EBSO GmbH

Translation of the original operating instructions

English

EBSOMAT 200



It is mandatory to read these operating instructions before initial commissioning!

Observe safety instructions!

Retain for future reference!

This document does not get updated!

January 2020

Information

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These operating instructions are part of the machine's technical documentation according to the EC Machinery Directive.

The present operating instructions comply with the "Directive 2006/42/EC of the European Parliament and of the Council on the approximation of the statutory and administrative provisions of the member states for machinery" (Machinery Directive), Appendix I, item 1.7.4.

CE

The present operating instructions are aimed at the person responsible for the plant, who in turn has to pass these operating instructions to the personnel responsible for the connection, operation and maintenance of the machine.

He/she has to ensure that the information contained in these operating instructions and the attached documents are read and understood.

These operating instructions have to be stored in a known and easily accessible place and have to be consulted in case of any doubt.

The manufacturer does not accept any liability for any damage to persons, animals or property or the machine itself that result from improper use, non-observance or insufficient observance of the safety requirements contained in these operating instructions, the modification of the machine or the use of unsuitable spare parts.

The copyright for these operating instructions is held exclusively by

EBSO GmbH

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or its legal successor.

The present operating instructions may only be copied and distributed to third parties with written permission. This also applies for copying and distributing excerpts of these operating instructions. The same conditions apply for distributing these operating instructions in digital form.

Last modified: March – 2018

Archiving

- Please contact the manufacturer immediately if you find the operating instructions missing!
- Always store these operating instructions at the machine!
- Always keep these instructions within reach!

Symbols and signal words

The following symbols and signal words are used in the present documentation. The combination of a pictogram and a signal word classifies the respective safety instruction. Depending on the type of danger, the symbol may vary.

	Symbol	Signal word	Explanation
Death		**DANGER**	This signal word must be used if death or irreversible damage to health may occur due to non-observance of this danger warning.
Injury + property damage		**WARNING**	This signal word indicates personal injuries and property damage, including risk of injuries, accidents, and health risks.
		**CAUTION**	This signal word indicates a danger of property damage. Additionally, there is a low risk of injuries.
Only property damage		**CAUTION**	This signal word may only be used if there is no risk of damage to health. It indicates malfunctions and has no symbol as the degree of danger is low.
No damage		**IMPORTANT**	This signal word indicates operating aids and cross-references. It precludes any danger of property damage or risk of injuries and thus has no symbol.

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Identification

EBSOMAT 200

Expected service life: 10 years

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Intended use

This machine is intended for processing radial THT components.

A different or extended use of the machine is not the intended use and thus improper. In this case, safety and its protection may be impaired. The company EBSO GmbH shall not be liable for any damage resulting from improper use.

The intended use includes:

- Observing all instructions in the operating instructions
- Observing all safety instructions
- Compliance with inspection and maintenance work

IMPORTANT



The “Technical data” section in the chapter “Machine description” must be observed. It describes the specific technical data for the intended use.

Reasonably foreseeable misuse

Reasonably foreseeable misuses that may present a danger to the user, third parties or the machine are for all operating modes:

- The use of the machine and its electrical equipment contrary to its intended use
- The feeding of components or objects, whose shape deviates from the shape intended for the machine
- Operating the machine outside of its physical operating limits described in chapter “Commissioning / operation”
- Changing the control software without prior agreement from the company EBSO GmbH
- Modifications to the machine as well as extensions or conversions without prior agreement with the company EBSO GmbH
- Operating the machine contrary to the provisions in these operating instructions regarding safety instructions, installation, operation, maintenance, servicing, setting-up and malfunctions
- Bypassing or decommissioning of safety and protection measures at the machine
- Operating the machine when malfunctions are apparent
- Repair, cleaning and maintenance work while the machine is still switched-on

WARNING **Danger of injury due to unauthorised modifications**



Unauthorised modifications at the machine and the use of spare parts from third-party manufacturers cause hazards.

Only use original spare and wear parts from the manufacturer. Do not make any modifications, installations or conversions at the machine without permission from the company EBSO GmbH.

General notes

Warranty and liability

Generally, the “General Terms and Conditions of Sale and Delivery” of the company EBSO GmbH apply. These are available to the owner/operator at the latest since the conclusion of contract.

Warranty and liability claims for personal injury and property damage are void, if they can be traced back to one or several of the following causes:

- inappropriate use of the machine
- Improper installation, commissioning, operation or maintenance of the machine
- Operating the machine with defect safety devices
- Non-observance of the instructions in the operating instructions
- Unauthorised structural modifications of the machine
- Poor maintenance, repair and servicing measures
- Disasters due to impact of foreign objects or force major

Intended audience

Intended audience

These operating instructions are intended for the owner/operator and personnel with the following competencies:

Work area	Competency
Installation, transport and storage	Skilled personnel
Commissioning, operation and decommissioning	Instructed personnel
Set-up	Skilled personnel
Maintenance and servicing	Skilled personnel
Troubleshooting	Skilled personnel

Definition as per EN 60204-1:

Instructed personnel:

A person that has been instructed and if necessary trained by a skilled person regarding the assigned tasks and the possible hazards caused by improper behaviour and that has been informed by a skilled person about the required protective devices and protective measures.

Skilled personnel:

A person that due to his or her professional training, knowledge and experience as well as knowledge of relevant standards is able to assess the tasks assigned to her or him and to recognise potential hazards.

Objectives of the operating instructions

These operating instructions provide support and contain all the required instructions that must be observed for general safety, transport, installation, operation, set-up and maintenance.

These operating instructions with all safety instructions and all additional documents of the assemblies from external suppliers must:

- Be observed, read and understood by all persons who work at the machines; this applies particularly to the safety instructions
- Be accessible to everybody
- Be consulted if there is any doubt (safety) at all

Objectives:

- Prevent accidents
- Increase service life and reliability of the machine
- Reduce production downtime costs

General safety instructions

Scope and symbols

DANGER **Danger to life, danger of injury and causation of property damage**



Non-observance of these operating instructions and all safety instructions covered therein causes hazards.

Read these operating instructions carefully before the initial commissioning. Fulfil all safety requirements before the initial commissioning.

Observe the safety instructions as well as the special safety instructions covered in other chapters.

The machine is constructed according to the latest state of the art and the recognised safety regulations. Only use the machine for its intended use and when in apparent good order and condition in terms of safety to eliminate hazards to life and limb for the user or third parties or damage to the machine.

The machine operator or the persons delegated by him or her are responsible for any personal injury and property damage that is due to the non-observance of the instructions provided in the operating instructions.

Malfunctions that may be a safety hazard have to be eliminated immediately.

All safety instructions and danger warnings at the machine must be observed and legible at all times.

Safety symbols as per DIN 4844-2

WARNING **Danger of injury due to non-observance of safety symbols**



Non-observance of warnings at the machine and in these operating instructions causes hazards.

Observe the warnings in chapter “Appendix”.

Obligations

DANGER **Danger of injury due to negligence**



Negligent behaviour at the machine causes hazards despite numerous protection and safety devices.

At the machine, always work with great care and prudence. Non-observance of safety instructions results in the loss of any claims for damages.

The following events may increase the hazard potential of the machine:

- Failing of important functions at the machine
- Failing of required methods for maintenance and servicing
- Hazards to persons due to electrical, mechanical influences

Obligations of the owner/operator

Safe state and use of the machine are required for the safe operation of the machine. Therefore, the machine owner/operator is obliged to ensure the compliance with the following points:

- Ensure that the machine is only operated by trained and authorised personnel!
- Prohibit unsafe and dangerous working methods! Check the actions of the personnel!
- Ask your personnel to confirm by signature that they understand the operating instructions!
- Ensure that there is always a copy of the complete operating instructions within reach at the machine!
- Check regularly that the operating instructions are complete and legible!
- Require the use of appropriate personal protective equipment (PPE) for activities with increased risk of injuries!
- Clearly assign responsibilities for the different tasks such as operation and maintenance!
- Oblige your operating and maintenance personnel to report arising and detectable safety defects immediately to their line manager!

Obligations of the operating personnel

WARNING **Danger of injury due to the improper condition of the machine**



Faults or malfunctions during operation, among others at the safety devices, present hazards at the machine.

Once per shift, check the proper condition of the safety devices, the supply lines and the overall condition of the machine.

Do not switch on the machine. Secure against unintentional commissioning. Only switch on the machine, once its proper condition is ensured and any damage and defects have been rectified.

IMPORTANT Inform your line manager immediately, should any of the above points occur.

WARNING **Danger of injury due to unauthorised persons at the machine**



Unauthorised access to the machine via the control panel causes hazards.

Secure the machine against third-party access, when leaving the machine during JOG mode.

At end of work, secure the machine against unauthorised restarting.

The machine may only be operated following instruction or training.

The operating personnel are obliged to contribute to the prevention of work accidents and their consequences through their personal behaviour.

WARNING **Danger of injury due to insufficient personnel qualifications**



Insufficiently trained personnel may cause hazards to persons or proper operation.

Only allow personnel instructed by the company EBSO GmbH to operate the machine. Personnel responsibilities, competencies and supervision must be clearly defined by the owner/operator.

For the competencies described in chapter “Intended audience”, the personnel must have relevant qualifications for these tasks (training, instruction). This may, if required, be performed by the manufacturer on behalf of the owner/operator.

Non-observance results in the loss of all warranty claims.

WARNING **Danger of injury due to non-observance of instructions**



Unauthorised activities at the machine cause hazards.

Observe all instructions provided. Do not perform any tasks without authorisation. If necessary, asked appropriately skilled personnel.

Reference values for lift and carry frequencies

Gender	Load weight in kg	Lift, put down, shift and hold	Carry up to a carrying distance of		
			5 to < 10 m	10 to < 30 m	≥ 30 m
Men	< 10	Generally without restrictions			
	10 to < 15	up 1000x/shift	up to 500x/shift	up to 250x/shift	up to 100x/shift
	15 to < 20	up to 250x/shift	up to 100x/shift		up to 50x/shift
	20 to < 25	up to 100x/shift	up to 50x/shift		
	≥ 25	Only together with special preventive measures			
Women	< 5	Generally without restrictions			
	5 to < 10	up to 500x/shift	up to 500x/shift	up to 250x/shift	up to 100x/shift
	10 to < 15	up to 250x/shift	up to 100x/shift		up to 50x/shift
	≥ 15	Only together with special preventive measures			

CAUTION **Danger of injury due to non-observance of table values**



Exceeding the permissible load weights, carrying distances and lifting shifting or holding duration may cause damage to health.

Observe the values in the table above.

Work, service and protection areas

Danger areas at the machine, to which particular attentions has to be paid, are indicated by warnings and safety symbols. They are clearly recognisable for persons working in this area.

The danger area is comprised of the work, service and protection areas of the machine.

WARNING **Danger of injury due to non-observance of the danger area**





There are hazards due to electrical and mechanical energies.

Do not place or store anything in the work and services areas. Place tools without causing hazards for the personnel.

DANGER **Danger of injury due to non-observance of safety instructions and safety distance**



Non-observance of safety instructions and the safety distance to the machine causes hazards.

Observe safety instructions and signs at the machine and in these operating instructions. Observe the relevant safety distance at the machine.

Safety devices

The machine is equipped with various safety devices. They are intended to avoid hazards to life and limb, due to electrical and mechanical influences, for persons working at the machine or limit material damage at the machine.

IMPORTANT Never bypass or remove devices or make them ineffective.

Do not operate the machine, if the protective devices are not properly attached or completely reliable.

For further information about the various safety devices, see chapter “Machine description”.

Hazards due to energy

Source of danger	Example
Electrical energy	▪ Machine, freely accessible, live assemblies
Mechanical energy	▪ Freely accessible tools
Emissions	▪ Air-borne noise, noise

Hazards due to electrical energy

DANGER **Danger to life due to dangerous voltage**



Residual electrical energy remains in lines, devices and equipment once the machine is switched off.

Only allow qualified electricians to work on the electrical power supply. Turn off the main switch. Disconnect machine from the mains. Disconnect machine from the mains, if live parts with tools at the machine are accessible. Always keep machine closed. Access for authorised personnel only.

Check the electrical equipment of the machine regularly. Replace burnt cables immediately. Check all moving cables regularly for damage as part of repair and servicing works. Remove loose connections.

Hazards due to mechanical energy

DANGER **Danger of crushing and risk of amputation due to freely movable parts**



The removal of protective covers presents hazards.

Do not open protective covers. Do not remove connections or covers of protective housings.

WARNING **Danger of injury due to entanglement or entrapment**





Moving parts at the machine present an entanglement hazard.

For activities at the machine with increased risk of injuries suitable protective clothing must be worn.

IMPORTANT Inform the operating personnel about hazards due to mechanical energies.

Hazards due to emissions

Air-borne noise – Noise

The machine emits a continuous sound pressure level of < 80 dB(A). Depending on the local conditions, the sound pressure level may be lower or higher.

WARNING **Danger of injury due to operating noise**



The continuous sound pressure level emitted by the machine may cause damage to hearing.



Wear ear protection to protect yourself from noise-induced hearing loss.

Residual hazards

There may be non-apparent residual risks despite all precautions taken!

Observing the safety instructions, the intended use and the operating instructions in general can reduce residual risks!

DANGER **Danger to life due to dangerous voltage**



Residual electrical energy remains in lines, devices and equipment once the machine is switched off.



Only allow qualified electricians to work on the electrical power supply. Turn off the main switch. Disconnect machine from the mains.

Disconnect machine from the mains, if live parts with tools at the machine are accessible. Always keep machine closed. Access is only permitted for authorised personnel.

Check the electrical equipment of the machine regularly. Replace burnt cables immediately. Check all moving cables regularly for damage as part of repair and servicing works. Remove loose connections.

WARNING **Danger of injury due to malfunctions**



Malfunctions or operating states that may compromise the safety of the operating personnel force a machine shut down by disconnecting the energy supplies.

A proper restoration of the intended state is required.

WARNING **Danger of crushing and hand injury**



There is a danger of injury due to the movement of machine components.

