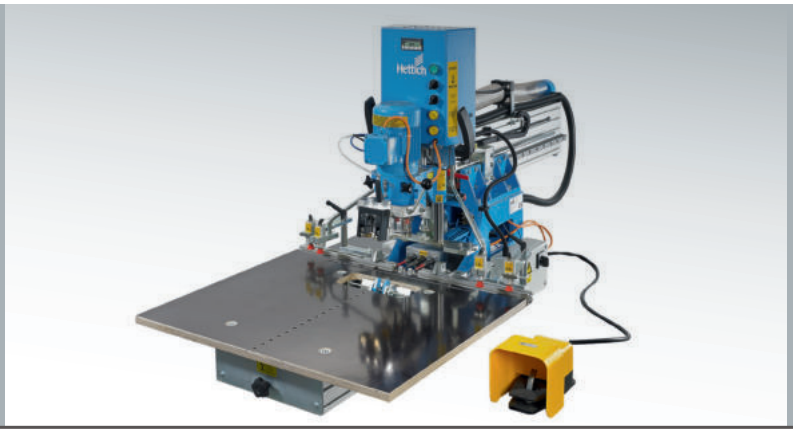

Operating manual
BlueMax Mini Modular Plus

en

Contents

Foreword

1. Foreword

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WARNING

Read these operating instructions carefully in order to obtain a thorough understanding of the machine and how to handle and maintain it. Operate the machine in the proper manner as described in these instructions so as to avoid injury and damage to the system. Do not operate the machine on the basis of suppositions. Keep these operating instructions to hand and consult them if you are in any doubt as to carrying out any particular procedure.

If any questions remain unanswered after reading through the instructions, you must not put the machine into operation.
Settle any unanswered questions first by consulting **Paul Hettich GmbH & Co. KG**.

These operating instructions are intended to make it easier for you to become familiarised with the machine and use its capabilities in the proper manner.
The operating instructions contain important information on operating the machine in a safe, proper and cost effective manner. Following them will help to avoid hazards, repair costs and down times, enhance reliability and prolong service life.

Existing national regulations on preventing accidents and on protecting the environment are also applicable.

The machine will only be assembled and installed by persons instructed to do so by Paul Hettich GmbH & Co. KG. This also applies in particular to starting it up for the first time.

The operating instructions must be available at the machine all the time. The operating instructions must be read and applied by any person entrusted with working with / on the machine, e.g.:

- Operation
- Including setting up, troubleshooting while working, disposal of production waste, care, disposing of consumables and auxiliary substances,
- Maintenance
- Servicing, inspection, repair
- Transportation

given the task.

1. Introduction

The main objective of this operating manual is to protect "man and machine" in accordance with the EC Machinery Directives. It is intended for all persons involved in working with and on this machine or system, in particular the operating personnel.

- As operating / servicing personnel, first read this operating manual and familiarise yourself with using the machine and operating it safely as well as with how to perform the necessary set-up, servicing and / or repair work in the proper way while meeting the safety requirements.
- Your personal safety and that of your surroundings as well as safe machine operation without risk to other property or the environment will only be ensured if you are familiar with and follow all of the information in this operating manual as well as in pertinent health and safety regulations.
- As customer and / or owner, make sure that this operating manual is given to your operating / servicing personnel before putting the machine / system into service for the first time, that it remains available directly at the machine at all times and that all persons concerned observe the information and warnings provided in this operating manual, the code of practice applicable to the site of installation as well as the regulations on occupational health and safety etc.

In other words, this operating manual does not release the owner from the duty to devise his or her own health and safety rules as well as safe work procedures tailored to his or her production requirements / needs, to any specific system / machine combination, to specific installation conditions, to specific modes of connection and/or tool and component properties etc., and to apply these, have them applied and monitor their observance.

2. Important notes

Revision service

This operating manual is not subject to any revision service. If changes / additions are made after the machine has been delivered, it is the responsibility of the owner to update this operating manual using his or her own addenda or any addenda provided by Paul Hettich GmbH & Co. KG.

The right is at all times reserved to amend and improve all technical specifications, details and illustrations in the interest of technical progress.

Updating

The laws, provisions, regulations, directives, codes of practice etc. specified in this operating manual as well as statements derived from them were up to date at the time this manual was compiled.

They must be heeded in their latest, applicable wording, updated at the responsibility of the owner and always applied in their more restrictive (stringent) wording.

We also point out that the content of this operating manual is not part of any earlier agreement, assurance or legal relationship or intended to amend such. All obligations on the part of Paul Hettich GmbH & Co. KG arise from the pertinent supply contract that also contains the complete and solely applicable warranty arrangements or draws attention to these. Statements made in this operating manual neither extend nor restrict these warranty provisions.

3. Validity of this operating manual

- This operating manual only applies to this machine.
- Please always quote the machine no. in all queries and orders for replacement parts.

Statements made in this operating manual in relation to items of equipment not included with the machine are for information only. They do not give rise to any legal claim to the machine being equipped with these items.

Application

This operating manual has been produced in compliance with EC directives, European (harmonised) standards etc. References to occupational health and safety, environmental protection and safety provisions may not yet conform to harmonised accident prevention regulations (UVV) / statutory accident insurance regulations (GUV) applicable in Germany or to the DIN standards or technical regulations stated in the appendix to the German Equipment Safety Act (Gerätesicherheitsgesetz (GSG)).

The customer / owner is personally responsible for:

- regarding specified laws, regulations, directives etc., as the basis for safe handling and maintenance practice,
- implementing and observing them in line with national / regional / company-internal regulations,
- providing supplementary safety or protective equipment prescribed by the responsible local, regional or national authorities and for fitting them before using the machine / system for the first time.

Operating instructions:
Paul Hettich GmbH & Co. KG

Copyright to the operating instructions

4. Owner's personal responsibility

The customer or owner is personally responsible for ensuring that:

- provisions on occupational health and safety, environmental protection and disposal are observed in relation to the machine, handling it as well as in the course of inspections, servicing and repair measures,
- no improper changes or modifications are made to the machine and safety guards,
- the machine is not used in any inappropriate, improper or non-intended manner.

5. Service

Customer Service

Paul Hettich GmbH & Co. KG
Vahrenkampstrasse 12 - 16
D-32278 Kirchlengern

EC declaration and protocols

2. EC declaration and protocols

1. EC Declaration of Conformity

EC Declaration of Conformity is enclosed loose.

en

2. Important note

Information for the owner

In addition to these operating instructions and the accident prevention regulations in force in the country of use or at the place of application, it is also necessary to follow the recognised code of safe and proper working practice.

Without the consent of Paul Hettich GmbH & Co. KG, the machine owner must not make any additions, alterations or modifications to the machine that may affect safety.

Replacement parts used must meet the technical requirements defined by Paul Hettich GmbH & Co. KG. This is always ensured when using genuine replacement parts from the applicable replacement parts list.

Only ever deploy trained or instructed personnel and clearly define personnel responsibilities with regard to operating, servicing and repair.

Use for other purposes and modifications

We expressly point out that the EC declaration shall become null and void if modifications / changes etc. are made to the machines listed above.
The company making the modification must amend the EC declaration and extend or make out new documentation to reflect the latest modification
(Art. 8 (6) of the EC Machinery Directive).

3. Verification of instruction

By signing this protocol the undersigned confirm that the following details and specifications are correct.

Confirmation

I hereby confirm that I have read and understood the operating manual for the machine:

Designation **BlueMax Mini Modular Plus**

Type **Automatic drilling and insertion machine**

Machine no.

have read and understood.

I furthermore undertake to observe and follow the general safety precautions, the servicing and care instructions as well as power-up and operating instructions and the provisions relating to malfunctions. I am aware that any failure to observe these instructions and provisions may lead to accidents, put persons at risk and result in damage to property and the machine.

Name		Date from / to	Type of instruction received			Signature of the person instructed
Instructor	Person instructed		Operation	Safety rules	Servicing	

3. General safety rules

1. Information on signs, symbols and markings

The safety advice in the operating instructions is structured as follows:

DANGER

This danger advice draws attention to an **immediately** dangerous situation that **will** lead to **death** or **serious injuries** if the safety measures are not followed.

WARNING

This danger note draws attention to a **potentially** dangerous situation that **may** lead to **death** or **serious injuries** if the safety measures are not followed.

CAUTION

This danger note draws attention to a **potentially** dangerous situation that **may** lead to **minor** or **slight injuries** if the safety measures are not followed.

NOTE

This advice draws attention to **potential damage to property** or to **a process of particular interest / importance** that may occur if the safety measures are not followed.

In the operating instructions, hazard points are identified as follows:

DANGER

Danger from electric shock!

Working on live components in the improper manner presents a danger to life!

Work on electrical equipment must only be carried out by authorised electricians!

WARNING

Hearing damage warning!

Some areas of the facility can reach noise levels of over 80 dB (A).

Wear ear protectors when working in noisy areas!

WARNING

Danger from wood dust!

Wood dust can affect the respiratory tract. For this reason, wear a dust protection mask.

⚠ WARNING

Fire risk!

Grinding and welding work must never be performed on this machine.

Follow welding regulations and accident prevention regulations.

⚠ WARNING

Explosion protection

Machine is not explosion-protected. Do not install near paint shops.

⚠ WARNING

Warning – Hand injuries!

Hands could be crushed, drawn in or otherwise injured.

Never reach into the system's moving parts!

Wear hand protection!

⚠ WARNING

Warning – Hot surfaces / objects!

There is a risk of injury from touching hot surfaces (e.g. electric motors).

Do not touch!

2. General

The machine described in the operating instructions is built to the state of the art and safe to operate.
It complies with DIN EN 12100.

Hazard zones are made safe in compliance with the regulations. However, the machine may present hazards if it is used by untrained personnel improperly or not for the intended purpose.

This may then result in risks to life and limb, jeopardise the machine and prevent it from working efficiently.

Any person given the task of installing, starting, operating, servicing or repairing the machine at the user's premises must have read and understood these instructions, in particular the section on "Safety precautions".

In his or her own interest, the safety officer at the user company should obtain written conformation from operating personnel that they have received instruction and training and are familiar with all safety precautions before they use the machine for the first time.

The safety guards must never be removed or taken out of operation.

If safety guards need removing for maintenance and repair work, they must be refitted as soon as such work has been completed.

The machine must only be used if it is in proper working order and operated by trained, authorised personnel.

Work requiring specialised knowledge (e.g. electrical, pneumatic system) must only be carried out by persons specifically trained and suitable to do so.

Before attempting any work on the machine, turn the main switch to the "0" position (OFF), make the machine safe and disconnect from the compressed air supply.

Switch off energy sources before carrying out repair, servicing, installation or cleaning work.

Energy sources:

- Electrical energy
- Pneumatic energy

CAUTION

Danger from residual energy!

Stored energy will not be dissipated even after switching the system off at the main switch.

Dissipate residual or stored energy!

Switch off / dissipate energy sources:

For safety regulations applicable to third party devices, refer to the documentation from the third party manufacturers (operating instructions for bought in units).

Electrical energy via the motor switch / machine's main switch. Additionally attach a notice when servicing or other work is being carried out on the machine.

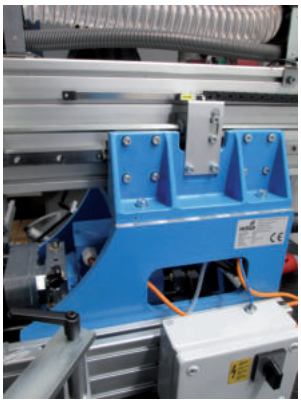


Fig. 3: Main switch (viewed by the operator, on the right hand side of the machine frame)

Fig. 4: Motor protection circuit breaker

CAUTION

Warning – Hand injuries!

The main switch only shuts down the drive system, not the pneumatic system!

The machine has no emergency stop button or emergency stop facility. This means it is necessary to take particular care when handling and working on this machine.

Pneumatic energy through the supply connection on the machine frame. Make sure that all machine components are depressurised and any stored energy is dissipated. As part of the installation process, the owner will provide a mechanical main cock at which the machine can be disconnected from the compressed air supply.

Fig. 5: Pneumatic system servicing unit (viewed by the operator, on the left hand rear side of the machine frame)

3. Safety advice for the user company

All persons entrusted with operating the machine (including line managers) must familiarise themselves with the section on "Safety advice".
The safety advice must be followed.

The machine must only be operated if it is in proper working order. The user company will issue clear responsibilities, e.g. for servicing, cleaning or repair, and ensure that the persons carrying out this type of work have received the training necessary for it.

The safety regulations applicable in the owner's country must also be observed. Refrain from any work that adversely affects operating safety.

The operating personnel will check the machine for changes or malfunctions, report such to the safety officer responsible and, if necessary, take the machine out of operation.

Only appropriate tools must be used for the work that needs to be done; remove tools after completing work. The place at which staff work must be selected in such a way as to ensure that work operations can be viewed at all times, the machine can always be stopped immediately and safety is never at risk.

WARNING

Never:

- reach into the machine when it is operating,
- remove covers and take safety guards out of operation,
- hinder unobstructed access to the controls,
- continue operating the machine if changes occur that adversely affect safety and
- manipulate or circumvent safety guards.

4. Noise

The weighted equivalent continuous sound level is **> 80 dB (A).**

WARNING

Hearing damage warning!

Local conditions may produce elevated sound pressure and cause noise induced hearing loss!

Operating personnel must be provided with appropriate protective equipment or be protected by other measures!

Wear ear protectors when working with the machine!

5. Oils, greases and other chemical substances

When handling oils, greases and other chemical substances, you must observe and follow the applicable regulations and safety data sheets of the manufacturers of these substances with regard to storing, handling, using and disposing of them.

When working with caustic substances, you must wear protective equipment of suitable material (safety goggles, rubber gloves, rubber boots, protective clothing).

In the event of contact with the eyes or skin, immediately rinse the area affected with copious quantities of water. Appropriate facilities (eye wash bottle, wash basin, shower) must be provided near the work area.

6. Residual risk

CAUTION

Residual hazards!

Handling the machine involves residual hazards that could not be eliminated by design measures.

Pay attention to the residual risks in the Technical Documentation!

The machine reflects the state of the art and is built in accordance with recognised safety regulations. All the same, the user or third parties may still be exposed to hazards.

The machine must be used

- for the intended purpose
- in an absolutely safe state.

WARNING

Risk of injury!

Never remove safety devices or render them ineffective by making changes to the machine!

Malfunctions presenting a safety risk must be rectified without delay!

Before attempting servicing and cleaning work, switch off the entire machine and disconnect from the compressed air supply!

7. Safety advice for operating personnel

- Work on the machine must only be carried out by instructed, skilled personnel.
- Only skilled personnel who have received training or instruction must be deployed.
- The generally recognised code of occupational health and safety as well as accident prevention regulations must be observed.
- Please keep first aid equipment (first aid kit etc.) in easy reach.
- The owner must stipulate that operating personnel are to wear personal protective equipment (safety shoes and sturdy work clothing).

Work which may be done by the operating personnel

Work which may be done by the operating personnel:

- Activate, deactivate the machine
- Change drill bits
- Set the machine to component dimension
- Feed in individual parts (flat panels made of engineered wood, hinges and connecting fittings)
- Start the drilling and inserting process
- Remove finished components
- Clean the machine

Requirements on operators

The operator must organise the work environment so as to permit optimum, continuous production.

The operator must be receive instruction before commencing work for the first time and every year thereafter.

Prior to commencing work, all persons working on or at the system shall undertake to

- follow the basic regulations on health and safety at work and on accident prevention
- wear personal / workplace related protective clothing and equipment for the purpose of ensuring work safety and use such while working if they are necessary for safety reasons

Work must only be performed for which authorisation has been given.
For example:

- work on pneumatic equipment must only be carried out by a specialist specifically trained to do so or by instructed persons under the direction and supervision of such a specialist in accordance with the applicable technical regulations.

8. Safety advice for operating the machine

- The machine must only be put into operation in a fully installed and operational state.
- The machine must only be operated if all protective guards and safety related equipment, e.g. protective claddings or enclosures, are in working order and undamaged.
- On putting the system into operation, the operator must make sure that all safety equipment and protective guards as well as the controls are in correct working order and free of damage.
- The workplace environment must be kept clean and tidy at all times. This must be ensured by internal checks.
- Immediately report any irregularities or malfunctions to the department / person responsible. If necessary, the machine must be shut down immediately and made safe.

9. Safety advice for carrying out maintenance work

- Maintenance work must only be performed by the manufacturer's skilled personnel or under the manufacturer's supervision.
- If the machine is completely shut down for servicing and repair work, it must be prevented from switching back on unexpectedly.
- If necessary, please cordon off the maintenance zone, providing a wide safety margin!
  - Attach a warning sign
- For maintenance measures, use tools that are appropriate for the work involved.
- Servicing and repair work must only be carried out by the owner's qualified personnel.
- If safety devices need removing for servicing and repair work, they must be refitted and checked as soon as the work has been completed.
- Always tighten screw connections that have been loosened during servicing and repair work.
- At the start of work, connections and screw connectors must be cleaned of oil, operating consumables and dirt.
- Make sure operating consumables and auxiliary substances as well as replaced parts are disposed of safely and in an environment friendly manner.

10. Training / instruction

- As owner, you are obliged to inform and instruct the operating personnel in respect of applicable legal and accident prevention regulations as well as the safety guards fitted. In this context, bear in mind the varying specialised qualifications of your staff.
- The operating personnel must understand the instruction they are given, follow it as well as sign the documentation.
- This is the only way you can be sure that operating personnel work in awareness of safety and of the hazards that are involved. As owner, you should therefore obtain written confirmation from all members of staff that they have received training/instruction.
- Applying these safety measures will minimise potential hazards to such an extent that the machine can be operated safely.

NOTE

All of the **safety guards in place must be checked at least once before the start of each shift to make sure that they are in place and undamaged** (visual inspection).

11. Personal protective equipment

The owner must provide the following personal protective equipment:

- Safety shoes
- Ear protection
- Safety goggles
- Dust protection mask
- Safety gloves (as necessary)

4. Purpose / operating principle

1. General information

This operating manual must be kept at the machine all the time and be constantly available there. To ensure safe operation and proper machine handling, it is important for you to have read and understood the operating manual and, in particular, the safety rules. The safety provisions and operating instructions described in this operating manual must be followed exactly.

Regularly check this machine's safety guards and work sequences.

Danger!

Any person given the task of installing, servicing, starting, operating or repairing the machine must have read and, in particular, understood these instructions.

2. Intended use

WARNING

The machine must only be used for its intended purpose and be in a perfectly safe condition!

Operating safety is only guaranteed if the machine is used for its intended purpose!

The BlueMax Mini Modular Plus is a semi automatic drilling and insertion machine for panel type workpieces and the furniture fittings intended for them. This machine must only be used for working on flat panels made of wood-based materials, such as chipboard, blockboard panels, MDF, solid wood or similar materials.

Any other use beyond this is deemed to be improper and non intended use.

Intended use also includes following the operating, servicing and maintenance conditions prescribed by the manufacturer.

Unauthorised changes to the machine will result in the loss of product liability and liability on the part of the manufacturer for resultant damage.

Any other use beyond this is deemed to be non intended use. The manufacturer shall not be liable for any damage this causes, with the risk involved being borne solely by the user.

3. Foreseeable incorrect use

WARNING

Hazards may occur if the system is used incorrectly!

The following situations in particular are deemed to be foreseeable hazardous situations:

- If the machine is used for any non-intended purpose, treated improperly or operated by untrained or unauthorised persons, it may present a risk of injury to personnel and a risk of damage to the machine itself. For this reason, only trained, instructed and authorised persons must be allowed to operate this machine.
- Improperly assembling, starting, operating and servicing this machine
- Operating the machine with faulty safety guards
- Operating the machine with improperly fitted safety guards
- Operating the machine with non-functioning safety guards and protective equipment

- Failing to observe the information and instructions given in the operating manual in relation to transporting, storing, assembling, starting, operating, servicing and setting up this machine
- Unauthorised structural changes
- Unauthorised changes to this machine's drive system (power output, speed)
- Inadequate monitoring of machine parts subject to particular wear
- Improperly performed repairs
- Disasters caused by the impact of foreign objects or Acts of God

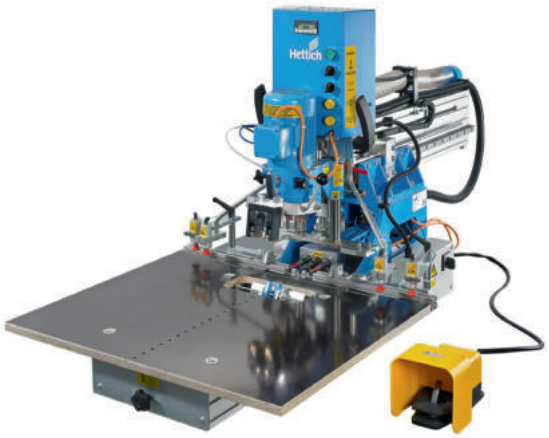
The situations above describe some of the residual hazards which, despite being impermissible, may occur and harm the health of staff.

The owner must observe the safety requirements defined in the German Ordinance on Industrial Safety and Health (Betriebssicherheitsverordnung).

4. Operating principle and description of the machine

The BlueMax Mini Modular Plus is a semi automatic drilling and insertion machine for panel type workpieces. This machine must only be used for working on flat panels made of wood-based materials, such as chipboard, blockboard panels, MDF, solid wood or similar materials.

All parts being worked on are fed into the machine by hand. Flat panels made of wood-based materials, such as chipboard, blockboard panels, MDF and solid wood are laid on the work table and fixed into place with the clamping equipment. The drilling process is initiated by pressing the start button / foot switch (optional). The start button / foot switch (optional) must remain pressed until the drilling process has been completed. Using the integrated insertion facility (optional), the furniture fittings are pressed into place by means of a manually operated press-in frame (optional). This concludes the machining process.



BlueMax Mini Modular Plus with accessories

5. Rating plate

Note!

The rating plate is located on the machine.

The rating plate shows the following information:

CE

- Manufacturer
- Address
- Type designation, machine numbers
- Year of manufacture
- Technical specifications (e.g. nominal pressure)

All country specific information, such as the depiction of the CE or UKCA mark, can be found on the type plate attached to the machine.

State all of the above details when requesting technical information and ordering replacement parts.

6. Limit values

The following limit values apply to items of equipment and accessories, such as drive motors, electric / electronic operating equipment etc.:

- ambient temperature: 35 °C max.
- rel. air humidity: approx. 65 %

Space required by the machine

The space required for the BlueMax Mini Modular Plus is largely determined by the dimensions of the machine base frame.

Machine life

The machine's life will depend on whether or not it is used for its intended purpose, on adherence to regular servicing intervals and on the regular replacement of expendable parts.

7. Liability

Defects must only be rectified by competent personnel.

Our liability is restricted to damage caused while using the system in the intended manner. We shall not be liable for safety defects not yet identifiable on the basis of the current state of the art.

Failure to observe:

- safety advice for operating personnel
- advice on particular hazards
- the ban on unauthorised modifications and changes
- use replacement and expendable parts or auxiliary materials approved by the manufacturer will rule out any liability on our part for the consequences

5. Technical information

1. Safety advice

Observe the regulations, warnings and provisions on health, safety and environmental protection for all of the work described in this section.

2. Attachment points

Only use suitable and approved lifting gear (crane) for unloading the machine, assemblies and components as well as for lifting heavy loads; only use appropriate means of transport for handling the machine internally.

Any unloading or internal transportation must not be done by hand if such involves weights in excess of 25 kg.

When using industrial trucks to unload the machine and move it internally, always take into account the machine's total permissible weight (see Technical specifications).

Danger!

Never stand or work under loads suspended on lifting gear. This presents the risk of fatal injury!

Observe the following when using lifting gear:

- Only attach lifting gear at the points marked (lifting eyebolts etc.) on the machine / assemblies / components.
- Only use appropriate and tested load suspension devices (lifting belts, ropes, chains, shackles etc.) with a sufficient load carrying capacity.
- Only give experienced, skilled personnel the task of attaching the machine / assemblies / components.
- Always ensure level standing for machine / assemblies, lift vertically, never drag at an angle.

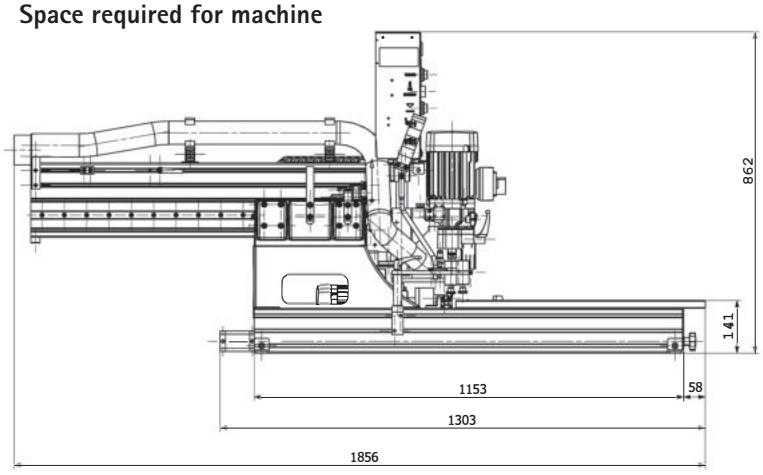
  Protect projecting machine parts and equipment from damage when using lifting gear and moving the machine internally.

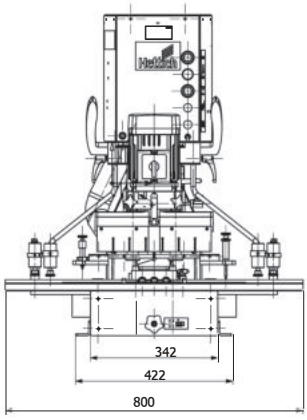
  Set down loads gently with the usual care and take immediate action to prevent them from falling over / tipping, rolling away, suffering damage from external force, e.g. colliding with industrial trucks and objects falling from above.

