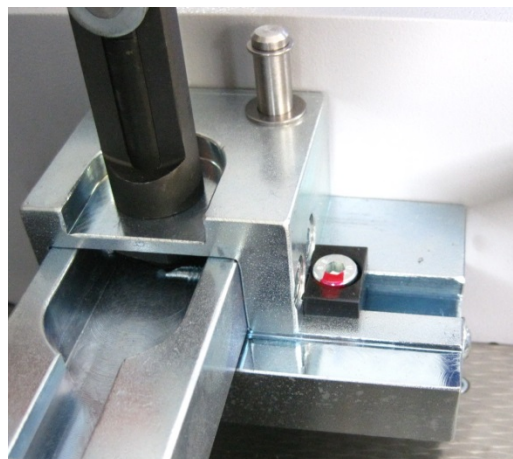
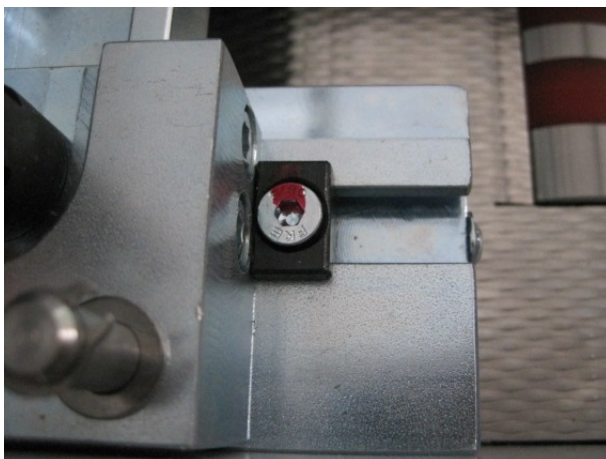




### Lever positioning rollers

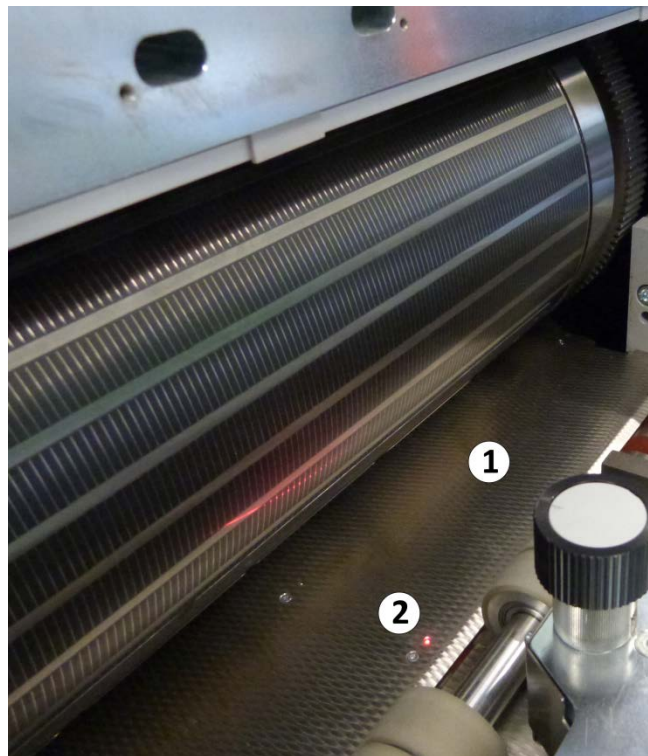
#### (4) Levers (2x)

There are two levers (4) on the left and right side of the positioning rollers. If you tip this lever upwards, you can loosen the positioning roller device (e.g. in the case of a paper jam).



If you want to bring the positioning rollers back into position, it is very important that both sides are flat to the black stops!

## 5.4.2 Maintenance plate



### Maintenance plate

(1) Maintenance plate	(2) Control sensor (LS 2)
-----------------------	---------------------------

The maintenance plate (1) can be removed in the case of a paper jam in order to remove the sheets of paper more easily. A second control sensor (2) is located on the front edge of the maintenance plate, this sensor recognises the front edge of the sheet. The control sensor ensures that the positioning rollers are accelerated or decelerated so that die-cutting can be performed correctly.

### 5.4.3 Installation of the punching sheets

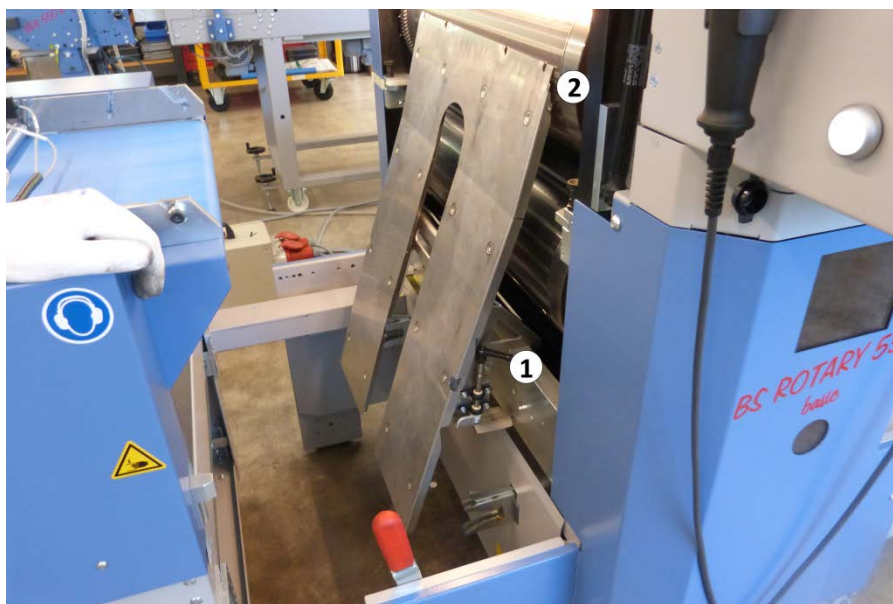


#### Locking inlet and outlet

- (1) Switch in order to open bolt

You need to open the protective lid of the outlet when changing the punching sheets. You need to press the switch on the left adjacent to the control screen. Furthermore, manual operation must be selected and set-up operation activated using the key switch.

The protective hood is now unlocked and must be opened within 5 seconds. Otherwise, the bolt locks automatically.



#### Installation aid

- (1) Angle (2) Upper edge of the installation aid



The punching sheets are changed on the outlet side. Before changing you need to clean the magnetic cylinder and the punching sheet with Betaclean 3900. After that, you need to position the installation aid correctly. First, you need to affix the angles (1) of the installation aid on the lower edge of the outlet (see figure above). The upper edge (2) of the installation aid must be centrally positioned on the upper roller.



#### Installation aid

**(3)** Punching sheet positioning

**(4)** Punching sheet

Four holes are found on the upper edge of the installation aid. In the next step, you need to move the upper punching cylinder with the aid of the enabling switch so that the positioning (3) are moved into the height of the holes on the installation aid. You then need to press the punching sheet (4) from right to left consecutively onto the positioning and ensure that all holes of the punching sheet are connected exactly with the positioning of the punching cylinder. In order to apply the punching sheet on the punching cylinder, you need to activate the enabling switch again to move the punching sheet onto the punching cylinder. You then need to remove the installation aid again.



#### Warning!

Protect the surfaces from damage.



#### Warning!

Never kink or bend the punching sheets over.



#### Danger!

Danger of sharp cutting tools!

Cutting of the punching sheets can lead to injury. The low thickness of the punching sheets on the outside causes an increased risk of injury. Suitable protective clothing must be worn.

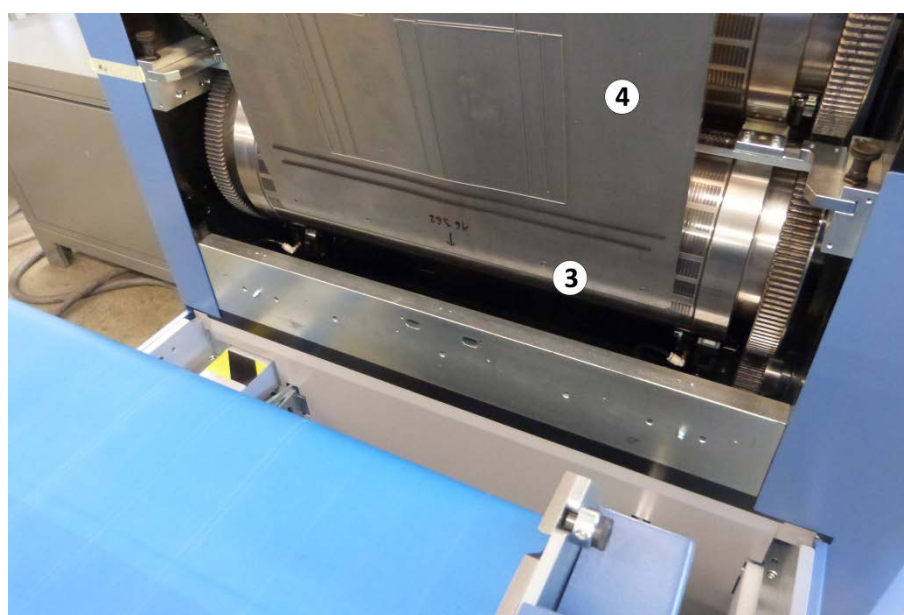
#### 5.4.4 Installation of the counter plate



##### Installation aid

- |           |                                        |
|-----------|----------------------------------------|
| (1) Angle | (2) Lower edge of the installation aid |
|-----------|----------------------------------------|

The counter plates are changed on the outlet side. For this purpose, you need to position the installation aid correctly. First, you need to clean the magnetic cylinder and the counter plate with Betaclean 3900. Then you need to affix the angles (1) of the installation aid on the upper edge of the outlet (see figure above). The lower edge (2) of the installation aid must be centrally positioned on the lower punching cylinder.



##### Installation aid

- |                               |                   |
|-------------------------------|-------------------|
| (3) Counter plate positioning | (4) Counter plate |
|-------------------------------|-------------------|

Four holes are found on the lower edge of the installation aid. In the next step, you need to move the lower punching cylinder with the aid of the enabling switch so that the positioning (3) are moved into the height of the holes on the installation aid. You then need to press the counter plate (4) from right to left consecutively onto the positioning and heed that all holes of the counter plate are connected exactly with the positioning of the rollers. In order to apply the counter plate on the punching cylinder, you need to activate the enabling switch again to move the counter plate onto the punching cylinder. You then need to remove the installation aid again.



**Warning!**

Protect the surfaces from damage.

---



**Warning!**

Never kink or bend the counter plates over.

---



**Danger!**

Danger of sharp cutting tools!

Cutting of the counter plate can lead to injury. The low thickness of the counter plate on the outside causes an increased risk of injury. Suitable protective clothing must be worn.

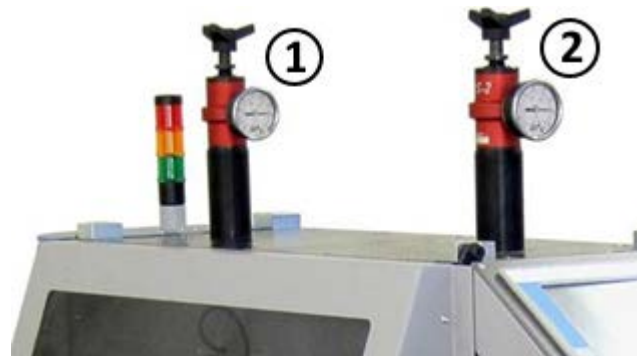
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### 5.4.5 Set punch pressure



#### Warning!

If the system is not in use, the punch pressure needs to be decreased on the pressure gauges (1+2) to 0 bar, otherwise there is a risk of damage to the running rings and the bearings.



#### Set punch pressure

##### (1) (2) Pressure pack with gauge

As different product thicknesses and product materials can be processed in the BSR 550 *basic*, the punch pressure with which the two magnetic cylinders can be pressed together is settable. The punch pressure is adjusted on the pressure packs (1+2) on the punch frame. The correct punch pressure is guaranteed if the product is completely separated and the running rings run stably on one another. According to the material and product thickness, a pressure supply can be necessary until the end of the pressure gauge measuring scale.