It is strictly prohibited to reach into the effective range of the machine during the program run. Watch out for cutting and crushing hazards during cleaning, set-up, maintenance and trouble shooting.

DANGER **Danger of injury due to falling loads**



Human error and inadequately or incorrectly secured loads cause hazards.

Use floor handling equipment for the internal machine transport.



Observe the correct values for lifting and carrying machine components.

WARNING **Danger of slipping**



Following operation or in case of malfunctions at the machine, there may be contaminations on the floor near the machine.

Watch out for contaminated areas and clean the floor.

WARNING **Access forbidden to all unauthorised persons**



Unauthorised access to the danger zone of the machine presents hazards.



The owner/operator has to ensure that unauthorised persons have no access to the danger areas.

Hazards in specific life cycles

Installation

DANGER **Danger of injury due to raised loads**



There are hazards due to human error and inadequately secured loads.

Only allow persons specifically trained for transport works to perform the work.

Never step under raised loads. Secure load against change of position.

WARNING **Danger of injury due to unsecured transport routes**



There are trip and slip hazards during the transport of the machine.

Make sure paths, ramps and steps, along which loads are moved, are non-slip, free from obstructions and well illuminated. Ensure non-slip floors using abrasive surfaces.

DANGER **Danger of injury due to start-up of the machine**



The machine starting-up automatically presents hazards.

During installation secure the machine against accidental switch-on. Disconnect power supply. Ensure nobody gains access to the machine during installation. Prohibit third parties access to the danger area.

Commissioning / operation

WARNING **Danger of injury due to mechanical energy**



There are mechanical hazards, such as crushing, entanglement and entrapment.

Never commission the machine without protective devices.

In an emergency, press EMERGENCY STOP button to stop the machine immediately.

Before commissioning the machine, all protection and locking devices and any other protective measures integrated in the control system must be functioning. Removing any such devices is only permitted at machine standstill and during maintenance work.

WARNING **Danger of slipping due to escaping operating materials**



Following operation or in case of malfunctions at the machine, there may be contaminations on the floor near the machine.

Watch out for contaminated areas and clean the floor.

DANGER **Danger to life due to residual electrical energies**



Residual energy remains in the lines and machine components despite disconnecting the energy supplies.



Never leave the machine unattended during operation. Before switching on the machine, ensure that to do so does not endanger others and that only instructed personnel is working at the machine.

Prohibit third parties to stay at the machine.

Operating personnel is not allowed to work on the electrical power supply.

Set-up

DANGER **Danger of injury and crushing due to interference by unauthorised persons**



Refitting work performed by unauthorised personnel presents hazards.

Secure the machine against accidental or unauthorised restarting and disconnect from mains before refitting.

IMPORTANT



Unauthorised conversions and modifications at the machine are prohibited! Only manufacturer approved parts may be used!

Maintenance and servicing

DANGER **Danger of injury due to electrical and mechanical energy**



There are hazards due to electrical and mechanical energies as well as special residual hazards at the machine.



Only permit instructed personnel to perform maintenance and servicing works.

Only begin any maintenance work once dangerous movements due to stored energies are longer possible. Only use cables with protective conductor.

Ensure nobody is in the danger area. Prohibit third parties to stay at the machine.

IMPORTANT Unauthorised conversions and modifications at the machine are prohibited! Only manufacturer approved parts may be used!



Additional instructions

Generally, the provisions made in trade associations' accident prevention regulations apply for all works at the machine.

Additionally observe:

- Current mandatory accident prevention regulations
- Current regulations mandatory at the deployment site
- Recognised technical standards for safe and proper work
- Current environmental protection provisions
- Other applicable provisions

Instructing workers regarding the hazards and the required protective measures has to be repeated at regular intervals, but at a minimum once a year.

Regarding occupational health and safety issues, operating instructions are required, which the owner/operator has to provide!

The machine operating personnel must fully observe the health and safety instructions as well as the operating instructions!

Installation



Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

- Check the delivered parts for completeness, damage and other anomalies.
- During transport observe the current safety and accident prevention regulations (BGV, D8, D6)!
- Ensure sufficient ventilation at the installation site!
- Please direct any queries regarding transport, assembly and installation of the machine to the company EBSO GmbH!
- For contact details, see chapter “Identification”!

Transport

- Ensure there are no loose parts on the machine that might fall down during transport!
- Disconnect all feed lines!
- Only permit authorised personnel to disconnect the energy supply (power)!
- Wear appropriate protective clothing during transport works!
- For the transport only use faultless and functional lifting devices with sufficient load capacity!
- Ensure that the load capacity of the lifting devices as well as of the load handling and transport equipment correspond to the loads specified for the machine!

Assembling the machine

Scope of delivery

- Basic machine
- Power supply cable
- Protective cover
- Tool holder

Supplementary devices (if ordered):

- Pneumatic belt device
- Mechanical belt device
- Mechanical belt device with probing function
- Automatic feed
- Reel holder for taped components
- Tool (bending form)

Assembling the machine

The intended site for the machine must be firm and level!

- Unpack the machine.
- Check the machine for completeness and transport damage.
- Mount and fasten the supplementary device.
- Fit the tool.
- Put on the protective cover.

Connecting the machine (energy supplies)

- Install the connection cables to the machine without tension to avoid creating hazard points!
- Only allow a qualified electrician, who knows the local connection and safety requirements, to connect the electrical supply!
- Install the cables in the intended cable ducts!
- Install all supply lines on site so that the machine can be supplied with power!

The following conditions must be fulfilled in order to operate the machine:

- At the electrical connection it must be checked whether the available mains voltage corresponds to the mains voltage specified for the machine
- Refer to chapter “Technical data” for confirmation
- Earth conductor and supply cable must have the same cross section

Connection points at the machine



Connection points



Connection points

	Connection point	Operating materials
	Machine	Power
	Machine	External terminal point
	Machine	Pneumatics max. 6 b

Operating conditions

Physical operating conditions		
Ambient temperature:	+10 °C to +40 °C (heated hall)	
Humidity:	30 % to 60 %	
Altitude:	max. 1000 m above sea level	
Contamination:	No high contamination due to dust, acids, corrosive gases	
Special aspects:	▪ Do not expose to direct sunlight! ▪ If the work room is not sufficiently illuminated, additional work space lighting is required at the machine! ▪ Sufficient ventilation of the work room (strain for the operating personnel) ▪ The machine has no explosion protection	
Natural and artificial illumination of workplaces As per BGR (Federal Institute for Geosciences and Natural Resources) 131-1 (Oct. 2008)		
	Work area	Surrounding area
Work areas where workers are regularly for longer periods to perform their tasks or where they stay for longer periods during the course of their daily working time.	300 Lux	200 Lux

Work areas where due to visual physiological or production-related needs values above 500 Lux are required, for example office workplaces, labs, workplaces in the health sector or work areas with special hazards, such as work with circular saws.	500 Lux	300 Lux

Machine placing

➲ Place the machine on a suitable base (table)!



Machine placing

Equipment

➲ Observe the documentation of any additional devices.

➲ When using cleaning agents comply with the current work instruction of the owner/operator!

Machine description



Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

Technical data

Technical data – machine	
Power supply – machine:	115 V, 50-60 Hz, 500W
Output:	
From stick:	max. 3600 parts per hour depending on component
From vibratory bowl:	max. 3600 parts per hour depending on component
With pneumatic belt device:	max. 3300 parts per hour depending on component
With mechanical belt device:	max. 8000 parts per hour depending on component
Dimensions and weights:	
Without attachments: **With belt device:** **With vibratory bowl:**	650x550x460mm 860x550x500mm 1150x550x500mm
Scope of delivery:	Basic machine Power supply cable Protective cover
Options (supplementary devices):	Automatic feed with chute and vibratory bowl Automatic feed with magazine base Belt device, pneumatic Belt device, mechanical Belt device, mechanical, with belt tolerance compensation
Air-borne noise:	<80 dB(A)

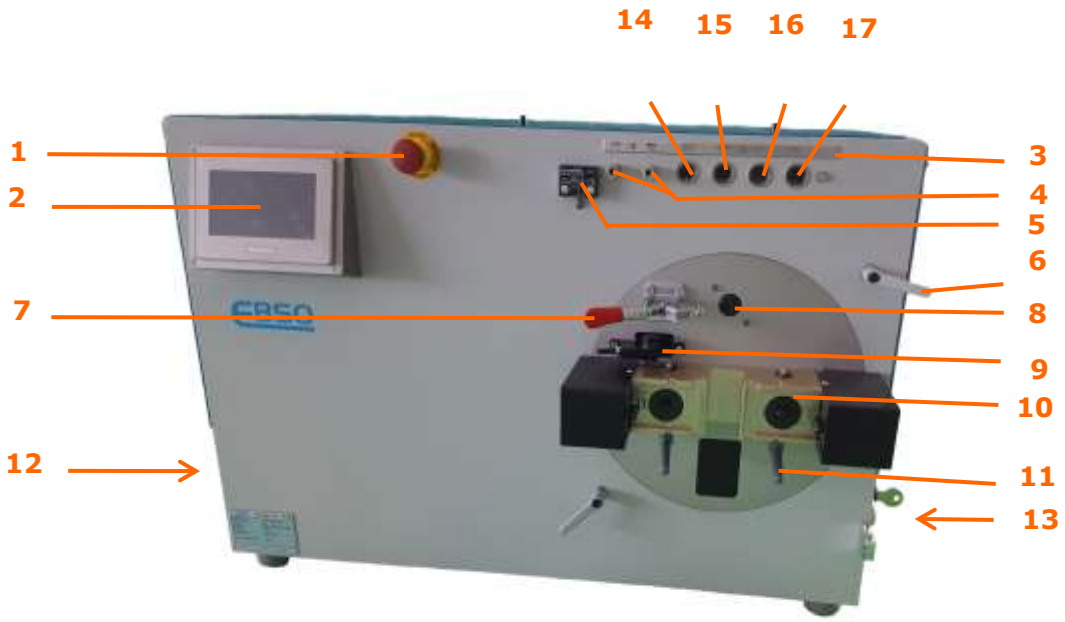


The following parts must not be bent or cut.

Transistor housing, no component body of electronic components, wire pins of any kind,

cables, cable lugs, round and flat bars made from wood / metal / plastic / cardboard, screws, nails, staples / paper clips, screw drivers, metal sheets, tweezers, nail files and scissors.

Overall view – Overview



Overall view

1	EMERGENCY STOP button
2	Display
3	Labelling bar
4	P1 a. P2 pneumatics terminal point
5	Safety switch protective cover
6	Clamping lever tool revolver
7	Tension lever transport devices
8	Synchronous coupling mech. belt device
9	Wire diameter setting
10	Tool holder
11	Tension lever tool block
12	Main switch
13	Key switch / Reset button
14	Terminal point pneumatic Belt device
15	Feed terminal point
16	Ext. Counting light barrier
17	Jam query

Workplace of the operating personnel

The operating personnel take the following places at the machine:

- In front of the machine

Tasks of the operating personnel

The operating personnel have to perform the following tasks during automatic mode to ensure trouble-free operation:

- Change stick
- Change belt
- Identify faults and if necessary inform skilled personnel
- Commissioning of the machine under instruction from setting-up personnel following malfunctions or refitting

Machine design and functions

Basic unit

The basic unit comprises the control system and the guiding mechanism for tools to be fitted and drives.

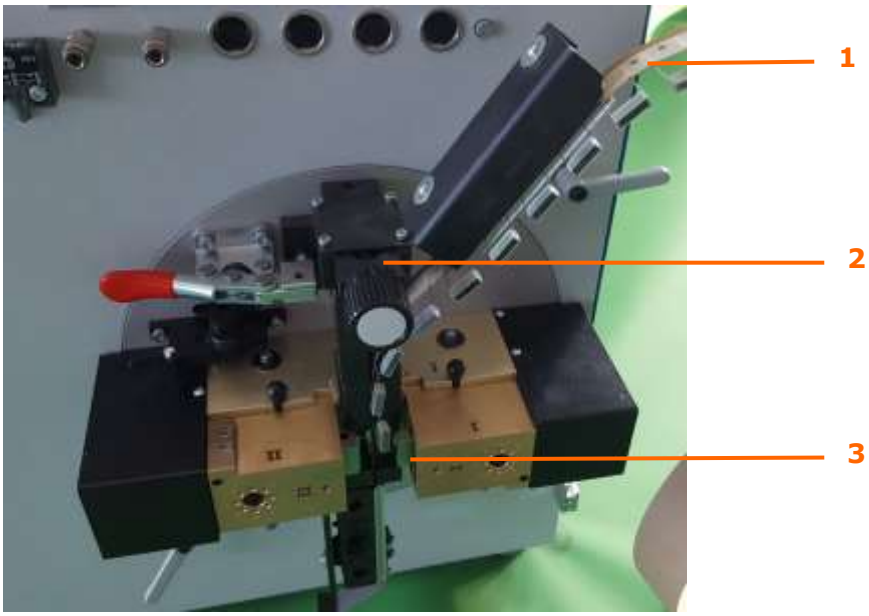
The basic unit is able to pick up mechanical belt devices with or without belt tolerance compensation as well as a pneumatic belt device.

Alternatively, an automatic feed with various chutes for transportable, loose electronic components may be used.


EBSO

Mechanical belt device (with or without belt tolerance compensation)

The unmachined taped electronic components are fed towards machining using the belt device. A mechanical drive conveys the belt with the components into the tool. If the belt device is equipped with belt tolerance compensation, the top or bottom side of the component is pressed against.