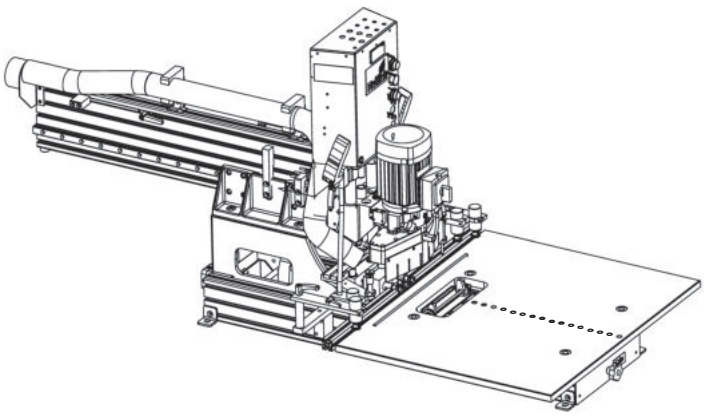
3. Technical specifications

H x W x D (mm)	862 x 800 x 1856
Weight	approx. 145 kg
Power output data	
Cycle time	manual
Electrics	
Operating voltage	400 V
Motor power	1.1 kW
HB unit power	0.55 kW
Rated current	2.65 A
Mains power fuse protection	6 A
Pneumatic system	
Air pressure	min. 6 bar, max. 7 bar
Noise	Max. noise level: > 80 dB (A)
Temperature	< 35°C
Working dimensions, vertical drilling unit	
Max. workpiece thickness:	38 mm
Max. drill bit diameter:	35 mm
Max. drilling size:	30 mm
Max. pull out distance of drilling unit:	600 mm
Working dimensions, horizontal drilling unit	
Max. workpiece thickness:	38 mm
Max. drill bit diameter:	8 mm
Max. drilling height:	5 – 20 mm
Max. drilling depth:	40 mm

Space required for machine

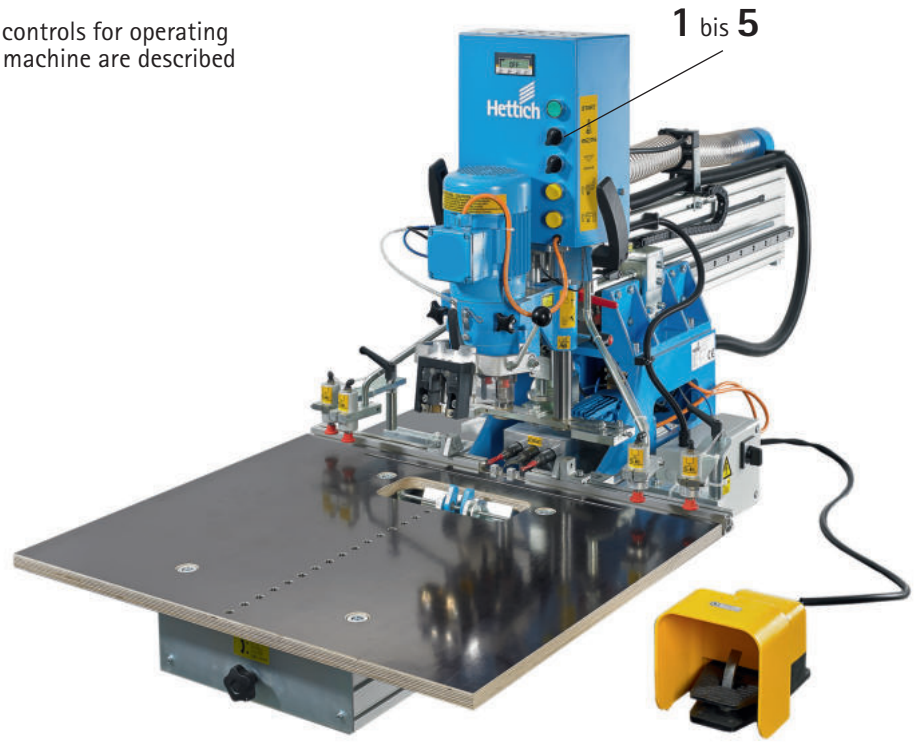






4. Equipment

Switches and other controls for operating and monitoring the machine are described below.



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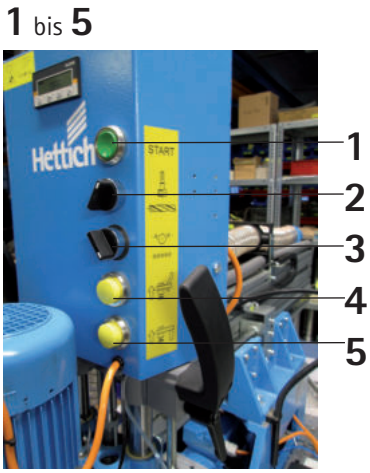


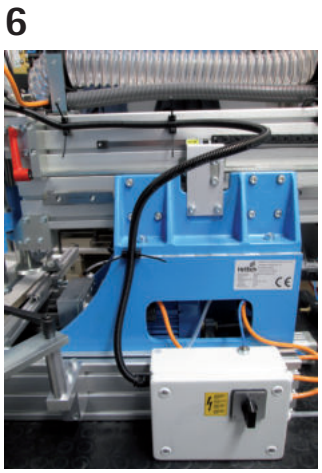


Fig. 2: Controls on the automatic drilling and insertion machines

Item	Designation	Explanation
1	Pushbutton	For activating work process
2	Change-over switch	Drilling vertically / horizontally
3	Change-over switch	For automatically unclamping the hold-down clamps
4	Pushbutton	For manually releasing the front hold-down clamps
5	Pushbutton	For manually releasing the rear hold-down clamps
6	Main switch	Machine power supply ON / OFF

1

Fig. 4: Foot switch (optional)

NOTE

The hand switch is not operational when using the foot switch.

Item	Designation	Explanation
1	Foot switch (optional)	For activating work process

2

Fig. 5: Compressed air connection

Item	Designation	Explanation
1	Pressure regulator	For setting operating pressure (6-7 bar)
2	Plug in coupler	Compressed air connection

Programming digital display

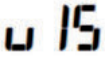
- To enter the parameter programming, press the ▲ button for a few seconds and the display will show **PASS**.
- Now press **RESET/ ENTER**, three zeroes will appear and the first digit on the right will flash.
- Using the ▲ and ◄ buttons, now enter **273** as the password and confirm by pressing **RESET/ENTER**.

Entering the incorrect password will close the menu. Otherwise, the following menu options can be selected with the ▲ button:

To change the selected parameters:

- Press **RESET/ ENTER** twice (pressing once shows the value).
- Enter the chosen value with the ▲ and ◄ buttons.
- Press **RESET/ ENTER** to confirm your setting.
- To quit the programming mode, press the ◄ button.

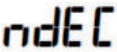
The following parameters can now be programmed.



→ **Value to be displayed after moving a 10 mm linear shift.**

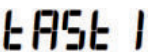
Factory setting: **10.0** (given in millimetres with one decimal place)

- First enter the chosen value and close by pressing ◄.
- The decimal place can be moved to the chosen position with the ▲ button.
- Then confirm by pressing **RESET/ ENTER**.



→ **Number of decimal places**

- Using the ▲ button, select a number between 1 and 5 to denote the number of places after the decimal point.
- Then confirm by pressing **RESET/ ENTER**.



→ **Defining button assignment**

In the form of a 3-digit number, this parameter defines a wide range of function that can be assigned to the buttons. This is done by selecting the relevant values at the correct digit position. (see table)

- Example: in parameter tASt I, enter the value 1 at the 3rd digit of the code to assign the RESET function to the RESET/ENTER button.

111 means:

Digit	1.	2.	3.
Button	◄	▲	RESET/ENTER
Value			
0	-	-	-
1	mm/inch	ABS/REL function	RESET
2	-	-	PRESET
3	-	-	FAST PRESET
4.	-	-	Zero offset 0; 1; 2
5	-	-	OFFSET
6	-	-	FAST OFFSET
7	-	-	Delayed RESET*
8	-	-	Delayed PRESET*

* Delayed means that the button must be pressed for 3 seconds to activate the function.

mm / inch:

→ **Lets you switch between inch mode and mm mode**

- The mode is changed by pressing ◄button. The inch modus has an additional decimal place. Means that parameter nDEC=4 is not available.

ABS / REL function

→ **Lets you switch between the absolute and relative position**

- Pressing ▲ displays the REL symbol and the current value is temporarily zeroed.
- It is now possible to measure a relative movement of the sensors in relation to the current reference point.
- Pressing ▲ again displays the ABS symbol and the absolute value reappears.

RESET

→ **After pressing RESET/ ENTER, the value displayed is set to zero**

- Position the sensor at a known measuring point with measured value, e.g. at the stop of the measurement path with measured value = 0.
- In parameter tASt I, enter the value 1 at the 3rd digit of the code (RESET) and press RESET/ENTER to confirm.
- From now on, the display will be reset to zero after pressing the RESET/ENTER button once.

PRESET

→ **After pressing RESET/ENTER, a predefined value will appear on the display.**

- Position the sensor at a known measuring point with measured value, e.g. at the stop of the measurement path with measured value = 0.
- In parameter tASt I, enter the value 2 at the 3rd digit of the code (PRESET) and press RESET/ENTER to confirm.
- To define the PRESET value, you must re-press RESET / ENTER twice and define the PRESET value. Then confirm by pressing RESET / ENTER
- To quit the programming mode, press the ◄ button.
- From now on, the display will be reset to the PRESET value after pressing the RESET/ENTER button once.

FAST PRESET

→ **This function is useful if you often need to correct the value displayed.**

- In parameter tASt I, enter the value 3 at the 3rd digit of the code. (FAST PRESET) and confirm by pressing RESET/ENTER.
- To define the PRESET value, you must re-press RESET / ENTER twice and define the PRESET value. Then confirm by pressing the RESET / ENTER button
- From now on, you can go directly to the programming menu by pressing RESET/ ENTER three times and quit it after confirming.

Zero offset

→ **Defines three different zero points (0; 1; 2) which may refer to a tool change**

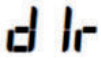
- In parameter tASt I, enter the value 4 at the 3rd digit of the code (zero offset) and press RESET/ENTER to confirm.
- After pressing the RESET/ENTER button twice, PrS0 will appear on the display.
- It is now possible to select the setpoint value for tool 0 (for example, of the radius set for cutter 0) and then press RESET/ ENTER to confirm.
- Now, PrS1 will appear which denotes the setpoint value for tool 1 (for example, the radius of router cutters 1): enter set-point value and press RESET/ENTER to confirm.
- Finally, PrS2 will appear which denotes the setpoint value for tool 2 (for example, the radius of cutting device 2): enter set-point value, press RESET/ENTER to confirm and quit the menu
- RESET/ENTER now lets you change directly from one zero point to the next.
- A special case – if PrS0 equal 0, only PrS1 and PrS2 are active.

OFFSET

The value of this parameter is added to the displayed value with a positive offset value or subtracted from the displayed value with a negative offset value in order, for example, to compensate for value in the event of a tool change or tool wear.

FAST OFFSET

Direct entry of an OFFSET value after pressing the RESET/ENTER button twice for frequently correcting the value displayed.



→ **This defines the counting direction.**

With 1, the value on the display decreases. With 0, the value on the display increases.

Calibration and checking

After installing the machine and programming all parameters, calibration takes place by means of a PRESET or RESET.

- Position the sensor at a known measuring point with measured value, e.g. at the stop of the measurement path with measured value = 0.

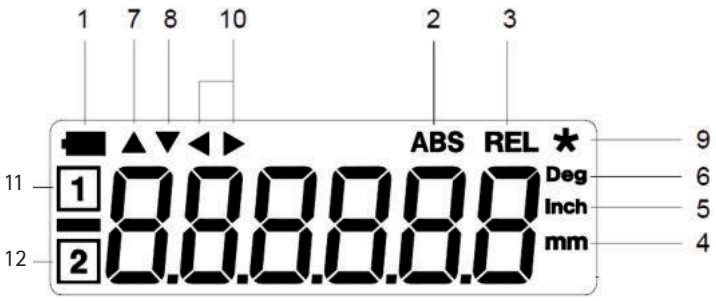
→ **If you wish to calibrate the machine to a predefined value, you need a PRESET.**
For this, follow the steps in the Programming section (PRESET or FAST PRESET). After confirming programming, you will always be taken to the predefined value after pressing the RESET/ENTER button once.

→ **If you wish to set the display to zero, you need a RESET.**
For this, follow the steps in the Programming section (RESET). After confirming programming, zero the value displayed by pressing the RESET/ENTER button once.

Note, tip
It is recommended to calibrate the machine at regular intervals, however at least once a year.

Changing the battery

The display is powered by a ½AA; 3.6V lithium battery.
The battery has a run time of approx. 4 years. When a battery symbol appears on the display, the battery should be replaced. If the battery is inserted the wrong way round, the display will not come on and the machine is therefore protected against reverse polarity. The sensor must not be moved while changing the battery as the value displayed will be incorrect and the display must be recalibrated.



1. Low battery indicator: flashes when the battery charge falls below a certain level - the display remains switched on for one month before the battery runs down completely.
2. Display of absolute measured value.
3. Display of relative measured value.
4. Display for mm.
5. Display for inches.
6. Display for angle.
7. Display of positive offset shows that the dimension is correct with a positive offset.
8. Display of negative offset shows that the dimension is correct with a negative offset.
9. Display for a value change flashes while programming.
10. Display for the zero points shows that a change of zero points is active.
11. Display for zero point 1.
12. Display for zero point 2.

Error message

oUEr

→ The value currently being displayed exceeds the maximum possible display value (possible range -99999 to 99999).

Setting

WARNING

Setup work may only be performed by qualified staff who, on the basis of their specialised training, experience and instruction, possess sufficient knowledge of

- safety rules,
- accident prevention regulations,
- guidelines and generally accepted codes of practice.

These qualified staff must be authorised to perform setting up work by the person responsible for the machine's safety.

5. Guards

Separating protective guards complying with EN 953 are installed on the machine to protect staff from mechanical hazards.

Warnings / pictograms are also provided on the machine.

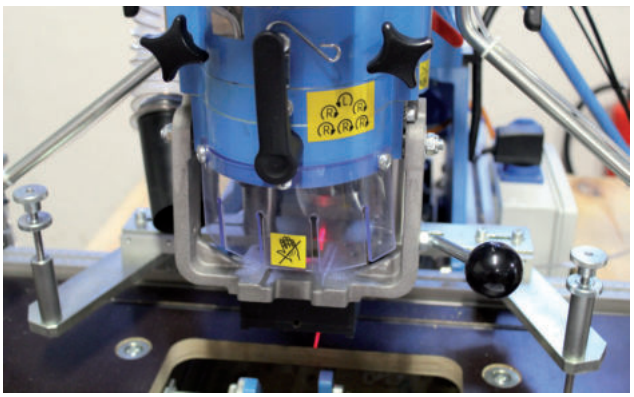


Fig. 6: Transparent cover

WARNING

The guards must not be modified, tampered with or taken out of operation.

The machine has no emergency stop button or emergency stop facility. This means it is necessary to take particular care when handling and working with this machine.

Labelling

Area: entire machine

Warning of the risk of hands being crushed

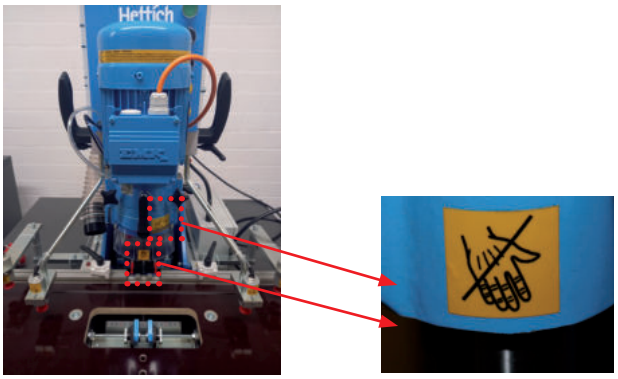


Fig. 7: Labelling – entire machine

Area: hold-down clamps

Warning of the risk of hands being crushed

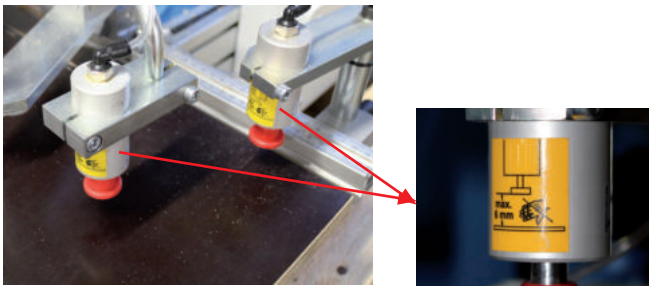


Fig. 8: Labelling – hold-down clamps

Area: protective cover on tools

Warning of the risk of hands being crushed

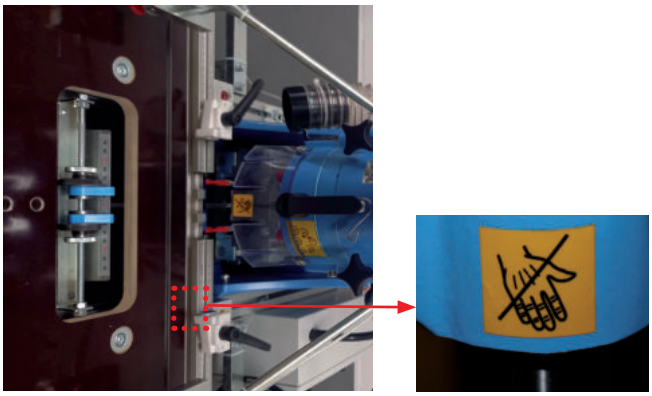


Fig. 9: Labelling – drilling and insertion unit

Area: motor / drive

Reminder to unplug the mains power plug before changing tools

Fig. 10: Labelling – Motor / drive

Area: entire machine

Reminder to unplug the mains power plug and disconnect compressed air before changing tools. Main switch does not disconnect the machine from the compressed air system.

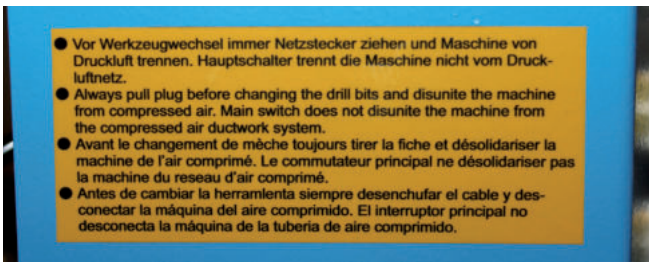


Fig. 11: Labelling – entire machine

Area: protective cover on tools

Labelling on laser beam

Fig. 12: Labelling – laser beam

Area: drill bits

Labelling on turning direction of drill bits

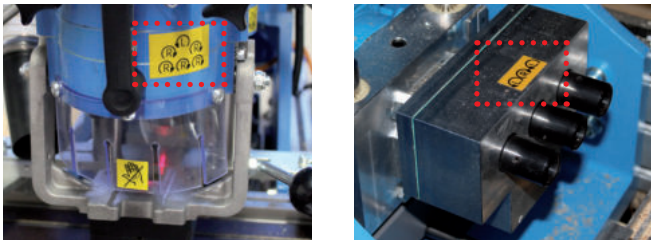


Fig. 13: Labelling – turning direction of drill bits

6. Noise emission

This machine operates at a noise level above 80 dB(a). We recommend wearing ear protectors at all times to prevent damage to hearing.

WARNING

Wear ear protection.

7. Aligning / fastening

General information

The machine should be installed on a level, load-bearing stand with firmly standing feet.

Any machine must be installed in a way that prevents it from moving about and tipping over.

NOTE

Securely installed machines prevent accidents.

8. Connections required

Main power connection

Connection to the electrical power supply is made by connecting a 16 A plug **2** to a prepared socket **1** with appropriate fuse protection.

Care must be taken not to damage electrical supply leads.

These must be changed whenever necessary.

NOTE

Before plugging in, instruct a qualified electrician to check the socket.

Compressed air connection

The entire machine is connected to a central in-house compressed air supply system.

The supply line is fitted with a plug-in coupler **2**.

The operating pressure must be set to 6 - 7 bar at the pressure regulator **1**.

This must be checked at the pressure gauge.

NOTE

Only feed in dry compressed air as the pneumatic system is largely operated on unoiled air.

9. Transportation

The machine must only be transported and installed by companies / persons instructed / authorised to do so by the manufacturer or under the manufacturer's supervision.

After moving the machine, every part of it must be checked for transportation damage as possible harm may impair system operation and safety.

NOTE

To prepare transportation, please bear in mind the weight of the machine!

The machine weighs approx. 145 kg.

Transportation on fork lift truck or pallet jack:

If fork lift trucks or hand pallet jacks are used for loading or unloading, they must be in proper working order and suitable for carrying the weights that are involved.
Attention must always be paid to the centre of gravity of the item being moved!
During transportation, the machines must be properly secured; the load must be evenly distributed. Avoid jerky movements.

Set the machine down without bumps or jolts as well as in an upright standing position. Immediately protect it from getting damaged by transportation vehicles and from tipping over. On unloading, transporting and keeping the machine in temporary storage, treat it with the greatest possible care and protect it from the weather, impact of external force and from falling objects.

WARNING

Warning of suspended loads!

To relocate the machine, it must be lifted and transported. The machine can topple over and fall as a result of improper lifting and transportation.

Never stand under suspended loads!

WARNING

Warning of suspended loads!

While transporting the machine, no persons must be present on the machine or hang from it.

10. Internal transportation

- To move the machine internally, only use trolleys of sufficient stability and load-bearing capacity.
- Always avoid bumps and shocks when moving the machine.
- Provide protruding objects (motors, mobile cable handlers, wiring harnesses, hoses, cylinders) with effective protection from damage.

11. Checking delivery for missing items

Refer to the order confirmation or the list in this operating manual as well as the delivery note to ascertain what should be included.
Check delivery immediately on arrival to make sure it is complete.
Report missing parts straight away to the forwarder delivering the machine (notice of loss) and also immediately inform Paul Hettich GmbH & Co. KG.

12. Dealing with shipping damage

Immediately after arrival and unloading, thoroughly check the machine for any shipping damage, i.e for externally visible damages (fractures, dents, kinks, cracks etc.).

Any suspected shipping damage must immediately be:

- reported in writing to the shipping company making the delivery (forwarder) and/or
- reported in writing to your own insurance company as well if the transportation risk was insured by the owner.

13. Measures for temporary storage

The machine is designed for immediate installation and start-up. The following measures must be taken if this does not take place within a reasonable period of about 3 months after receiving the machine:

- Coat bare metal parts with corrosion-inhibiting oil.
- Cover the control system, electrical devices/operating equipment, drive motors to protect them from moisture and dust.
- Taking particular care, cover / use adhesive tape to seal off cable inlets into terminal boxes and plugs.
- Protect wiring harnesses from vermin. Mice and rats are particularly partial to highly flexible cables.
- Store the machine in a dry, frost-free room.
- Also observe the storage instructions.

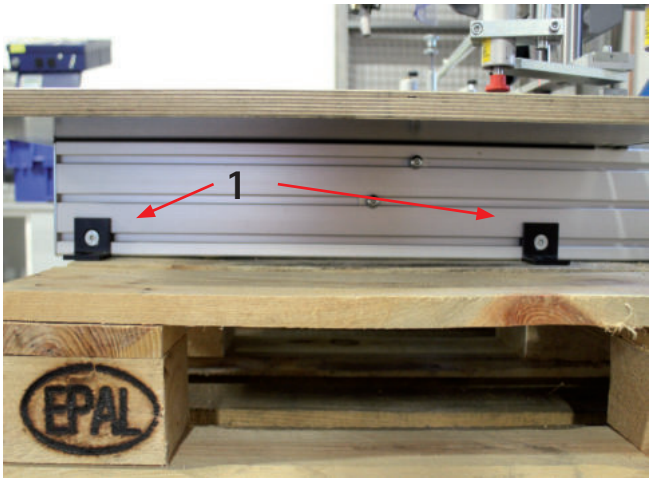
Apply appropriate measures to protect the stored machine from tipping over, falling objects, impact from external force (e.g. industrial vehicles bumping into it), knocks and vibrations.

14. Site of installation

An even standing surface with a sufficient load capacity is essential for setting up the machine in a proper and safe manner. Any unevenness in the standing surface must be evened out by metal shims to ensure that the machine is not standing in a distorted manner.

The BlueMax Mini Modular Plus comes in secure shipment packaging for safe transportation. A number of components must be installed to make the machine ready for operation. After installing the machine, it must be cleaned.

Using the 4 black brackets **1** supplied with the machine (in conjunction with sliding block on the foot profile), secure the machine on a bench / base frame to be provided at the site of installation so as to prevent the machine from falling.



CAUTION

Risk of crushing!

Allow a space of at least 500 mm between moving machine parts and pillars, parts of the building, cabinets etc.!

Do not stand any laden pallets in this safety zone!

15. Safety guards to be provided by the owner

Safety guards provided by the owner must be easily accessible and in full working order after installing the machine. They must not interfere with the machine's own safety guards in operation on site.

The site of installation must be selected in such a way that will also allow repairs to be performed at a later date without physical obstruction.

16. Permissible ambient conditions

- The machine must only be installed and operated in dry rooms.
- The machine is not explosion-protected. The machine must not be installed near painting facilities.
- Provide a supply of fresh air to the fan cowls on electric motors.
- Avoid any external mechanical strain on the machine.

17. Removing preservatives

The machine is only coated with preservatives for transportation.

- Clean dust and shipping dirt from the machine with a dry cloth.
- Never use cold-cleaning products, nitrocellulose thinner or other aggressive chemicals!
- Remove all transport braces. These should be kept for later re-use.

18. Electrics

The automatic drilling and insertion machine is fitted with a connection cable and a 16 amp plug. The power socket must be checked for proper working order by a qualified electrician.

You will find the applicable connection specifications on the rating plate on the machine.

Requirements on the electrical power supply

Connection must only be made to an electrical system complying with VDE 0100. The electrical safety of this equipment is only guaranteed if it is connected to a protective earth conductor system that complies with regulations. It is very important to check that this basic safety requirement is met and that the machine is provided with adequate fuse protection. The manufacturer cannot be held responsible for damage caused by a lacking or interrupted protective earth conductor. The rating plate provides information on rated input and the appropriate fuse protection.

19. Pneumatic connection

The automatic drilling and insertion machine has a fitted coupler plug, nominal width 7.2

- Max. input pressure 8 bar / 100 PSI

20. Suction extractor

It is compulsory to use a flexible, fire retardant hose for connection to an extractor system. A suction extraction line is not included.

• Outside diameter (suction connector)	80 mm
• Air flow rate	min. 20 m/s

NOTE

For further technical specifications, refer to the documentation provided by the manufacturers.

Unauthorised changes and modifications to the system are not permitted for safety reasons and rule out any liability on the part of the manufacturer for any resultant damage.

6. Start up

1. General

The instructions described here are to be understood as minimum recommendations. Depending on operating conditions, they may need to be broadened in order to maintain the machine's working quality.

Servicing and maintenance work in specific disciplines (pneumatics etc.) must only be carried out by skilled persons trained in that particular discipline.

Observe the following safety advice!

WARNING

You could get crushed by moving parts if the machine is not shut down.

The machine must be depressurised and disconnected from the power supply before carrying out maintenance and cleaning work!

NOTE

Improper repair will result in damage to the machine!

Improper dismantling and assembly may result in property damage or consequential damage to the machine.