## 5.4.6 Magnetic cylinder information

### Important notice

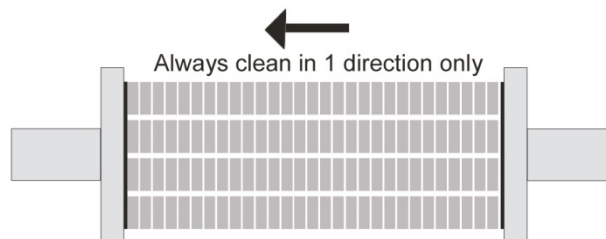


Dear Customer,

Congratulations on purchasing this Kocher + Beck Magnetic Cylinder, like all Kocher + Beck products it is manufactured to exacting standards to give you long and trouble free service, however, it is vital that you maintain this product and ensure it is used in an appropriate manner to maximise the life and function of this product. Below are some tips for the proper use and maintenance of your new Magnetic cylinder.

1. Magnetic cylinders should be cleaned before and after use to ensure all dust and debris particles are removed.
2. Only appropriate cleaning fluids such as Isopropanol **Betaclean 3900** or Naphtha **OKS 600 multi oil** should be used, as some cleaners contain chemicals that will react with the bonding resin and can cause movement of the magnets.
3. Always clean cylinders in one direction as a backward & forward motion will not remove unwanted material due to the magnetic nature of the cylinder (see fig1)

Fig 1



4. Pressure should be applied with the press running and applied evenly across the cylinder.
5. Pressure should be monitored during the run using a pressure gauge such as the K+B KMS range of pressure gauges, and adjusted to maintain the minimum of pressure required to keep the cutting station stable and to ensure even load across the cylinder.
6. **WARNING** Excessive pressure may result in damaged bearers and a reduction in the critical airgap - this will result in shorter die life and poor performance.
7. Bearers should be lubricated with a light engineering oil throughout the press run, preferable applied via a felt pad either directly onto the bearers or indirectly via the anvil.

For further tips or to arrange for an in-house training session, please contact your local Kocher + Beck representative.



## Instructions on the handling of magnetic cylinders

**The magnetic cylinders of Kocher+Beck are designed in a way so that the magnetic field will be limited to a small area (approx. 2 cm) around the magnetic cylinder. However, the following instructions must be observed and strictly followed.**

### **Strong magnetic fields!**

Magnetic fields can disturb electronic or mechanical elements and devices or destroy. This counts in particular to heart pacemaker. The necessary safe distances are to be taken in the manuals of these devices or to ask with the manufacturers.

### **Work only with protective equipment!**

Sintered magnets are hard, friable and splinter with the collision in many sharp edged parts. Therefore, every collision is to be avoided.

The skin can be squeezed by the big attracting forces. Therefore, only with protective gloves work!

### **Absolutely to follow!**

The highest permitted operation temperature is about 70°C.

Rare earth magnets must be stored under drs conditions, so that they do not oxidize.

Permanent magnets, above all rare earth magnets, are partly dissolvably according to material in aggressive media (acids, lyes). Therefore, they may not be used safely.

No disadvantageous consequences for people are known by touching of magnet materials.

For persons with allergies on contacts with ceramic or metallic materials the same reactions are to be expected in the contact with magnet materials. Hence, they should not work with magnets.

Disadvantageous consequences of the magnetic fields of permanent magnets on people are not known.

### **Transport!**

Upon dispatch in the original packaging provided by Kocher+Beck respect. shipment of already installed cylinders, the magnetic cylinders are no dangerous goods within the meaning of traffic and transport law.



**Hazardous to fingers and hands due to high attractive forces of permanent magnets and magnetic parts!**

**Strong magnetic fields due to permanent magnets!**

=> Handle only with protective gloves! Always use protective goggles! Handle with extreme care!



**Health hazard to people with heart pacemakers, metal implants and hearing aids when in proximity to permanent magnets!**



**Strong magnetic fields due to permanent magnets!**

=> Anyone with pacemakers, metal implants or hearing aids are not permitted to approach or to handle with these magnets!

=> If you have such conditions, consult with a physician prior to handle with these magnets/ magnetic parts!



**Hazardous to sensitive parts!**

=> Keep watches, credit cards, identification cards with magnetic strips, magnetic tapes and ferromagnetic materials (such as Iron, Nickel and Cobalt) away from permanent magnets or magnetic parts!

## 5.4.7 Control console



### Control console

(1) Emergency stop switch	(2) Reset
(3) Set-up operation key switch	(4) Operating mode selector switch
(5) Multiple sheets	(6) Individual sheets
(7) Stop	(8) Start

- The emergency stop switch (1) can be activated if problems occur on the machine. After activation of this switch, the machine is at a standstill and all drives are powered down. Furthermore, the main valve is switched on. Only when the function is deactivated again can the machine be recommissioned.
- A defect is confirmed with the reset button (2). However, this defect may no longer be active. This also applies to the resetting of the emergency stop.
- The key switch (3) switches on set-up operation in which movements are also possible with an opened protective hood.
- You can select the desired operating mode (automatic or manual) with this selector switch (4).
- You can start sheet retrieval on the feeder with the multiple sheet button (5).
- You can retrieve an individual sheet from the feeder with the individual sheet button (6).
- You can stop the machine or confirm a defect with the stop button (7).
- You can start the system if no defect is present with the aid of the start button (8).

## 5.5 Deliver unit



### Loosening of the blow-out unit

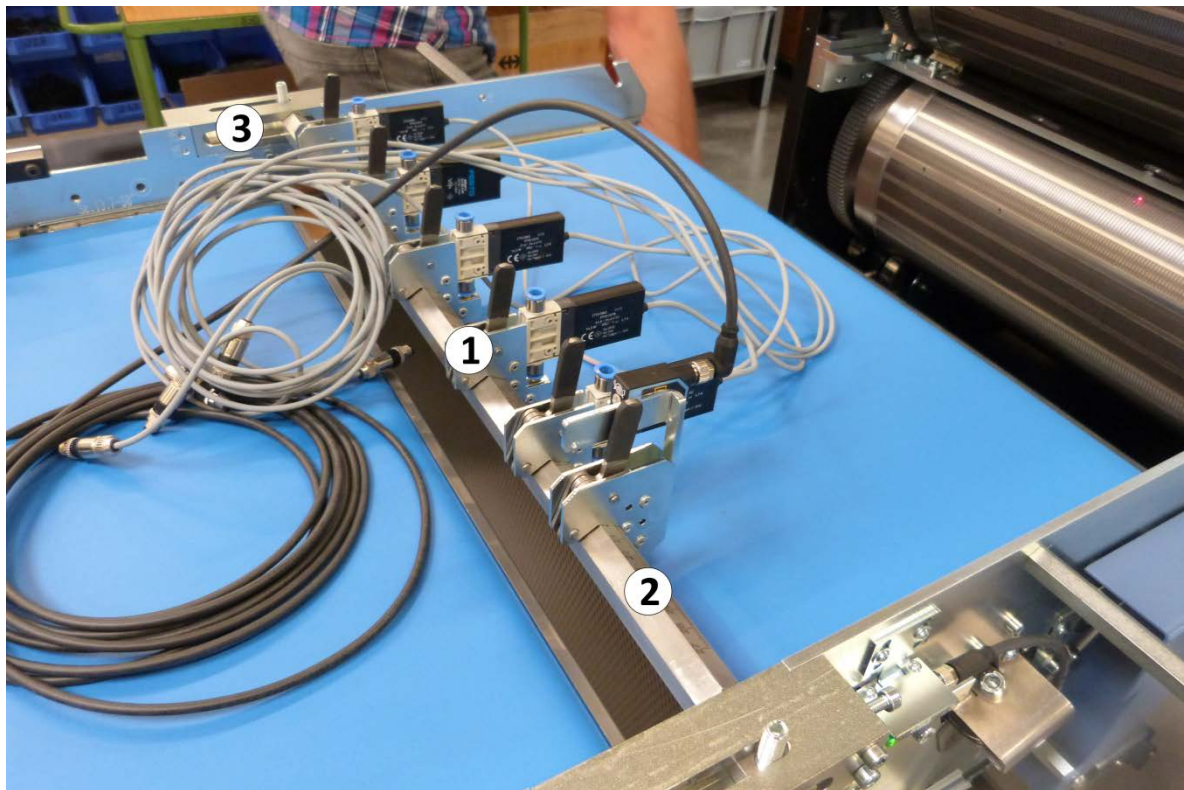
(1) Lever

If you loosen the lever on the machine frame, the deliver unit can be separated from the rollers by several cm. (cleaning work, punching sheet change, etc.).

Work takes place here with a stop which guarantees that the output cannot be pulled out too far.



### 5.5.1 Blow-out nozzles



#### Blow-out nozzles

- |     |                                        |     |       |
|-----|----------------------------------------|-----|-------|
| (1) | Blow-out nozzles                       | (2) | Ruler |
| (3) | Shifting of the ruler with air nozzles |     |       |

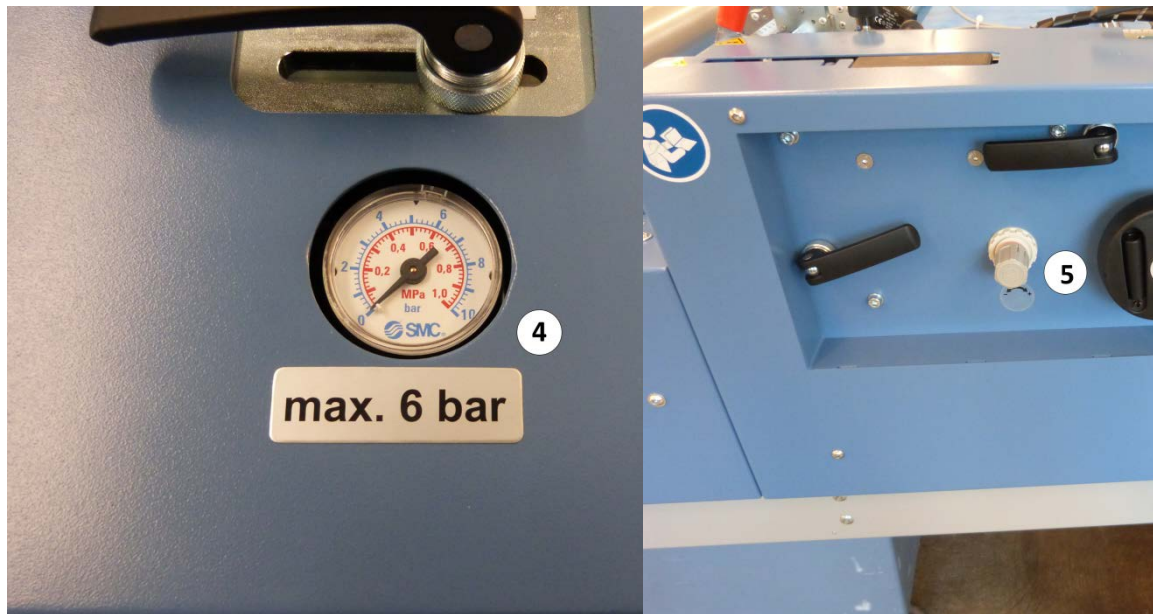
The purpose of the blow-out nozzles (1) is to blow out the internal stampings on the finished products. The number of blow-out nozzles can be optionally expanded. The purpose of the ruler (2) available is to accurately determine the distance between the blow-out nozzles.

On the drive and operating side of the air nozzles there is the possibility of shifting these (3). You require this function in order to react to the size of the internal stampings. If the Internal stampings to be blown out are larger, you need to shift the blowing out nozzles further backwards, these can be pushed forwards for smaller materials.



#### NOTE!

BOGRAMA AG supplies 5 units of blowing out nozzles with the product, further blowing out nozzles need to be ordered.