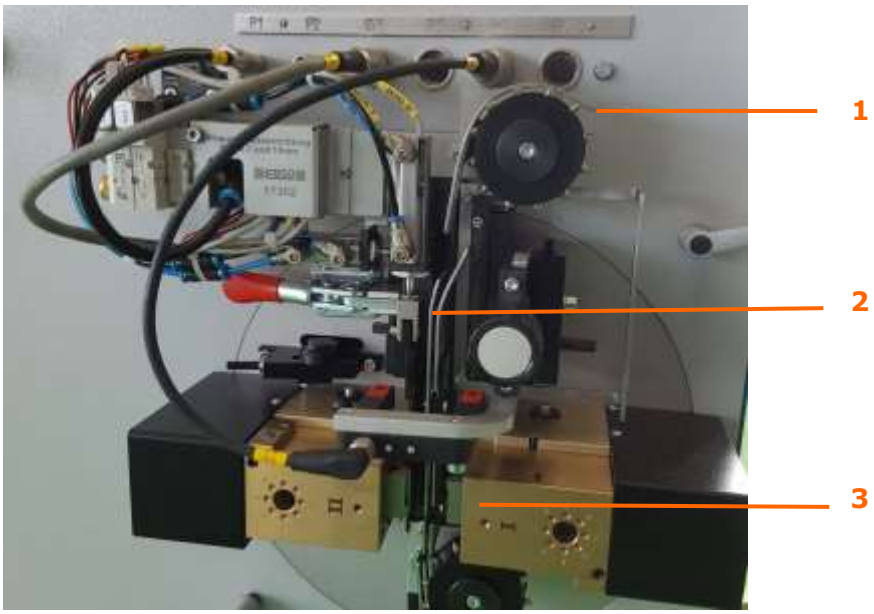


Mechanical belt device

1	Taped electronic component	3	Tool block
2	Mechanical belt device		

Pneumatic belt device

The unmachined taped electronic components are fed towards machining using the pneumatic belt device. A pneumatic drive conveys the belt with the components into the tool. This belt device can be modified for transport grids with 12.7 mm and 15 mm.



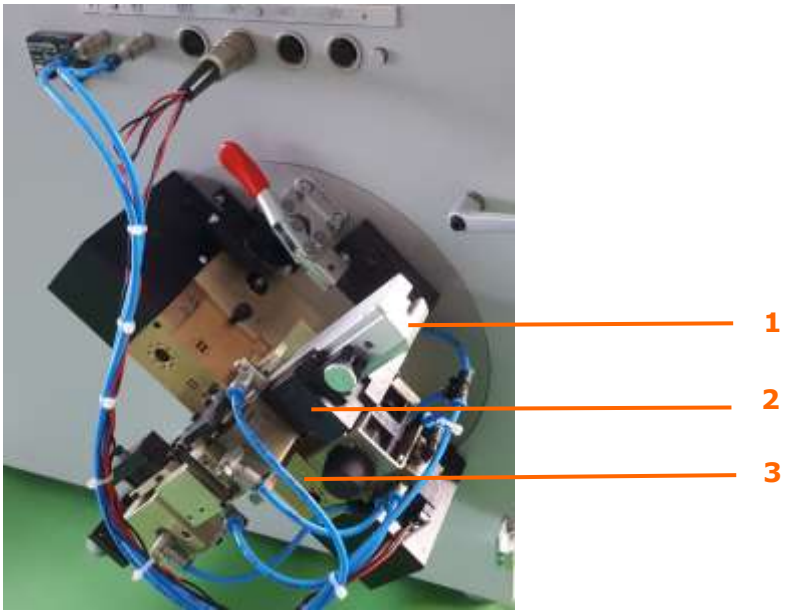
Pneumatic belt device

1	Belt infeed	3	Tool block
2	Pneumatic belt device		

Automatic feed

The unmachined loose electronic components are conveyed towards machining via the automatic feed with chute. A pneumatic outlet separates the electronic components for them to slide into tool position using gravity.

The automatic feed may be equipped with different chutes or magazine bases. Thus, the loose transportable electronic components may be conveyed using vibratory conveyors or magazines.



Automatic feed

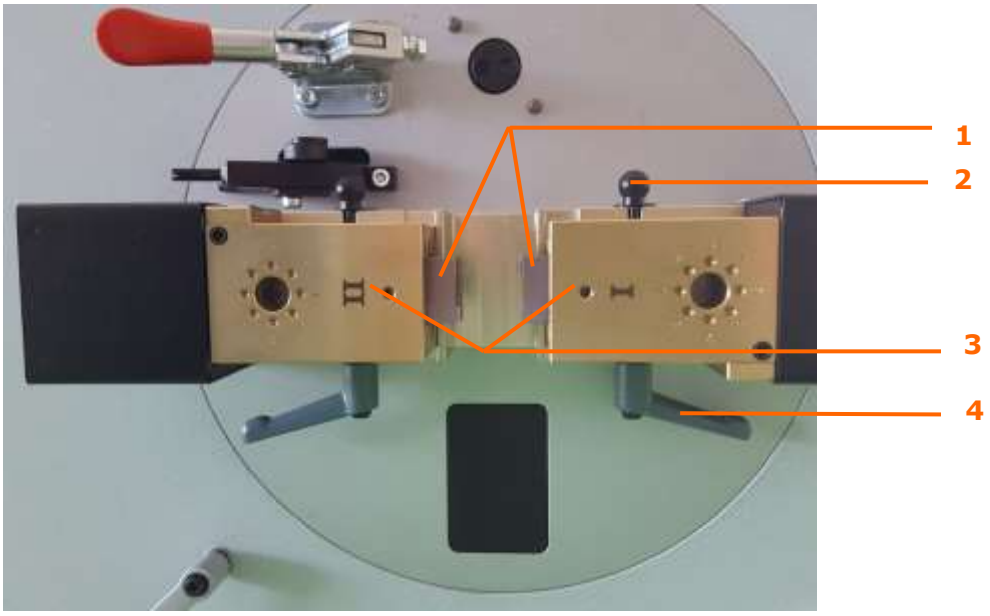
1	Chute	3	Tool block
2	Automatic feed		

Machining tool

In the machining tool the pins of the electronic components are cut, stamped or bent, according to customer specifications.

The wire scraps are collected in the collection bin for remnant wire (for loose electronic components).

The machined parts drop into the component bins positioned below.



Machining tools

1	Machining tool with strain relief	3	Tool block
2	Positioning pins	4	Tension lever for tool block

Functional design of the safety devices

Safety device	Function
EMERGENCY STOP button	▪ In an emergency all movements are stopped immediately
Display	▪ Malfunctions are displayed in plain text and the machine is moved into the appropriate safety position
Protective cover with safety switch	▪ Protects the effective range of the machine against direct touch during automatic mode
Electric main switch	▪ Lockable using a padlock
Circuit-breakers	▪ Short-circuit protection for electrical drives, loads, equipment groups

EMERGENCY STOP button

At the machine, there is a read EMERGENCY STOP button on yellow background.

DANGER **Danger to life due to electric shock**



Point sockets out to operating personnel.

Separate sockets from power source to ensure complete absence of voltage.

- Before start of work, check the EMERGENCY STOP button is functioning correctly.
- Only hit the EMERGENCY STOP button in an emergency! The machine stops.
- Only release the EMERGENCY STOP button once safe recommissioning is ensured!
- Unlock the EMERGENCY STOP button. Turn the button towards the arrow symbol!



EMERGENCY STOP button

Effective range:

The EMERGENCY STOP button and the safety switch of the protective cover stop the machine movement.

Protective cover

There is a protective cover on the machine to prevent unrestricted access to the machine during automatic mode.

DANGER **Danger of injury in JOG mode**



There are hazards if persons access the danger zone of the machine in JOG mode while the protective devices are open.

Ensure there is nobody in the danger area of the machine if the machine is in JOG mode without protective cover.

WARNING **Danger of injury due to defect safety switches**



The safety switch at the machine not working causes hazards.

Check the safety switch daily for stability and fractures as well as its mounting.

The functioning of the safety switch must be ensured.



Safety switch and cover

1	Protective cover	**2**	Safety switch

Components – electrical components / control system

IMPORTANT Only allow qualified electricians to work on the electrical power supply.

To protect the control system assemblies from discharging static electricity, the personnel must discharge themselves electrostatically before opening the control cabinet or any other electrical equipment.

Any pieces of electrical equipment have the following symbols labelled on their housings.



"*Dangerous voltage*"

CAUTION



The copyright for the control program is held exclusively by the company EBSO GmbH. It is not permitted to copy, modify, decompile or disassemble the control software and to create derivative programs. Exceptions require the explicit permission of the company EBSO GmbH.

Machine illumination

The machine has not permanently installed illuminating device.



At the installation site, the machine has to be integrated into the hall lighting provided by machine owner.

If the illumination of the work area of the machine is insufficient, the owner/operator is required to install additional lighting.

Commissioning / operation



Observe the chapter on safety

For basic safety instructions for the relevant machine, see chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

- Observe the danger areas; refer to chapter “Work, service and protection area”!
- Do not perform any cleaning works in the effective range of the machine following switch-on.

Commissioning

- Check the machine and all associated electrical and mechanical components for damage!

DANGER **Danger of injury due to damage and defects**



Define the responsibility of the commissioning personnel.

Before commissioning, check that the settings are correct and the required protection and safety device are present. If defects are detected, shut down the machine until the defects have been rectified.

Replace defect machine parts immediately. For definitive identification of the component use the additional documents in the appendix of these operating instructions.

Do not remove or bypass any safety devices. Never work without them.

Check the installations requirements for initial commissioning or following an extended shut down!

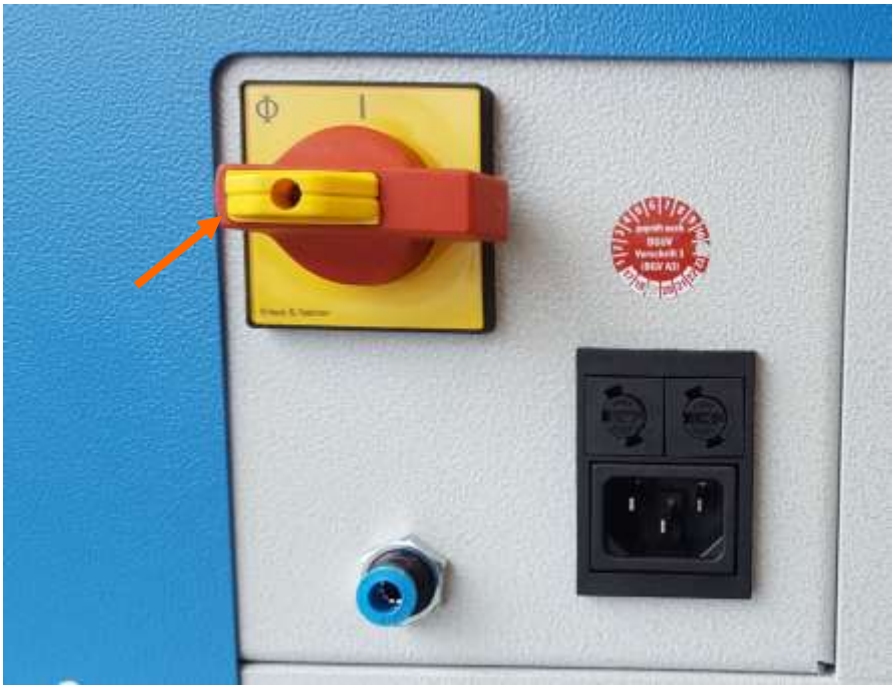
Functional test before operation

Check the following functions and features before switching on the machine:

- The display
- that maintenance was performed in accordance with the instructions
- the position of the main switch
- The functions of the assemblies (for example feeds)

Main switch

The electric main switch is on the left side of the machine.



Main switch

➲ Turn on the main switch!

Reset button / key switch

The RESET button and the key switch are on the right side. The reset button lights up in blue following the activation of the main switch and the deactivation the emergency stop button.



Reset button *Key switch*

- Turn the key switch to "0"
- To acknowledge the machine release, press the RESET button.

Display check

- Perform a visual inspection!
- Rectify any fault messages before commissioning the machine!
- Set the relevant product specific parameters!

Protective cover check

The machine has a protective cover.

1. Perform a visual inspection and a functional test!
2. Commission the machine!
3. If possible, open the protective cover! The machine functions must not start!
4. Close the protective cover again!
5. Acknowledge the fault message!
6. Acknowledge machine RESET

EMERGENCY STOP button check

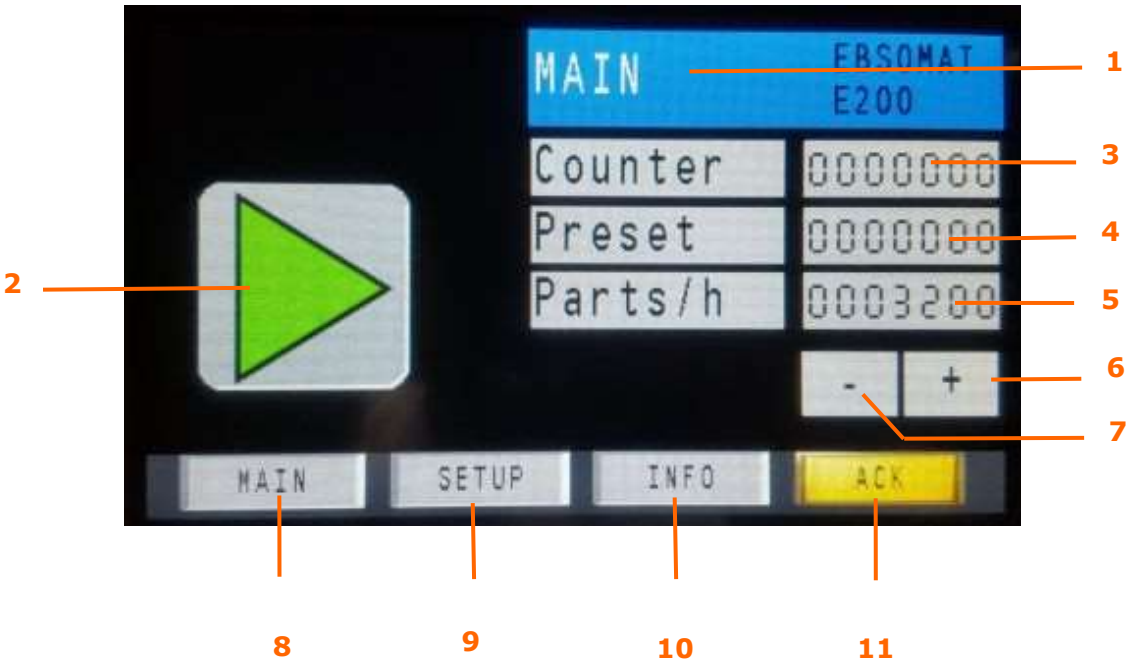
1. Perform a visual inspection and a functional test!
2. Commission the machine!
3. Press the EMERGENCY STOP button! The machine must stop. It must be impossible to start any of the machine functions.
4. Unlock the EMERGENCY STOP button by turning it!
5. If necessary, acknowledge the EMERGENCY STOP function on the display!
6. Acknowledge machine RESET

Operation

The machine may be operated in the operating modes Automatic and JOG mode.