Therefore, when carrying out any removal or dismantling activity, always:

- mark parts that belong together
- mark or make a note of the position and point of installation
- remove and store assemblies separately

After carrying out maintenance work, always:

- check all screw connections to make sure they are tight, close and screw down all covers.

As with starting up, listen for unusual noises and check to see if there is any heat buildup!

2. Safety check

The machine must only be put into operation by trained and qualified personnel.

Satisfy yourself that:

- installation, set up and servicing work have been completed in full and no persons are present in the danger zone, let alone working on it,
- all safety guards / covers are in place,
- the compressed air supply is ready for operation, and
- the controls are readily accessible.

3. Malfunctions on start up

On start up, immediately switch OFF the power supply to the machine if:

- unusual operating noises can be heard,
- the machine runs irregularly, oscillates or vibrates,
- auxiliary units malfunction,
- the motors consume too much power,
- there are electrical faults, and
- tools are overheating

DANGER

Danger from electric shock!

Working on live components in the improper manner presents a danger to life!

Work on electrical equipment must only be carried out by authorised electricians!

Establish the cause of any malfunction with the machine shut down and made safe and have it rectified by a qualified and skilled person trained to do so or eliminate the malfunction yourself if you are in possession of the necessary qualification.

Only switch the machine back on again once malfunctions / faults have been properly and completely rectified!

4. Starting up for the first time

Before starting up the machine for the first time, observe the following:

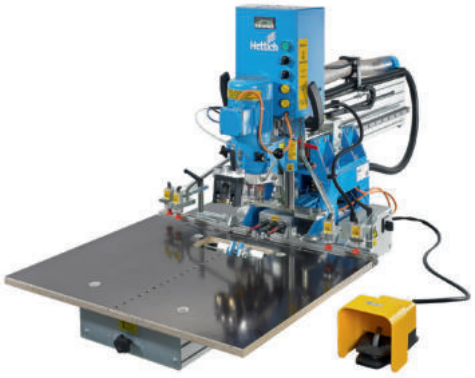
NOTE

The machine must only be put into operation for the first time by a person instructed / authorised to do so by the manufacturer / distributor or under the manufacturer's / distributor's supervision.

- Check to make sure the machine has been installed in accordance with the regulations specified.
- Make sure the machine stands firmly.
- Check to make sure that no foreign objects (tools, construction material etc.) have been left in the area of the machine from the assembly process.
- Check the hoses as well as the pneumatic system's hose connections.
- Check the safety guards for proper working order.
- Make sure that moving components can move without obstruction into the spaces they require and that the safety distances are observed.

5. Machine versions supplied

BlueMax Mini Modular Plus with accessories

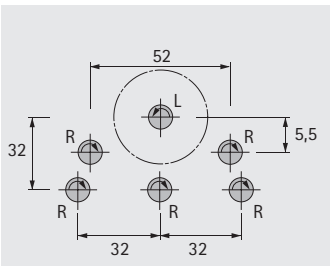


Compact automatic drilling and insertion machine with interchangeable drilling unit

- Pneumatic stroke movement
- Mechanical drilling stroke limiter
- Drum stops for 22, 37, 57 mm
- 600 mm depth adjustment with LCD display
- 1 interchangeable drilling unit, 6 spindles with quick-change chuck
- 6 drill holders for quick-change chuck
- 1 tool shelf
- 4 hold-down clamps (2 left / 2 right)
- 1 centre stop with scale
- 1 laser
- 2 pendulum stops
- Power supply: 400 V / 50 Hz / 3 phases
- Motors: vertical drilling unit 1.1 kW / horizontal drilling unit 0.55 kW
- Space required: 800 mm width x 1870 mm depth x 920 mm height
- Accessories press-in frame, foot switch, insertion dies and drill bits must be ordered separately

Article type	**Order no.**	PU
without horizontal drilling unit	**9 206 112**	1 ea.
with horizontal drilling unit, 3 spindles	**9 206 114**	1 ea.

Drilling pattern



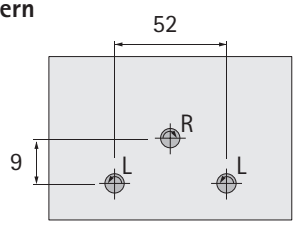
6. Interchangeable drilling units

Interchangeable drilling unit, 3 spindles, Selekta

- Interchangeable drilling unit with three drilling spindles for drilling cup holes for Selekta hinges
- Please order drill bits separately

Article type	Order no.	PU
Interchangeable drilling unit, 3 spindles, cup, TX 32/ TX 33	**9 131 503**	1 ea.

Drilling pattern 3 spindles

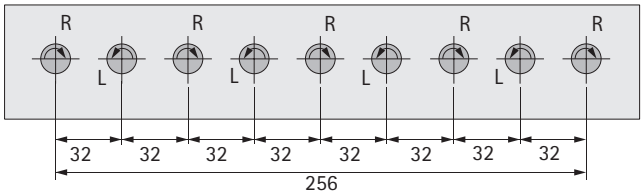


Interchangeable drilling unit, System 32 hole line

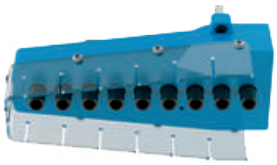
- Interchangeable drilling unit for System 32 hole line drillings

Article type	Order no.	PU
Interchangeable drilling unit, 9 spindles	**9 131 506**	1 ea.
Interchangeable drilling unit, 9 spindles with quick-change chuck and drill bit holder	**9 131 505**	1 ea.

Drilling pattern



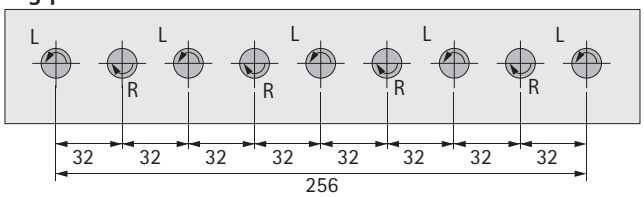
Interchangeable drilling unit, System 32 hole line 90°



- Interchangeable drilling unit, offset 90° for drilling holes for runners in System 32
- Please order drill bits separately

Article type	Order no.	PU
Interchangeable drilling unit, 9 spindles, 90°	**9 132 097**	1 ea.
Interchangeable drilling unit, 9 spindles, 90° with quick-change chuck and drill bit holder	**9 131 507**	1 ea.

Drilling pattern



7. Other accessories

- Accessories for customising the BlueMax Mini Modular Plus

Description	Order no.	PU
3 Press-in frame for drilling unit	**9 132 100**	1 ea.
4 Foot switch	**9 216 143**	1 ea.
6 Support block	**9 208 696**	1 ea.

- Blanks for quick release chuck

Description	Order no.	PU
1 Blanks for unused chucks for quick release chuck	**0 040 657**	1 ea.
2 Blanks for unused chucks	**0 076 497**	1 ea.

8. Assemblies

Press-in frame for the interchangeable drilling unit, 6 spindles
The press-in frame comes dismantled and must be assembled as illustrated. The press-in frame must only be used in conjunction with this 6 spindle interchangeable drilling unit.

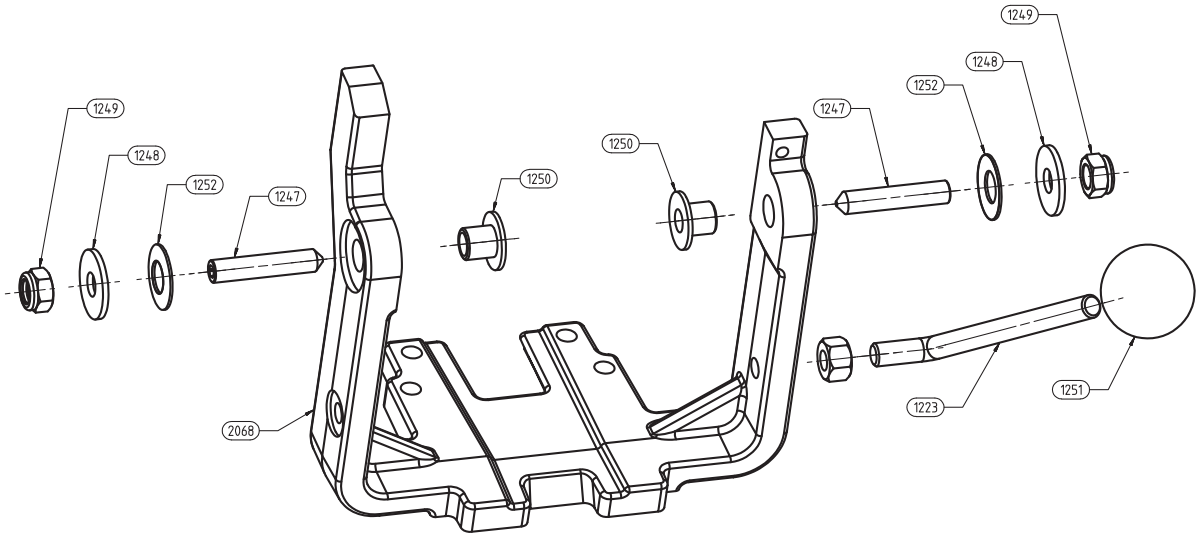


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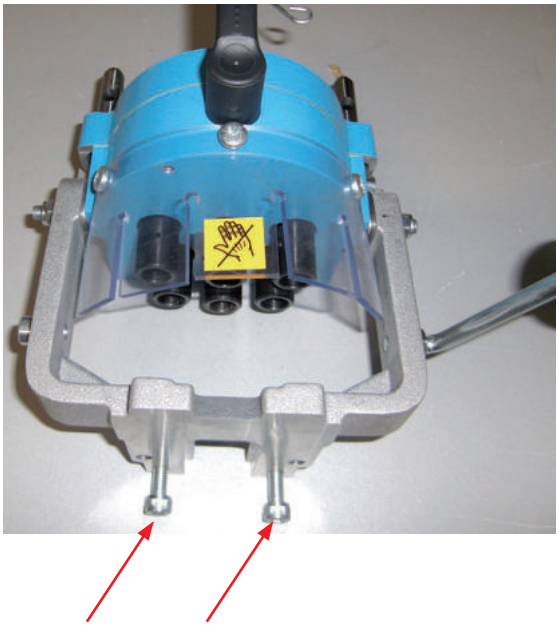
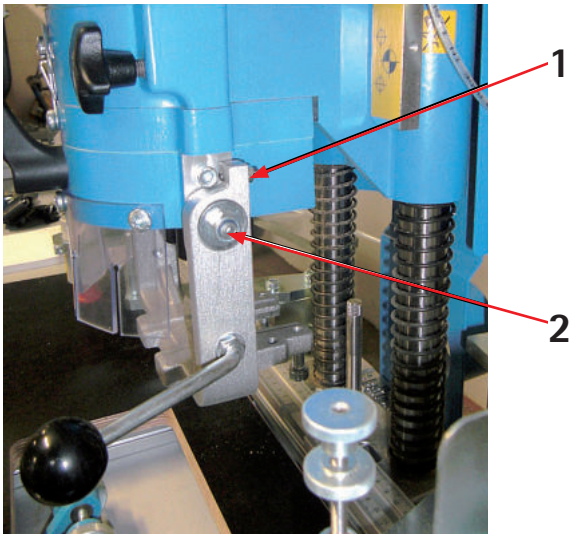
Fig. 14: Press-in frame

Press-in frame assembled and installed.



Screws for fastening dies for inserting hinges and connecting fittings.



Attached at the side with stop screw **1** for exactly positioning the press-in frame with fixing screws **2** on the 6-spindle interchangeable drilling unit

Always follow the assembly instructions!

Centre stop

The centre stop is premounted.

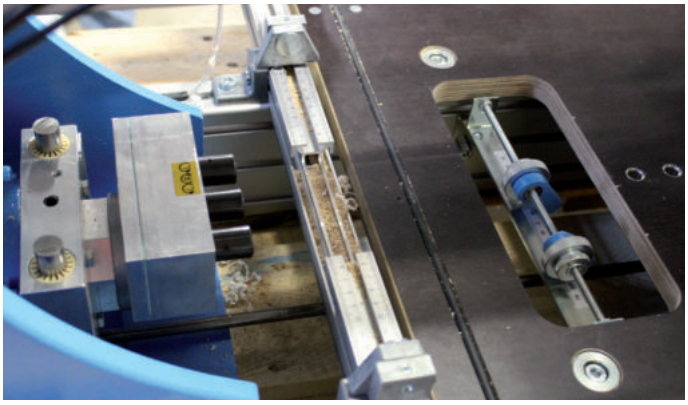


Fig. 15: Centre stop

Setting the centre stop

Turning the large metal wheel adjusts the centre stop.
A scale on the centre stop provides guidance in relation to the distance from the edge.
Please carry out trial drilling.

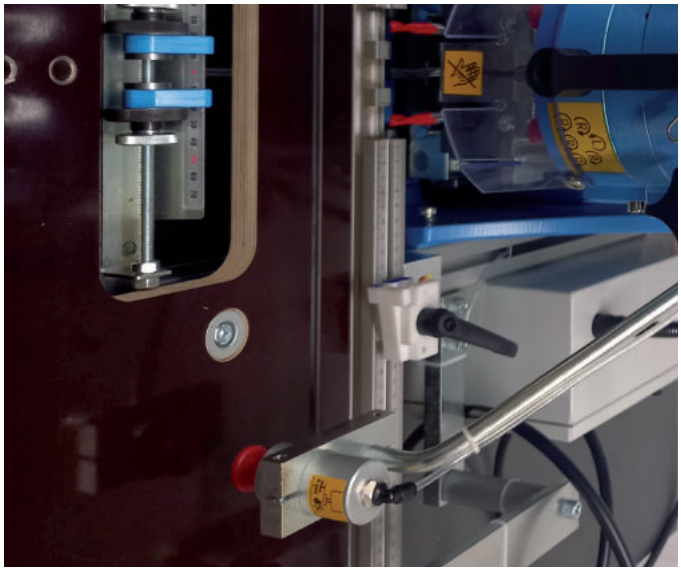


Fig. 16: Setting centre stop

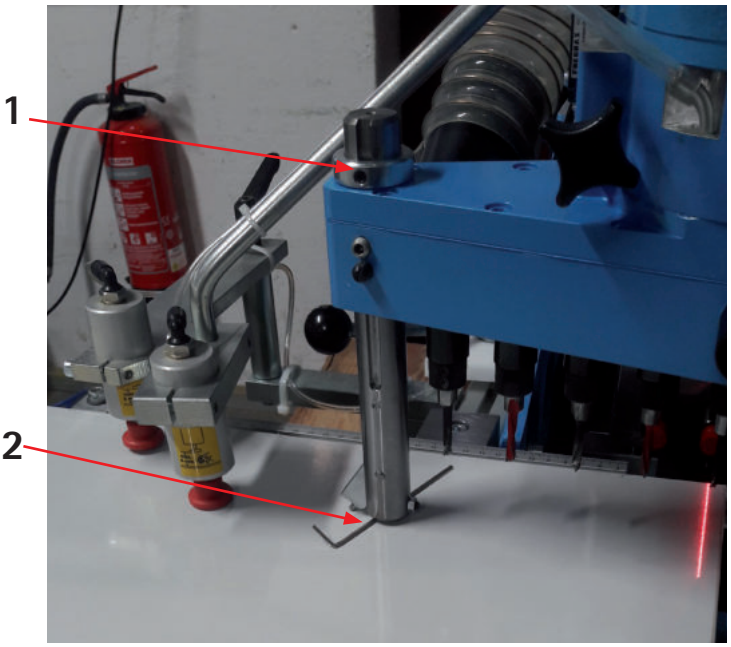
Continuation stops

The continuation stops are premounted on the Interchangeable drilling unit, 9 spindles.

Setting the continuation stops

Setting height of the continuation stop

The height of the left and right continuation shop must be adjusted to suit the panel thickness by means of top setting ring **1**. The continuation stop's finger should engage as deeply as possible into the drill hole. A space of approx. 3 mm must also be allowed between workpiece and stop (insert a 3 mm hexagon socket spanner **2**)

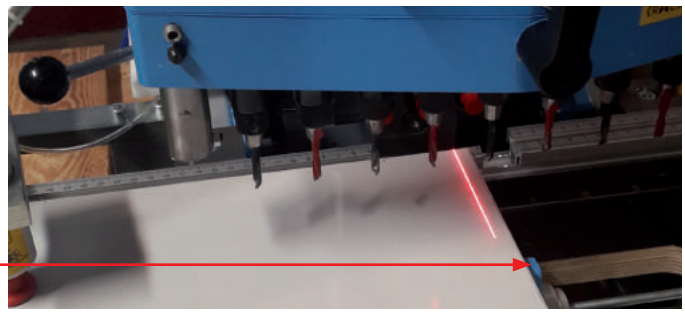


Switch for hold-down clamp / stroke reduction

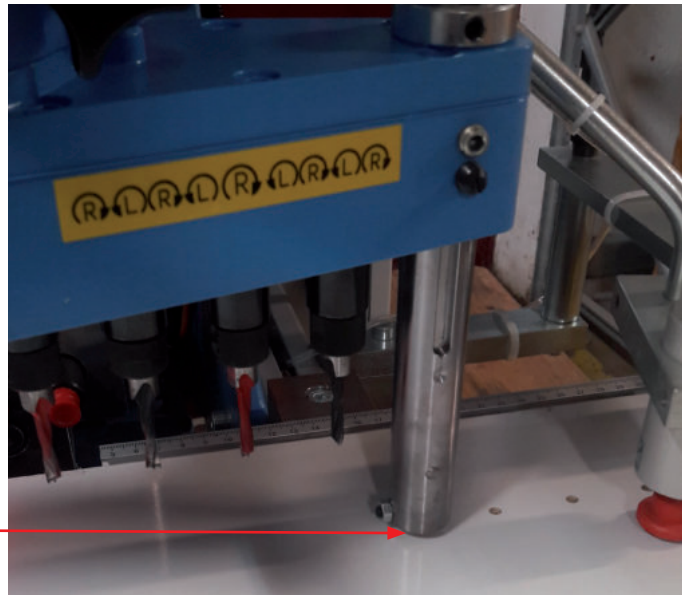
Set switch for hold-down clamp to hole line **3**.
This will automatically release the hold-down clamps after the drilling process which means there is no need to release them manually. Swivel in swivelling lever for stroke reduction. With the motor switched off, move the machine to the drilling position and move lever inwards (hole line pictogram can be seen) **4**.

Drilling with the continuation stop
(shown here with the right continuation stop)

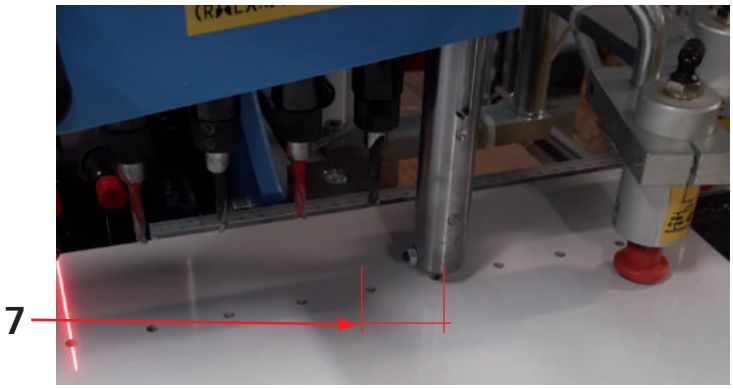
Push workpiece up against centre stop **5**
(start position of 1st hole in the hole line, for 19 mm panel material = 10 mm)



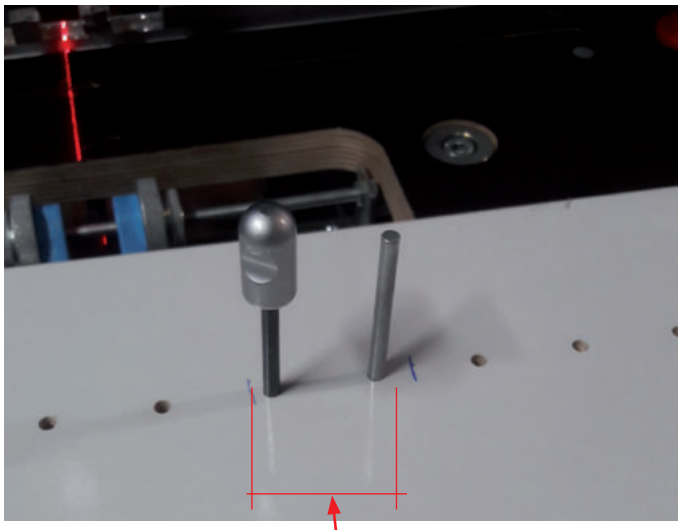
Activate drilling process and move panel material to the right until the pendulum of the continuation stops has slid over the last drill hole. Now pull the panel material back until the pendulum pin has engaged in the drill hole and is perfectly vertical. Pull workpiece as far as the pendulum stop **6**.



Restart drilling process and check distance between last drilling of 1st drilling process and 1st drilling of second drilling process **7**.

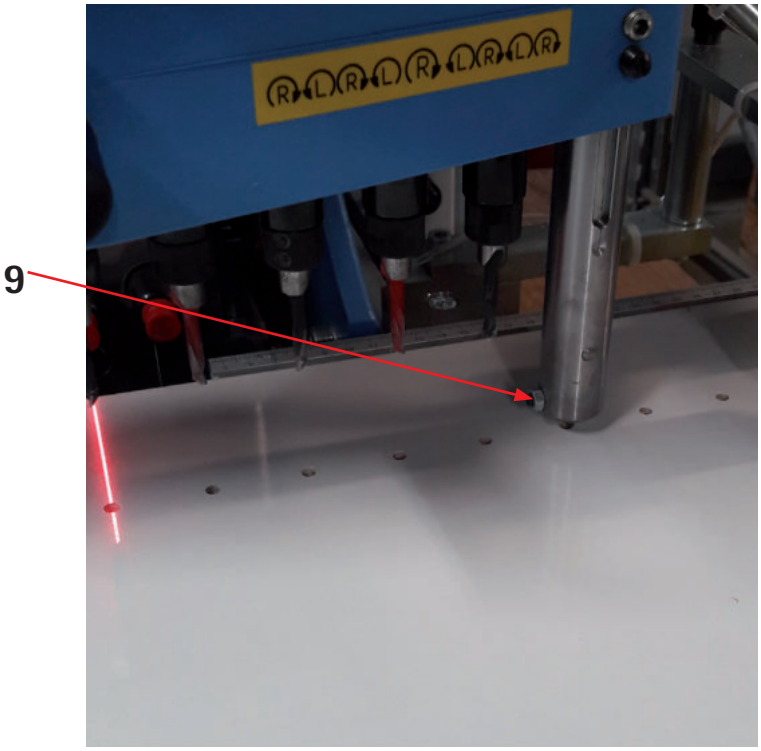


The distance can be checked best by inserting two 5 mm pins into the drillings. For this, you must use a calliper and measure from the outer edge of the pins **8**. This must produce a dimension of 37 mm (32 mm distance between the drillings + 2 times 2.5 mm = 37 mm).



If the dimension differs, the continuation stop must be readjusted.

For this, undo the screw at the pendulum and tighten or slacken the grub screw using a hexagon socket spanner (1 turn = 0.8mm) **9**.



Drilling depth setting

The drilling depth can be adjusted using screw **1** (1 turn = 1 mm). Carry out trial drilling. Repeat the setting process if necessary.

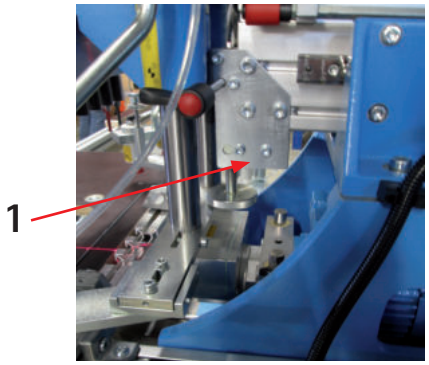


Fig. 17: Drilling depth setting

Drum stop

Edge distances in System 32 are set by means of the stop pin **1**. Four stops are already preset at the following distances:

a. 13 mm
b. 22 mm
c. 37 mm
d. 57 mm

The fifth stop is empty and represents the machine's zero position. This is the machine's zero point and is used for resetting the digital display to zero.

For customised distances between 13 mm and 57 mm that cannot be set with the drum stop, stop **1** can be set using the digital display. To maintain the position and be able to reuse it later on, the sliding block can be set against the stop with screw **2**.

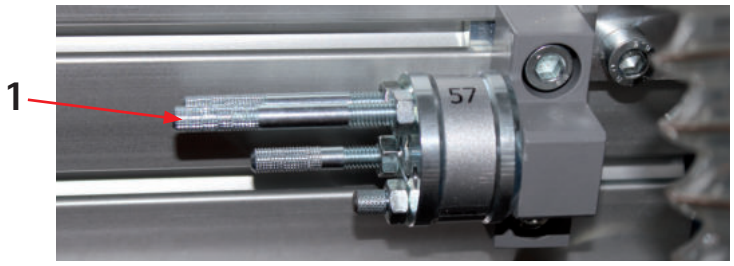
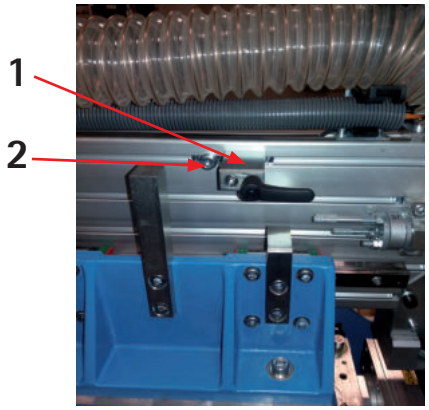


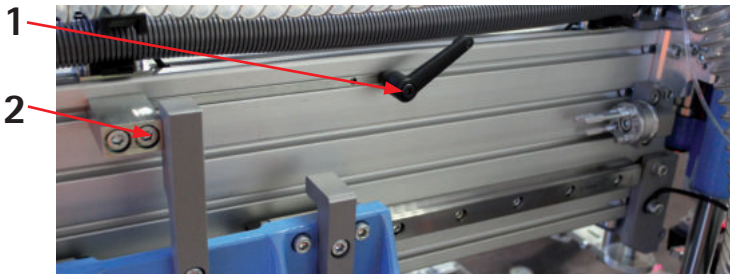
Fig. 18: Drum stop



Locking lever for frequently used distances

Using the locking lever to the left hand side (as viewed from the operator), frequently used dimensions can be set by means of a locking lever **1**.

The machine then always travels to a stop **2**.



Hold-down clamp

The hold-down clamps (assembly) are pre-mounted.

The photograph shows the right-hand side of the hold-down clamp, the hold-down clamp for the left-hand side is installed the other way round.