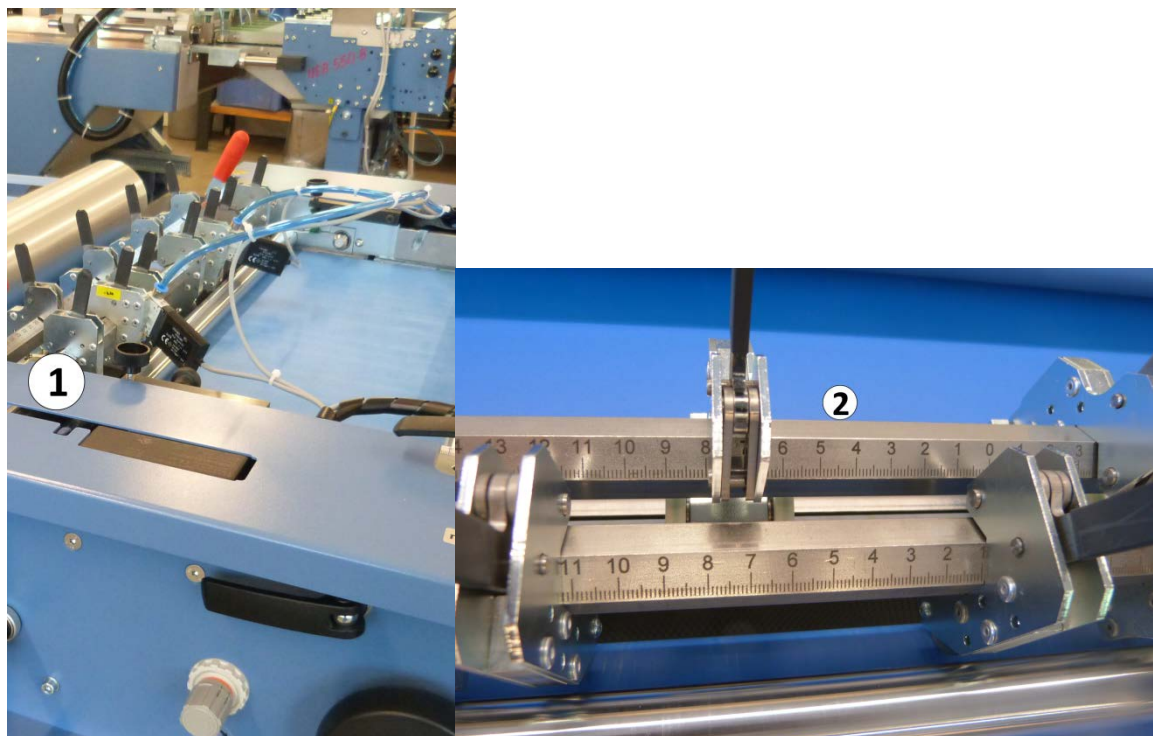
### Blowing out nozzles

(4) Manometer

(5) Set pressure

This manometer (4) located on the side plate of the blowing out nozzles displays the pressure of the blowing out nozzles. You can set the desired air pressure with the rotary knob (5).

## 5.5.2 Stripping units



### Stripping units

(1) Stripping units

(2) Ruler

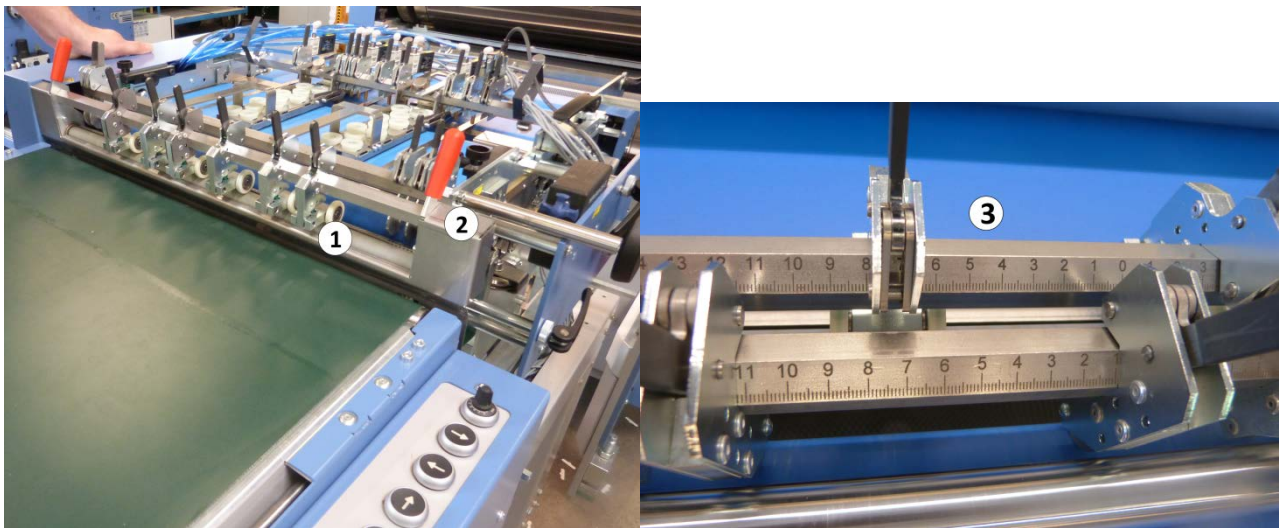
The section grids are transported away with the aid of the stripping elements (1) on which a small metal roll is located. With the aid of the ruler (2) you can select the correct position of the stripping units.



#### **Note!**

Six units of stripping units are supplied by BOGRAMA AG, further stripping units must be ordered.

### 5.5.3 Transfer rolls



#### Transfer rolls

- |                   |           |
|-------------------|-----------|
| (1) Transfer roll | (2) Lever |
| (3) Ruler         |           |

The purpose of the transfer rolls (1) at the front is to transport the die-cut material to the shingle conveyor. It also helps to retain the products so that they cannot fall off the work surface or bend.

The levers (2) on the drive and operating side give the operators the possibility of setting the distance between the stripping units and the transfer rolls. For larger products, the distance also needs to be larger. Here, too, the ruler (3) helps in the positioning of the transfer rolls.



#### Note!

Five units of transfer rolls are supplied by BOGRAMA AG, further transfer rolls need to be ordered.

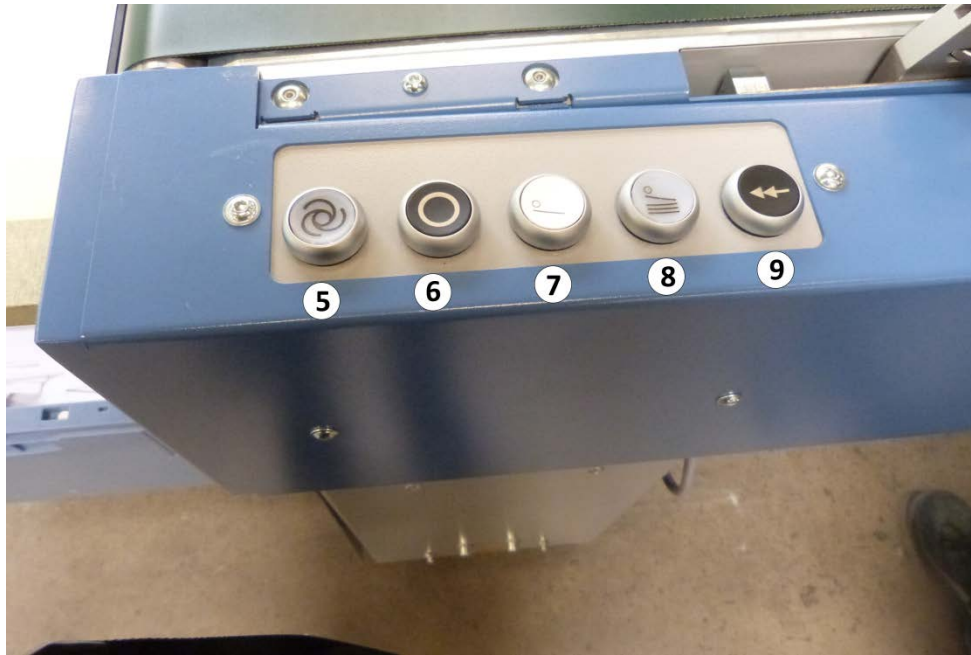


## 5.6 Shingle conveyor



- With the button (1) you can move the transport conveyors to the left.
- With the button (2) you can move the transport conveyors to the right.
- With the button (3) you can move the shingle conveyor upwards. This depends on the product length. If a product is shorter, you need to move the belt upwards so that the distance is not so large.
- With the button (4) you can move the shingle conveyor downwards. If a product is longer, you need to move the belt downwards in order to increase the distance.





- With the button (5) you can start the machine.
- With the button (6) you can stop the machine.
- With the single sheet button (7) you can retrieve the individual sheets from the feeder.
- With the multiple sheet button (8) you can start the sheet retrieval on the feeder.
- With the button (9) the shingle conveyor can be moved more quickly in order to transport the products away.

### 5.6.1 Printing roll



#### Printing roll

**(10)** Roll for the shingling of the products

This printing roll (10) helps to shingle the finished products. You can tip this roll manually forwards or backwards, move it forward or backwards or also completely remove it.

## 6 Installation

---



**Warning!**

Installation work must only be performed by authorised staff under the supervision of the manufacturer.

---

The following points must be heeded in the installation of the plant:

- The plant must be positioned stably and horizontally on a firm and vibration-free subsurface.
- All safety equipment envisaged must be installed according to the regulations.
- Inspect the unit for damage (deformities, scratches, etc.).
- Connection of the switching cabinet to the power supply must be performed by licensed experts (caution, the device must be powered off).



**Warning!**

Connection of the device to the mains must only be performed by trained and certified experts.

---

## 7 First commissioning

First commissioning of the BSR 550 *basic* may only be undertaken by BOGRAMA AG technicians.



### **Warning!**

Every commissioning may only be performed by qualified staff as unexpected movements and processes may occur on the BSR 550 *basic* during commissioning.

The following points must be verified before first commissioning:

- Have all media been properly connected to the BSR 550 *basic*?
- Has all safety equipment been installed on the BSR 550 *basic*?
- Are all safety and warning plates installed on the BSR 550 *basic*?
- Have all foreign bodies (e.g. tools, installation material, etc.) been removed from the BSR 550 *basic*?
- Have the transport locks been removed from all moving parts?
- Have the operators been trained?
- Are all fittings and pipe connections firmly connected and tight?

### 7.1 Checks before first commissioning

The following points must be verified before commissioning of the BSR 550 *basic*.

- Verify whether all screws have been tightened.
- Verify whether the bearer rings have been cleaned and oiled.
- Verify whether there is sufficient oil in the magnetic cylinder.
- Verify whether the cogs are greased.
- Verify whether the register table bearings are lubricated.

## 8 Control system

This chapter describes the entire control system provided to the operator.



### Note!

The white fields are output fields, the yellow fields are input and output fields (e.g. date and time).