In JOG mode all set-up and adjustment activities on the machine are performed. During automatic mode the machine runs automatically.

Display



Display

1	Current page
2	START / STOP button
3	Counted components
4	Counter preset
5	Cycle speed
6	Increase speed
7	Reduce speed
8	Button MAIN page
9	Button SETUP page
10	Button INFO page
11	Acknowledge button error messages

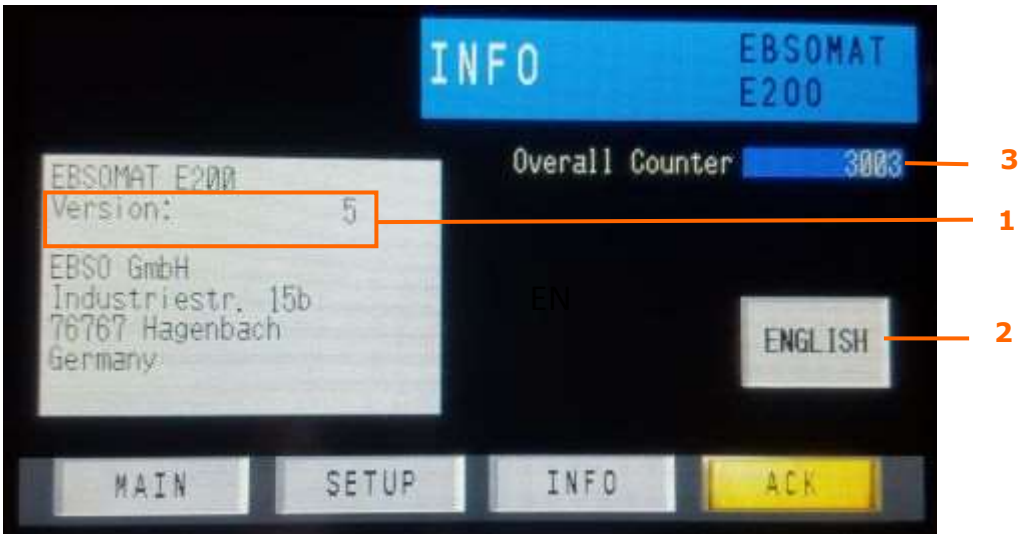
To return to the initial menu, press the button “page change” (8) several times.

START STOP button

- In automatic idle state, the triangle symbol shows a green light.
- Following the START of the machine, the symbol changes to a red square.
- Following machine STOP, the symbol changes to a green triangle.

Switching on the EBSOMAT

- Switch on the machine at the main switch.
- Wait until the display shows the main page.
- Touch the INFO button.
- Touch the country code to select your language.
- Touch the MAIN button



Switching on the EBSOMAT

1	Software version number	3	Overall counter
2	Language selection		

In case of malfunctions or for service requests always state the software version number.

JOG operating mode

DANGER **Danger of hand injury due to freely movable parts**



Set-up activities might cause hazards.

Only allow authorised skilled personnel to operate the machine in JOG mode.

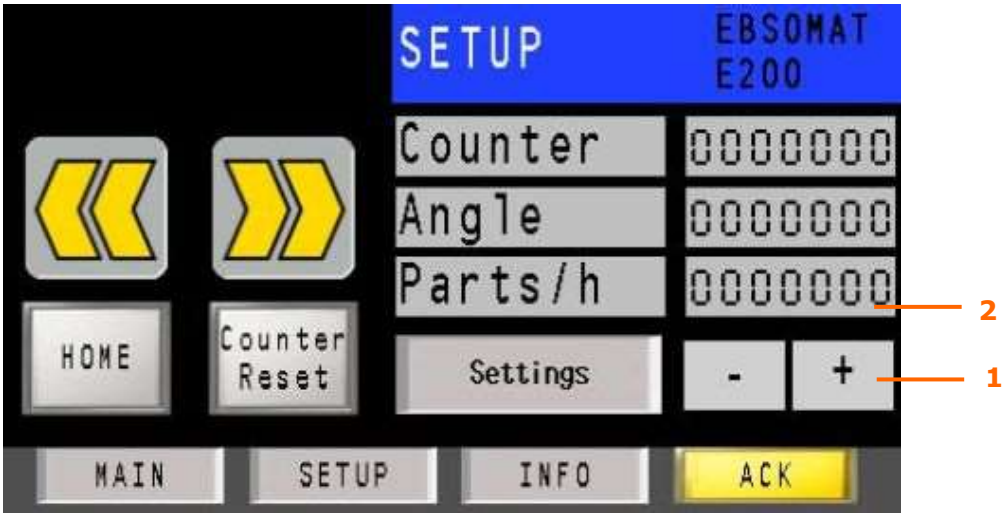
Use the JOG menu to move the machine forward and backward in increments.

- If the key switch is in position “1”, the JOG mode also runs with an open protective cover
- The speed in JOG mode is not the same as in automatic mode.
- At or during JOG mode, the speed can be adjusted by pressing the keys “+” or “-” on the display (arrow keys)
- JOG button to the right – machine moves in normal direction
- JOG button to the left – machine reverses

JOG mode is used for:

- set-up and adjustment activities
- Set-up activities
- cleaning work
- repair work
- maintenance work

Speed can be manually adjusted using + and - or by touching the “number field” for parts/h. This opens a number field for you to enter the value directly and to confirm it with “ENT”.



JOG mode

1	Jog - speed "+ / -"	**2**	Number field speed

Automatic operating mode

The machine is only operated in automatic mode and controlled and monitored using the display.

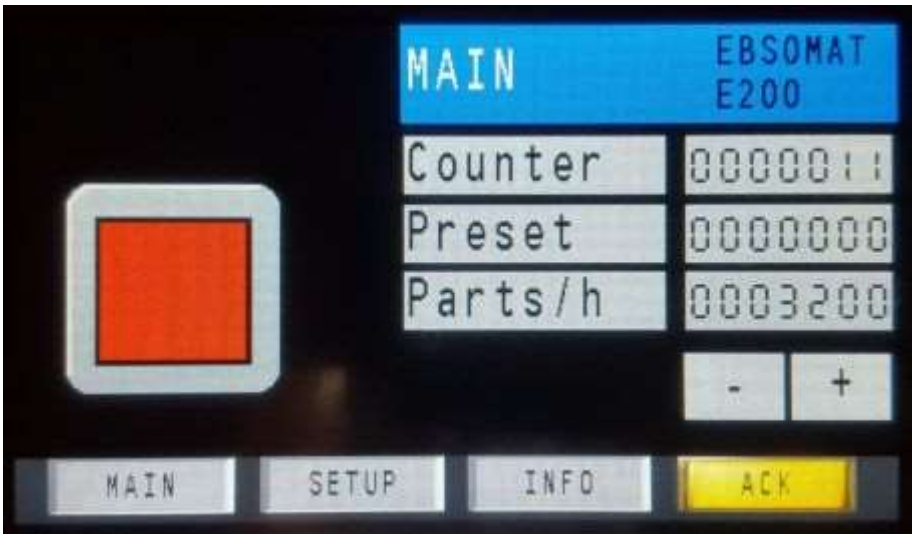
In automatic mode, the machine runs independently following the entered process parameters.

In automatic mode, the machine only starts when the safety cover is closed.

- To start the machine, touch the green triangle.
- Change speed using "+ and -".
- To stop the machine, touch the red square.



Automatic mode

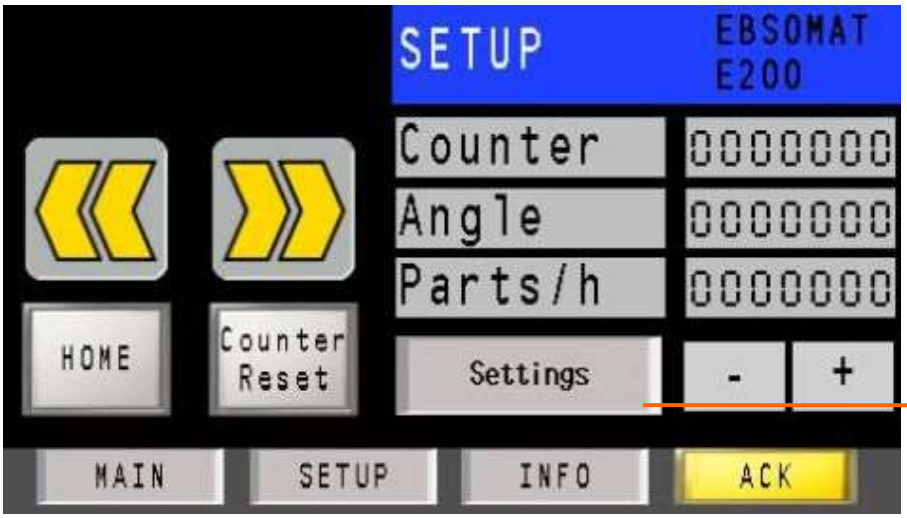

MAIN
EBSOMAT
E200
Counter
0000011
Preset
0000000
Parts/h
0003200
-
+
MAIN
SETUP
INFO
ACK

Transport equipment

Different transport equipment can be inserted into the basic unit.

Each piece of transport equipment is controlled separately and must first be selected on the display.

➲ Select the SETUP page on the display.
➲ Touch the SETTINGS field.



Setup

1 Settings

➲ Touch the selector until the right object is shown.



Settings MECHANICAL BELT DEVICE

1 Selector

➲ Touch the selector until the right object is shown.



Settings PNEUMATIC BELT DEVICE

1 Selector

➲ Touch the selector until the right object is shown.

➲ Touch the MAIN button.

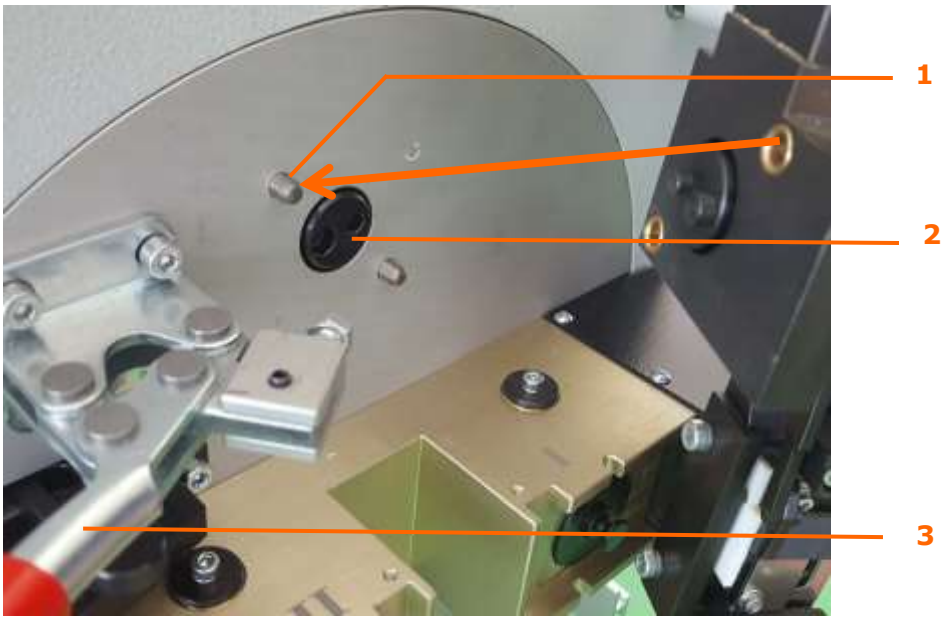


Settings AUTOMATIC FEED

1 Selector

Insert mechanical belt device

- Insert the mechanical belt device into the guide pins and simultaneously press the synchronous coupling inwards.
- Close the clamping lever.
- Insert the tool blocks.