1 Hold-down clamp, front

2 Hold-down clamp, rear

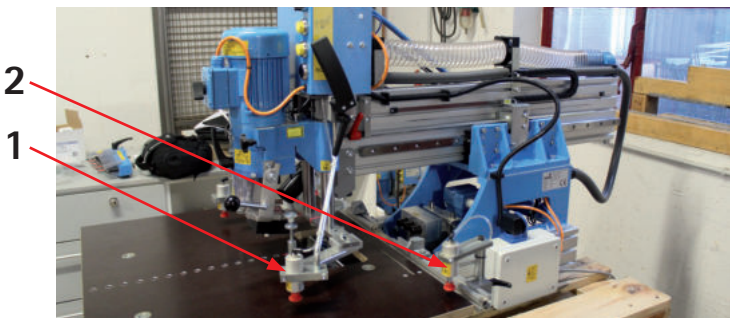


Fig. 19: Hold-down clamps

Converting from manual operation to foot switch

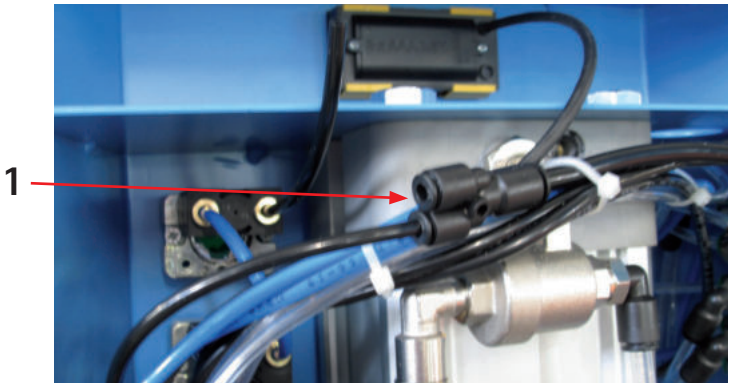
The conversion set contains the foot switch, including two connecting hoses. The foot switch must be placed on the floor where it must not be allowed to slip.

Fig. 20: Foot switch

Connecting foot switch for a machine with horizontal drilling unit

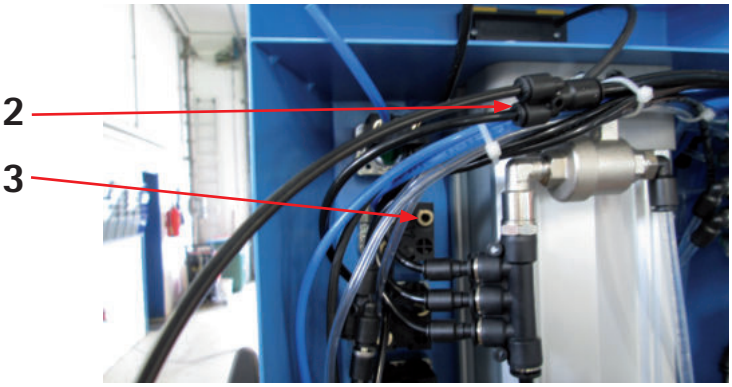
View of machine rear (rear side of console)

1. Detach black pushbutton hose at Y distribution block through openings in the suction holder **1**.

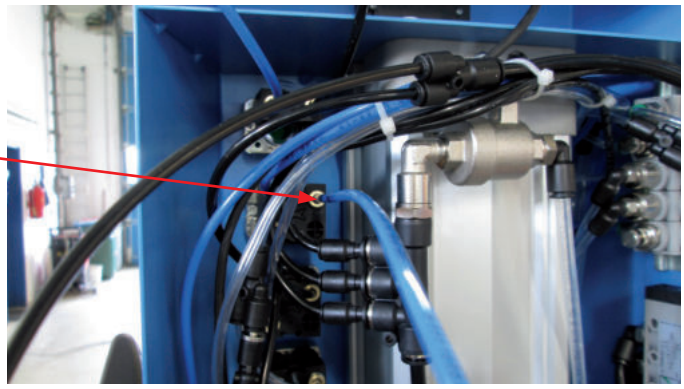


Connect black foot switch hose to Y distribution block **2**

Connect blue foot switch hose **3** at the "vertical / horizontal drilling" selector switch.



Connect blue foot switch hose **4** at the "vertical / horizontal drilling" selector switch.



NOTE

Always carry out a function test after completing this work.

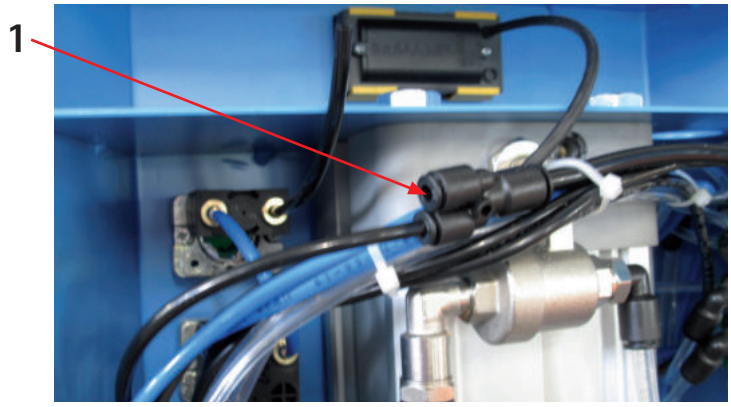
WARNING

The compressed air hoses must not be damaged or kinked.

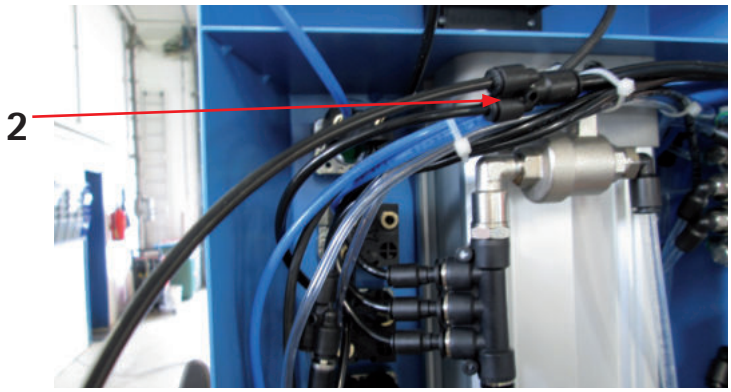
Connecting foot switch for a machine without horizontal drilling unit

View of machine rear (rear side of console)

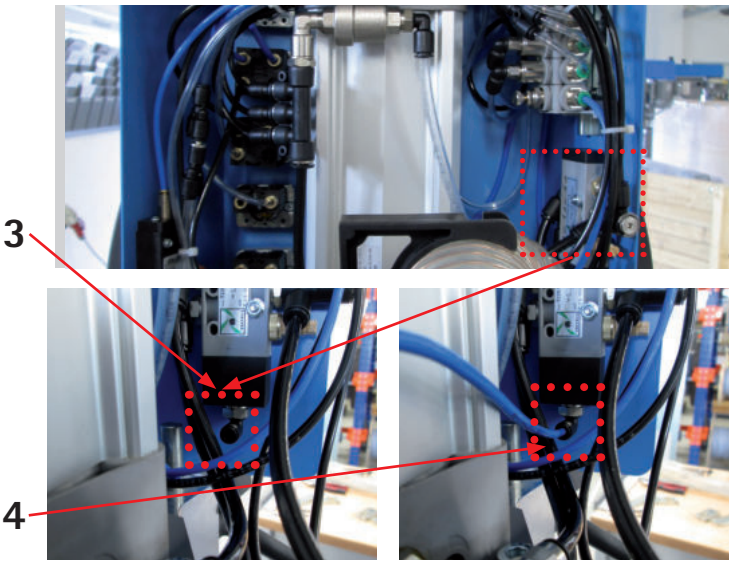
1. Detach black pushbutton hose at Y distribution block through openings in the suction holder **1**.



Connect black foot switch hose to Y distribution block **2**.



Detach hose **3** and connect blue hose **4** from the foot switch.



NOTE

Always carry out a function test after completing this work.

WARNING

The compressed air hoses must not be damaged or kinked.

9. Carrying out trial run with / without material

It is recommended to first carry out a trial run without material and drill bits to test all functions for proper working order. If all functions are working properly, fit the required tool.

Depending on connection, use the hand or foot switch for function testing.

Start a trial run without material. Afterwards, you should carry out a test with material.

Check work for correct results. You can start production if all settings are correct.

Preliminary conditions

- All of the necessary activation processes must have been carried out.
- The compressed air must be turned on.
- The machine must be set up for the relevant product.
- Make sure the machine is running smoothly and not erratically.
- The operating personnel must always be informed about current work procedure.

10. Concluding start-up

- After completing all servicing and set up work, make sure everything has been done properly.
- Check all screws and connections for secure fit.
- After completing the check, you should carry out a test using a component.
- Start up may only be concluded once the machine is working properly.
- Now switch the machine off and hand over production to the operating personnel.
- The operator must always be informed about the production settings currently in effect and given instruction on work procedure.
- Production can now commence.

NOTE

Following servicing work, check all safety guards for proper working order.

7. Setting up

1. Preparing machine

The BlueMax Mini Modular Plus is shipped in cardboard packaging. A number of parts and components must be installed to make the machine ready for operation. Once assembled, the machine must be thoroughly cleaned (removal of dust and any oil or grease)

Before switching the automatic drilling and insertion machine on, satisfy yourself that

- any installation, set up and servicing work has been completed in full
- no persons are present in the danger zone, let alone working on it
- all safety guards are fitted in the prescribed way
- the compressed air supply is ready for operation

Before commencing production:

- Make sure the machine is safe and in proper working order before and after you switch it on
- Make sure the compressed air supply is ready for operation
- Make sure the machine has been set up for the relevant product

Readiness for use

The machine is ready for operation if

- all of the above stated activation processes have been carried out,
- a trial run has been carried out,
- the compressed air supply is activated,
- the machine is set up for the relevant product,
- the machine is firmly mounted on a bench / base frame.

Production can now commence.

Connecting to extractor system

Connect the machine to an extractor system. It is compulsory to use flexible, fire-retardant hose for connection to an extractor system.

Fit the extractor system's extraction hose to suction connector **1** and secure this in place with a hose clamp.

The extractor system must have an airflow rate of at least 20 m/s.

Extraction hose diameter: Ø 80 mm. Route extraction hose so as not to exert strain on the suction connector!

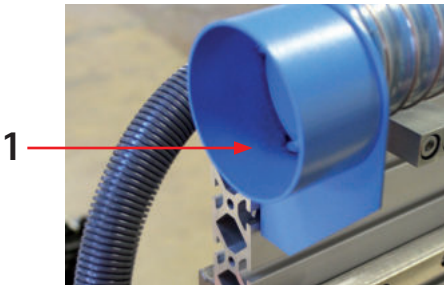


Fig. 21: Suction extraction connector

Connecting to compressed air supply

To connect the machine to the compressed air supply system, push the air supply line onto the air filter using quick release connector **1**.

Recommended air pressure 6 - 7 bar, 100 psi.

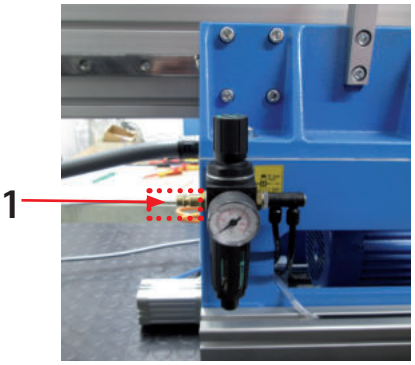


Fig. 22: Air filter unit with quick release connector

Connecting to the power supply

Connect to the power supply using a 16-ampere plug.

Before you do, have a qualified electrician ensure that the socket is in proper working order.

Now connect the plug to the socket.

The machine is rated for a supply voltage of 400 volts. (other options are possible)

Use an appropriate plug compliant with the DIN VDE or IEC standard. An upstream fuse must be provided in the mains power supply system.

Check motor turning direction. The drive spindles must turn clockwise.

If the motor or spindles turns anticlockwise, you must reverse the phases in the plug.

DANGER

Danger from electric shock!

Working on live components in the improper manner presents a danger to life!

Work on electrical equipment must only be carried out by authorised electricians!

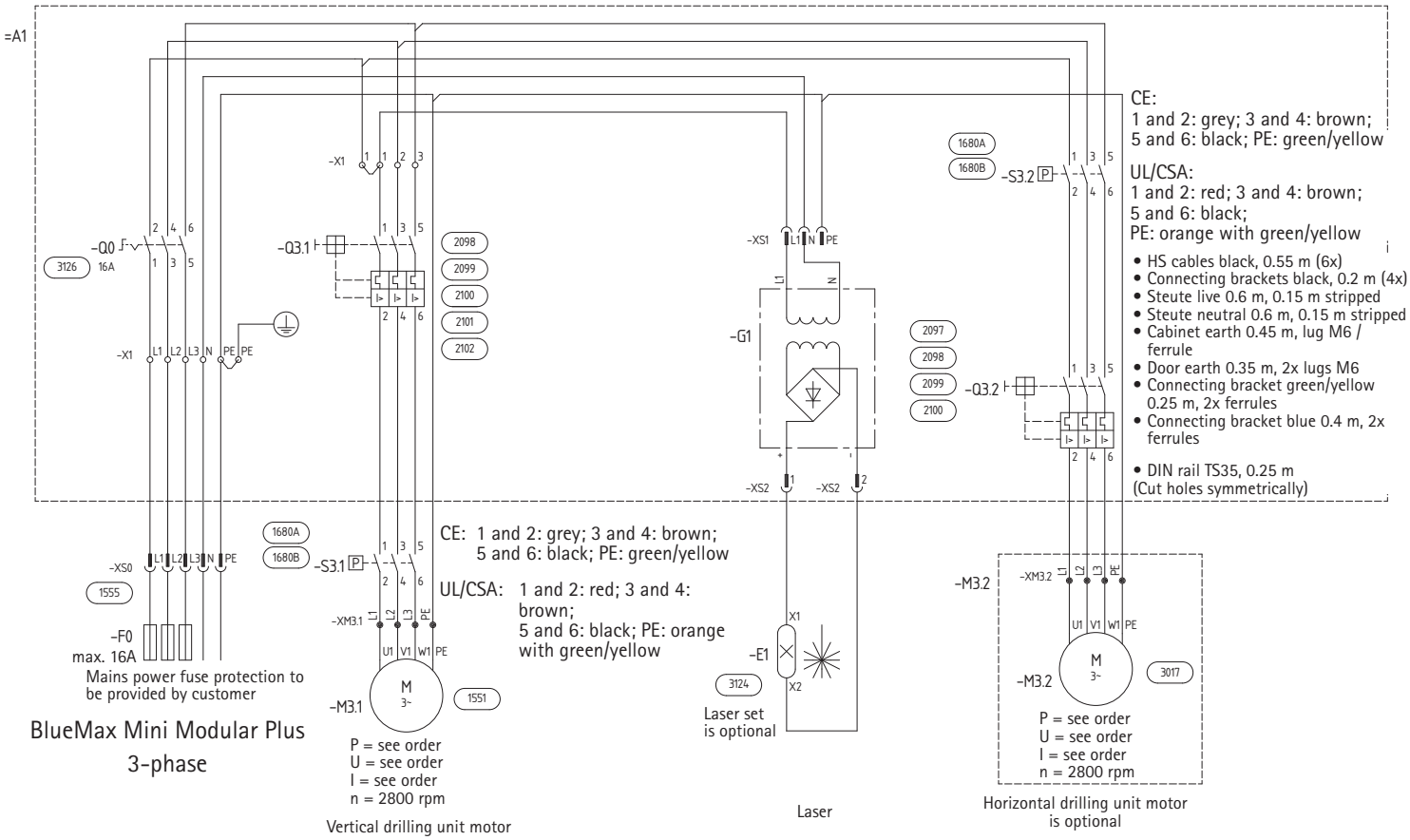


Fig. 23: Circuit diagram

Switching on

Preparatory work

- Connect to the power supply by plugging in the mains plug.
- Connect to compressed air supply and switch this on.
- Prepare material (panels, hinges, connectors etc.).

Operation

You can operate the machine either via foot switch or pushbutton on the control unit. The machine cannot be operated via foot switch and pushbutton at the same time.

Turn on the main power supply switch **6**.

The same functions are given for foot switch **7** and pushbutton **1** on the control unit.

Both controls must remain pressed until a complete work operation has been completed.

If you release the pushbutton or foot switch beforehand, the machine will abort the work operation and the drilling unit will return to the home position. You must re-start the process.

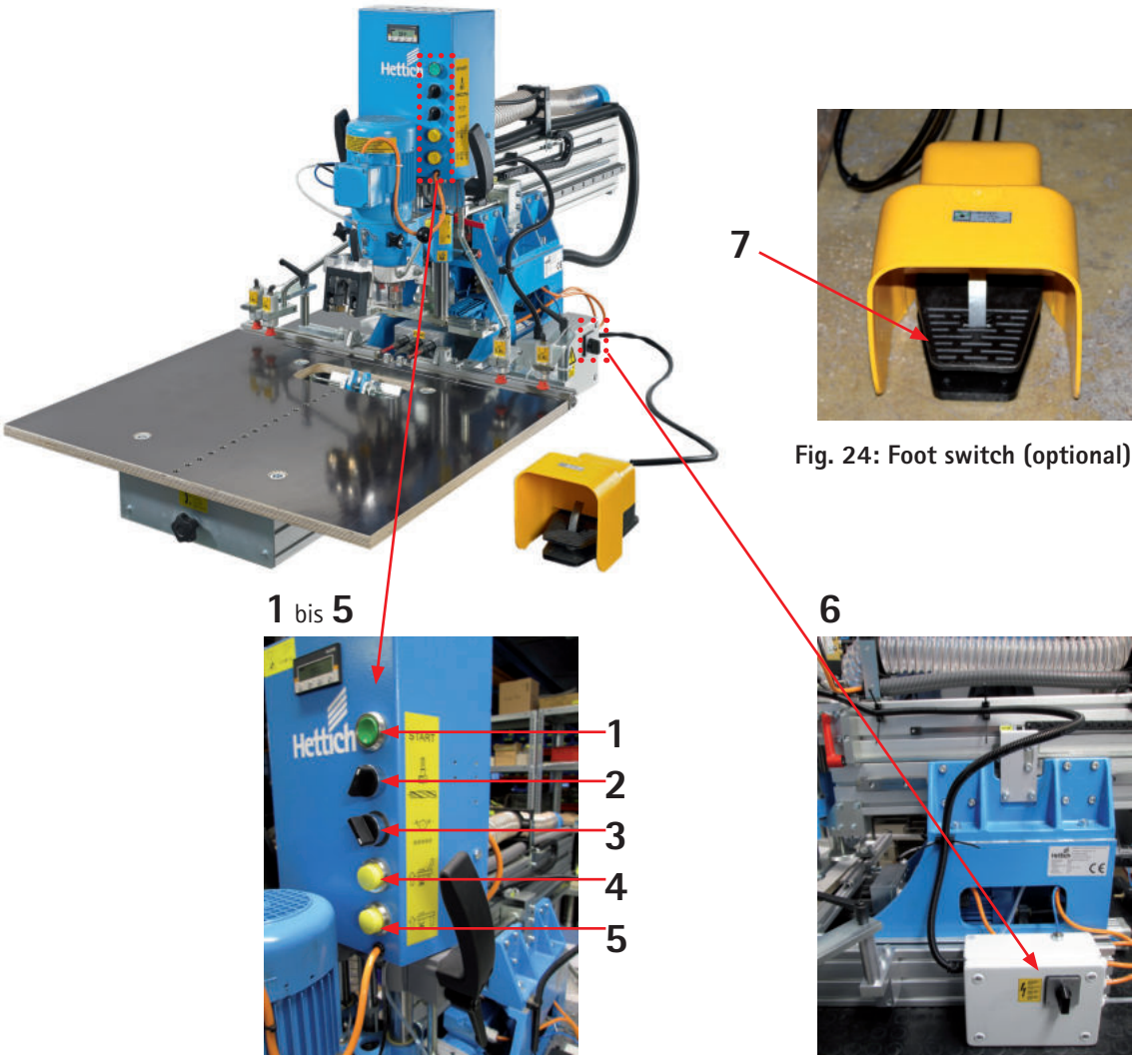


Fig. 24: Foot switch (optional)

Item	Designation	Explanation
1	Pushbutton	For activating work process
2	Change-over switch	Drilling vertically / horizontally
3	Change-over switch	For automatically unclamping the hold-down clamps
4	Pushbutton	For manually releasing the front hold-down clamps
5	Pushbutton	For manually releasing the rear hold-down clamps
6	Main switch	Machine power supply ON / OFF
7	Foot switch	For activating work process

Drilling hole line, interchangeable drilling unit, 9 spindles

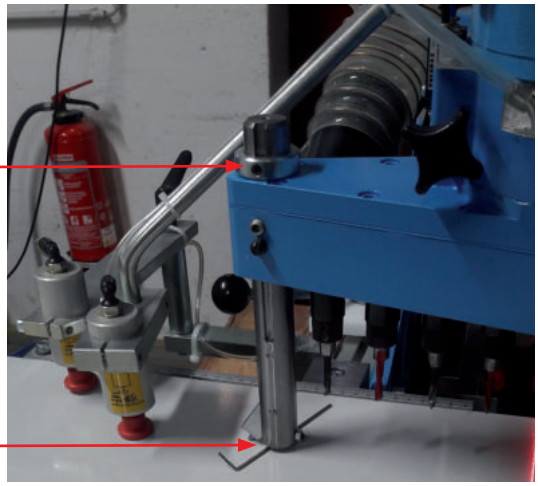
Continuation stops

The continuation stops are premounted on the Interchangeable drilling unit, 9 spindles.

Setting template for setting continuation stops

Setting height of the continuation stop

The height of the left and right continuation shop must be adjusted to suit the panel thickness by means of top setting ring **1**. The continuation stop's finger should engage as deeply as possible into the drill hole. A space of approx. 3 mm must also be allowed between workpiece and stop (insert a 3 mm hexagon socket spanner **2**)



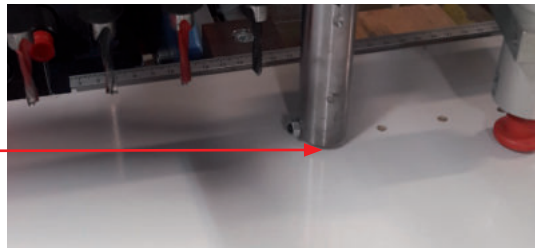
Switch for hold-down clamp / stroke reduction

Set switch for hold-down clamp to hole line **3**. This will automatically release the hold-down clamps after the drilling process which means there is no need to release them manually. Swivel in swivelling lever for stroke reduction. With the motor switched off, move the machine to the drilling position and move lever inwards (hole line pictogram can be seen) **4**.

Drilling with the continuation stop (shown here with the right continuation stop)

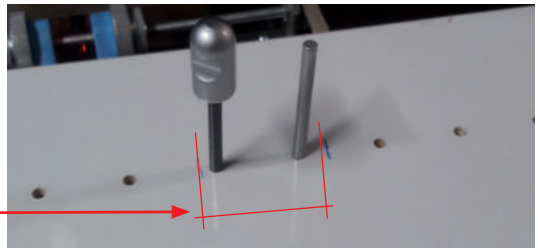
Push workpiece up against centre stop **5** (start position of 1st hole in the hole line, for 19 mm panel material = 10 mm)

Activate drilling process and move panel material to the right until the pendulum of the continuation stops has slid over the last drill hole. Now pull the panel material back until the pendulum pin has engaged in the drill hole and is perfectly vertical. Pull workpiece as far as the pendulum stop **6**.



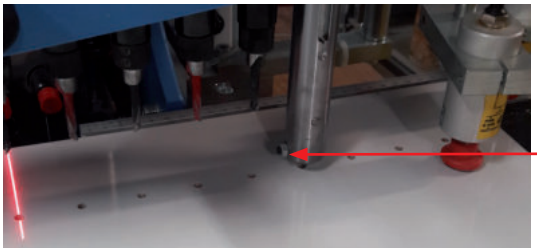
Restart drilling process and check distance between last drilling of 1st drilling process and 1st drilling of second drilling process **7**.

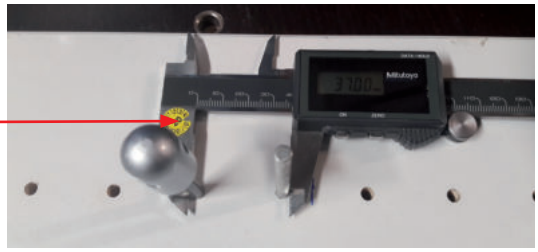
The distance can be checked best by inserting two 5 mm pins into the drillings. For this, you must use a calliper and measure from the outer edge of the pins **8**. This must produce a dimension of 37 mm (32 mm distance between the drillings + 2 times 2.5 mm = 37 mm)



If the dimension differs from 37 mm, the continuation stop must be readjusted.

For this, undo the screw at the pendulum and tighten or slacken the grub screw using a hexagon socket spanner (1 turn = 0.8mm) **9**.



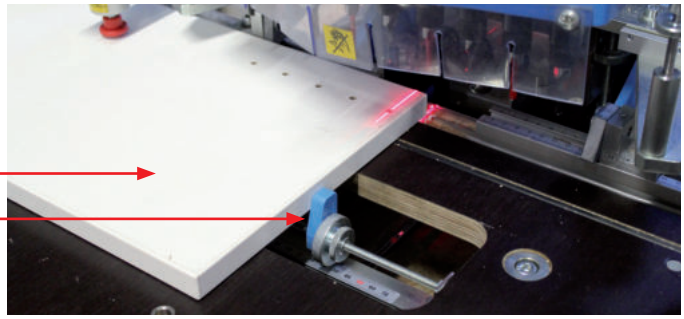


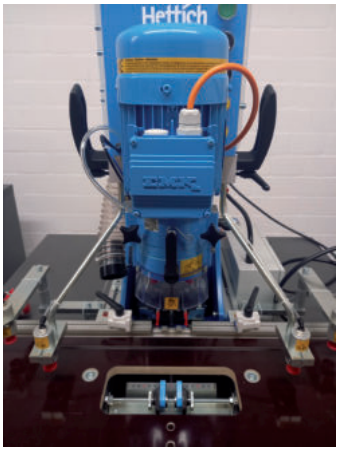
Inserting hinges

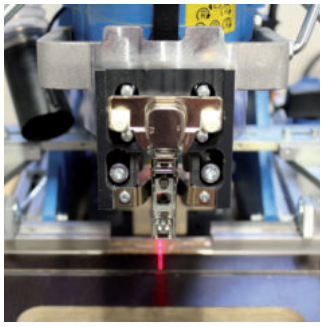
Hinges are inserted using the 6-spindle interchangeable drilling unit.