### 8.1 Automatic mechanism main screen

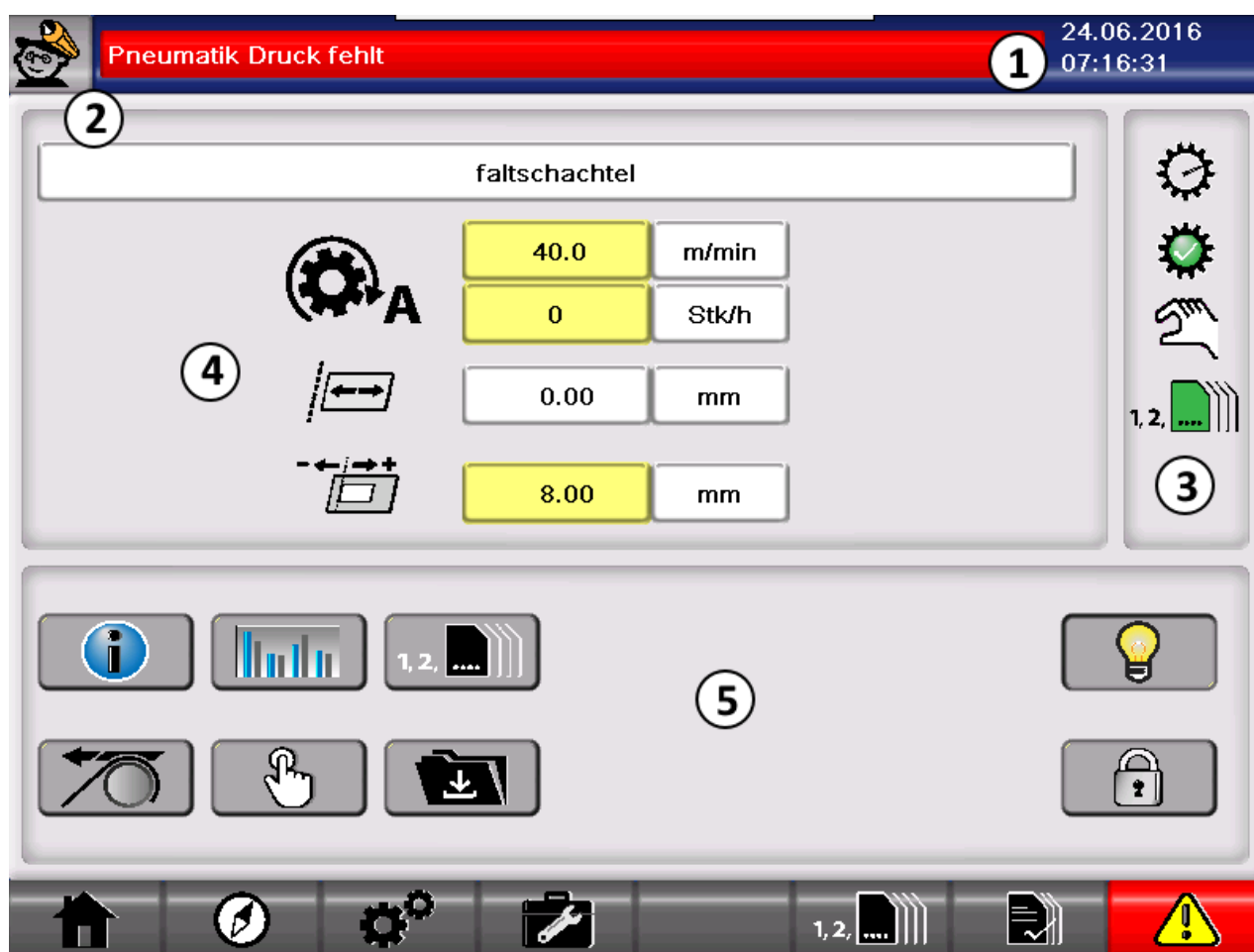






Image no.	Name	Explanation
1	<b>Header</b>	The header displays the alarm line, the date and time. The alarm line indicates undesirable activities.
2	<b>Access levels</b> (Images see table below)	<ul style="list-style-type: none"> <li>1. Operator</li> <li>2. Machine setter</li> <li>3. Technician</li> <li>4. Developer</li> </ul>

3	<b>Status</b>	The current status of the machine is displayed in this area.
4	<b>Automatic mechanism</b>	This field displays the automatic mechanism settings which have been determined previously.
5	<b>Direct operation</b>	In the lower area of the main screen, you can access the date, time and software status with the aid of the info button. The purpose of the other buttons is for direct operation.

Other symbols:		
Image	Name	Explanation
	<b>Access level</b>	This symbol shows the operator access level.
	<b>Access level</b>	This symbol shows the machine setter access level.
	<b>Access level</b>	This symbol shows the service technician access level.
	<b>Access level</b>	This symbol shows the development access level.

### 8.1.1 Soft key bar 0 automatic mechanism



Image no.	Name	Explanation
1	<b>Home/Main</b>	Main menu automatic mechanism
2	<b>Navigation</b>	For the automatic mechanism info area
3	<b>Production parameters (settings)</b>	Here you can set the product-related data (customer area) such as sheet definition, plate definition blowing out, shingling and feeder settings.
4	<b>Toolbox / tools</b>	Access to formula management, options, machine settings, diagnosis, manual operation and language switching
5	<b>Pre-setting counter</b>	Open the interface of the pre-setting counter with the aid of this button.
6	<b>Piece counter</b>	Here the piece and hour counters (die-cut sheets) are displayed and can also be reset.
7	<b>Alarm list</b>	Here the pending alarms, errors and operating reports are displayed. If the button illuminates red, several error reports are present.

## 8.1.2 Direct operation

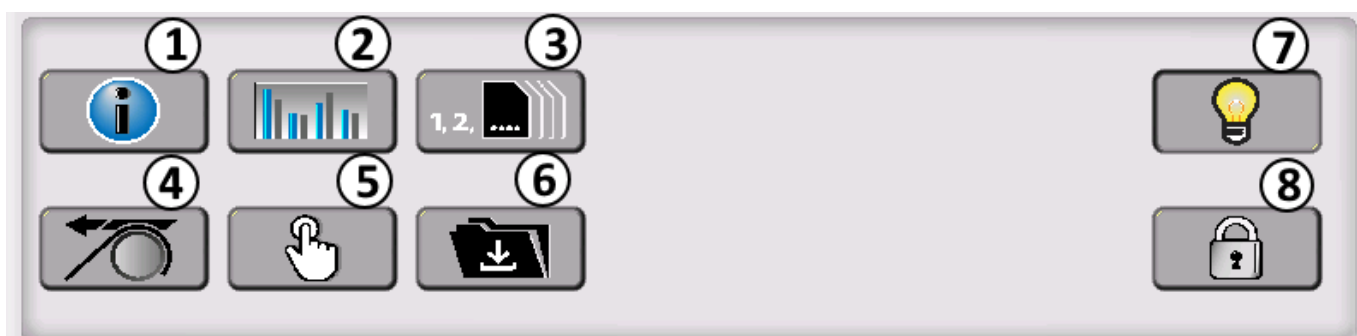


Image no.	Name	Explanation
1	<b>Info area</b>	When you press this symbol, the time, date and software status are displayed.
2	<b>Register deviations</b>	See 8.1.5
3	<b>Pre-setting counter</b>	Here you can input the desired number of sheets and breaks and read off the current counter state.
4	<b>Punching sheet change</b>	Here the magnetic cylinders can be rotated with the hood open in order to install or deinstall the punching sheet.
5	<b>Manual operation</b>	In manual operation all axes, motors and the remaining actuators can be controlled individually and/or moved.
6	<b>Formula management</b>	If you press this symbol, you can access the formula management.
6	<b>Machine lamp</b>	You can switch the machine lamp on and off with this symbol.
7	<b>Access levels</b>	The operator or machine setter is selected dependent on the setting.



### 8.1.3 Status display



Image no.	Name	Explanation
1	<b>Punching cylinder</b>	Is equipped with a position indicator which moves.
2	<b>Referenced</b>	The punching cylinder is referenced when the green symbol with the hook is displayed. When the symbol is illuminated in red with an X in the middle, the magnetic cylinder is not referenced.
3	<b>Operation mode</b>	This symbol displays the three operating modes. The symbol visible above means that you are in set-up with agreement and open hood. The other symbols are described in the lower table
4	<b>Pre-setting counter</b>	This symbol displays that the pre-setting counter is active.

Other symbols:		
Image	Name	Explanation
	<b>Operation mode</b>	This symbol displays the automatic mechanism operation.
	<b>Operation mode</b>	This symbol displays manual operation.
	<b>Hood</b>	This symbol displays that the hoods are open over the punching cylinder.
	<b>Output</b>	This symbol displays that the output is unlocked.

### 8.1.4 Info area

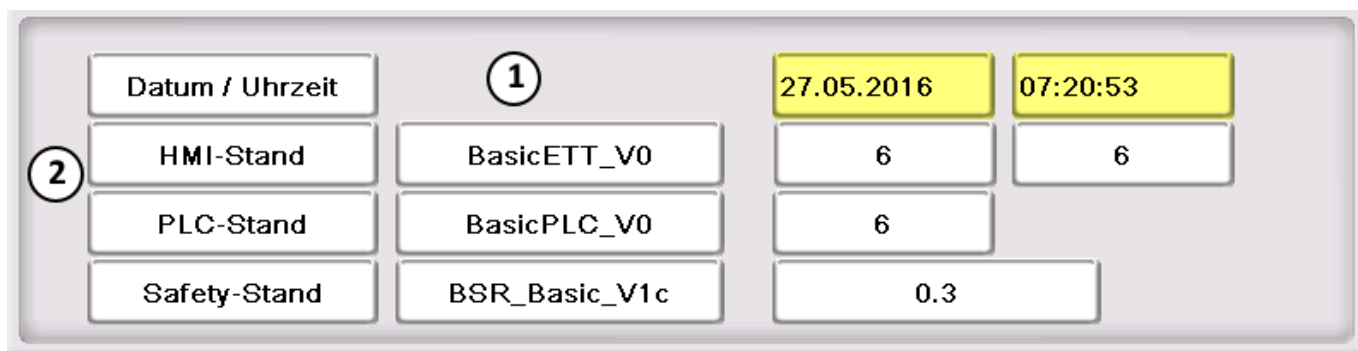


Image no.	Name	Explanation
1	<b>Date and time</b>	The date and time are displayed on the right upper edge.
2	<b>Software status</b>	The software status is displayed below the date.

### 8.1.5 Register deviation

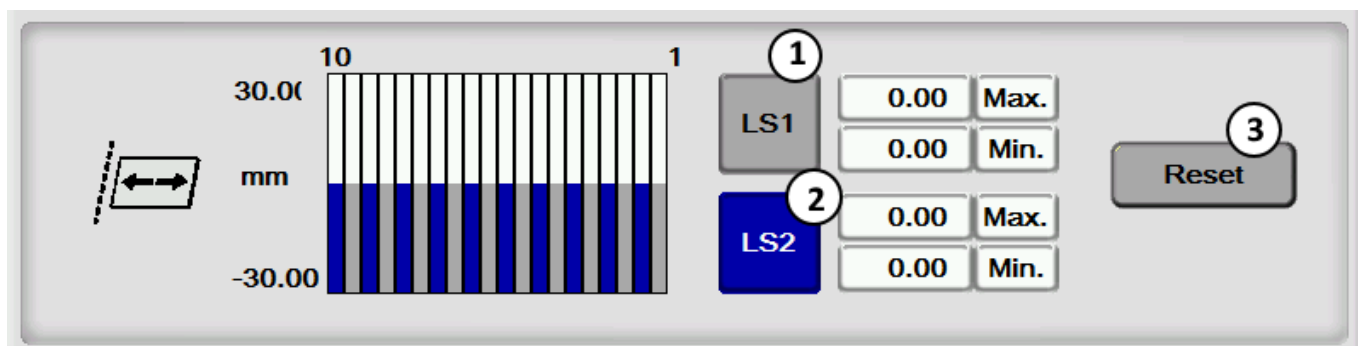


Image No.	Name	Explanation
1	<b>LB1</b>	Here the register deviation is displayed on the light barrier 1 (LB1). If 5.5 is displayed, for example, this means that the sheet arrived at LB1 5.5 mm too early. Here it is verified whether the sheet can be corrected or not and it is rejected in the case of too great a deviation.
2	<b>LB2</b>	As for LB1, only LB2 is used for register correction.
3	<b>Reset</b>	Reset settings.

### 8.1.6 Pre-setting counter

Image no.	Name	Explanation
1	<b>Counter type</b>	Here you can select/activate the pre-setting counter.
2	<b>Piece counter target</b>	The break is started after the piece count is set.
3	<b>Piece counter actual</b>	Current counter state, can be influenced
4	<b>Target break</b>	Production is resumed after the break piece count is set.
5	<b>Actual break</b>	Current counter state, can be influenced

### 8.1.7 Formula management



**Note!**

Here, only available formulae can be searched and loaded, saving or deletion is not approved.

Image no.	Name	Explanation
1	<b>Filtering and searching</b>	Here you can search and filter the desired formulae.
2	<b>Update</b>	You can update the formulae with this button, thereafter all saved formulae are displayed.