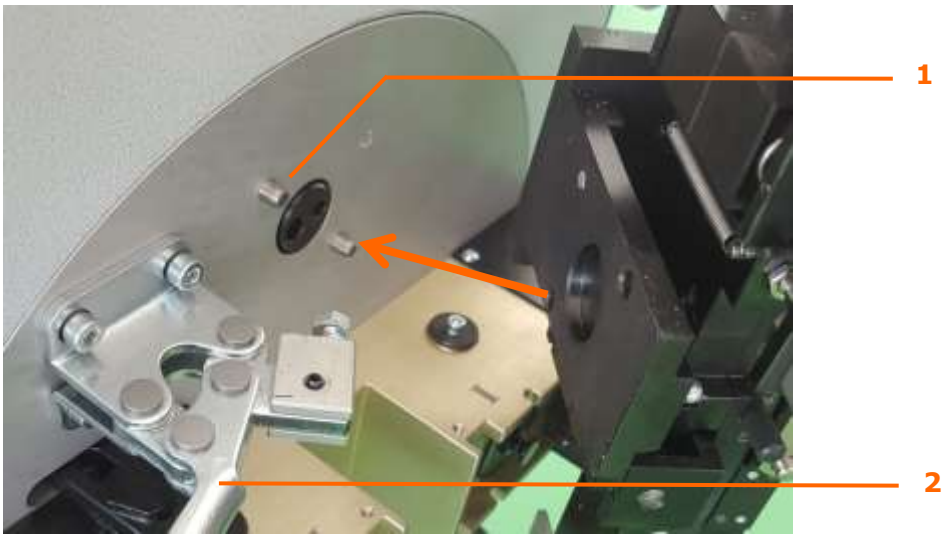


Insert mechanical belt device

1	Guide pin	3	Tension lever
2	Synchronous coupling		

Insert pneumatic belt device

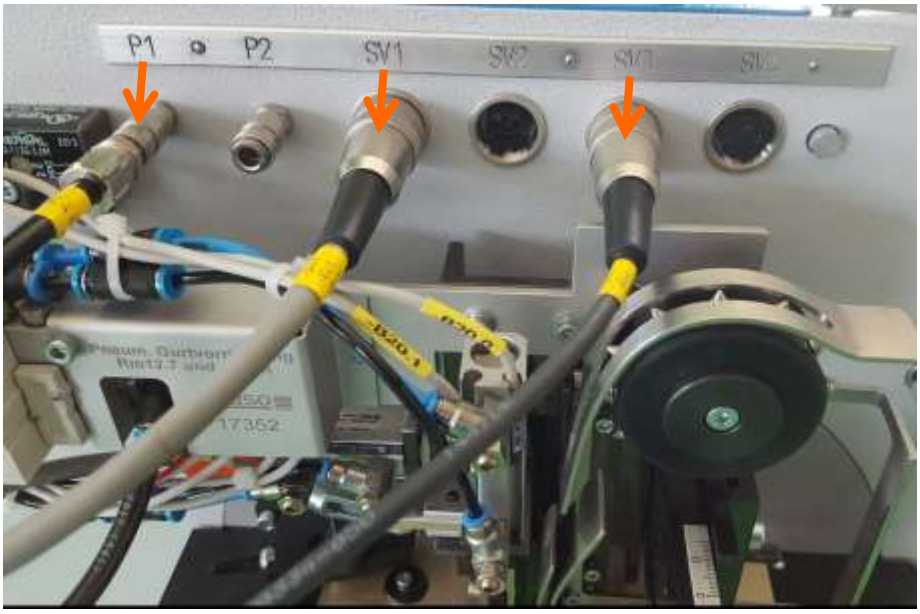
- Insert the pneumatic belt device into the guide pins.
- Close the clamping lever.
- Insert the tool blocks.



Insert pneumatic belt device

1	Guide pin	2	Tension lever

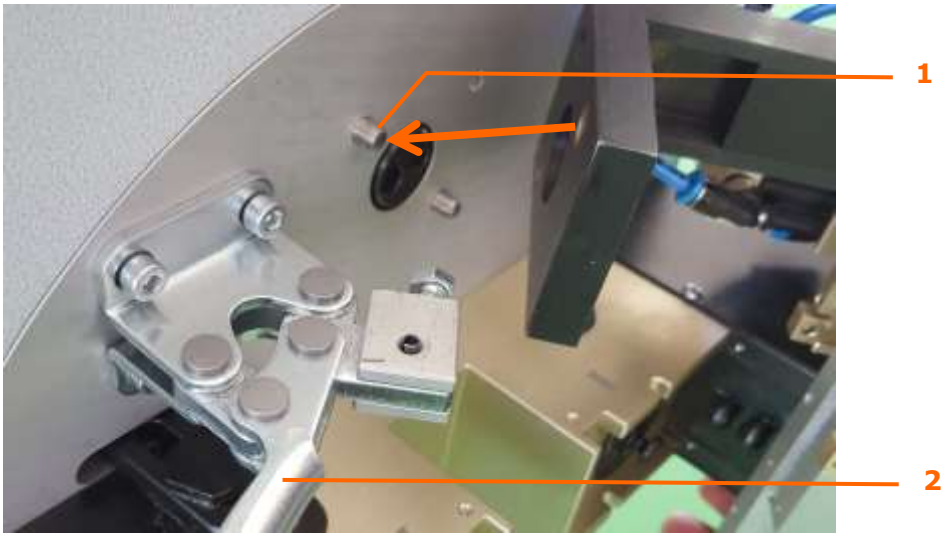
- Place the connections onto the terminal points provided.



Terminal points

Insert the automatic feed.

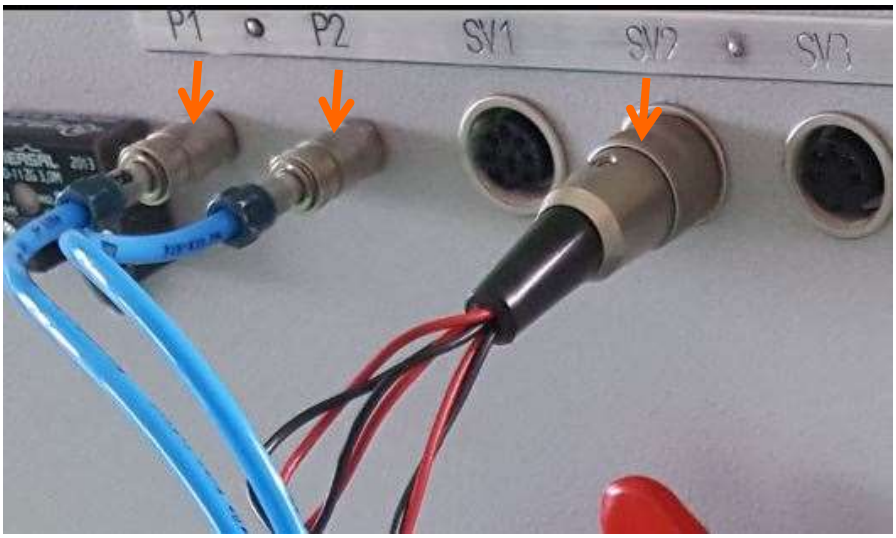
- Insert the tool blocks.
- Insert the automatic feed into the guide pins.
- Close the clamping lever.



Insert pneumatic belt device

1	Guide pin	2	Tension lever

➲ Place the connections onto the terminal points provided.



Terminal points

Setting the counter

The counter counts the cycles of the machine, provided no counting photoelectric barrier (optional light barrier) is activated.

- Touch the number field for the counter on the main page
- Enter the required quantity.
- Confirm with ENTER.



Open input field

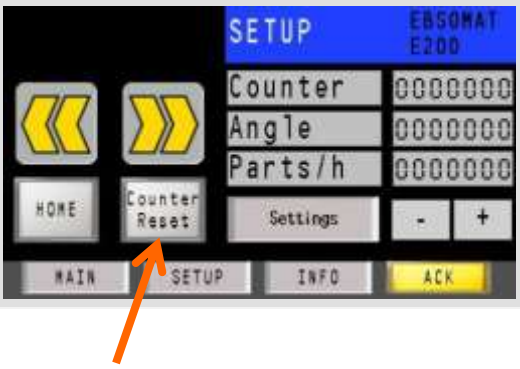


Quantity input

Resetting the counter

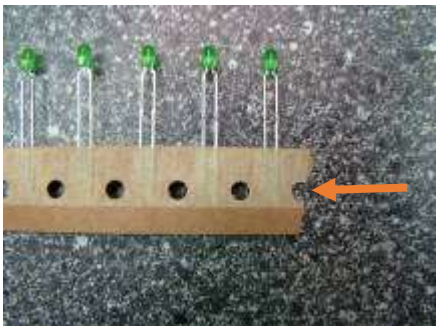
- The counter can only be reset in the SETUP menu.
- The preset counter can be changed during operation.

- Touch the field SETUP.
- Touch the field COUNTER RESET

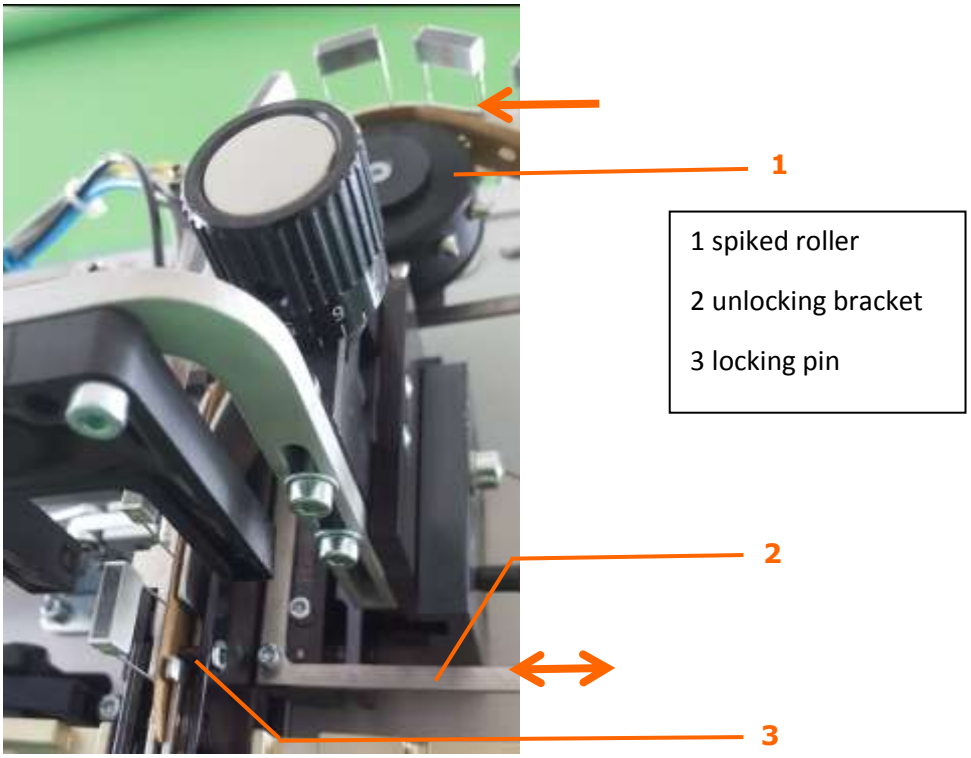


Threading the belt pneumatic belt device

Before threading the belt strip, it must be cut off through the centre of the first transport hole.



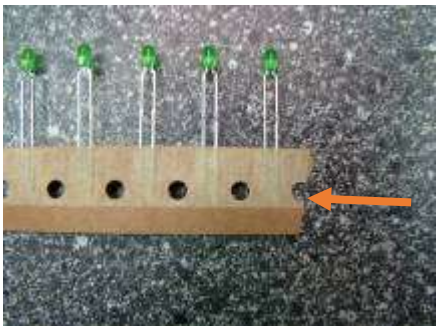
- Push the belt into the spiked roller.
- Pull back the unlocking bracket.
- Push the belt so far that the first component is placed at the midpoint to the tool.
- Allow the unlocking bracket to slowly slide back so that the locking pin can insert itself well into the belt hole.



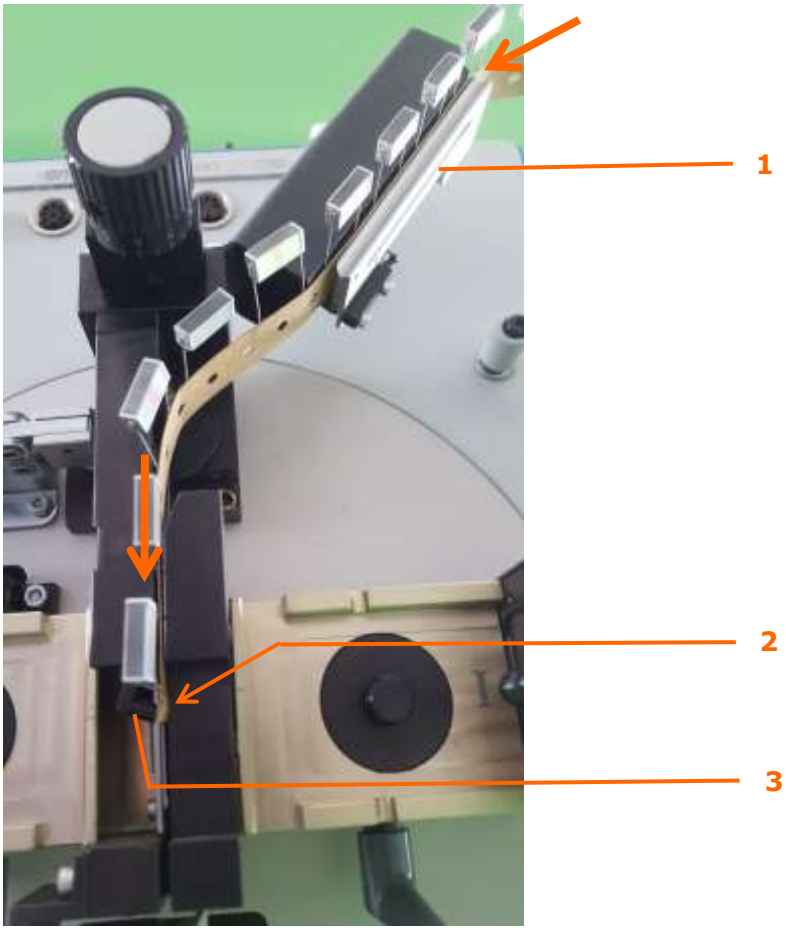
Thread belt pneumatic belt device

Threading the belt mechanical belt device

Before threading the belt strip, it must be cut off through the centre of the first transport hole.



- Insert the belt into the spiked roller.
- Push the belt until the cut hole of the belt fits flush with the locking pin.
- Start the machine in JOB mode at slow speed.
- During the forward movement of the transport pin, push the belt until the next hole in the belt has locked onto the locking pin.