Carry out a function test before commencing production.
With frame hinged down, actuate safety switch to deactivate motor while inserting hinge.

- Move panel **1** against stop **3**.
- Press foot pedal or pushbutton.
- Hold-down clamps **2** lock panel in place, and drilling takes place.
- Hold-down clamps remain activated and continue to hold panel in place.
- Fit a hinge into insertion die **4**.
- Using grip **5**, move press-in frame **6** under drilling unit.
- Press foot switch (pushbutton) again
  (One hand on press-in frame, one hand on pushbutton).
- The hinge is pressed into place.

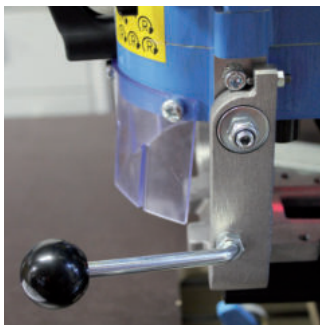






NOTE

Connecting fittings are pressed in in the same way.



- Press pushbutton **5**.
- Hold-down clamps are raised and you can remove panel.

This concludes the work operation.

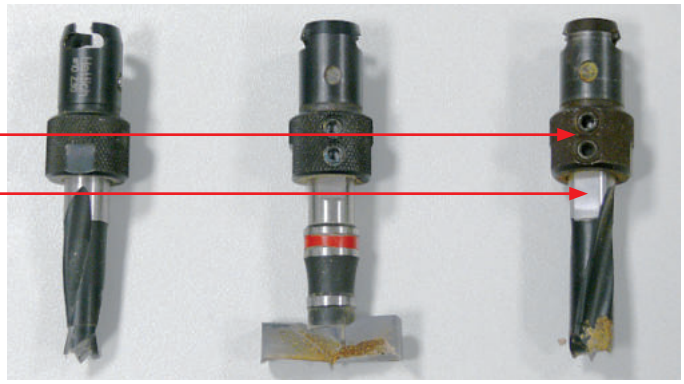
2. Preparing for work

⚠WARNING

Warning – Hand injuries!

Before resetting the machine, disconnect mains plug and detach compressed air supply!

First select the appropriate interchangeable drilling unit.
The machine comes in 4 versions.



Tools used (drill bits)

First install the drill bits required. This setting applies to all interchangeable drilling units.

Insert required drill bit **1** into bayonet chuck **2** and tighten the two screws **7** using Allen key **3**.

When fitting, make sure drill bit chucking face **8** is correctly positioned. The screws must clamp the bit in position at this face.

Push pre-mounted tool **4** into tool holder of interchangeable drilling unit **5** and turn in opposite direction of drilling-unit rotation.

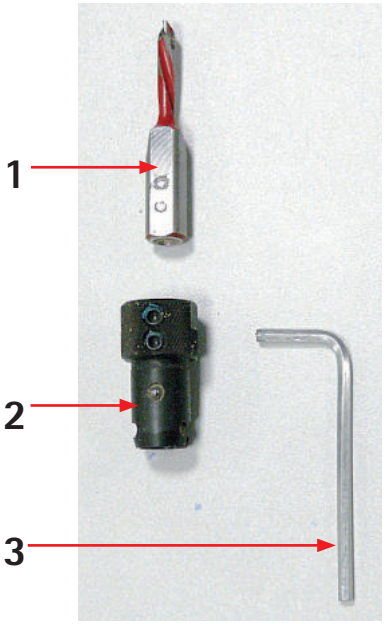
The bayonet chuck engages.

Repeat this process until all tools are securely engaged.

Always close off unneeded tool holders with a dummy plug **6**.

Always check your work before fitting the interchangeable drilling unit.

The drill bits must engage and all screws must be tight.

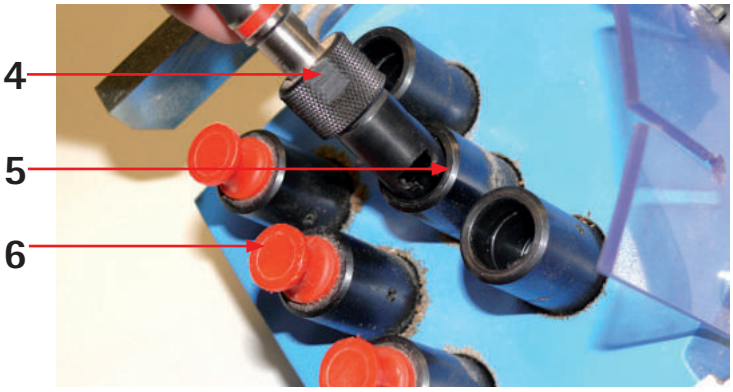


NOTE

Pay attention to colour marking!

Drill bits marked red must be used for spindles turning anticlockwise.

Drill bits marked black must be used for spindles turning clockwise.

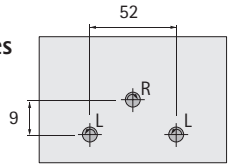


Interchangeable drilling unit, 6 spindles / interchangeable drilling unit, 3 spindles (Selekta 22/9)

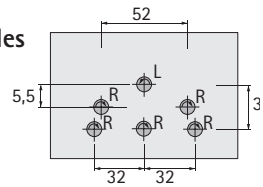
These interchangeable drilling units are used for drilling receiving holes and for inserting hinges and connecting fittings.

Fit tools (drill bits) on a work bench.

Drilling pattern 3 spindles



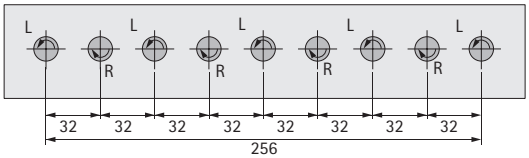
Drilling pattern 6 spindles



Interchangeable drilling unit, 9 spindles

This interchangeable drilling unit is used for creating hole lines.

Drilling pattern

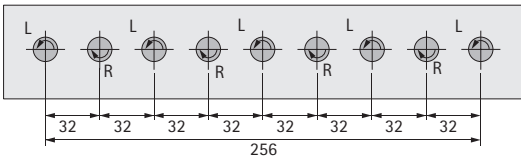


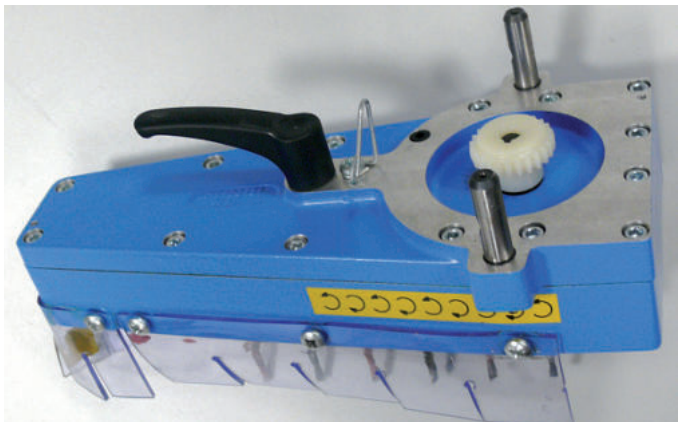
Interchangeable drilling unit, 90°, 9 spindles

This interchangeable drilling unit is used for creating holes at an angle of 90° (runners).

A maximum of 6 drill bits may be fitted with a maximum diameter of 5 mm.

Drilling pattern





Changing interchangeable drilling units

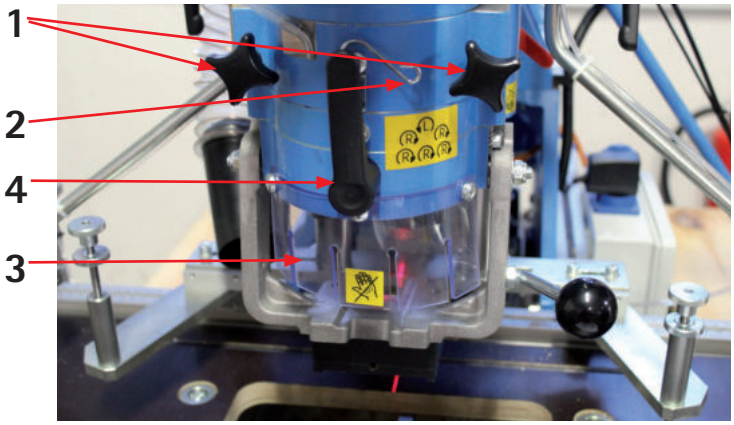
Depending on application, the appropriate interchangeable drilling unit must be fitted for drilling the required holes.

We will now show you how to change a drilling unit on the basis of this example. When changing drilling units, we recommend wearing safety gloves to prevent injuring yourself on the sharp tools.

WARNING

Warning - Hand injuries!

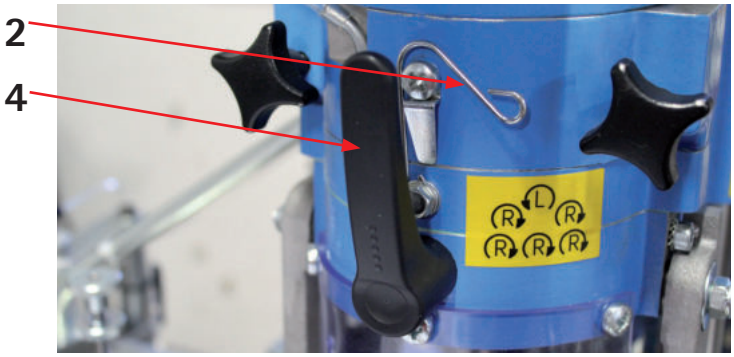
Before resetting the machine, disconnect mains plug and detach compressed air supply!



First undo star shaped grips **1** until tool slips down.

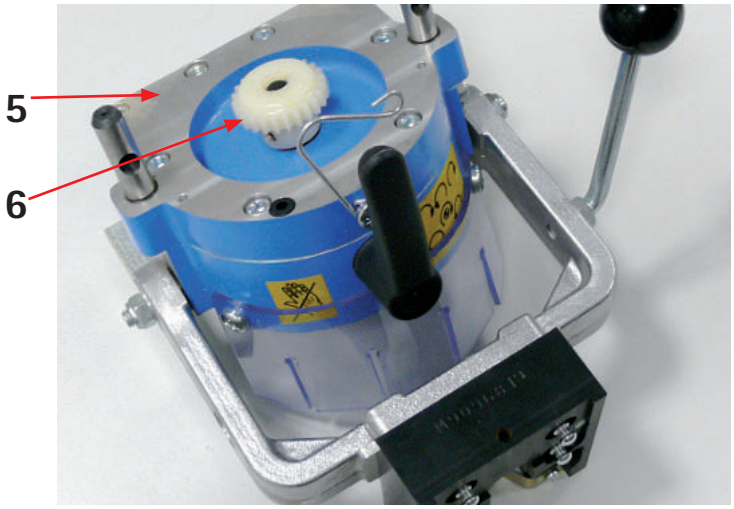
The safety catch **2** holds the interchangeable drilling unit **3** back to prevent it from falling. Lower interchangeable drilling unit out of guide using grip **4**. While doing so, give safety catch **2** a short downward turn.

Set the interchangeable drilling unit aside.



Cleaning

Before fitting the required interchangeable drilling unit, clean mating faces **5** and drive sprocket **6** with a clean cloth.

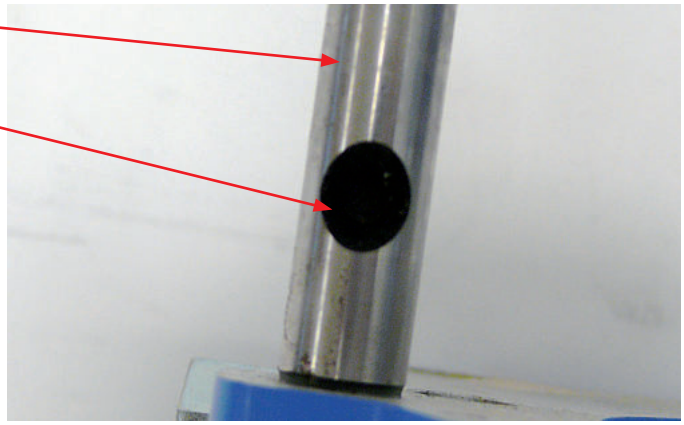


NOTE

Soiling results in rapid drive-component wear and leads to malfunctions in the production process.

Clean guide pins **1**.

Hole **2** in guide pin must be clean so clamping screw can hold interchangeable drilling unit securely in place.

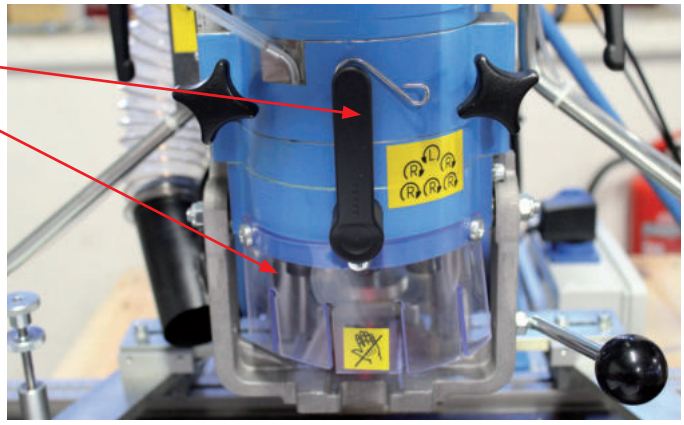


Fitting drilling unit

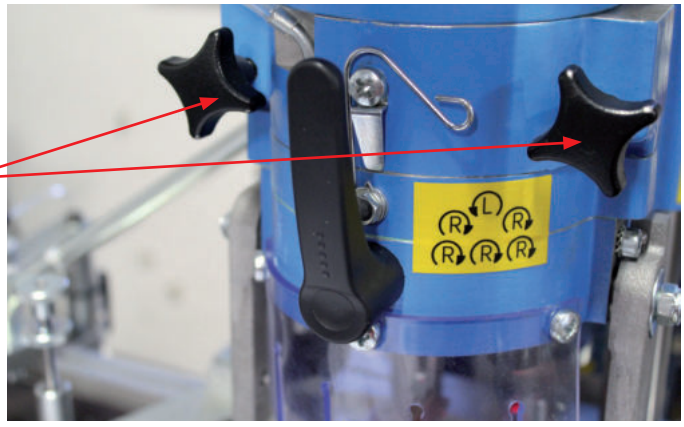
Fit the prepared interchangeable drilling unit by holding the grip or by placing your hand below yoke **2**.

Make sure guide pin goes in straight.

Move interchangeable drilling unit up and engage safety catch **1**.



Tighten star shaped grips **3**.



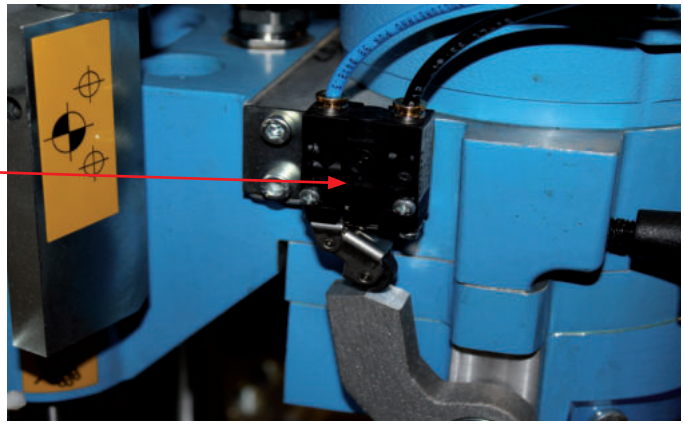
Checking switch for proper working order

The 6 spindle interchangeable drilling unit is used for drilling holes and for inserting a hinge / connector.

The drilling unit's drive system must be switched off for inserting the hinge / connector.

Using the hand lever **2**, turn press-in frame **2** into the inserting position. Operate switch **1** with the lever and turn motor off using the switch. Check for proper working order. Adjust the switch if necessary.

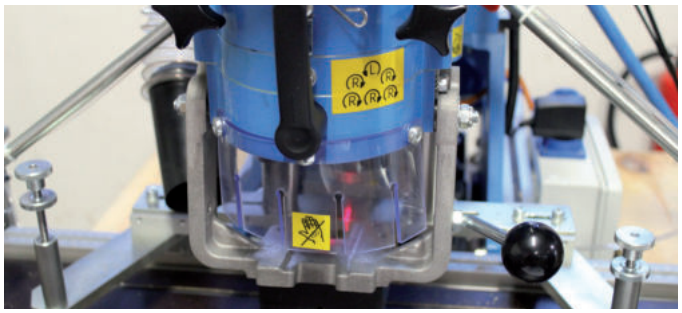
Switch **1** must always be checked for proper working order after changing the drilling unit or after the machine has been out of service for a prolonged period.



⚠WARNING

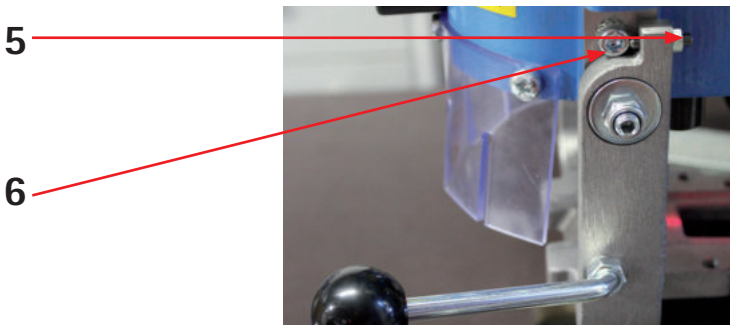
Warning – Hand injuries!

Malfunctioning can result in serious injuries and disrupt production!



Inserting position for press-in frame

The press-in frame can be repositioned if necessary. Adjust press-in frame for exact positioning using adjustment screw **5**. The adjustment screw presses against stop screw **6**. Swing down press-in frame and check position during pressing in. If necessary, repeat the setting process until the correct position is attained.

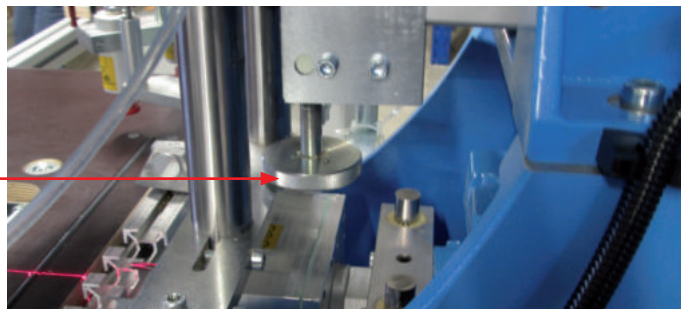


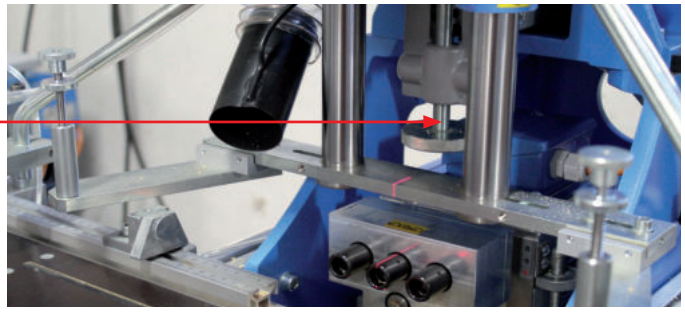
en

Setting drilling depth, vertical drilling unit

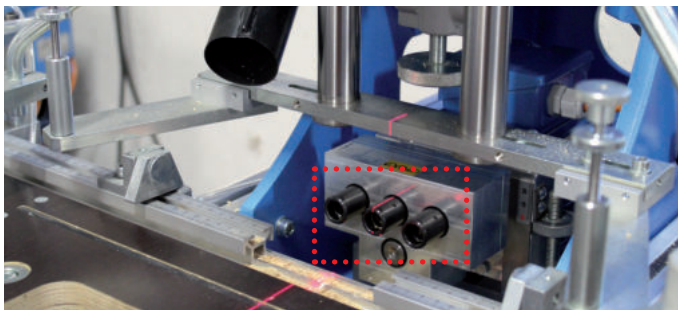
The stop limits downward drilling-stroke movement.

The drilling stroke can be selected to suit any panel thickness. Drilling depth can be changed by turning adjustment screw **1**. Afterwards, carry out a trial drilling and check drilling depth using a calliper gauge.

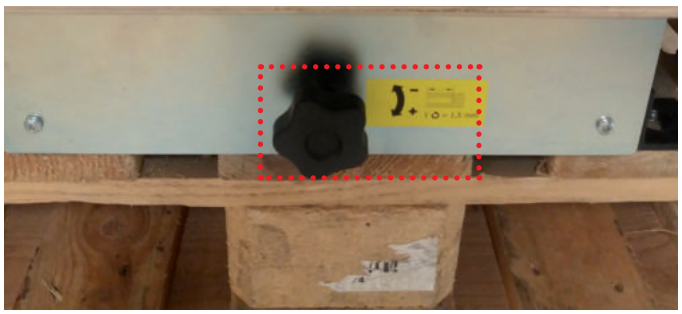




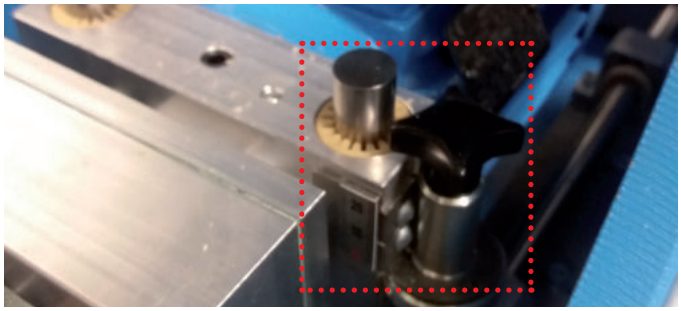
Drilling with horizontal drilling unit



First set the drilling depth using the hand wheel on the front of the machine.

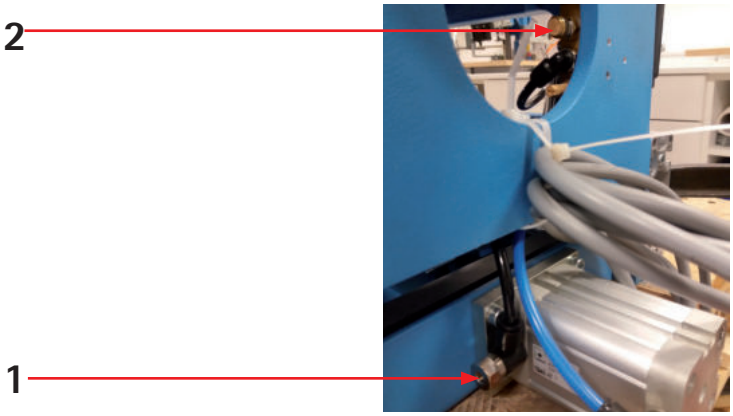


Referring to the scale, set the height on the horizontal unit by turning star shaped grip on the horizontal drilling unit.



Carry out a trial drilling to check these settings.

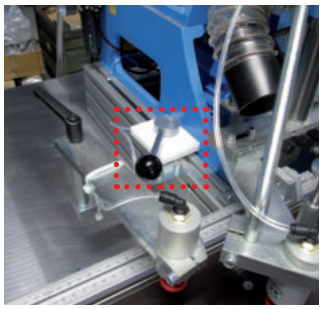
The horizontal drilling unit's stroke speed (drilling into the workpiece) can be set by means of the adjustment screw **1**. End position damping (horizontal drilling unit back to home position) by means of the adjustment screw **2.**

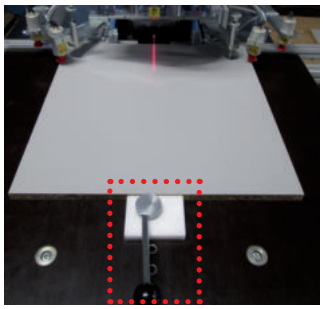


Carry out a trial drilling to check these settings.

Always use the eccentric tensioner for drilling with the horizontal drilling unit.

Take the eccentric tensioner from the parked position and use it to tension the workpiece. To do this, use the drill hole in the machine bench that is closest to the workpiece. Position the eccentric tensioner here and turn the white plastic panel towards the workpiece. Turn the eccentric tensioner lever anticlockwise until it starts to clamp the workpiece.
Initiate drilling stroke via hand button or foot switch.





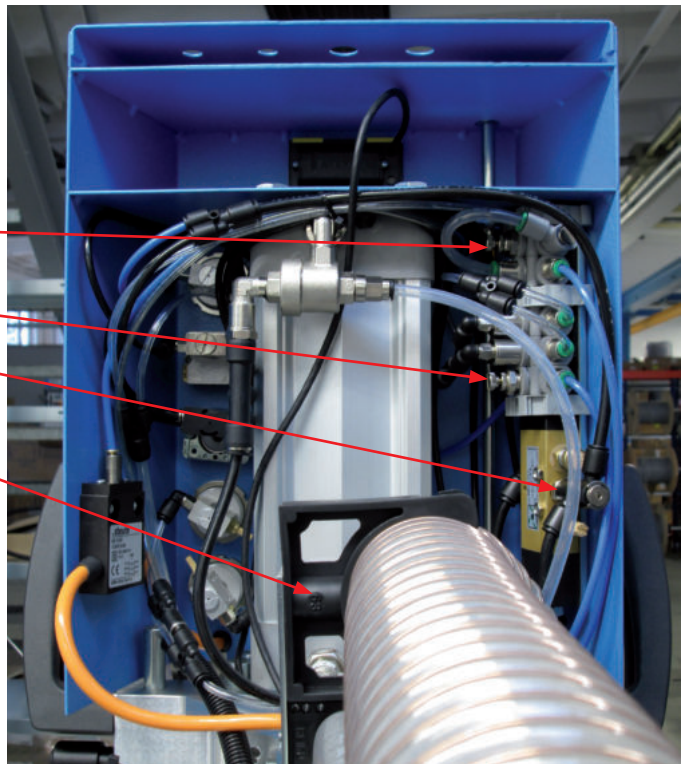
Settings on the back of the machine

Shortly before the drill bits penetrate the workpiece, their speed can be limited to obtain good drilling results. The rate is reduced just before the drill bits reach the panel.

Lower end position damping is adjusted using setscrew **1** in the stroke cylinder at the rear of the machine. Drilling penetration rate can be reduced or increased by turning the adjustment screw.

Adjustment screw **2** in the valve is used for setting the length of time the hold-down clamps remain in position after drilling (drilling hole lines only).