## 8.1.8 Plate change

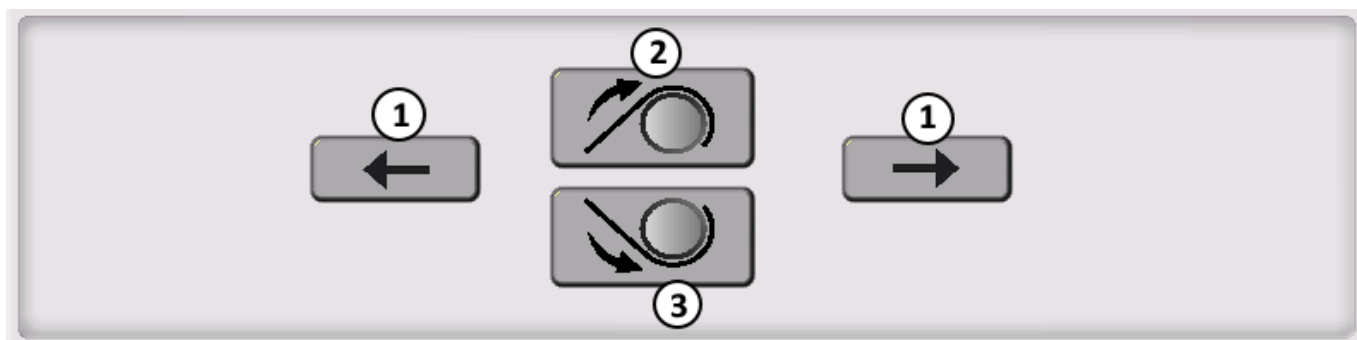


Image no.	Name	Explanation
1	<b>Arrow left/right</b>	You can rotate the magnetic cylinder forwards and backwards with the aid of this symbol.
2	<b>Button centre top</b>	You can move the plate change position for the upper plate with the aid of this symbol.
3	<b>Button centre bottom</b>	You can move the plate change position for the lower sheet with the aid of this symbol.

### 8.1.9 Manual operation motors

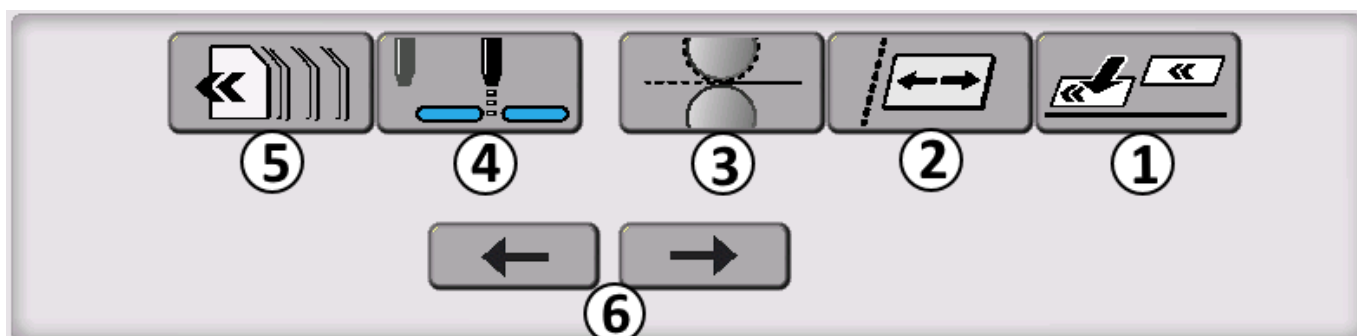


Image no.	Name	Explanation
1	<b>Register table and ejection</b>	Vacuum of the register table and the ejection valve
2	<b>Register correction / register deviation</b>	See 8.1.5
3	<b>Punching cylinder</b>	You reach the punching cylinder settings by pressing this symbol.
4	<b>Blow-out nozzles</b>	You reach the blowing out nozzle settings by pressing this symbol.
5	<b>Shingling current</b>	Shingling distance and shingling type (see Chapter 8.2.)
6	<b>Arrows</b>	You can go forwards or backwards with these arrows.



**Note!**

With the hood closed the machine runs permanently, you require the enabling switch when the hood is open.

### 8.1.10 Piece and operating hours counter

The screenshot shows the 'Zählerquelle' (Counter source) dropdown menu with the 'Anleger' (Operator) button. Below this, there are four rows of counter data:

Counter Type	Value	Unit	Action
Schichtzähler (2)	11678	Stk	Reset (6)
Tageszähler (3)	11678	Stk	Reset
Total-Zähler (4)	11678	Stk	
Betriebsstunden (5)	181	h	

The bottom navigation bar includes icons for home, back, settings, maintenance, and a warning icon.

Image no.	Name	Explanation
1	<b>Counter source</b>	Here you can select the counter source.
2	<b>Layer counter</b>	Here the sheets per layer are counted.
3	<b>Day counter</b>	Here the sheets per day are counted.
4	<b>Total counter</b>	Here all sheets are counted which pass through the machine
5	<b>Operating hours</b>	Here the operating hours of the machine are counted.

## 8.1.11 Alarm list

Nr.	gekommen	Beschreibung	
A 0216	23.06.16 16:31:03	Multi-Master: Verbindung nicht Online	1
A 0216	23.06.16 16:20:05	Multi-Master: Verbindung nicht Online	
A 1400	23.06.16 11:09:55	FU: Stapelhub, Ist Geschwindigkeit = 0	
A 1400	23.06.16 11:09:49	FU: Stapelhub, Ist Geschwindigkeit = 0	2
A 1400	23.06.16 11:09:35	FU: Stapelhub, Ist Geschwindigkeit = 0	
A 1400	23.06.16 11:09:28	FU: Stapelhub, Ist Geschwindigkeit = 0	
A 0003	23.06.16 11:02:21	Anleger: Stapel nicht bereit	
A 0003	23.06.16 11:02:13	Anleger: Stapel nicht bereit	
A 1400	23.06.16 11:02:09	FU: Stapelhub, Ist Geschwindigkeit = 0	
A 1400	23.06.16 11:02:02	FU: Stapelhub, Ist Geschwindigkeit = 0	
A 0003	23.06.16 11:01:57	Anleger: Stapel nicht bereit	
A 0205	23.06.16 11:01:57	Schutzhaube beim Auslauf nicht verriegelt	
A 0205	23.06.16 11:01:53	Schutzhaube beim Auslauf nicht verriegelt	3
A 0003	23.06.16 11:01:53	Anleger: Stapel nicht bereit	
A 0003	23.06.16 11:01:50	Anleger: Stapel nicht bereit	

Navigation: Home, 4, Diskette, History, Warning

Image no.	Name	Explanation
1	<b>Grey</b>	Alarm or defect is displayed.
2	<b>Yellow</b>	Operating report is displayed.
3	<b>Red</b>	Defect acknowledged, but not yet rectified.
4	<b>Diskette</b>	Saves the alarm on a connected USB stick.



## 8.2 Production data – sheet definition

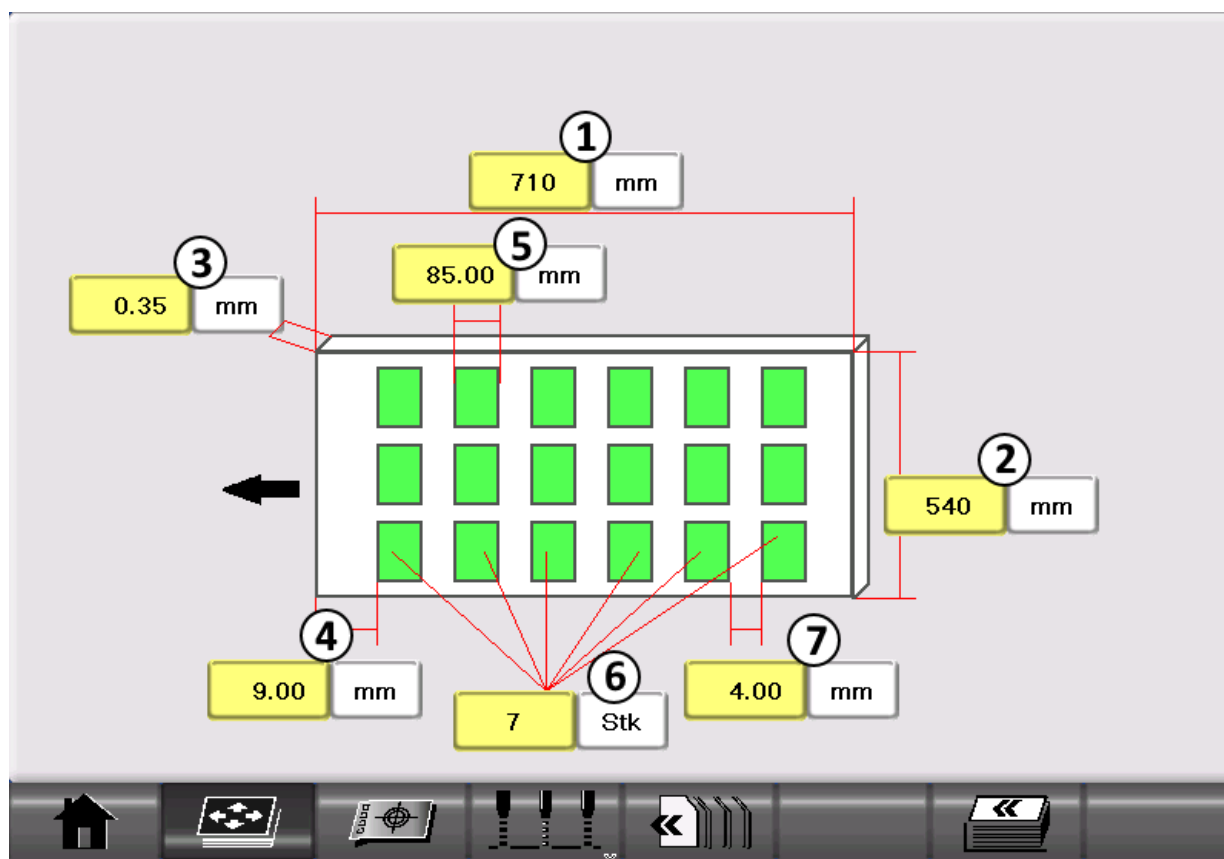


Image no.	Name	Explanation
1	<b>Sheet length</b>	Here you can set the length of the sheets.
2	<b>Sheet width</b>	Here you can set the width of the sheets.
3	<b>Sheet thickness</b>	Here you can set the thickness of the sheets to be die-cut.
4	<b>Gripper edge front</b>	Here you can set the width of the gripper edge.
5	<b>Useful length</b>	Here you can set the useful length.
6	<b>Number of uses</b>	Here you can set the desired number of uses.
7	<b>Grid width</b>	Here you can set the width of the grid (distance between the uses).



**Note!**

This data is required for the feeder, the die-cutting, the blower and the shingling formation.