Threading the belt — mechanical belt device

1	Flap spiked band	**3**	Transport pin
2	Locking pin		

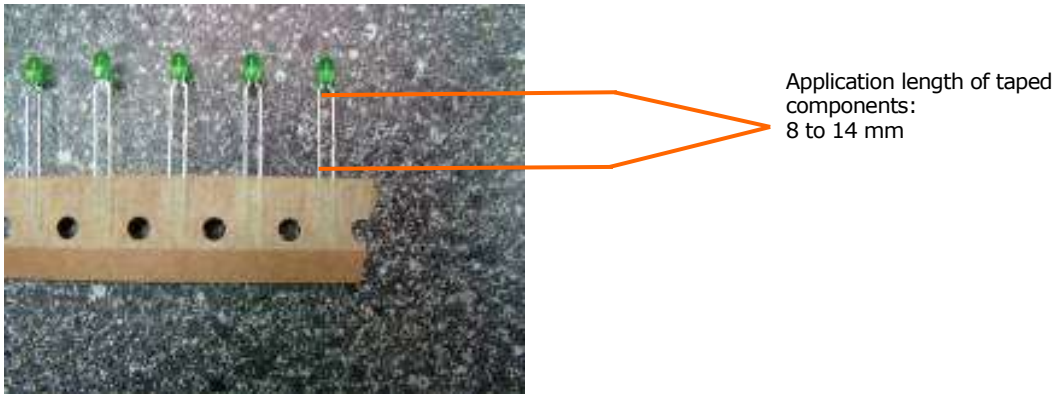
Particularities of the mechanical belt device with probing function

The mechanical belt device with probing function serves to feed radial taped electronic components with a belt grid of 12.7 mm, a belt pitch of 18 mm and an application length of taped components between 8 and 14 mm. The probing function is used to compensate tolerances of component heights (vertical offsets) with regard to the belt. Optionally, it can be applied on the top or bottom side of the component body.

Max. output: one probe per second

Proceed as described in chapters 6.2.7 and 6.2.13, observing the following notes:

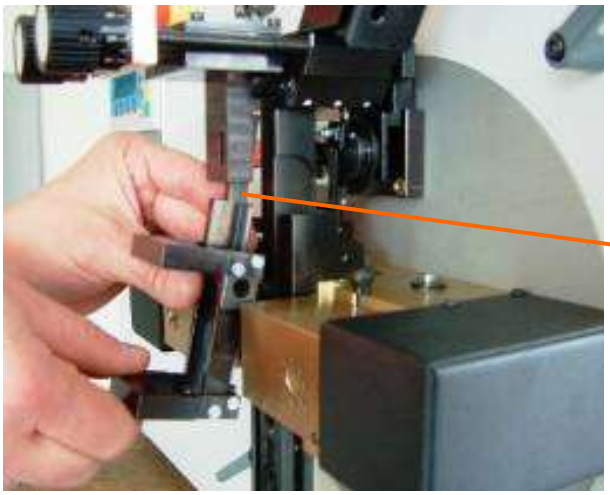
The application length of taped components should be between 8 and 14 mm in order to ensure a smooth transport of the components.



To facilitate belt insertion, first insert the belt and only then mount the component support to the belt device.

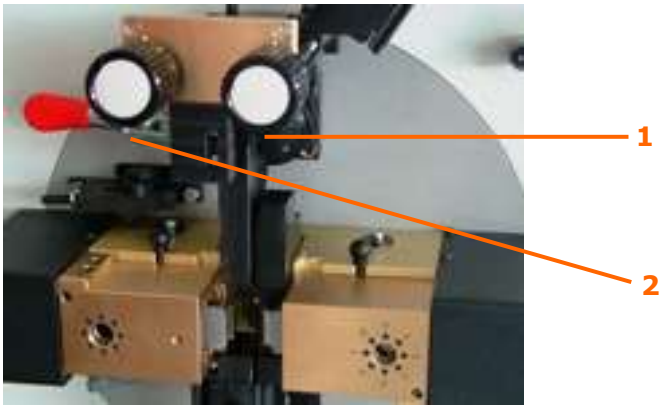


Component support (probing function)



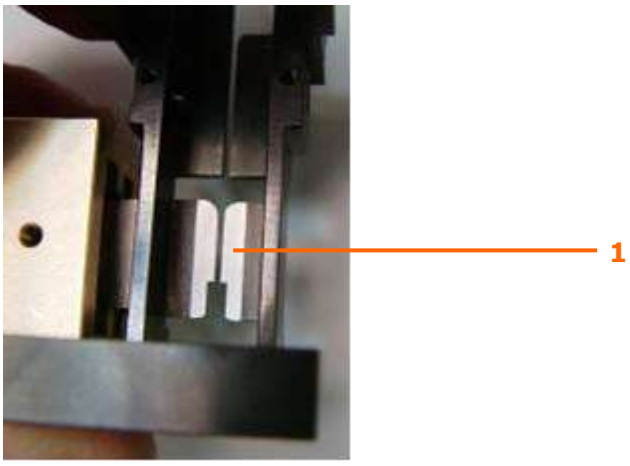
Inserting the component support

- When inserting the component support, first push it to the very top.
- Then move it downwards carefully until the probing surface and the tool are level. In its processing position, the component should be flush with the lower edge of the probing surface. In this way, the cut-out component can easily drop down.
- The left-hand knurled knob is used to adjust the component support or probing surface. They can be lowered to strain relief level. Ensure that the component support and the strain relief do not touch but have a minimum distance of 0.1 mm.
- The right-hand knurled knob is used to adjust the x-dimension. To decrease the x-value, turn the knob clockwise (CW). To increase the x-value, turn the knob counter clockwise (CCW). (The x-dimension is the distance between the component's bottom edge and the first contact with the tool, e.g. for the first bending.)
- In JOG mode, advance until the tool starts to move and the strain relief does not fully close. (The probing surface moves in the direction of the component body). Verify the x-dimension value. Continue adjusting until the desired x-dimension value is reached.
- Now use the left-hand knurled knob to adjust the component support until it hits the probing surface.
- Process the component using JOG mode and verify the x-dimension value. Repeat these steps until the correct x-dimension value is reached.



1 Right-hand knurled knob for adjusting the x-dimension value

2 Left-hand knurled knob on the left for adjusting the component support or probing surface



1 Probing surface (image may differ from machine configuration)

Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

➲ At end of work, secure the machine against unauthorised restarting!

➲ Only permit authorised personnel to disconnect the energy supplies!

Switching off the machine

➲ Select the page SETUP and touch the box HOME.

➲ Turn off the main switch!

Shutting down the machine (longer period)

➲ Perform the following storage measures, if the intention is to decommission the machine for longer than 4 weeks.

Emptying:

- Remove components

Disconnect power sources:

- Power supply
- Compressed air

Storing:

- Cover machine to protect it from contamination
- Slightly oil exposed metal parts to protect them from corrosion
- Store machine on transport pallets

Decommissioning



Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

➲ At end of work, secure the machine against unauthorised restarting!

➲ Only permit authorised personnel to disconnect the energy supplies!

Shifting the machine

➲ Perform the following steps, if the machine is to be shifted!

Emptying:

- Remove components.

Disconnect power sources:

- Power supply
- Compressed air

Shifting:

- Cover machine to protect it from contamination
- Slightly oil exposed metal parts to protect them from corrosion
- Store machine on transport pallets
- Fasten moving parts

IMPORTANT Observe the transport instructions in chapter “Transport”!

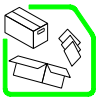
Storing the machine

The storage site must be cool and dry to discourage corrosion on individual parts of the machine.

The ambient temperature of the storage site must be consistently between 10 C and 25° C. The humidity in the storage room must not exceed 50 %.

- Package the machine parts thus that they do not get damaged by external influences during storage!
- If necessary, use cardboard and other packaging material!
- Secure the machine parts against accidental tilting and instability!

Machine disposal





- Dispose of the packaging material according to the current national provisions!
- Dispose properly and separately of cardboard, plastic protective packaging and preservatives!

The disposal of the machine (including machine parts, operating materials) has to comply with the local disposal requirements and the environmental protection laws applicable for the country of use.



Following dismantling at the end of the machine life cycle, proper disposal, particularly of parts and substances harmful to the environment, has to be ensured. These include among others lubricant, plastic and batteries.

Only allow approved specialist companies to dispose of the machine to prevent the danger of environmental pollution!

Set-up and accessories



Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

Set-up process

Type change required the machine to be refitted.

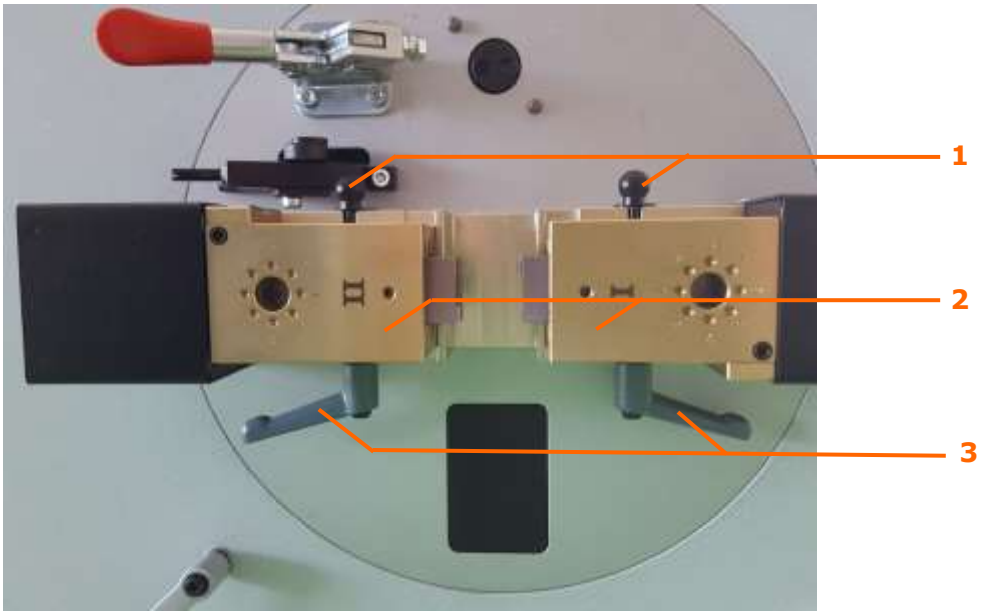
CAUTION The tool needs to be refitted according to the new dimensions of the electrical components.

- Observe the descriptions of the individual stations in chapter “Machine description”!
- For refitting, use appropriate tool plans with drawings of the components to be changed!
- Connect the components or accessory parts to be refitted the same as for a normal installation!
- Observe the specific action requests and instructions in chapter “Installation”!

Changing tools

Removing tools

- In SETUP mode drive the tool to HOME position.
- Press the EMERGENCY STOP button.
- Remove the protective cover.
- Open the tension lever.
- Remove the locking pins.
- Remove the tool blocks from the machine



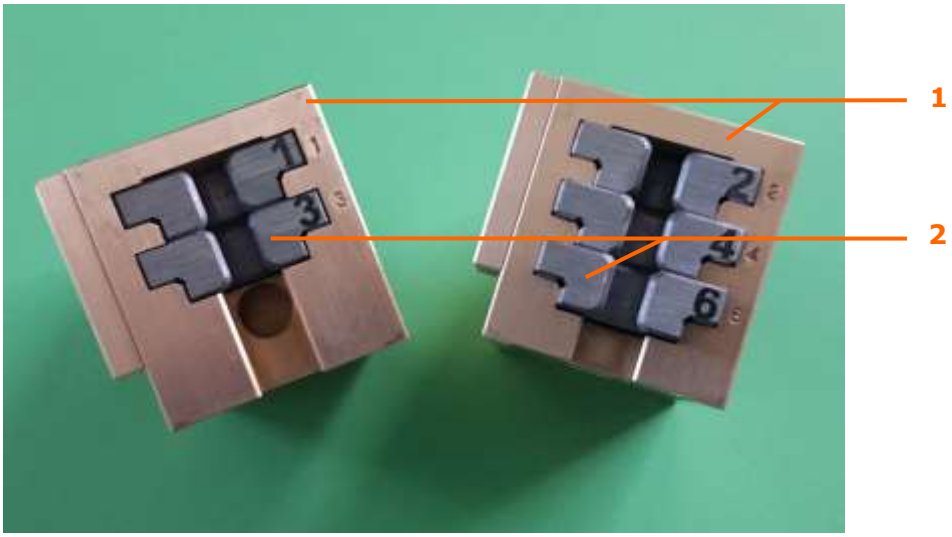
Changing the tool

1	Locking pins	3	Tension lever
2	Tool blocks		

You may change complete tool blocks with remaining tool inserts or only the tool inserts.

The tool blocks in the machine may also be changed (if necessary), for example 90° bends.

- Slide the tool inserts from the guiding block.
- Place the tool inserts to be changed into the allocated guiding tray.
- Ensure the tool inserts are flush with the tool blocks at the back.