Adjustment screw **3** adjusts downward drilling rate. The time for which the vertical drilling units continue to run can be set via the adjustment screw **4**. For MDF materials, the drilling unit must run longer for the drill bits to remove the cuttings from the drill hole. Carry out a trial drilling to check the setting.



⚠WARNING

Warning – Hand injuries!

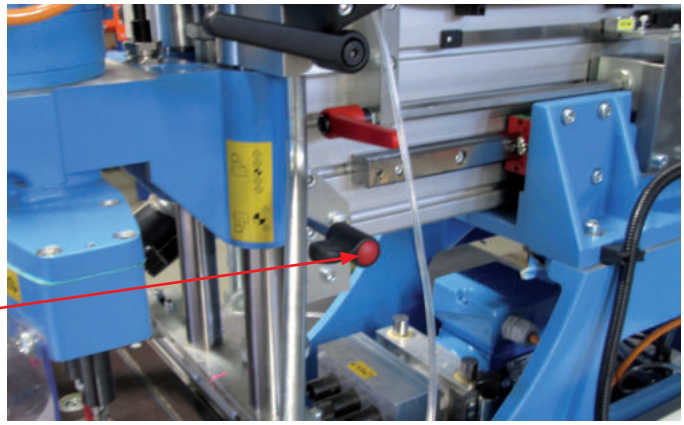
Be careful when setting the continued running time, do not reach into the rotating drill bits!!!

Limiting drilling stroke for drilling hole lines

To work more effectively, the drilling stroke can be shortened for drilling hole lines. Before setting, please deactivate the motor switch to prevent the drill bits from rotating.

Start drilling stroke via hand button or foot switch. Keep the hand button / foot switch pressed until the interchangeable drilling unit reaches the lowest end position. Now turn stop using lever **2**.

A short stroke is carried out for the next work cycle.



WARNING

Warning – Hand injuries!

Exercise care when the drilling unit moves up and down, there is a danger of crushing!

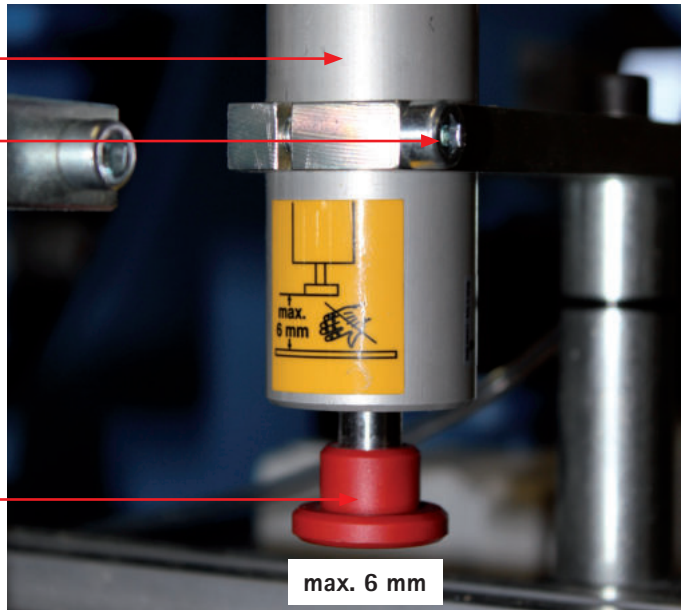
NOTE

Check all settings once you have finished making them.

3. Hold-down clamp and centre stop

Hold-down clamp

Depending on panel thickness, hold-down clamps must be vertically adjusted. Workpiece and hold-down clamp foot **3** must be spaced apart by no more than 6 mm (if necessary, place an A/F 5 mm Allen key spanner underneath). To set spacing, undo clamping screw **2** and re-position hold-down clamp **1** in its retainer. Tighten clamping screw once correct height is achieved.

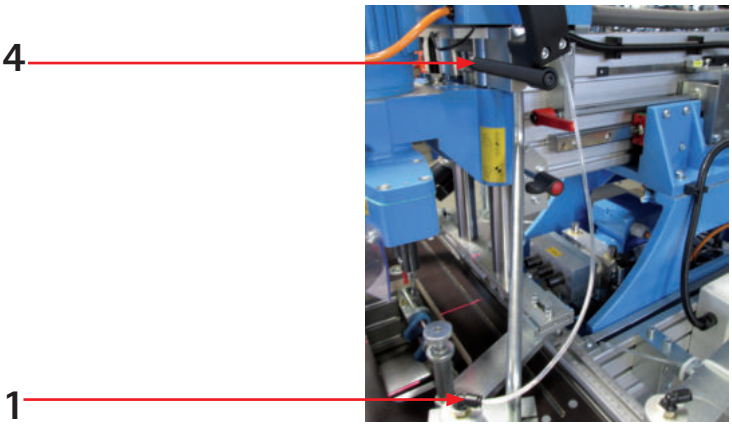


WARNING

Warning – Hand injuries!

Before attempting any servicing and setting work, disconnect the machine from the power supply and shut down the compressed air. Prevent the machine switching back on again unexpectedly.

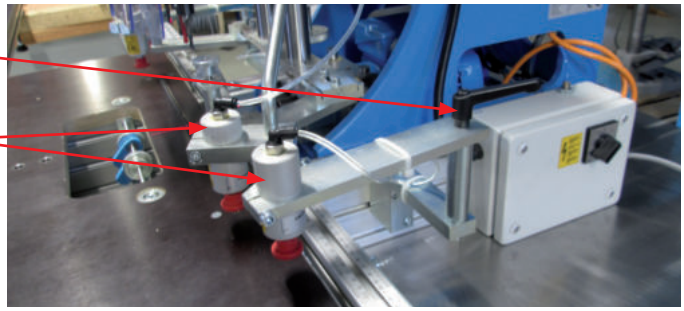
Hold-down clamp **1** must be moved into position to ensure workpiece is securely clamped in place for drilling. Undo the clamping levers **4** / **5** to set the hold-down clamp. The hold-down clamps can be adjusted further by releasing the clamping levers **5**. Re-tighten clamping levers after positioning.



WARNING

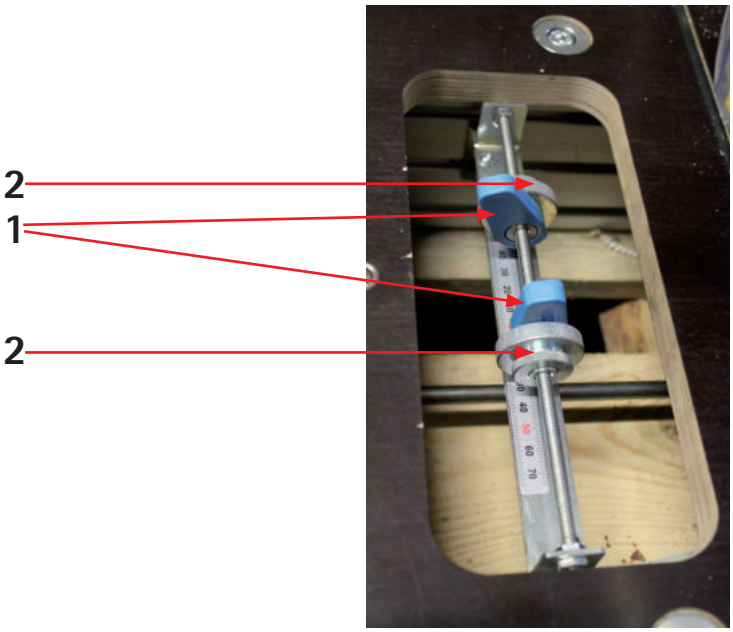
Warning – Hand injuries!

Do not move the arm under the drilling head.



Centre stop

Centre stop **1** is used for installing connecting fittings or as the first stop for the hole line.
Depending on working direction, flip up the right or left hand stop lever. To adjust, undo knurled thumb screws **2**, and position centre stop by hand. Re-tighten knurled thumb screws after completing adjustment.



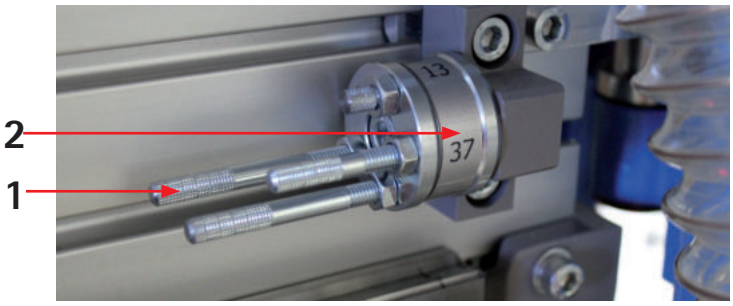
Setting the drum stops

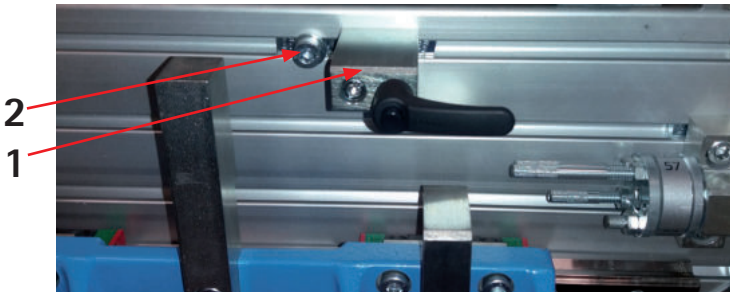
The drum stops provide set spacings.
Preset: 13 mm, 22 mm, 37 mm and 57 mm. Pull bench back a short distance. For setting, turn the drum stop **2** to the required position and engage.

The unused position (position without stop pin) represents the machine's zero point. This can be used for resetting the digital display to zero.

Distance 13 mm	interchangeable drilling unit, 9 spindles for drilling hole lines
Distance 22 mm	interchangeable drilling unit, 6 spindles for hinge drilling
Distance 37 mm	interchangeable drilling unit, 9 spindles for drilling hole lines
Distance 57 mm	interchangeable drilling unit, 9 spindles for drilling hole lines

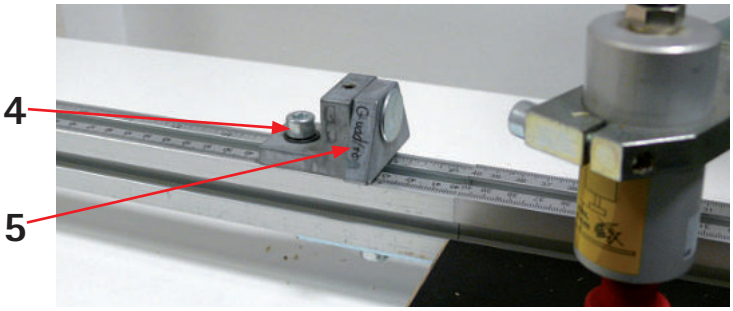
To set customised positions between 13 mm and 57 mm, use stop **1** in the profile and set it to the customised dimension (setting using digital display). Using screw **2**, the position can be marked by moving the screw up to the stop so as not to lose the position determined.





Pendulum stops

Adjust pendulum stops to suit application.
To make adjustments, undo screw **4** and move pendulum stop **5** along rail. Re-tighten screw.



8. Operation

1. Safety check

CAUTION

This machine must only be operated and serviced by skilled personnel who have been authorised or trained to do so. Always observe the safety precautions and internal safety rules.

Before switching the machine on, satisfy yourself that

- any installation, set-up and servicing work have been completed in full,
- no persons are present in the danger zone, let alone working on it,
- all safety guards must be fitted in the prescribed way, and
- the compressed-air supply is ready for operation.

General information

Before commencing production:

- Make sure the machine is safe and in proper working order before and after you switch it on.
- Make sure the compressed air supply is ready for operation.
- Make sure the machine has been set up for the relevant product.

NOTE

Immediately inform your line manager of machine malfunctions or faults.

Readiness for use

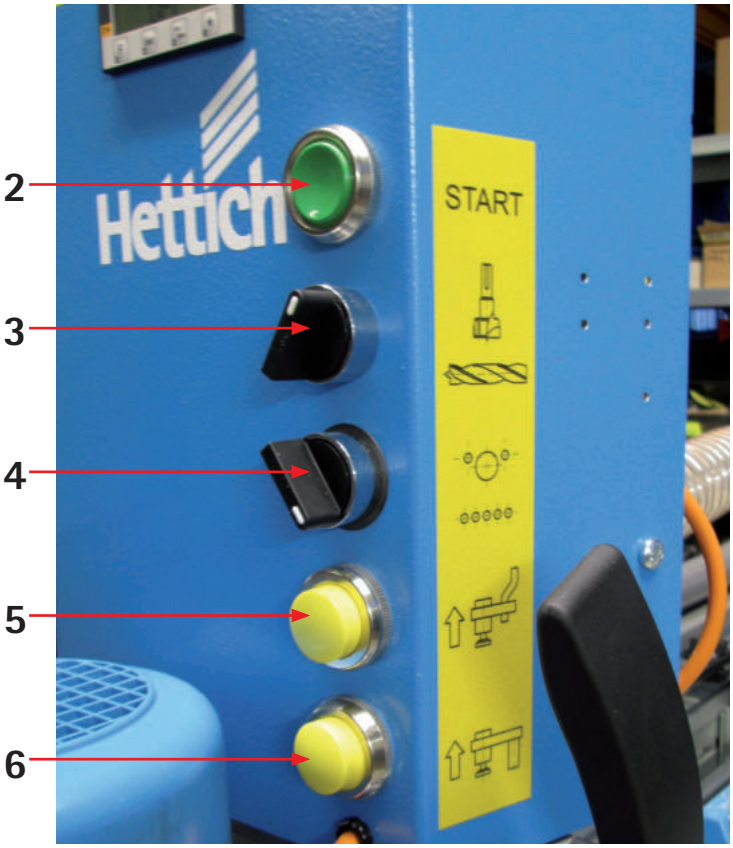
The machine is ready for operation if:

- all of the above-stated activation processes have been carried out.
- a trial run has been carried out,
- the compressed-air supply is activated, and
- the machine is set up for the relevant product.

Production can now commence.

Controls

The control panel has three pushbuttons and two selector switches.



Item	Designation	Explanation
2	Pushbutton	For activating work process
3	Change-over switch	Drilling vertically / horizontally
4	Change-over switch	For automatically unclamping the hold-down clamps
5	Pushbutton	For manually releasing the front hold-down clamps
6	Pushbutton	For manually releasing the rear hold-down clamps

CAUTION

In all work, remember:
Safety comes first!

2. Switching on

Preparatory work

- Connect to the power supply by plugging in the mains plug,
- connect to compressed-air supply, switch this on and
- prepare material:
  panels, hinges / connectors etc.

3. Operating

You can operate the machine either via foot switch or pushbutton on the control unit. The machine cannot be operated via foot switch and pushbutton at the same time.

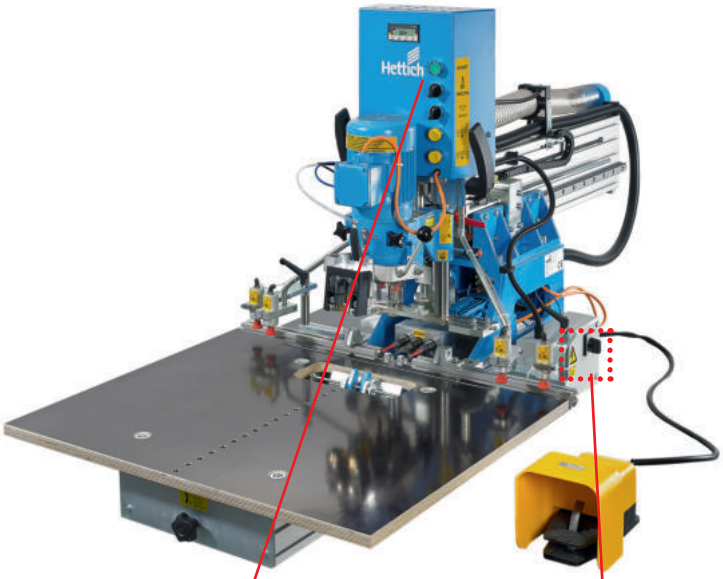
Turn on the power supply for the drive motor at master switch **1**.

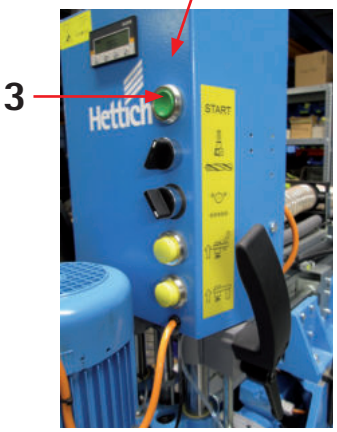
The same functions are given for foot switch **2** and pushbutton **3** on the control unit.

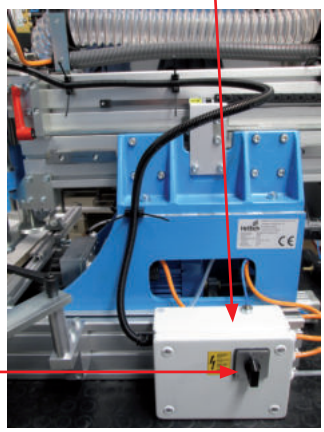
Both controls must remain pressed until a complete work operation has been completed.

If you release the pushbutton or foot switch beforehand, the machine will abort the work operation and the drilling unit will return to the home position.

You must re-start the process.



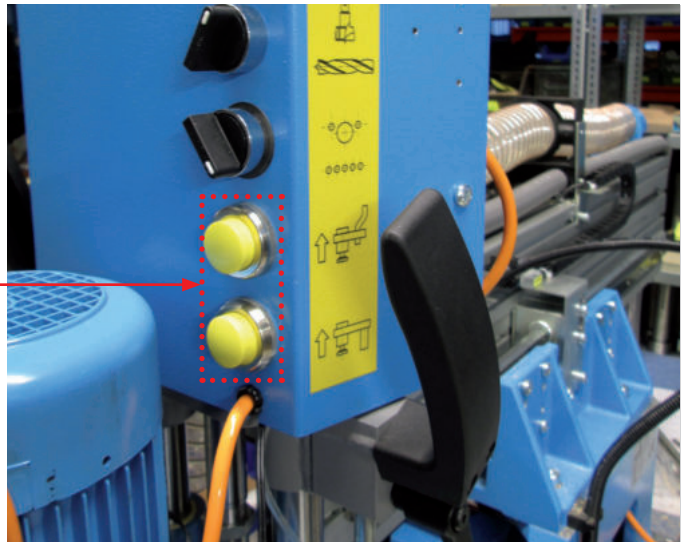




⚠ WARNING

Warning – Hand injuries!

While the machine is operating, always keep your hands away from the drill bits, hold-down clamps and insertion die to prevent injury.

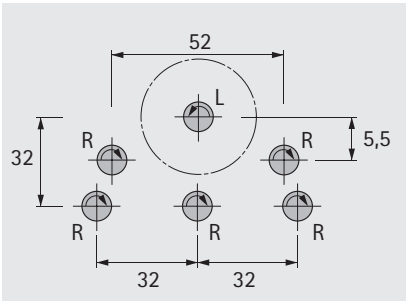


Hold-down clamp

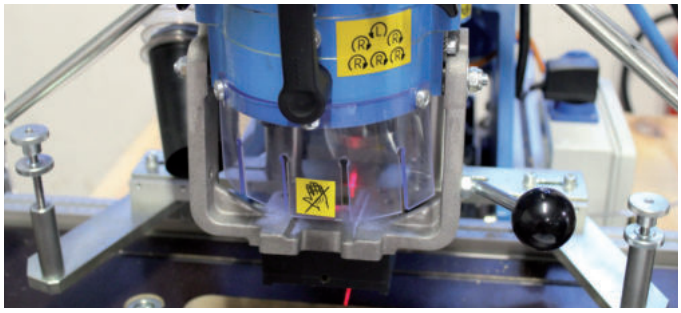
The hold-down clamps are automatically tensioned on actuating the manual valve or foot switch and can be released again by pressing yellow button **1**.

Activation is either by means of the manual switch valve or foot switch. To do this, press the manual valve or foot switch until the drill bits have reached the end position (drilling depth stop). On letting the switch go, the drilling head returns to the home position.

Setting up Hettich hinges



1. An anticlockwise 35 mm diameter drill bit is chucked in the three rear drill spindles, and two clockwise 10 mm diameter drill bits chucked in the auxiliary drilling spindles. The front drilling spindles must be closed off with a cap so as to prevent the threaded pin from working itself out and provide effective protection from soiling.



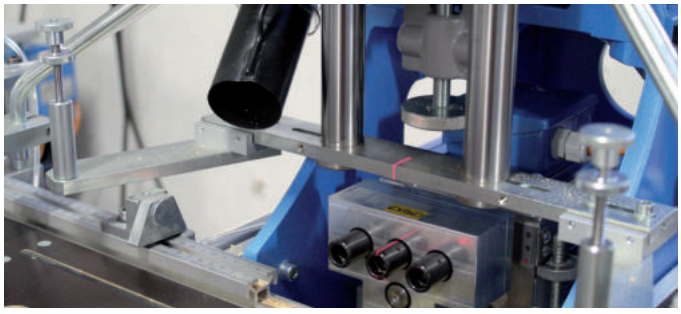
2. Set drilling depth stop. Carry out trial drillings for each to establish the exact drilling depth.

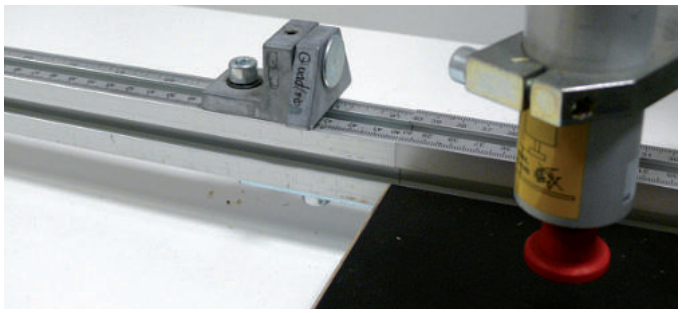
3. Using the scale, set pendulum stops on left and right to the required dimensions.

⚠ WARNING

Do not set any stops near the drilling head as otherwise serious damage could be caused, for example, to the drilling spindles and drilling unit.

Carry out trial drilling. Check dimensions.





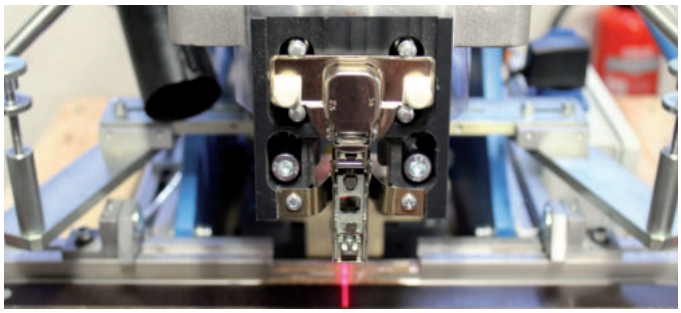
Drilling

1. Place workpiece in front of the fence and set the pendulum stops. Initiate the drilling process using the manually operated valve or foot switch and terminate it by releasing.

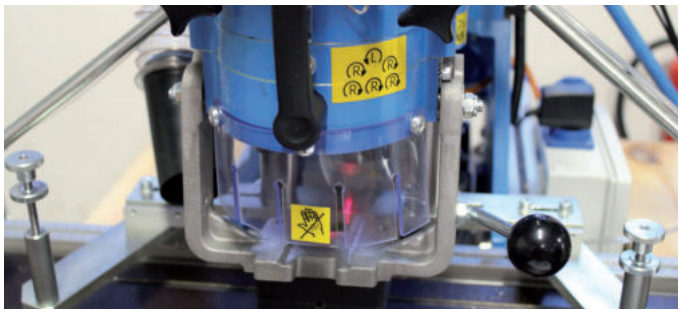
2. The Hettich hinge for fast installation on the cup side can now be fitted by hand.

Pressing in

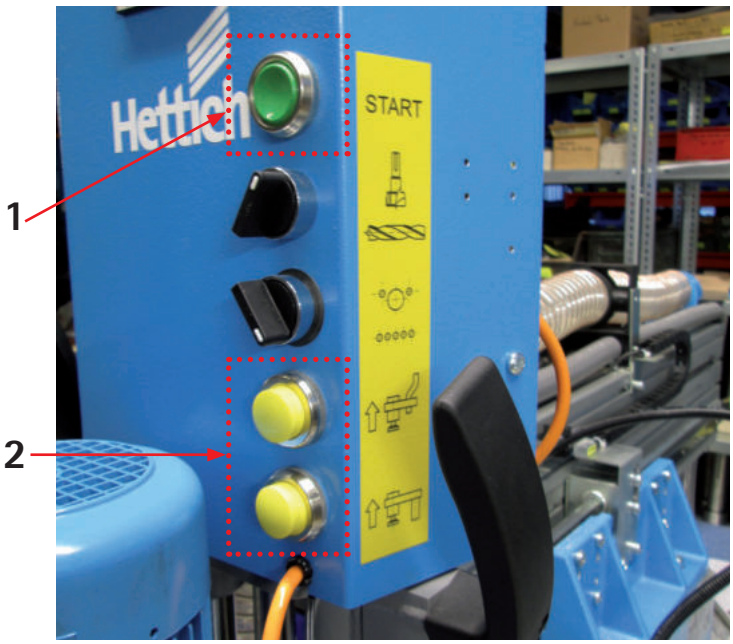
1. Clip hinge with premounted sockets into the insertion die for hinges and press hinge arm in between the retaining springs.



2. Move catch with hinge insertion die down as far as the stop over the drill hole.



3. Initiate the insertion process by pressing manually operated valve **1** and terminate by releasing.
Move up the hinge insertion die.
Release hold-down clamp using lower momentary switch **2**.
Remove workpiece.



4. Malfunctions during operation

Troubleshooting

Machine malfunctions must only be rectified by qualified staff instructed to do so by the person responsible.

In identifying the source of malfunction attention must be paid to the entire area surrounding the machine. The manufacturer must be immediately notified of any damage occurring during the warranty period.

WARNING

Safety regulations while identifying the source of malfunction and rectifying malfunction!

Observe the accident prevention regulations!

- In the event of a mechanical malfunction, make sure that the assembly jig is depressurised!
- Prevent the machine from switching back on again and attach a warning sign!

5. Checks during operation

The operating personnel must watch over machine operation.

- For your own personal safety and absolute machine operating safety, carry out the stated visual and safety checks once to twice per day / shift.

In extreme operating or ambient conditions, increase the number of checks per shift.

Checks for proper working order

- Is the machine running smoothly and with little vibration?
- Constantly watch out for any changes and operating noises.

9. Servicing / care

1. General information

Inadequate, improper and / or unpunctual servicing will increase risk potential and may lead to operating malfunctions, high repair costs and long down times. The risk is borne solely by the owner.