## 8.2.1 Punching sheet definition

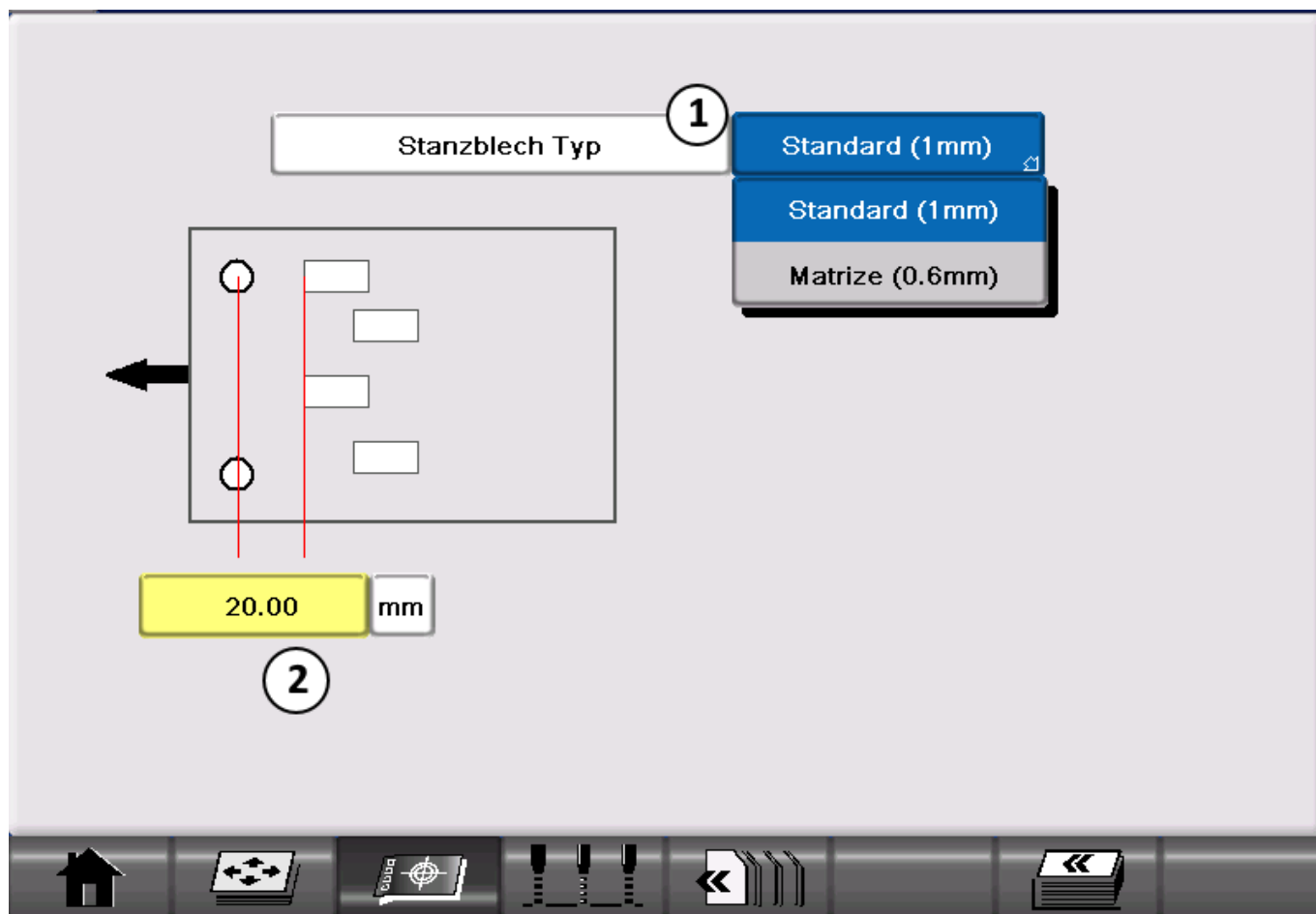


Image no.	Name	Explanation
1	<b>Punching sheet type</b>	You can select the type of punching sheet in this selection field (standard or matrix). The speed of the punching cylinder is determined with this selection.
2	<b>Position hole distance</b>	Here you can set the distance of the positioning holes to the first die-cutting line.

## 8.2.2 Blower



Image no.	Name	Explanation
1	<b>Numbering of the blower</b>	The numbering of the blowing out nozzles appears in this area.
2	<b>Active/inactive</b>	Here it is displayed which blowing out nozzles are active or inactive.
3	<b>Valve</b>	If more than one valve demonstrates these same switching points, you can assign switching points of another valve to a valve here. If 7 is entered, the switching points of valve no 7 are considered → 'equals'
4	<b>Number of switching points</b>	In this area it is displayed how many switching points (max. 20) were defined for the individual blowing out nozzles.
5	<b>Switching points</b>	You can reach the switching point menu with the aid of this button. You can define the switching points there.
6	<b>Selection of blowing out nozzles</b>	You can select the 40 possible blowing out nozzles with the aid of this button.
7	<b>Offset sensor</b>	You can switch the blowing out nozzle to the waste deflection nozzle using the button at (1). In this case, the 'offset sensor' is then considered between the nozzle and the sensor.

### 8.2.3 Switching point blower

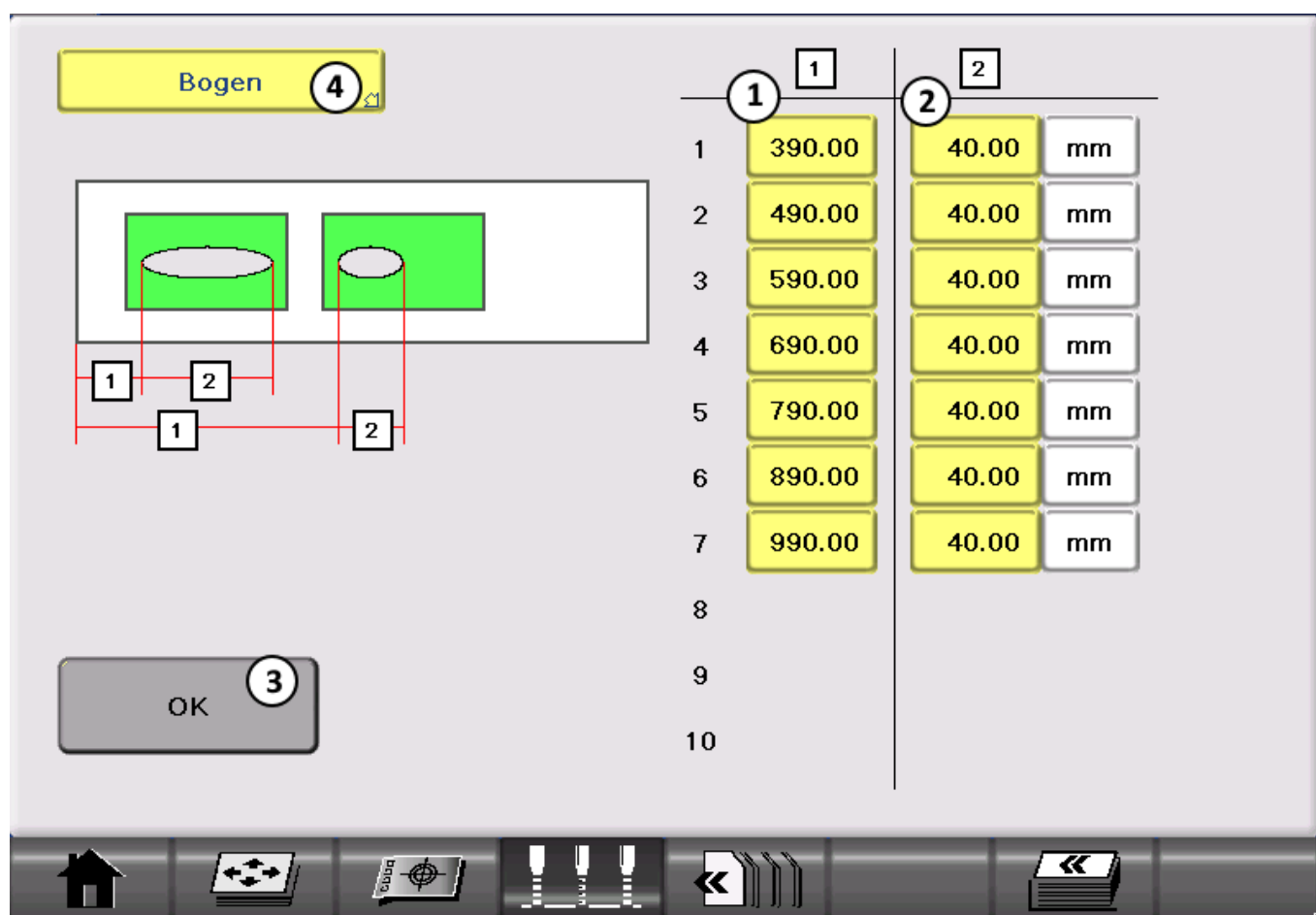
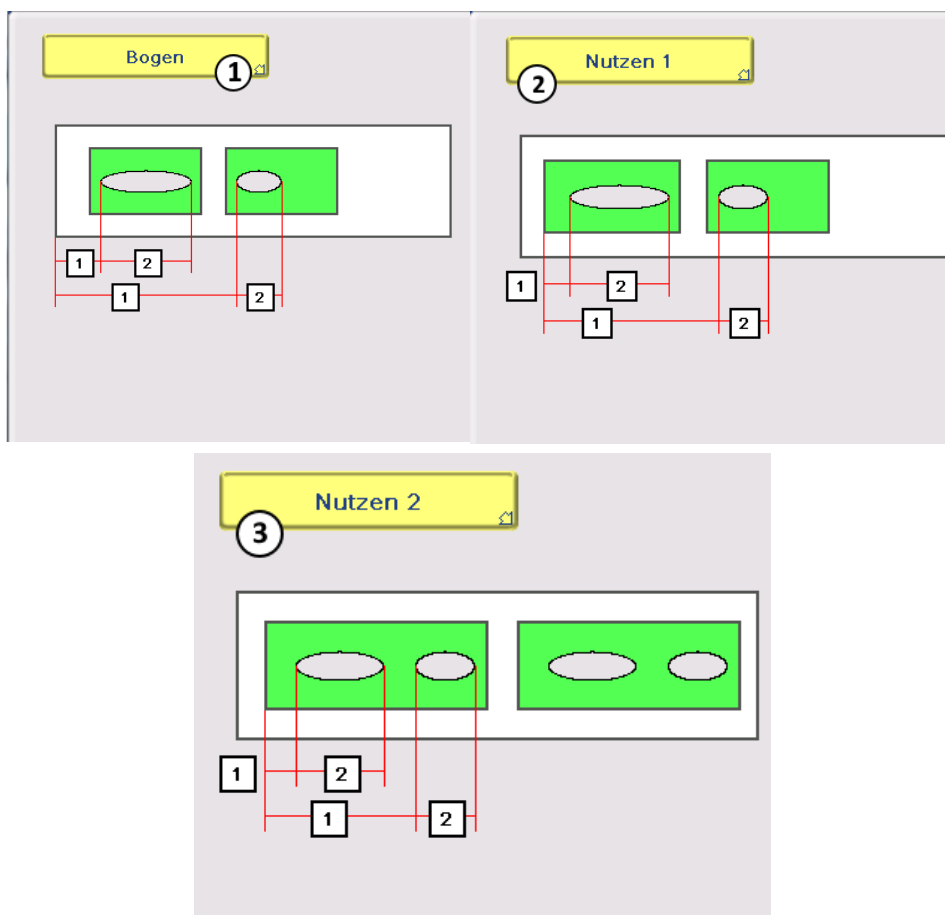


Image no.	Name	Explanation
1	<b>Start of blowing out</b>	Here you can define when the blowing out nozzles should start to blow (specification in mm).
2	<b>Length of blowing out</b>	Here you can define how long the nozzles should blow (specification in mm).
3	<b>OK</b>	You can reach the main screen (see above) by pressing this symbol.
4	<b>Sheet</b>	Here you can select from 3 different blowing out variants (see below).



**Note!**

There are 3 variants to define the blowers, only a single variant can be selected for a product (sheet) → this same setting applies to all switching points.

Image no.	Name	Explanation
1	<b>Sheet</b>	The front side of the sheet is used as a reference.
2	<b>Use 1</b>	The useful front edge of the first use is used as a reference (gripping edge is considered as a sheet definition).
3	<b>Use 2</b>	Only one use is defined and the rest is calculated on the basis of the sheet definition (number of uses, gripping edge and grid width)

## 8.2.4 Define shingling current

The interface shows three different shingling current types, each with a corresponding diagram of the shingle layout.

**1 Durchgehend**  
Schuppenstrom Typ: Durchgehend  
Schuppen Distanz: 9.00 mm  
Diagram: Two rows of shingles with a continuous overlap.

**3 Bogenweise**  
Schuppenstrom Typ: Bogenweise  
Schuppen Distanz: 9.00 mm  
Diagram: Two rows of shingles with a curved overlap.

**4 Sprung Vorschub**  
Schuppenstrom Typ: Sprung Vorschub  
Schuppen Distanz: 9.00 mm  
Diagram: Two rows of shingles with a jump and advance overlap.

**5 Sprung nach** 0 0 Bogen  
**6 Reset** 0 0 Nutzen



### Note!

You can choose between 3 different types of shingling current.

Image no.	Name	Explanation
1	<b>Shingling current - type</b>	Permanent: Choose a permanent shingling current for these settings.
2	<b>Shingling distance</b>	Here you can set the distance between the products (shingled).
3	<b>Shingling current - type</b>	Sheetwise: A shingling current is formed for each sheet in this setting.
4	<b>Shingling current - type</b>	The setting is similar to the 'Permanent' setting. Additionally, you can form a disruption in the shingling current according to the set quantity (use/sheet) by acceleration of the conveyor.
5	<b>Jump forward</b>	According to the quantity set (always rounded to sheets) the shingling conveyor is accelerated between the sheets.
6	<b>Reset</b>	The settings are reset.