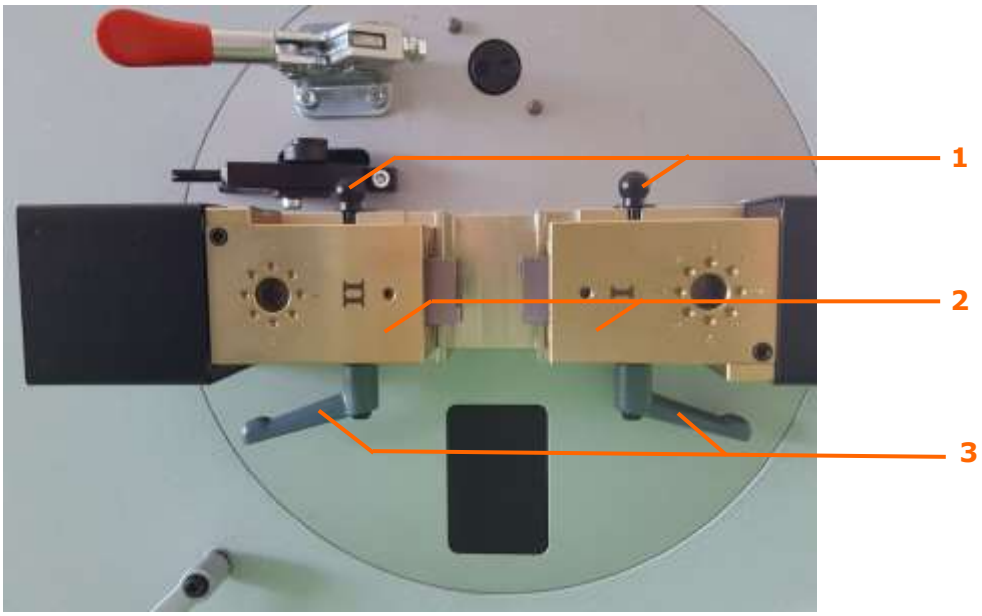


Changing the tool

1	Tool block	**2**	Tool inserts

Inserting tools

- In SETUP mode drive the tool to HOME position.
- Press the EMERGENCY STOP button.
- Remove the protective cover.
- Open the tension lever.
- Insert the tool blocks into the machine (observe I and II).
- Insert the locking pins through the block bend.
- Remove the tool blocks from the machine

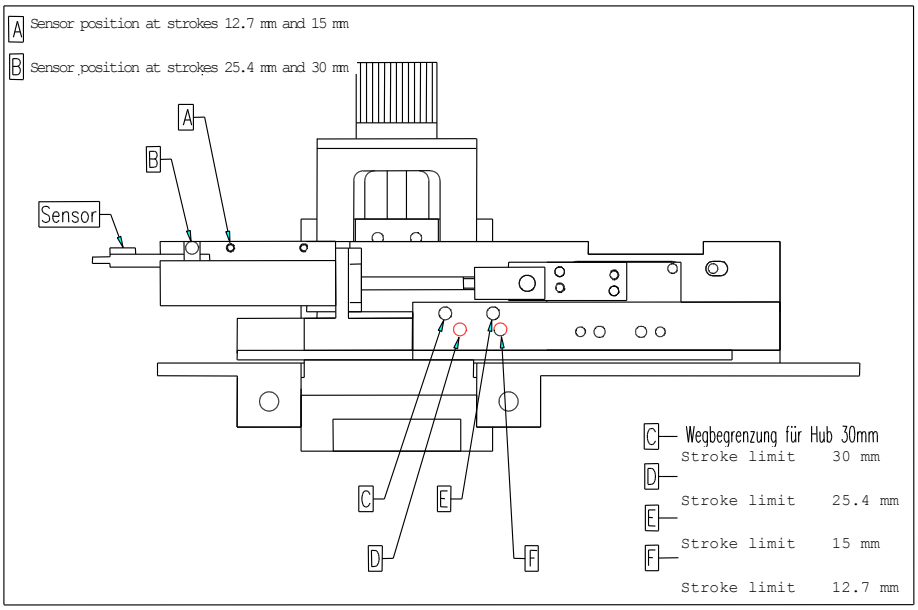


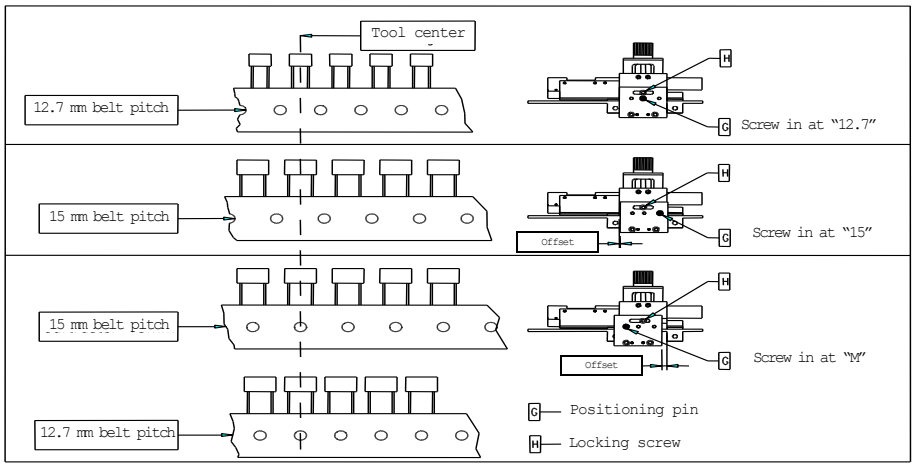
Changing the tool

1	Locking pins	**3**	Tension lever
2	Tool blocks		

Settings of the pneumatic belt device

The pneumatic belt device is able to feed belts with 12.7 mm and 15 mm hole grid, one or two-way.

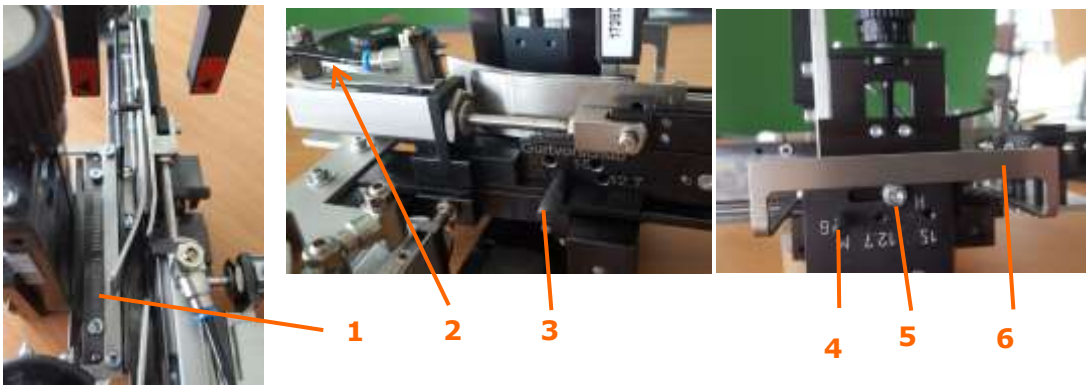




G --- Positioning pin

H --- Locking screw

- Screw in the locking angle for the correct belt grid.
- Loosen the locking screw and unscrew the index screw.
- Move the centre setting following the table specifications, insert the index screw as per table specifications and pull out the locking screw.
- Move the stop pin (pull out) as per the specifications in the table.
- Insert the belt device into the machine.
- Connect all terminal points and set the machine into JOG mode.
- Place the travel-in sensor facing the direction of movement until it engages.



Setting up the pneumatic belt device

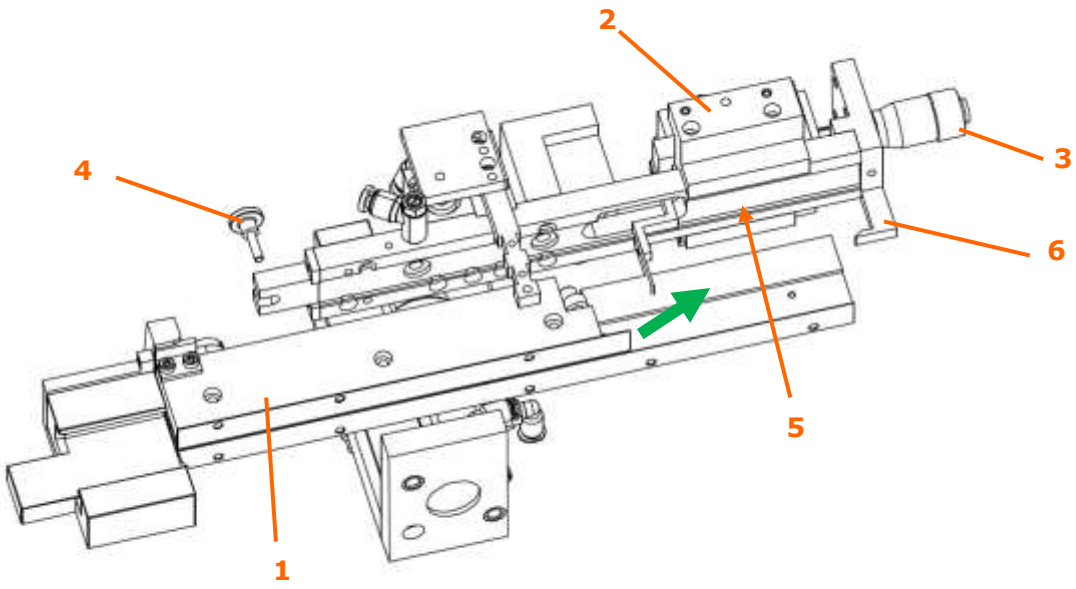
1	Locking angle	4	Index screw
2		5	
3	Sensor travel-in position	6	Locking screw
	End stop reverse stroke path		Unlocking bracket

Setting up the automatic feed

Inserting the magazine base and chute

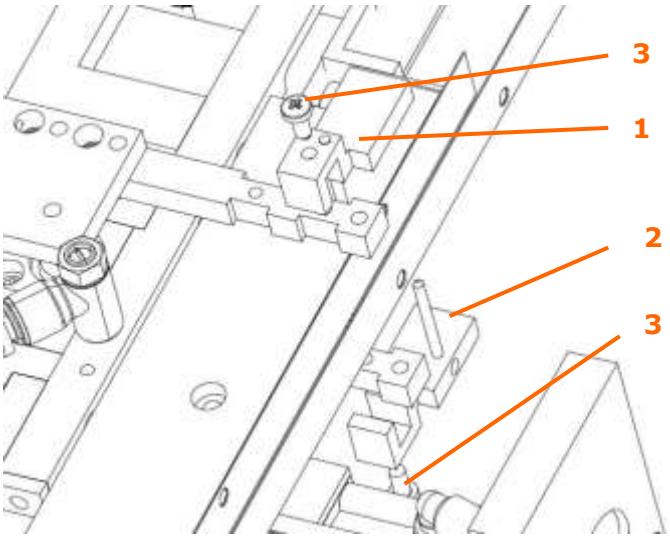
The automatic feed will accept magazine bases for stick-based processing as well as chutes for bulk components provided by a vibratory bowl feeder.

- Loosen the knurled screw on the stop block.
- Adjust the micrometre screw to [component width / 2] (50% of the component width). Retighten the knurled screw.
- Insert the magazine base or chute into the guide of automatic feed and push it into the retaining lug.
- Tighten the magazine base or chute using the knurled screw.



1	Magazine base	4	Knurled screw
2	Stop block	5	Knurled screw on stop block
3	Micrometre screw	6	Retaining lug

- Fit the upper pin insert into the separator arm and tighten the screws.
- Fit the lower pin insert into the separator arm and tighten the screws.



1	Upper pin insert	3	Fastening screws
2	Lower pin insert		

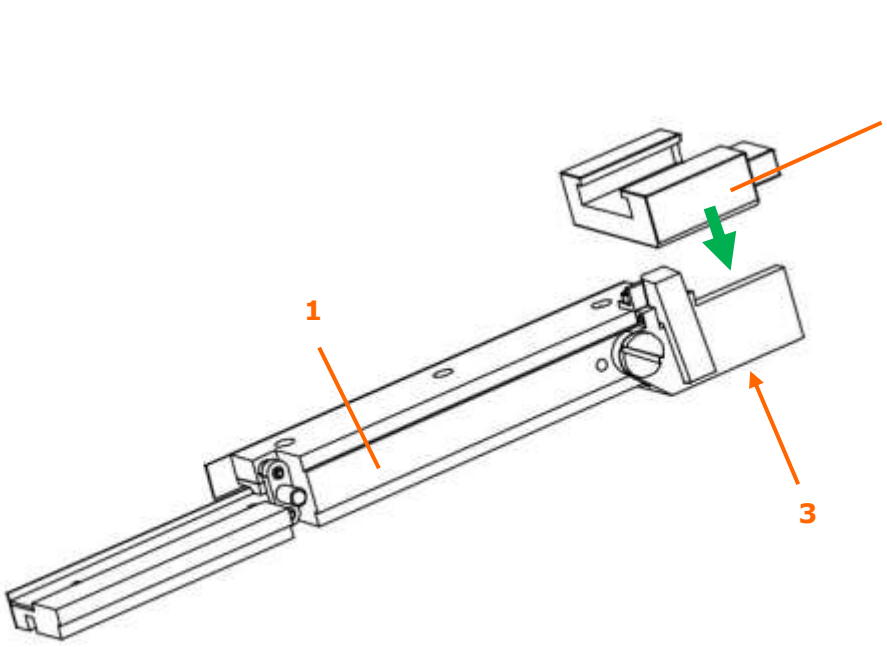
Changing the adapter

The magazine extension accepts components with identical body dimensions.

An adapter will only accept sticks (tubes) with identical outer dimensions.

If sticks with dimensions other than the ones supported by the adapter are to be used, replace the adapter as follows:

- Loosen the fastening screws.
- Replace the adapter.
- Make sure to insert the adapter with a side stop.
- Tighten the fastening screws.



1	Magazine base	3	Fastening screws
2	Adapter		

Accessory parts

- Use only accessory parts by the manufacturer, the company EBSO GmbH!
- For a detailed breakdown of the accessory parts, see chapter “Appendix”!
- For contact details, see chapter “Identification”!
- For information regarding the ordering of accessory parts, see chapter “Spare parts and ordering”!

Recommissioning

- Following the set-up process recommission the machine! For this, follow the chapter “Functional test before operation” and the chapter “Commissioning / operation”!
- Before initial recommissioning, re-attached any protective devices that were removed!

Maintenance and servicing



Observe the chapter on safety

Observe the basic safety instructions in chapter “Safety instructions”.

Additionally, observe all safety instructions provided in the manufacturer's documentations contained in the appendix.

- Observe the general accident prevention regulations and the VDE guidelines!
- Perform the required setting, maintenance and servicing works in due time!
- Replace defect machine parts as soon as possible!
- Inform the operating and supervising personnel before beginning any maintenance and servicing works!

Machine operating personnel may perform maintenance tasks provided they received relevant training and instructions.

For this, it must be stipulated in writing, which operations the machine operating personnel may perform and for which operations a specific skilled person must be informed.

- Only use faultless tools!
- Have suitable containers for any small removed parts ready!
- Only use original spare parts that have been permitted by the manufacturer!

IMPORTANT





Ensure that greases and other pollutants do not get into drains. Collect waste oil and other environmentally harmful substances.

Dispose them properly.