Working on electrical components

Faulty electrical components must only be replaced with replacement parts of identical design.

Before attempting any work on electrical equipment, always disconnect it from the power supply and consult qualified personnel.

DANGER!

Electrical operating equipment as well as specific parts of these devices may carry a dangerously high level of voltage even when they are switched off.

For this reason, handling electrical operating equipment improperly may result in serious damage and / or damage to property.

WARNING

Electrical equipment must only be repaired by qualified personnel.

Before attempting any work, reliably disconnect the relevant device from the mains power supply and earth it. Only use approved replacement parts (e.g. fuses) with specifications that match the data in the equipment parts list.

2. Instructing maintenance personnel

Before attempting any work, familiarise yourself with the machine as well as with this operating manual and always work in a way that meets the safety requirements.

Also follow any non-Hettich operating instructions in the appendix to this operating manual.

Before attempting any maintenance measures, make sure that:

- the machine has been shut down and prevented from switching back on again and cannot be started up unintentionally or by mistake,
- the compressed-air supply to the machine is shut off and the machine is depressurised.

all intended work is brought to the attention of a supervising person.

WARNING

Immediately renew worn and / or damaged components.
Otherwise, you will jeopardise your personal safety, the machine's operating safety and the safety of your surroundings.

Recommendation

Only use genuine replacement parts.
Replacement parts or items of equipment not tested and / or approved by Paul Hettich GmbH & Co. KG may impair the machine's active and passive safety.

In all work, refrain from applying any abnormal level of force above and beyond the extent necessary to undo / fasten connections and/or screwed joints.
For maintenance work, only use suitable tools that are in proper technical working order, using them correctly and in a way that meets the safety requirements.

3. Making the machine safe on shutdown

- Switch OFF the power supply to the machine (unplug).
- Detach the compressed-air hose (compressed-air supply).
- Prevent the machine from being switched back on again without authorisation.
- Clean the machine as described in the relevant section.
- Affix a warning sign to the machine in compliance with accident prevention regulations.

DANGER!

CAUTION! Servicing work in progress!
Do not switch machine on

Ensure good pollution-control practice

Contaminated dirt (washing water, oils, greases) must be collected and disposed of in accordance with regulations.

4. Cleaning the machine

The entire machine must always be cleaned after it has been used. This is best done by wiping it down with cloths and / or vacuuming it with an industrial vacuum cleaner.

NOTE

Never use compressed air to blow the machine clean.

Clean at shorter intervals if operating conditions make this necessary.

Clean the machine

- only by suction as stipulated, never by blowing it clean with compressed air,
- only with a dry cloth to remove left-on lubricants etc.,
- regularly clean off drilling dust.

Follow health and safety regulations and relevant provisions when handling hazardous and/or groundwater polluting liquids (e.g. oil, cleaning agents or solvents as well as other chemical substances).

Never clean hands with aggressive, highly flammable and health harming solvents or cleaning agents.

Electric motors

All electric motors must be cleaned at regular intervals because dirt and dust act as an insulating layer which may cause motors / coils to overheat.

Labelling, information signs

Labelling / information signs must be

- cleaned with a cloth,
- checked for secure attachment and legibility and
- replaced if they are damaged.

Laser

If using the laser, it must be cleaned at regular intervals with a dry cloth.

5. Servicing work

Servicing and maintenance

Before attempting any maintenance measures, make sure that:

- the machine has been shut down and prevented from switching back on again and cannot be started up unintentionally or by mistake,
- the compressed-air supply to the machine is shut off and the machine is depressurised.

Regularly check electrical cables and compressed air lines on the machine. Immediately replace faulty or damaged components.

WARNING

Risk of injury
Servicing and maintenance work must only be carried out by instructed, qualified personnel.

Before attempting any servicing and maintenance work, switch the machine off, disconnect the compressed air supply and implement measures to prevent the machine from being switched back on again without authorisation.

Only use genuine replacement parts. Replacement parts or items of equipment not tested and / or approved by Paul Hettich GmbH & Co. KG may impair the machine's active and passive safety.

In all work, refrain from applying any abnormal level of force above and beyond the extent necessary to undo / fasten connections and/or screwed joints.

For maintenance work, only use suitable tools that are in proper technical working order, using them correctly and in a way that meets the safety requirements.

Before working on the pneumatic system, clean the machine, at least the work area, as described below.

- Depressurize compressed-air lines and hoses of the pneumatic system.
- Carefully detach hoses. Escaping compressed air may swirl up dust.
- Protect air connections to prevent them from becoming dirty (mask if necessary).
- Never mix up connections, plugs or switches. This will inevitably result in malfunctions
- Always work with the greatest possible level of cleanliness.

Servicing unit

The servicing unit keeps dirt, dust, water and oil droplets out of the compressed-air line. Always make sure the reservoir is emptied in good time. The filter has no effect if the reservoir becomes too full. This will result in malfunctioning and faster wear to valves and cylinders. The necessary intervals must be defined internally as they will largely depend on the quality of compressed air provided.

Servicing units must be checked for water at the sight glass every day.

NOTE

After completing all work, make sure all screws and lines are securely connected on the compressed-air systems.

6. Instructions on inspections

Inspections are measures for establishing and assessing the actual condition of a machine and its components.

NOTE

Inspections are carried out as preventive maintenance and to ensure your personal safety.

Failure to carry out an inspection in good time is deemed non-intended machine use.

The machine operator must check the machine on a daily basis for externally visible faults and immediately rectify any faults identified or, if this is not possible, report them.

The machine must only be operated if it is in proper working order.

The machine's surroundings must be kept clean and clear of stumbling hazards. Compressed-air hoses and suction extraction hoses must be routed so as not to be in the way of the machine operator and restrict movement.

The prescribed servicing work must be carried out at the intervals shown. If necessary, the owner must define other appropriate intervals or specify additional work.

During weekly cleaning work, all of the machine's components should be checked for wear and damage wherever possible. The sooner damage is identified, the less it will cost to repair.

Once fitted, check all screw connections for secure fit! This applies in particular to all components exposed to dynamic strain.

During monthly servicing work, carry out random checks on screw connections exposed to dynamic strain!

Check safety guards at regular intervals (at least once a month) for proper working order.

Check all electric cables and compressed-air hoses for damage and secure fit.

Check cable glands at terminal boxes for proper sealing and secure fit.

General

Regularly clean drilling dust off the machine.

Regularly check electrical cables and compressed-air lines.

Immediately renew faulty or damaged components. Only use genuine replacement parts.

10. Malfunctions / troubleshooting

1. General information

NOTE

Always first identify the cause of any malfunction.

Safety precautions

Machine malfunctions must only be rectified by qualified staff instructed to do so by the person responsible.

In identifying the source of malfunction attention must be paid to the entire area surrounding the machine. The manufacturer must be immediately notified of any damage occurring during the warranty period.

WARNING

Safety regulations while identifying the source of malfunction and rectifying malfunction!

Observe the accident prevention regulations!

- In the event of a mechanical malfunction, make sure that the assembly jig is depressurised!
- Prevent the machine from switching back on again and attach a warning sign!

2. Malfunctions caused by the owner

Before leaving the factory, the machine / system was checked for proper working order by our skilled personnel.

Malfunctions attributable improper treatment, non-intended use or poor (unpunctual / improper) servicing are not covered by the warranty. The risk is borne solely by the owner.

3. Troubleshooting

CAUTION

Observe the regulations, warnings and precautions when carrying out any troubleshooting activity

When locating any fault, proceed in stages and make a written note of observations, testing or measuring results.

Try and establish as accurately as possible which operating situation the malfunction occurred in, in other words try and answer the following questions:

Which work operation was the machine still performing properly?

After which work operation did the malfunction start to occur?

Does the malfunction occur regularly or only occasionally?

In the case of occasional malfunctions, try to find out whether the malfunction can be associated with events or actions immediately before the malfunction occurs.

Does the malfunction only occur in conjunction with specific components (material, shape, particular profiles)?

Observe the operating manuals for all additional equipment / options.

General causes of malfunction

Before removing components in any troubleshooting activity, first make sure:

- the machine and / or its equipment is not showing any visible damage,
- the machine is clean and no dust deposits are obstructing or affecting the way components move,
- the compressed-air supply is working properly and operating pressure is within the permissible tolerance (6 - 7 bar),
- the mains power supply conditions match the specifications for the electric motors (rating plates) and / or electric equipment, and motor protection is correctly set, and
- servicing measures have been performed on time.

Malfunctions while machine is operating

All work involved in repairing, setting, troubleshooting and servicing must only be carried our by duly instructed, trained and authorised skilled personnel.

Always consult the machine setter in the event of any malfunction.

Try and locate the area of the machine the malfunction has occurred in.

Check whether:

- switches are incorrectly set or faulty,
- air hoses are leaking or kinked, and
- electric cables have been damaged by the switches or solenoid valves. It is not uncommon for electric cables to break.

4. Reporting malfunctions

If the information given above does not help you to remedy a problem, please contact Paul Hettich GmbH & Co. KG by telephone.

Please remember, though, that we too can only give swift assistance if we are provided with detailed information and fault descriptions.

11. Dismantling / disposal

1. General information

When dismantling the machine, always observe the national and international laws applicable in the country of use. We can only give basic information on dismantling and disposing.

Observe the regulations, warnings and provisions on health, safety and environmental protection for all work.

We recommend instructing an approved dismantling / disposal company to dismantle and dispose of the machine / system.

Before dismantling

For decommissioning / dismantling the machine / system, it is important to be familiar with the space that is needed. This includes aspects such as clearance heights, narrow transport routes and tight spots when the machine is taken away.

Space must be available for work equipment or sufficient space designated for this.

Before commencing work, always inspect the dismantling area and mark it off with barriers.

Before dismantling, you should familiarise yourself with the structural stability of the machine / system and with any weak points it may have, and draw up an appropriate dismantling plan.

Provide appropriate receptacles and transportation containers for the various materials.

A carefully devised work and safety plan provides a sound basis for a well-organised procedure.

2. Taking out of service

When taking the machine out of service, it must be disconnected from the compressed air supply to dissipate the residual or stored energy.

Danger from electric shock!

Even after the machine is switched off, cables in the control cabinets are still live

- Power supply cables
- Control cables to the power switch
- Undervoltage supply

WARNING

Risk of injury

The compressed air supply must be disconnected by industrial mechanics or by persons of similar qualification.

3. Dismantling

General information

Act with particular caution when dismantling the machine.

DANGER!

Warning! There is an elevated risk of injury and accidents!

- Always wear ear protection when performing very noisy work.
- Only use tested and approved tools for dismantling the machine.
- Only use suitable and approved industrial trucks and lifting gear (crane) for transporting the machine, assemblies and components as well as for lifting heavy loads.
- Always use the prescribed personal protective equipment (safety goggles, protective clothing, ear protection, safety shoes etc.).

Dismantling the machine / system

NOTE

On dismantling also follow the information under "Installing / fastening" in the section on "Technical information".

- Undo all screw connections and label the screws and screw positions in case the machine / system is ever re-installed.

4. Hazardous substances / disposal

Dispose of the packaging in an environmentally friendly manner.

The BlueMaxMini type 3 contains components which must not be disposed of as household waste but as hazardous waste.

Under the European WEEE directive, electrical and electronic devices must not be disposed of with household waste. Their components must be recycled or disposed of separately because toxic and hazardous components can cause lasting damage to the environment if they are disposed of improperly.

On request, the manufacturer will provide details of the take back concept in effect.

Any disposal must be in accordance with regulations and in observance of the law.

Dismantled components must be collected separately by material group, non-recyclable residuals must be disposed of.

Observe the Regulation on Electronic Scrap when disposing of drives and items of equipment as well as electric / electronic components.

Maintenance (servicing) and repair work may produce the following waste materials requiring disposal – at the responsibility of the machine owner:

- lubricants, greases, oils and chemicals
- technical gases, e.g. nitrogen
- cleaning agents and expendables, as well as
- waste of all types, including worn machine components and tools
- Liquid wastes must be collected as groundwater-polluting substances in closed, approved containers and disposed of in the proper manner
- Immediately bind and neutralise any spilled liquids
- Never allow spent auxiliary substances (e.g. waste oils) to seep into the soil or sewer

Observe internal, local or regional provisions when disposing of any item.

When disposing of the machine (dismantling or scrapping) all components must preferably be recycled by material group.

After completely emptying and cleaning lubricant systems (drilling units etc.), dismantling them may necessitate disposal of the following material groups:

- metals: steel, grey cast iron, aluminium (mechanical engineering materials),
- plastics: PVC (hoses),
- elastomers: cable coverings, seals,
- electrical devices / operating equipment

Sort machine parts before disposal and dispose of them in an environmentally friendly manner.

Protecting the environment

CAUTION

The obligations prescribed in law with regard to avoiding waste and proper recycling / disposal must be followed during all work on and with the machines!

Particularly when carrying out installation, repair and servicing work, substances hazardous to water, such as

- lubricating greases and oils
- solvent based cleaning fluids

must not be allowed to pollute the ground or enter the sewer system!

These substances must be kept, transported, recharged and disposed of in suitable containers.

Scrapping

If the machine is ever taken out of service for good, the laws and regulations on disposal in force at that time must be observed and met.

At the time of final shutdown and disposal, it is necessary to dismantle and remove the entire energy supply system and dispose of the lubricating oils.

At the end of their useful life, machines must be disposed of by a specialist company qualified to do so.

It makes sense to check which materials can be recycled and then also do so.

Oil and oily wastes

CAUTION

Caution!

Oil and oily wastes are a huge potential threat to the environment. This is why they are disposed of by specialist companies.

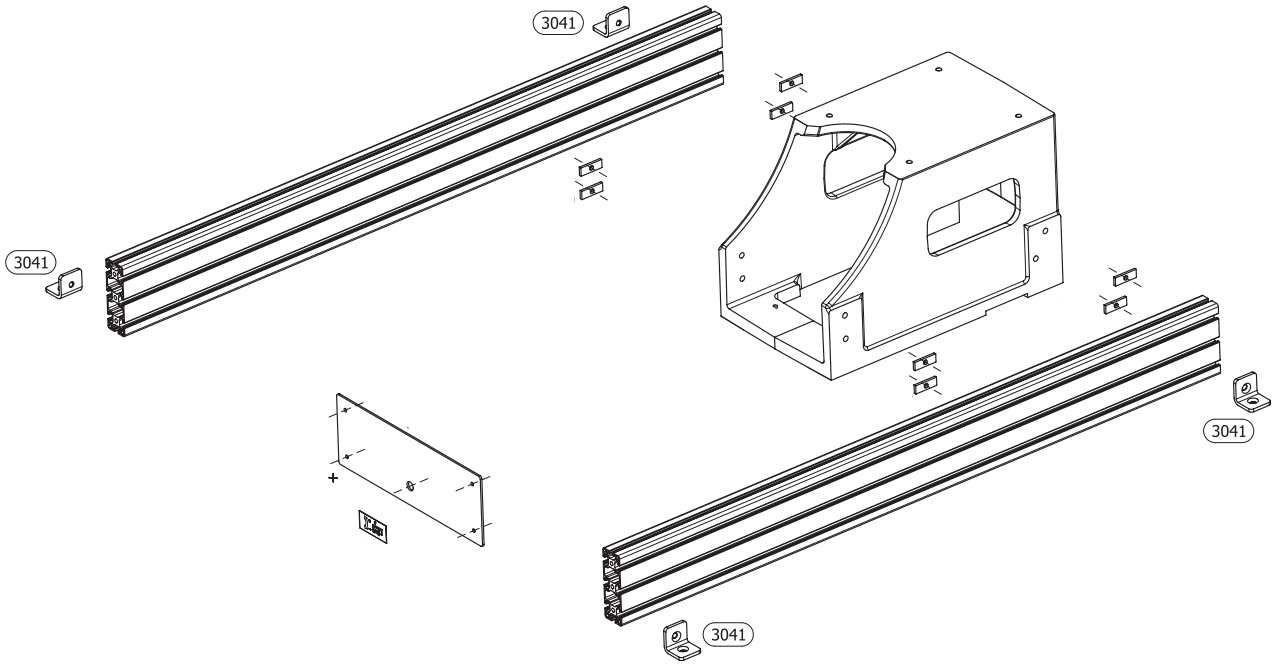
Channel these wastes into the company's internal disposal department which will then pass them on to specialist companies.

Replacement parts lists

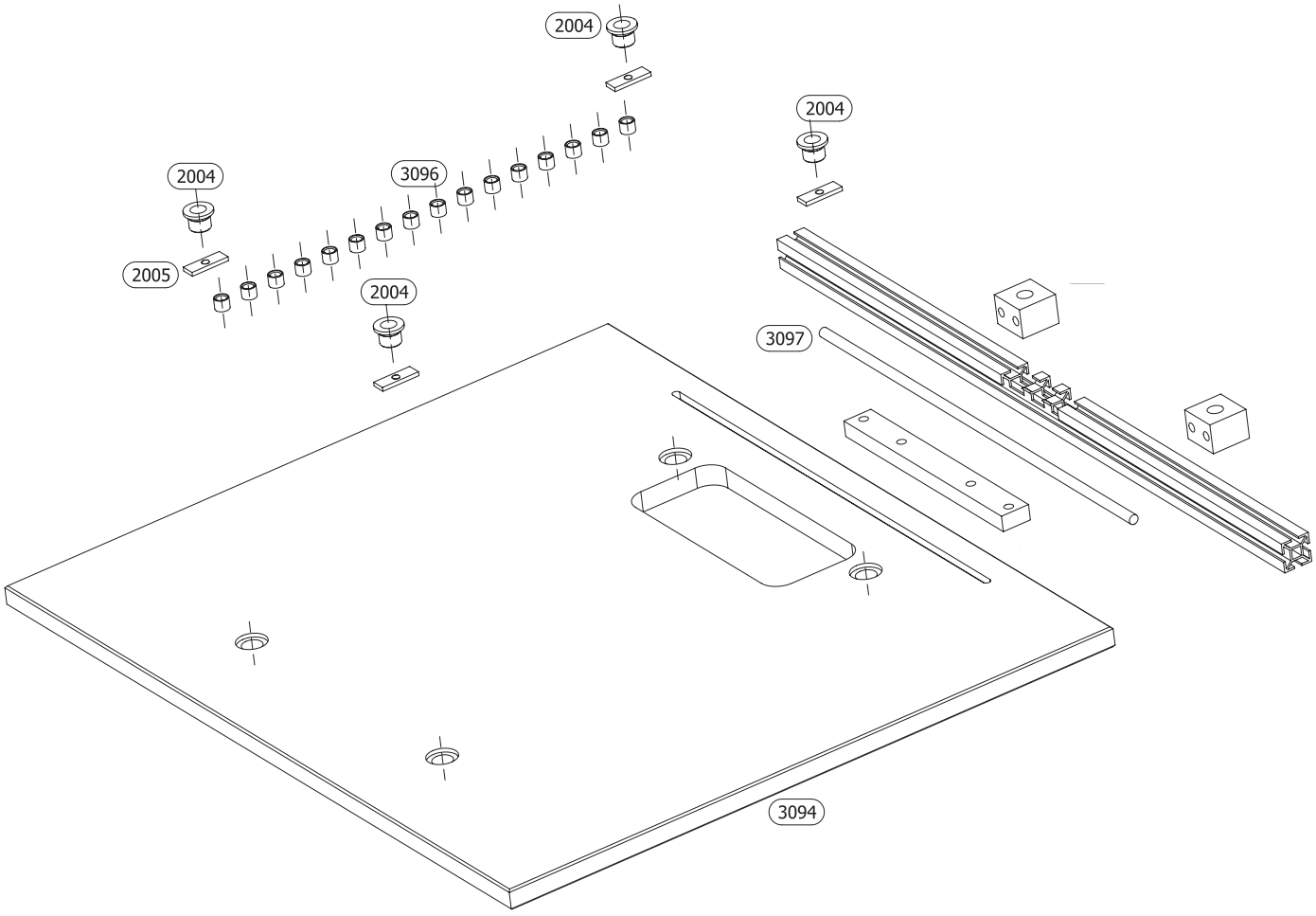
12. Replacement parts lists

Please note that the manufacturer's declaration or declaration of conformity given by Paul Hettich GmbH & Co. KG as manufacturer will lose its validity if non approved replacement parts are installed.