## 8.2.5 Feeder settings

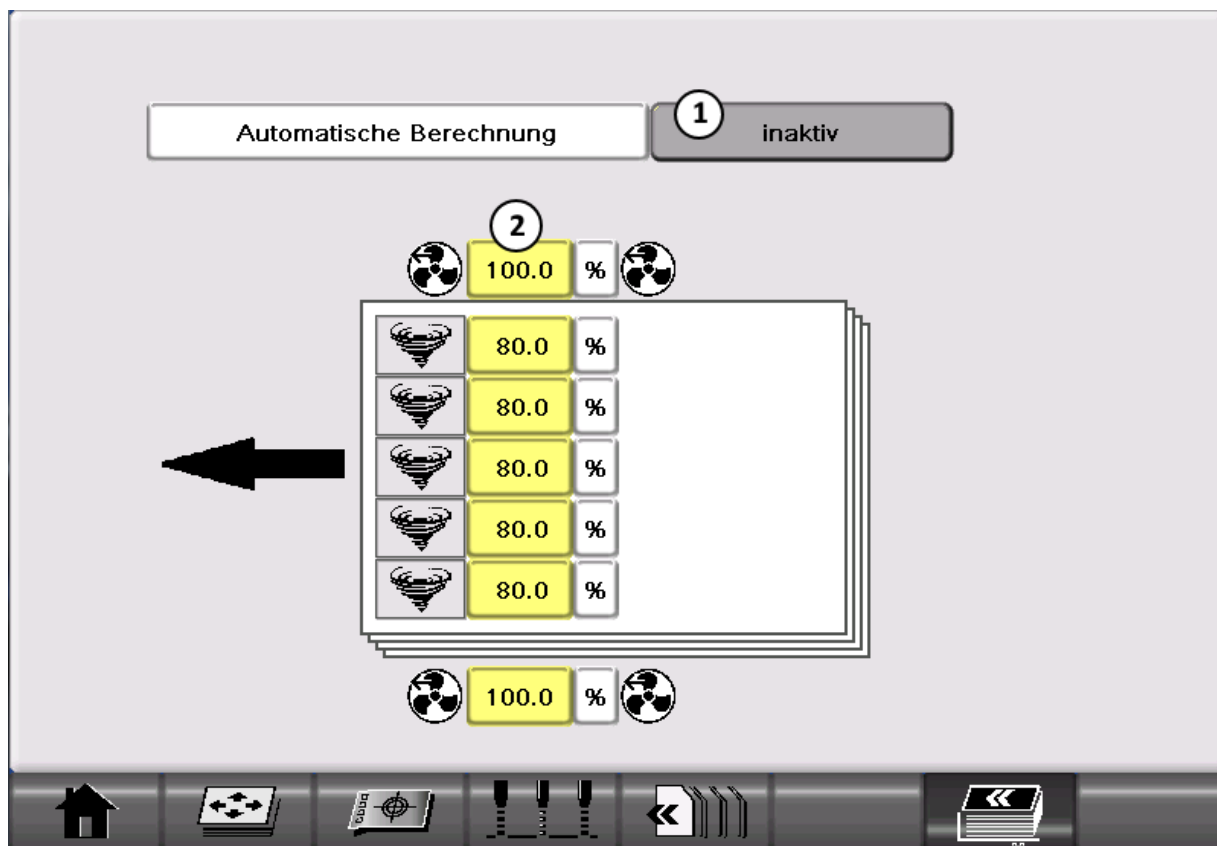


Image no.	Name	Explanation
1	<b>Automatic calculation</b>	If the automatic calculation is activated, the control calculates the settings for the feeder on the basis of the sheet definition (length, width, thickness). Should the settings not work as desired the automatic mechanism can be deselected and the settings made manually.
2	<b>Individual setting</b>	If the automatic calculation is inactive, you can change the settings here.

## 8.2.6 Formula management

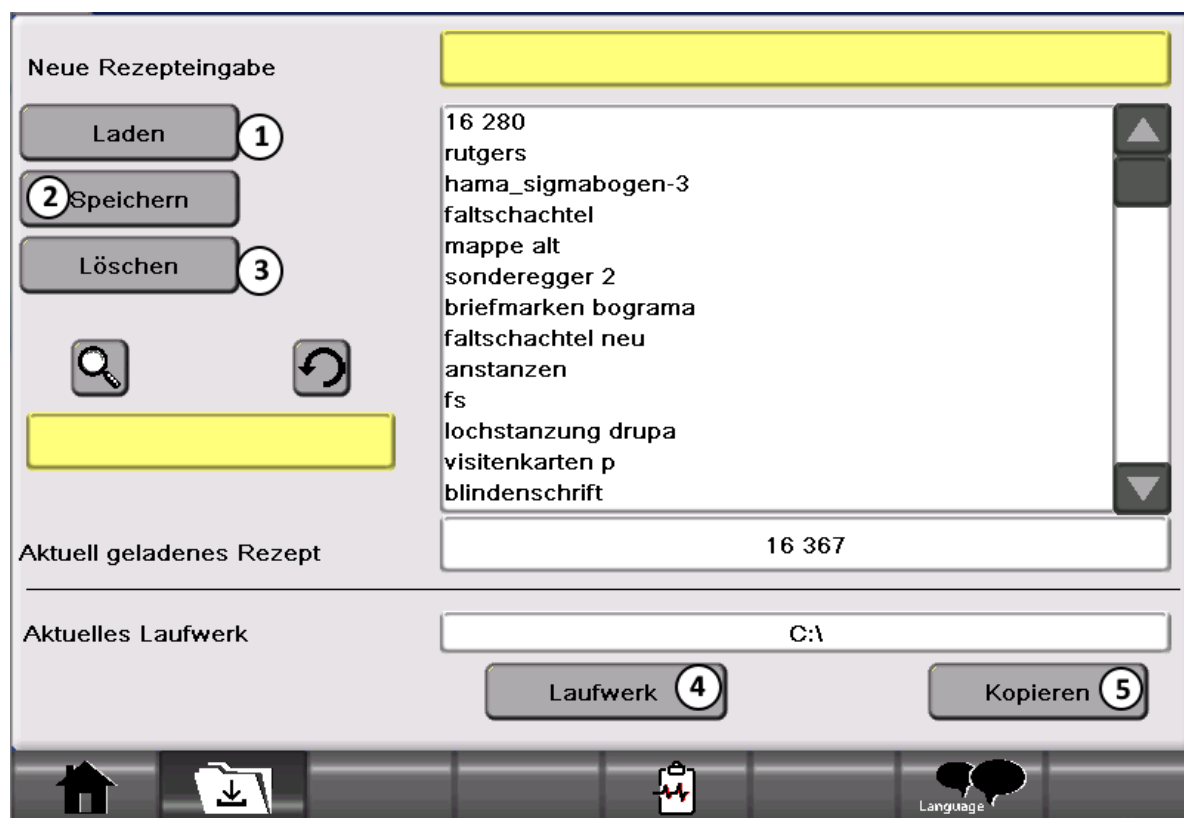
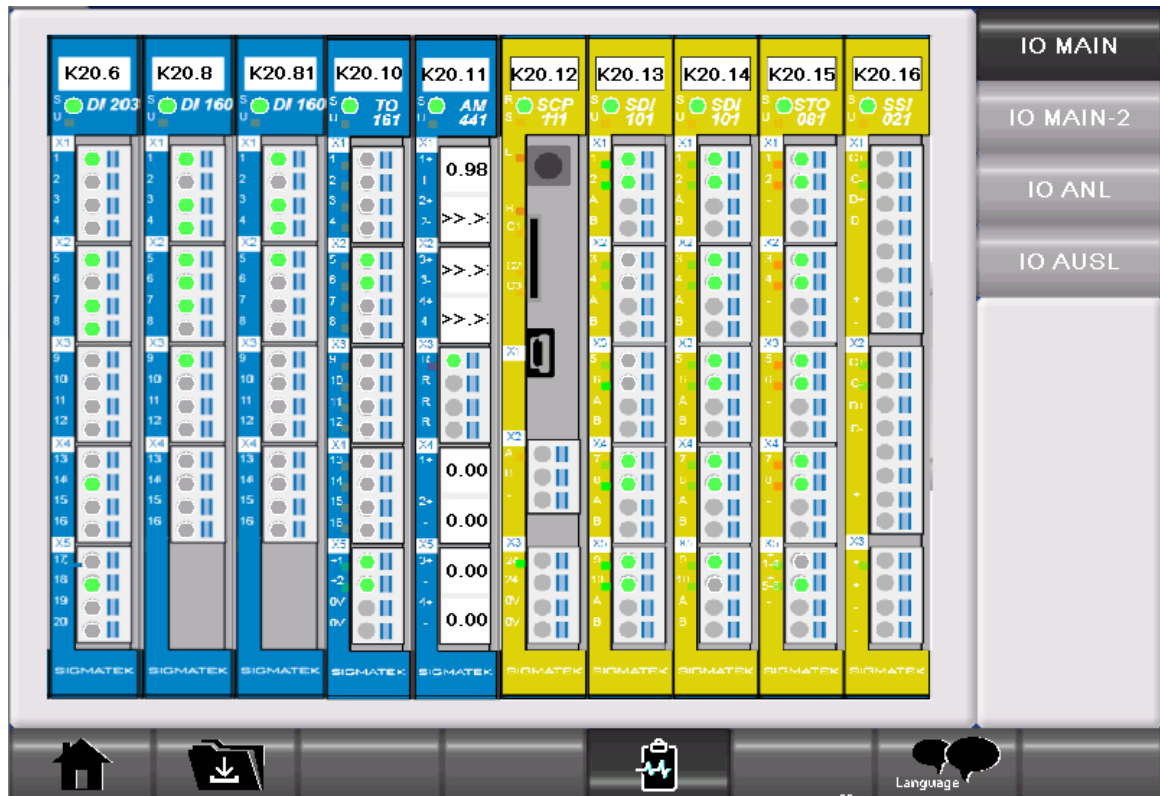


Image no.	Name	Explanation
1	<b>Loading</b>	You can reload the stored formulae here.
2	<b>Saving</b>	You can save the formulae with this symbol.
3	<b>Deletion</b>	You can delete the formulae with this symbol.
4	<b>Drive</b>	You can change to a connected drive with this symbol. This means you can thus select a connected USB stick, if applicable.
5	<b>Copying</b>	You can copy all formulae to the selected drive with this symbol.

## 8.2.7 Diagnosis



### Note!

Here the statuses of the inlets / outlets and the modules are displayed.

- For all modules the module type e.g. K20.6 can be seen below the equipment label (EL) and left thereof a circuit (module status) in the colours green/red/purple:

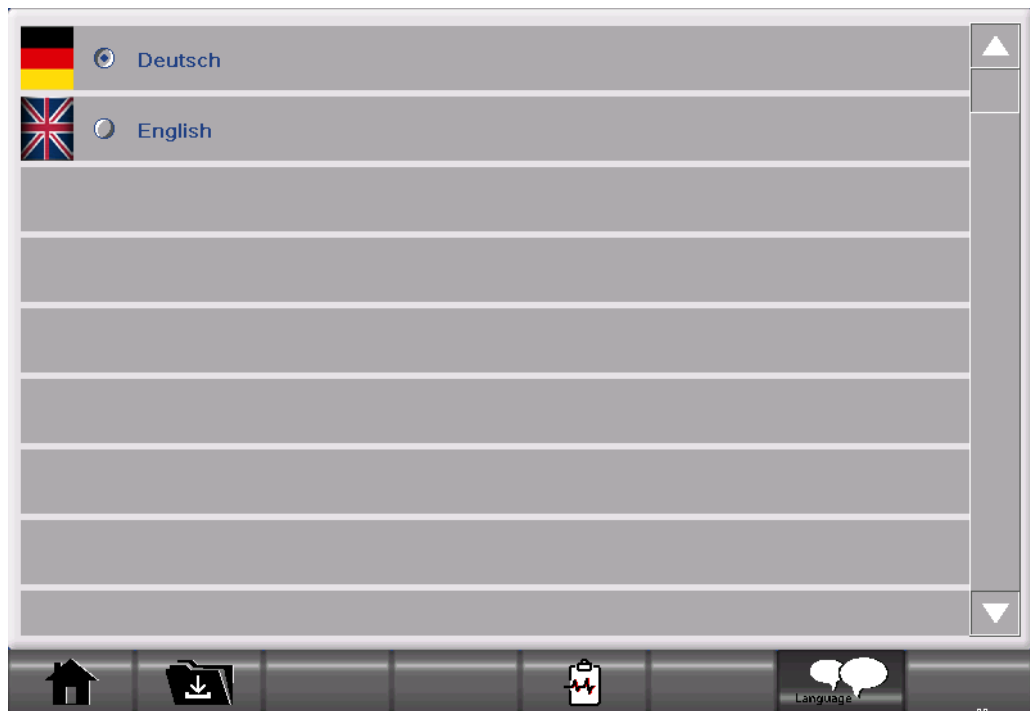
Green	OK
Red	Malfunction
Purple	Connection to the module interrupted

- Digital inputs / outputs
- The grey and green circuits alongside the white figures (x1) show the input/output status:

Green	Active/on/true
Red	Inactive/off/false

- Analogue inputs/outputs: The respectively applied voltage is displayed here 0.98 = 0.98V, >>.>> (displays an inactive analogue input).
- You can select the different modules with the buttons on the right side.