- Observe instructions provided on the machine components, for example type plates, rotation arrows etc.!
- Always tighten any screw connections loosened during maintenance and servicing works!
- Before initial recommissioning, re-attached any protective devices that were removed! Check their proper functioning!
- Perform a function test (test run) following the completion of maintenance and repair works!
- Check proper functioning of all safety devices!
- Remove hand tools, screws, aids or objects from the effective range of the machine!

Technical assistance

- For contact details for the manufacturer's customer service, see chapter "Identification"!

Packaging of machine parts

- Observe the instructions for the repackaging of machine parts if they need to be sent away for repair
- Use cardboard and other packaging material for packaging the machine parts so that they do not get damaged by external influences during transport
- Secure machine parts against accidental tilting and instability during transport

Wear and spare parts lists

CAUTION When changing machine safety related parts, only use original parts or equivalent parts, meaning parts offering the same safety standard.

Maintenance instructions

Cleaning

WARNING **Danger of injury due to non-observance of manufacturer specifications**



Non-observance of the manufacturer's cleaning instructions might compromise the functioning of the machine.

When cleaning, comply with all applicable environmental legislation.

DANGER **Explosion hazard due to flammable cleaning agents**





Using benzine when cleaning presents an explosion hazard. It is highly flammable, electrostatically chargeable and may form an explosive gas air mixture.

Use a halogen-free cold cleaner with a high flashpoint for cleaning.

- Only perform cleaning works using a cloth, brush or vacuum cleaner!
- When finished cleaning, remove all aids!
- Check the functioning of the cleaned area!



Only use cleaning agents specified by the owner/operator

Electrical equipment

➲ Before starting work on any electrical equipment, take the following safety measures in the sequence stated!

- Secure against restarting
- Confirm absence of voltage
- Earth and short-circuit
- Cover and safeguard adjacent live parts

➲ Only use suitable and voltage insulated tools for maintenance work!

Replacing components

➲ Use fuse links only as specified in the circuit documentation regarding size and amperage! Refer to documents in chapter “Appendix”!



Fuses

Lubrication

Machine component

➲ Only wet the machine components slightly when relubricating!



Do not use any lubricants containing silicone.

Identification plates

➲ Re-install all dismounted identification plates following the replacement of cables, wires or equipment.

Document maintenance work

➲ Document all required maintenance work at the machine!

Maintenance lists

➲ Only perform maintenance work, not listed or described in the maintenance documentation, after consultation with the manufacturer.

This includes among other the disassembly and assembly of drive and safety components.

The following maintenance lists include:

- Lists for the maintenance interval: daily (operating and skilled personnel)
- List for the maintenance interval: weekly (skilled personnel)
- List for the maintenance interval: quarterly (skilled personnel)
- List for the maintenance interval: six-monthly (skilled personnel)

IMPORTANT The following maintenance instructions should simply be regarded as the manufacturer's recommendations.

The owner/operator of the machine is encouraged to document maintenance related observations and to independently expand and further specify the maintenance list in these operating instructions

The maintenance instructions of any purchased parts must also be observed!

Competency – Operating personnel

Interval: daily

Required tasks	Measures	
Check the machine for externally visible defects and damage! Perform a visual inspection of the display! Perform a visual inspection and a functional test of the following components: EMERGENCY STOP button Protective covers	**DANGER** 	**Danger to life due to malfunctions** If malfunctions occur or are detected during the functional tests, the machined must not be commissioned. The machine may only be recommissioned once any malfunctions have been rectified.
Check the stability and fastening of tubing / wiring to still allow the required movements!	Fasten these into place again if required!	
Perform a visual inspection of the transport devices and the tool. Check tools for wear.	Remove wire craps and dust from parts. Only lightly grease the parts. Do not use any lubricants containing silicone.	
Clean and tidy your work space!	**DANGER** 	**Danger to life** Metal parts present a short-circuit hazard.

Competency – Skilled personnel

Interval: weekly

Required tasks	Measures
Grease tool slide	Use grease with very low viscosity

Interval: monthly

Required tasks	Measures
Remove old grease from the tool slides and the sliding surfaces.	Only grease the tool slide and the sliding surfaces with grease low in viscosity.

Interval: six-monthly

Required tasks	Measures
Lubricate the gears of the drive, the ball plungers and their rockers.	Grease all moving parts with viscous grease

Interval: annually

Required tasks	Measures
Perform a visual inspection and a functional test for the EMERGENCY STOP and the safety circuit!	Document these checks!
Perform a visual inspection at the main power supply connector!	Replace defective parts!
Check all circuit documentation for completeness!	If necessary, contact the manufacturer!
Clean the machine housing and the electrical components!	Never use compressed air!
Check all information and warning signs!	If necessary, replace these!
Perform at least every 4 years an expert inspection of the electrical machine!	

Malfunctions

➲ For malfunctions that you are unable to rectify internally, contact the manufacturer's customer service!

WARNING **Danger of hand injury due to non-observance of the danger area**



There are hazards due to human error.

Never remove jammed parts or foreign objects with your bare hands. Use appropriate aids.

- In case of malfunctions, inform skilled personnel immediately!
- Disconnect electrical and pneumatic connections of the machine before starting any repair work!
- If necessary, switch off the machine!
- Turn main switch to position "0".
- Secure main switch using a padlock.
- The following warning sign has to be attached to the machine.



IMPORTANT Information to malfunctions and their removal that are not covered in this chapter can be found in the respective additional documents. Refer to chapter "Appendix"!

Technical assistance

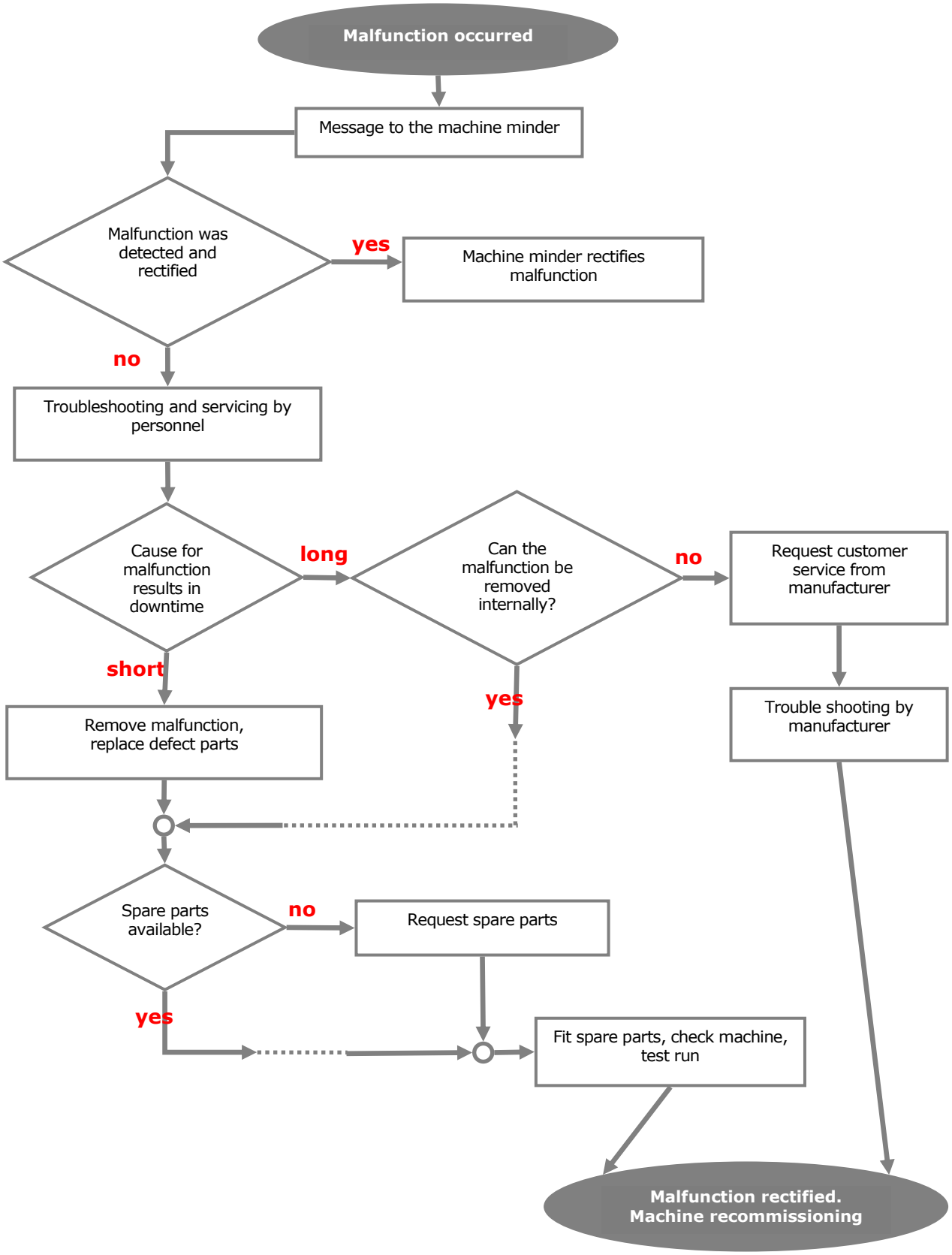
➲ For contact details for the customer service of EBSO GmbH, see chapter "Identification"!

Fault and operational messages

Display

Any error is shown as fault or operational message in plain text on the display. These messages have to be acknowledged. If necessary, the message text provides information about the relevant input.

Procedure for malfunctions



Troubleshooting

Cycle sequence malfunctions

- Automatic mode is interrupted
- The type of malfunction is described on the display
- The malfunction has to be removed and deleted using the ESC / reset button

➲ For malfunctions that you are unable to rectify internally, inform the appropriate skilled personnel!

Control system malfunctions

WARNING **Danger of injury due to unauthorised persons at the machine**



There are hazards if unauthorised persons access the control system of the machine.

Allow access only to skilled personnel specially trained for handling the control system. Observe instructions in the system manual.

Refer to chapter “Appendix”!

Electrical components malfunctions

DANGER **Danger to life due to dangerous voltage**



Residual electrical energy remains in lines, devices and equipment once the machine is switched off.

Only allow skilled personnel to work on the electrical equipment.

Measures

- Inform electrician
- Replace power supply
- Switch on the machine again.

Switching off using the EMERGENCY STOP button

If the EMERGENCY STOP button is pressed or the protective cover of the machine is opened during automatic mode, the machine performs an EMERGENCY STOP. All movements are stopped immediately.

Once the emergency stop button is unlocked and the protective cover closed, the complete control system is reactivated following acknowledgement.

Refer to chapter “EMERGENCY STOP button”!

Switching on following a voltage interruption

➲ Switch on the machine as usual! Refer to chapter “Switching on the machine”!

Spare parts and ordering

Spare parts

➲ Only use spare parts and other parts from the manufacturer, the company EBSO GmbH!

For further information, refer to the spare parts list in the appendix of this documentation!

IMPORTANT Generally, the “General Terms and Conditions of Sale and Delivery” of the company EBSO GmbH apply. These are available to the owner/operator at the latest since the conclusion of contract. Your signature confirms your order!

Ordering

➲ When ordering spare parts use the following address:

EBSO GmbH

Industriestraße 15 b

D-76767 Hagenbach

GERMANY

Telephone: +49 72 73 / 93 58 - 0

Fax: +49 72 73 / 93 58 - 28

E-mail: info@ebso.com

Website: www.ebso.com

The following information is required when ordering:

- Machine designation
- Machine number
- Drawing number
- Software version

Appendix

Safety symbols as per DIN 4844-2

Some of the following special safety symbols as per DIN 4844-2 are used when appropriate throughout these operating instructions and require, depending on the combination of signal word and symbol, special attention.

Mandatory sign


Wear protective clothing


Wear hearing protection


Wear head protection


Wear gloves


Wear foot protection


Wear eye protection


Wear respiratory protection


Disconnect before work


Observe operating instructions


Wear safety harness

Prohibition safety signs


Access forbidden to all unauthorised persons


No smoking and no naked lights


Do not obstruct


General prohibition


Do not extinguish with water


No admittance with pacemakers


Do Not Step On Surface


No Metal Implants


No switching


Do not step under raised loads

Warning signs


Caution hot surface


Warning danger of falling


Warning trip hazard


Warning danger of slipping



Warning explosive atmosphere


Warning explosive substances


Warning laser beam


Warning harmful or irritating substances


Warning non-ionising electromagnetic radiation


Warning entanglement hazard


Warning ultraviolet radiation


Warning dangerous voltage


Warning danger of crushing


Warning of hand injury


Warning automatic machinery may start up


Warning suspended load


Warning biohazard


Warning flammable substances


Warning magnetic field


Warning hazardous area


Warning industry robot

Danger signs


Dangerous to the environment


Irritant


Toxic

Fire safety signs



Fire emergency telephone



Fire extinguisher

Emergency sign



Escape route



Escape route



Eye wash unit



Stretcher



Collection point



Emergency shower



Emergency telephone



First aid

Other signs



Dispose of packaging material properly



Recycling



Collect waste oil



Inform emergency service

Fire fighting

DANGER **Danger to life due to dangerous voltage or explosion**



During fire fighting, there are hazards due to human error and the use of unsuitable extinguishing agents.

When fire fighting occurs, switch off machine at main switch.

Do not extinguish electrical fires or burning operating materials (oils, petrol, solvents) with a water extinguisher. Fire fighting with CO_2.



1. Keep calm!
2. Act prudently!
3. Report the fire!
4. Bring yourself, injured and helpless persons to safety! Ensure your own safety!
5. Warn persons in danger!
6. Close all doors!
7. Use escape routes!
8. In possible, attempt to extinguish the fire! Think of your own safety!

Substance	Water	ABC powder	ABC foam	Fire extinguishing sand	Metal fire powder	CO2
Wood, paper, plastic	X	X	X			
Liquids		X	X			X
Gas		X	X			
Metal				X	X	

List of contents

The documents supplementing these operating instructions are listed below.

The individual sections are separated using register sheets.

1 EC declaration of conformity

2 Exploded drawings