## 8.2.8 Language selection



### **Note!**

Here, the desired language can be selected from the available languages.

## 8.3 Soft key bar 1



Image no.	Name	Explanation
1	<b>back</b>	This symbol takes you to the previous menu.
2	<b>Machine dimensions and distances</b>	In order to guarantee precise stamping, you need to input the machine dimensions.
3	<b>Surveillance</b>	Here you can activate or deactivate the surveillance functions.
4	<b>Configuration</b>	With this symbol you can select the active modules (feeder and output).
5	<b>Positions</b>	Here the reference point of the magnetic cylinder, the target register deviation striven by the machine and the maximum permissible register deviation need to be inputted. This is all information which needs to be inputted on first commissioning of the BOGRAMA and reinputted if applicable after a component defect.
6	<b>Feeder</b>	This is all information which needs to be inputted on first commissioning of the BOGRAMA and reinputted if applicable after a component defect.

### 8.3.1 Soft key bar 2



Image no.	Name	Explanation
1	<b>Home/main</b>	Automatic mechanism main menu
2	<b>Sheet definition</b>	Here you can define the characteristics of the sheets: Format, length x width x thickness, gripping edge, grid distance and use.
3	<b>Punching sheet definition</b>	Here you can determine the distance of the positioning holes to the first die-cutting line.
4	<b>Blowing out</b>	Here you can define the settings of the blowing out nozzles to break out the internal sections.
5	<b>Shingling current</b>	Here you can select the shingling distance and shingling type.
6	<b>Feeder</b>	Here you can reach the feeder.

### 8.3.2 Soft key bar 3



Image no.	Name	Explanation
1	<b>back</b>	This symbol takes you to the previous menu.
2	<b>Sheet forward &amp; back</b>	In order to test the sheet throughput, you can move the sheet forwards and backwards.
3	<b>Electromotors</b>	The drives equipped with servomotors and frequency converters can be moved individually. (Magnetic cylinders, positioning rollers, register table, feeder transport, shingling conveyor, output conveyor 1 and stack lift)
4	<b>Blowing out</b>	Here you can define the settings of the blowing out nozzles to break out the internal sections.
5	<b>Register table and ejection</b>	Here you can control the register table vacuum and the ejection valve.
6	<b>Feeder</b>	Here you can undertake the settings with regard to side air and tornados.

### 8.3.3 Soft key bar 4



Image no.	Name	Explanation
1	<b>Home/main</b>	Automatic mechanism main menu
2	<b>Formula management</b>	Here you can load, save and delete the formulae.
3	<b>Options (from service technician)</b>	Here machine options are activated and deactivated.
4	<b>Machine parameters (from service technician)</b>	Here the different machine parameters can be set, distances, positions etc.
5	<b>Diagnosis</b>	Now only the inlets and outlets are contained.
6	<b>Manual operation (from service technician)</b>	In manual operation all axes, motors and the remaining actuators can be controlled individually and/or moved.
7	<b>Language selection</b>	Here you can select the desired display language.

## 9 Maintenance and servicing

In this chapter, all maintenance and servicing processes relevant for the operator and the operating staff are explained.

### 9.1 General tests

Interval	Activity
<b>1 x per week</b>	Verify transport conveyor and tornados
<b>1 x per week</b>	Verify free movement of the lateral ventilation
<b>1x per day</b>	Verify free movement and status of the positioning rollers
<b>1x per day</b>	Verify wiper felt for soiling.
<b>1x per day</b>	Verify bearer rings for run marks
<b>1x per day</b>	Verify soiling of cogs
<b>1 x per week</b>	Verify whether there is sufficient oil in the magnetic cylinder
<b>1 x per week</b>	Verify maintenance unit, water trap and filter
<b>1 x per week</b>	Verify status of the vacuum belt on the register table
<b>1 x per week</b>	Verify status of the transport carpets on the output



## 9.2 Cleaning of the BSR 550 *basic*



### Warning!

No vapour, water or detergents may penetrate the electrical components of the BSR 550 *basic* during cleaning work.



### Warning!

The BSR 550 *basic* must be decommissioned before cleaning work and safeguarded from unauthorised recommissioning.

Cleaning work on the BSR 550 *basic* may only be undertaken by instructed staff informed of the risks which can emanate from the BSR 550 *basic*.

The BSR 550 *basic* must be stopped, powered off and depressurised for the period of the cleaning work. This can be vacuumed or swept off for the cleaning of the BSR 550 *basic*.



### Warning!

The BSR 550 *basic* may not be blown off with compressed air under any circumstances as small components can fall into areas which can lead to jamming in the case of automatic operation. Compressed air may only be used where no clogging of dust/suspended solids can occur and where sweeping or vacuuming is not possible!

Regardless of general cleaning work, the following cleaning must be performed at the stated intervals:

Interval	Activity
<b>Regularly</b>	Clean the magnetic cylinder before every raising of a punching sheet or the counter plate according to manufacturer's instructions ( <i>Kocher + Beck</i> ).
<b>1 x per week</b>	Clean positioning rollers with a soft, moist cloth and a soap solution. Do not use any alcohol or solvent, such as acetone.
<b>1 x per week</b>	Clean the bearer rings when replacing the felt.
<b>1x fortnightly</b>	Clean the conveyor belts of the output with a soft moist cloth and soap solution, do not use any alcohol or solvent, such as acetone.
<b>1 x per week</b>	Clean entire machine, the dust layer may never exceed 0.5 mm. In particular, free moving parts from dirt (paper dust, compressed powder, etc.).
<b>1 x every 6 months</b>	Clean drive chains on the feeder.
<b>1 x per week</b>	Clean optical sensors.
<b>1 x per week</b>	The oil of the magnetic cylinder storage must be verified.
<b>1 x annually</b>	Change oil on the magnetic cylinder storage



**Warning!**

A build-up of dirt can impair functioning of the machine.

---



**Warning!**

The magnetic cylinders must be cleaned according to the manufacturer's instruction every time the punching sheets are changed and verified for damage.

---

Procedure when cleaning the entire machine:

- Vacuum up the dirt with a vacuum cleaner.
- Use a brush for sites which are difficult to access.
- Dust the surfaces off with a dry cloth.
- Do not use any chemically aggressive detergents.
- Never clean the machine with compressed air, as infiltrated dirt destroys the bearings.

Procedure when cleaning the drive chains on the feeder:

- To this end, move the stacking table to the uppermost position.
- Clean the drive chains.
- Rub the drive chains with a cloth impregnated in oil.

Procedure when cleaning the optical sensors:

- Clean the lens of the sensors with a dry, lint-free cloth.

## 9.3 Maintenance

No.	Maintenance point	Number per page	Maintenance interval	Maintenance
1	<b>Sprockets</b>	2	2x weekly	Molykotespray 1122
2	<b>Ball races (bearer)</b>	2	Every 15 operating hours	Slipway oil ISO VG 68
3	<b>Scraper felts</b>	1	Every 15 operational hours	Sliding guide oil ISO VG 68
4	<b>Rollers</b>	1	monthly	Greases Blasolube item 00472-01 or Arcanol Load 150 or SKF LGWA 2
5	<b>Pressure rollers</b>	2	monthly	Greases Blasolube item 00472-01 or Arcanol Load 150 or SKF LGWA 2
6	<b>Replace scraper felt</b>	1	monthly	Felt
7	<b>Magnet cylinder bearing</b>	2	1 x weekly check oil Change oil annually	Oil 15 W40
8	<b>Control cabinet filter</b>	1	monthly	Cleaning



### CAUTION!

Non-compliance with maintenance intervals can lead to damage to the machine and resulting product breakdowns.



### Caution

The executed maintenance points are located on both sides of the BSR 550 *basic*.

## 9.4 Defect rectification

Defects can occur on the BSR 550 *basic* which are described in the following table including the cause and the steps to be taken.



**Warning!**

Defects and unexpected modifications to the BSR 550 *basic* must be rectified without delay.



**Warning!**

In the BSR 550 *basic* residual energies can still be stored which can be unexpectedly released during servicing and can thus pose a risk to persons.



**Warning!**

Work may only be carried out by experts.  
Any working method which impairs the safety of the BSR 550 *basic* must be refrained from.

Item	Cause	Defect rectification
Feeder	Paper jam	Fold up the tornados and the lateral ventilation . Remove the damaged sheets or push the sheets back onto the stack.
Register table	Paper jam	Open the protective hood and remove the sheets.
Inlet	Paper jam	Open the protective hood, lift the printing roll, remove the sheets.
Magnetic cylinder	Paper jam	Open the protective hood, rotate the magnetic cylinder forwards with the aid of manual operation. (If applicable, you need to remove the output and outlet lip.) Remove already die-cut products and waste grids.

## 9.5 Repairs



**Warning!**

Repair work must only be carried out by trained and authorised staff with special expert knowledge.



**Warning!**

Heed local work safety regulations.



**Warning!**

Carry out a functional test after repair.

## 9.6 Replace Sigmatek module

If a servo module needs to be replaced by Sigmatek, it must absolutely be ensured that at least 7 minutes lapse after switch-off of the main switch before the module is deinstalled!



For the exchange, the mechanical fuse is loosened with a suitable screwdriver and the module is then removed forwards. For installation, insert the module and close the fuse again.







## 10 Final disposal



**Caution**

Dispose of the BSR 550 *basic* or components thereof in an environmentally compatible manner within the scope of final decommissioning (e.g. metal to scrap metal, plastic to waste plastic)!

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## 11 External documents

Other important documents are supplied in addition to the operating and maintenance instructions:

- Punching sheets
- Order forms for the punching sheets
- Spare parts lists

## 12 Appendix

### 12.1 EC declaration of conformity

#### EC declaration of conformity

*In terms of the Machine Directive 2006/42 EC*

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**Manufacturer:**

Bograma AG  
Mettlenstrasse 1 / Postfach 24  
CH-8488 Turbenthal

**Machine:**

Die-cutting system

**Type:**

BSR 550 *basic*

**Construction year:**

2016

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The concurrence of the aforementioned machine with the basic health and safety requirements of the Machinery Directive 2006/42 EC and the EMC Directive 2004/108/EC is hereby confirmed.

The following harmonised standards and directives were applied:

<b>DIN EN ISO 13857</b>	Safety distances against the reaching of hazardous sites of the upper extremities
<b>EN 349</b>	Minimum distances to prevent crushing of body parts
<b>EN 13850</b>	EMERGENCY STOP device
<b>EN 14120</b>	Disconnecting safety equipment
<b>EN ISO 13849-1</b>	Safety-related parts of controls – Part 1: General principles for design
<b>DIN EN ISO 4413</b>	General rules and safety requirements for hydraulic systems and their components
<b>DIN EN ISO 14119</b>	Locking devices in conjunction with disconnecting safety equipment
<b>DIN EN ISO 12100</b>	General principles for design risk evaluation and risk reduction
<b>EN 60204-1</b>	Electrical equipment for industrial machinery

We confirm the completeness of the necessary documents according to 2006/42EC Appendix VII Part B.

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Place, date

Signature

Iwan Bochsler (Managing Director)