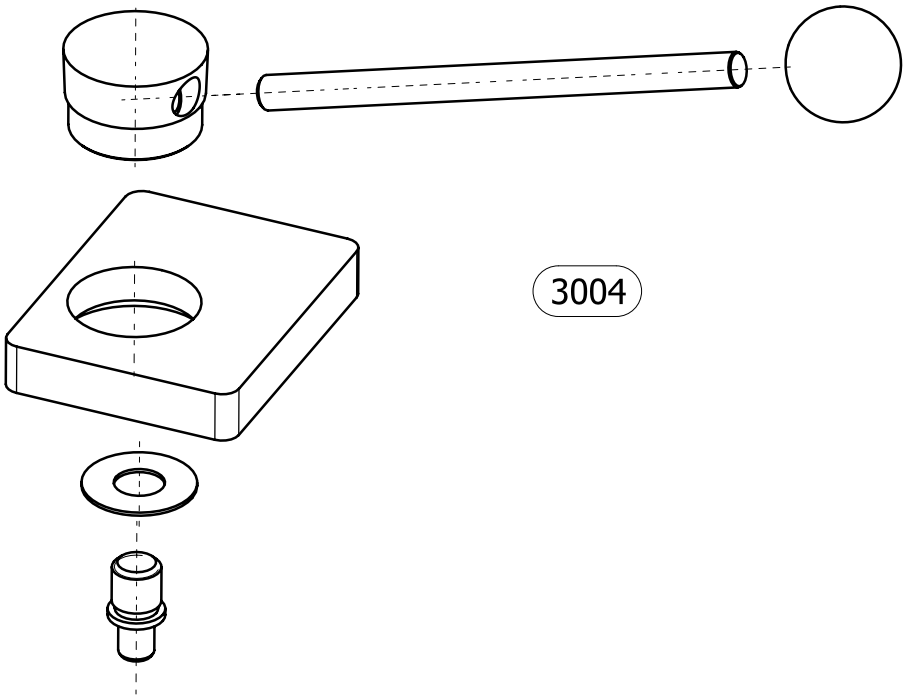
1. Base frame



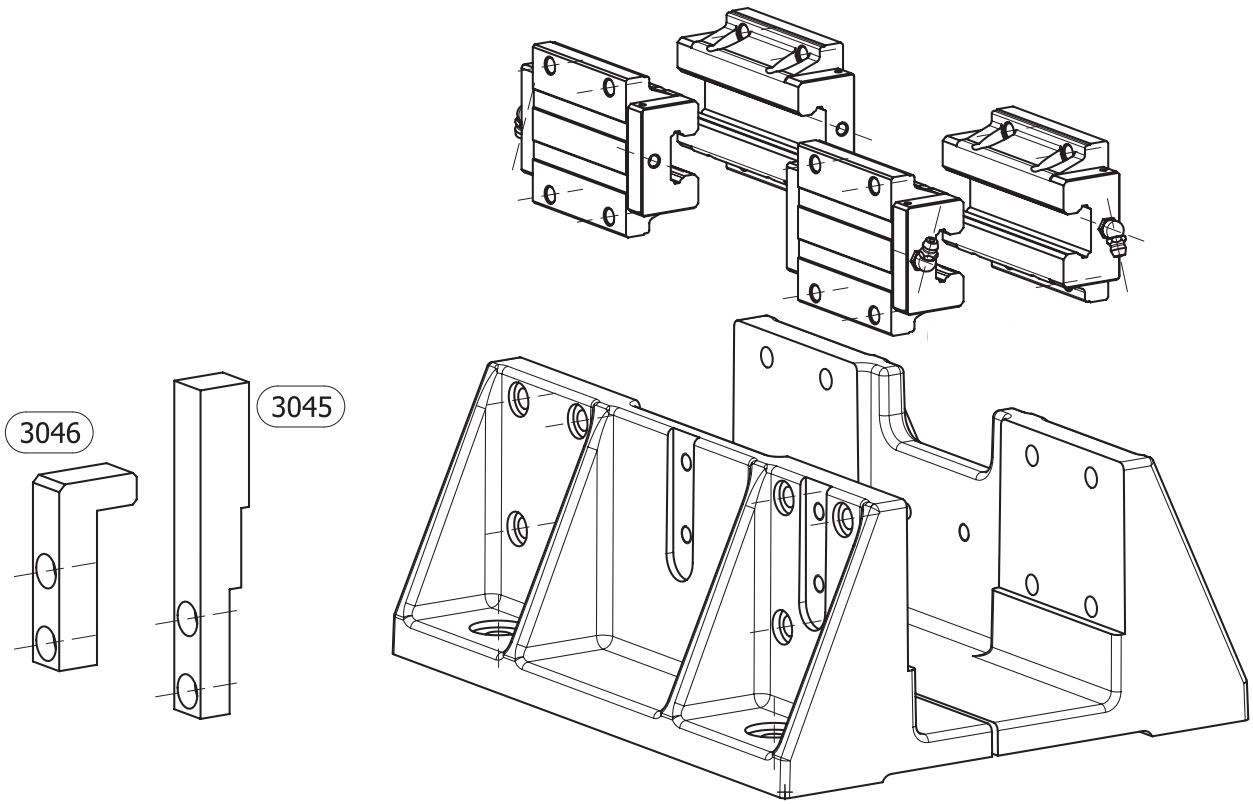
2. Work surface



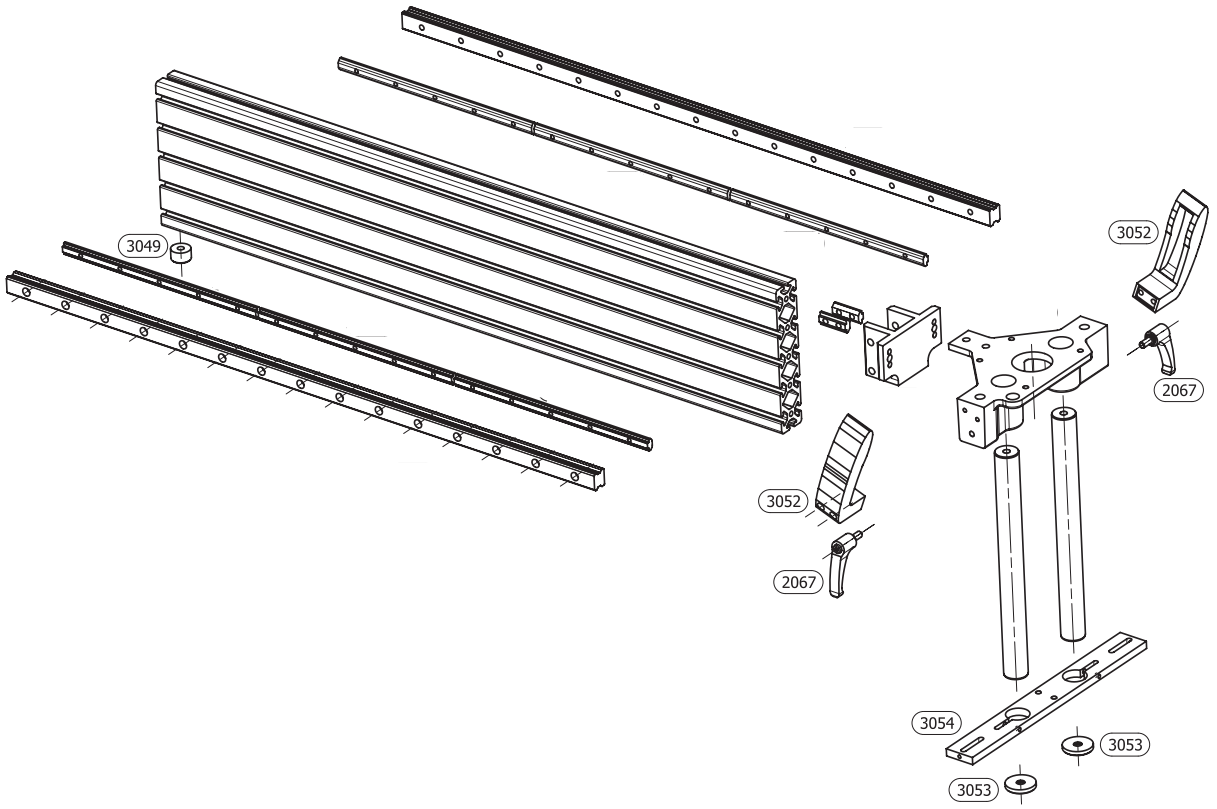
3. Eccentric tensioner



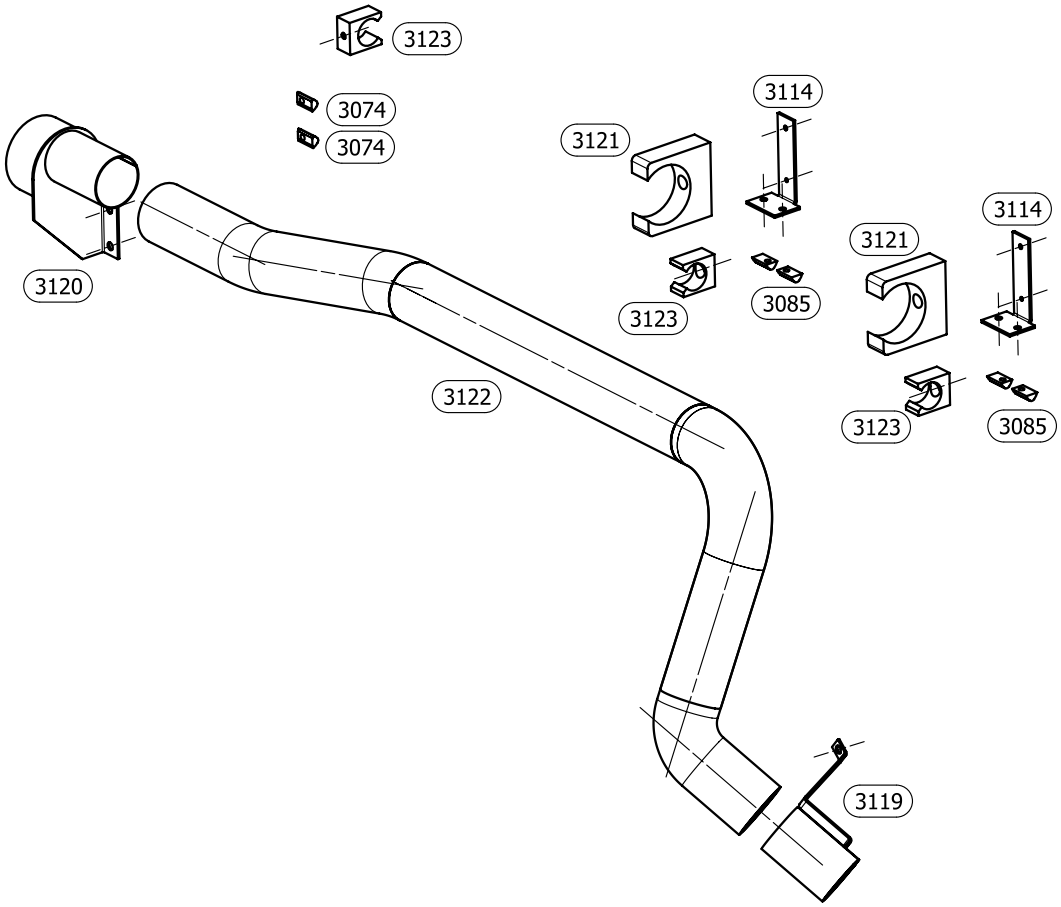
4. Guide frame



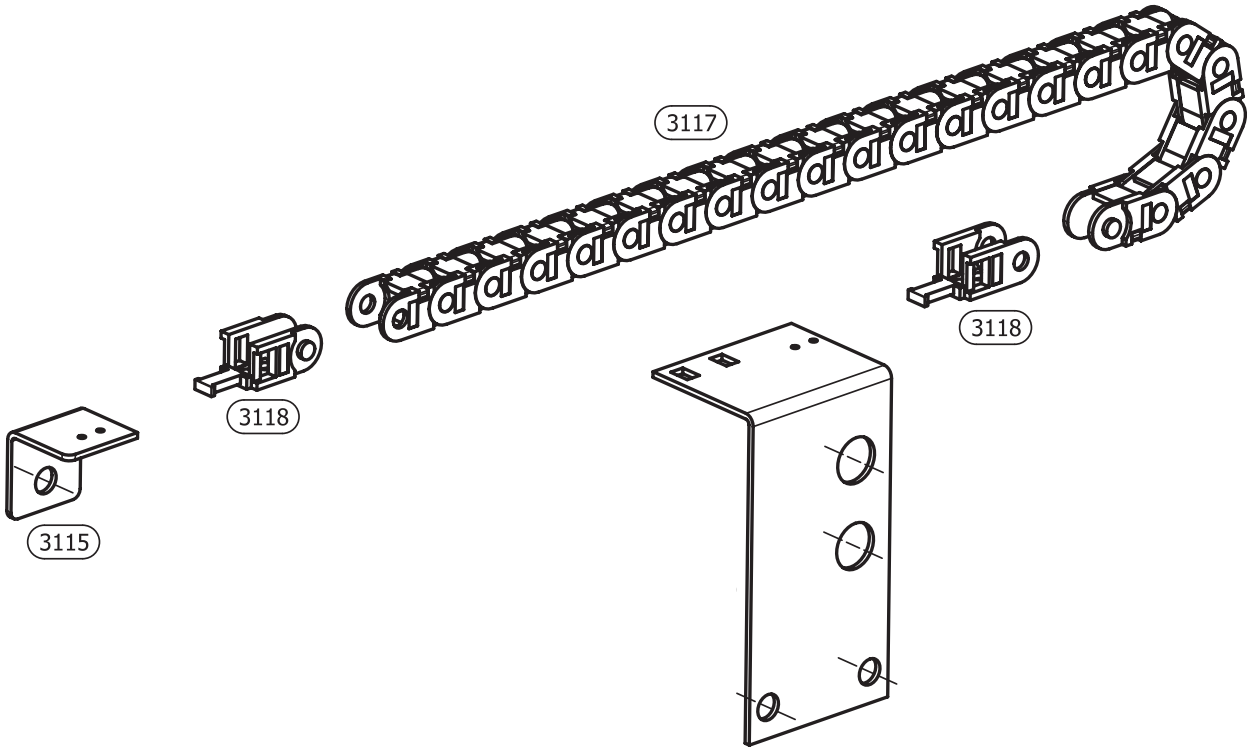
5. Foot extension



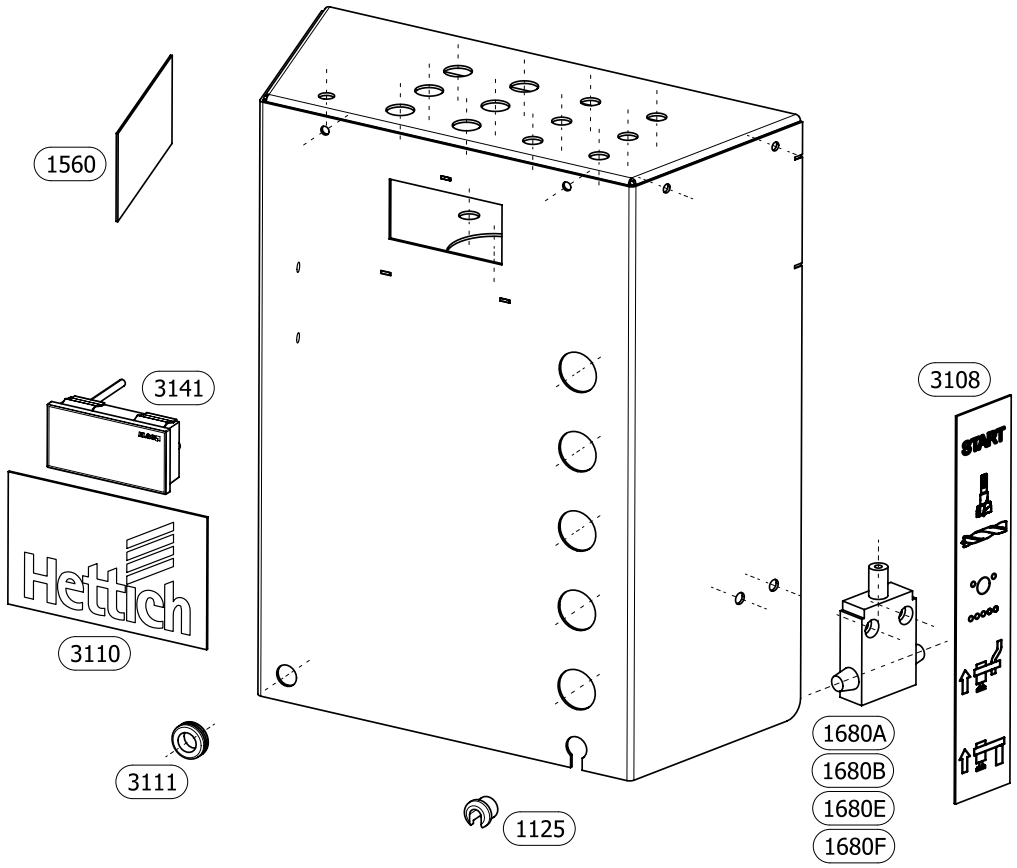
6. Suction extractor



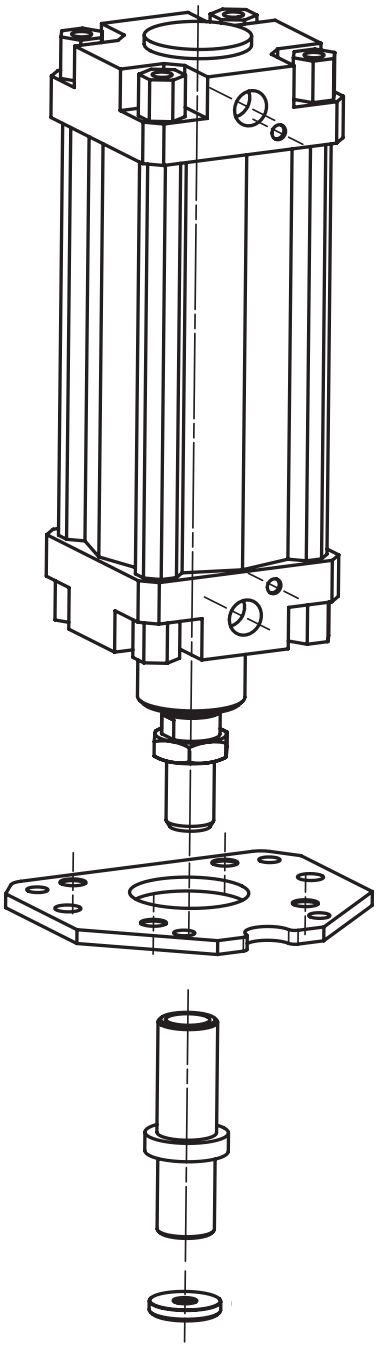
7. Cable drag chain



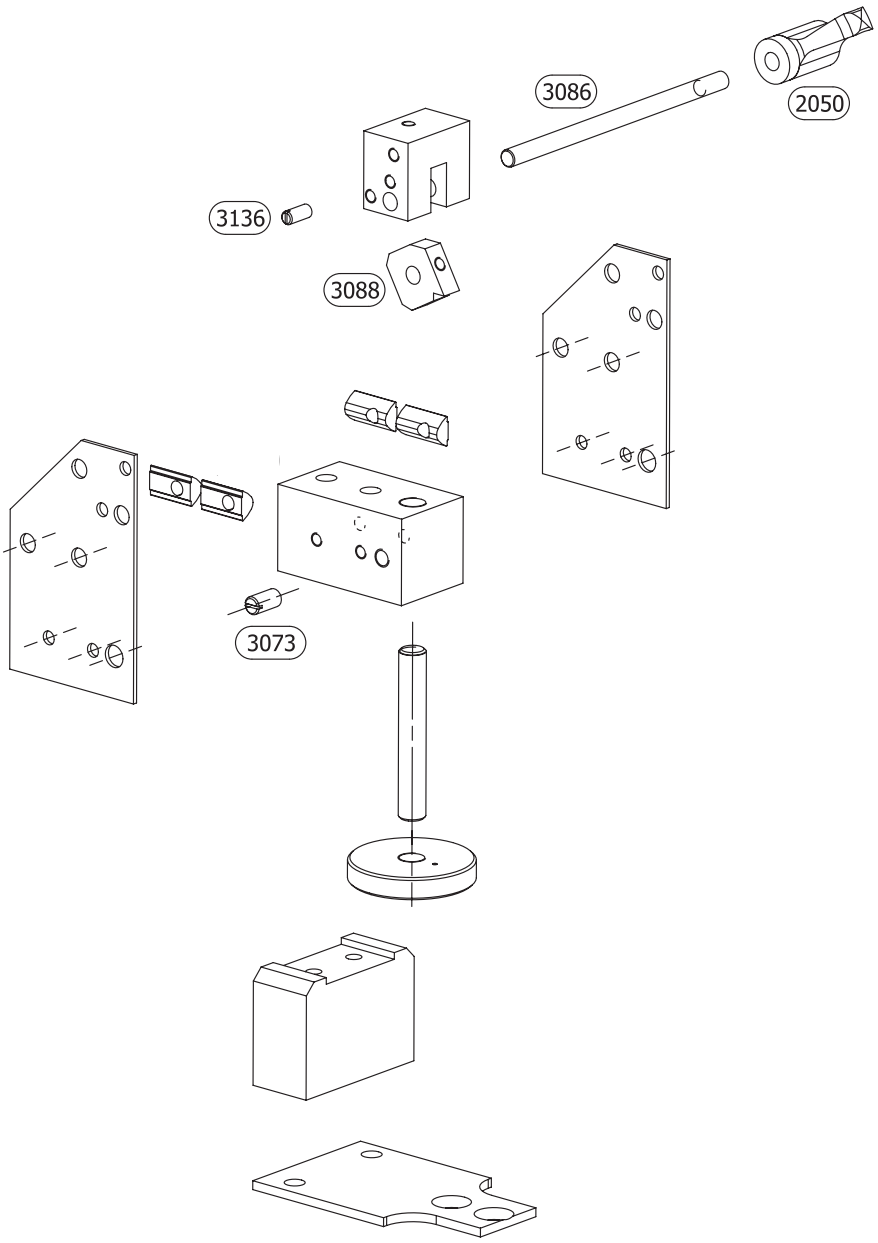
8. Console



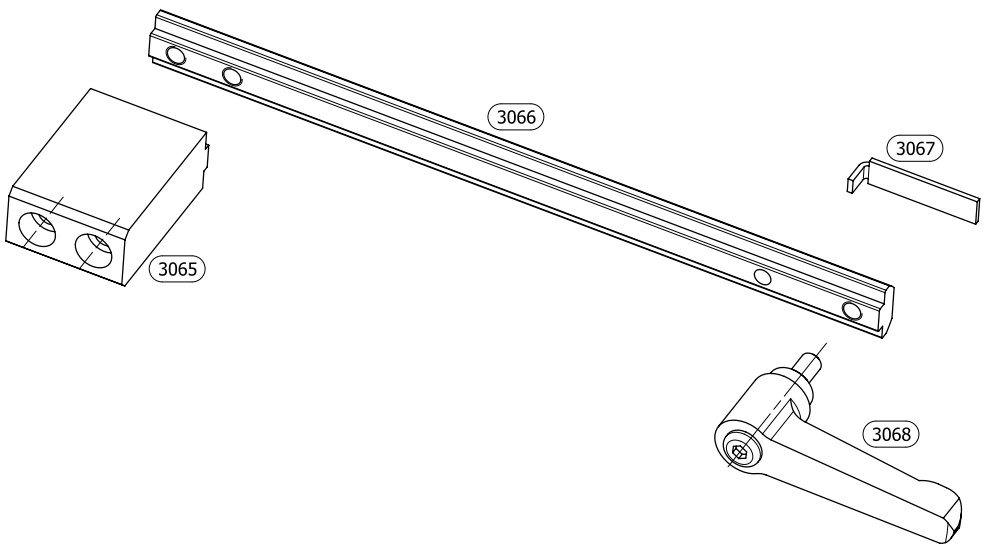
9. Lifting cylinder



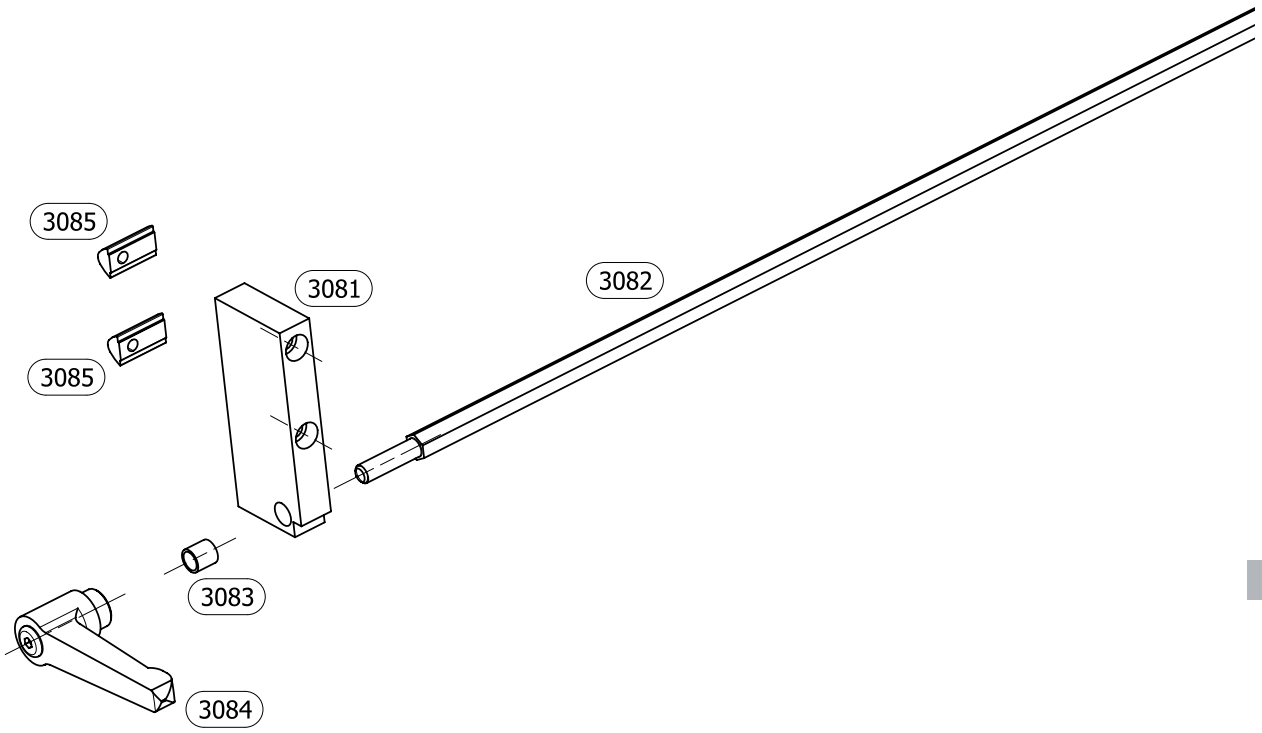
10. Drill depth stop

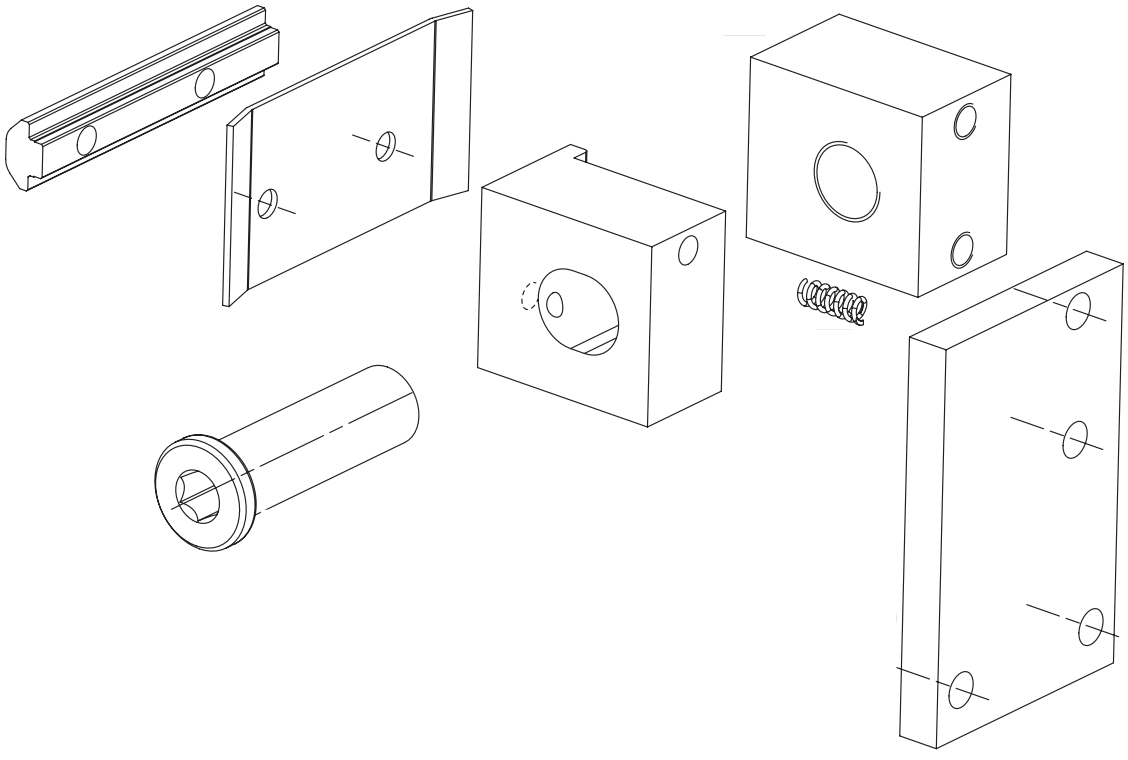


11. Adjustable stop

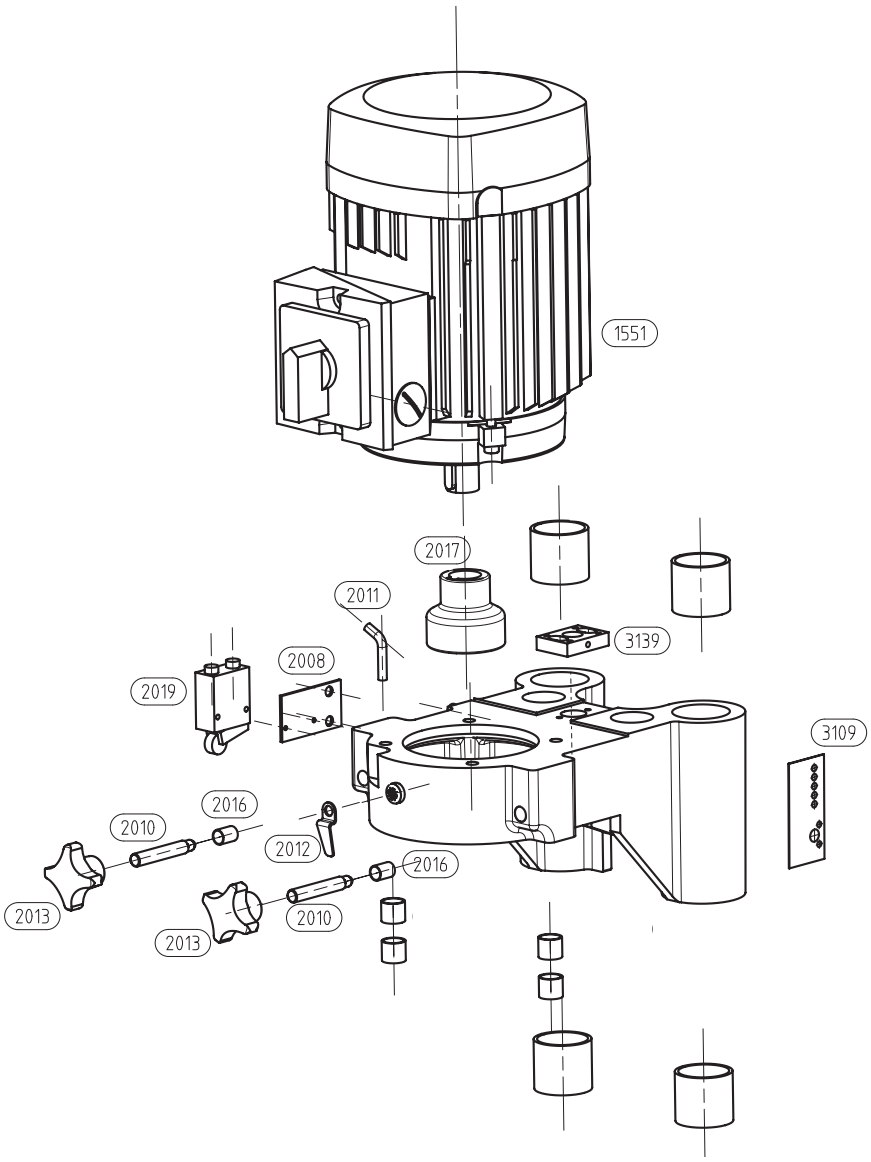


12. Clamping element

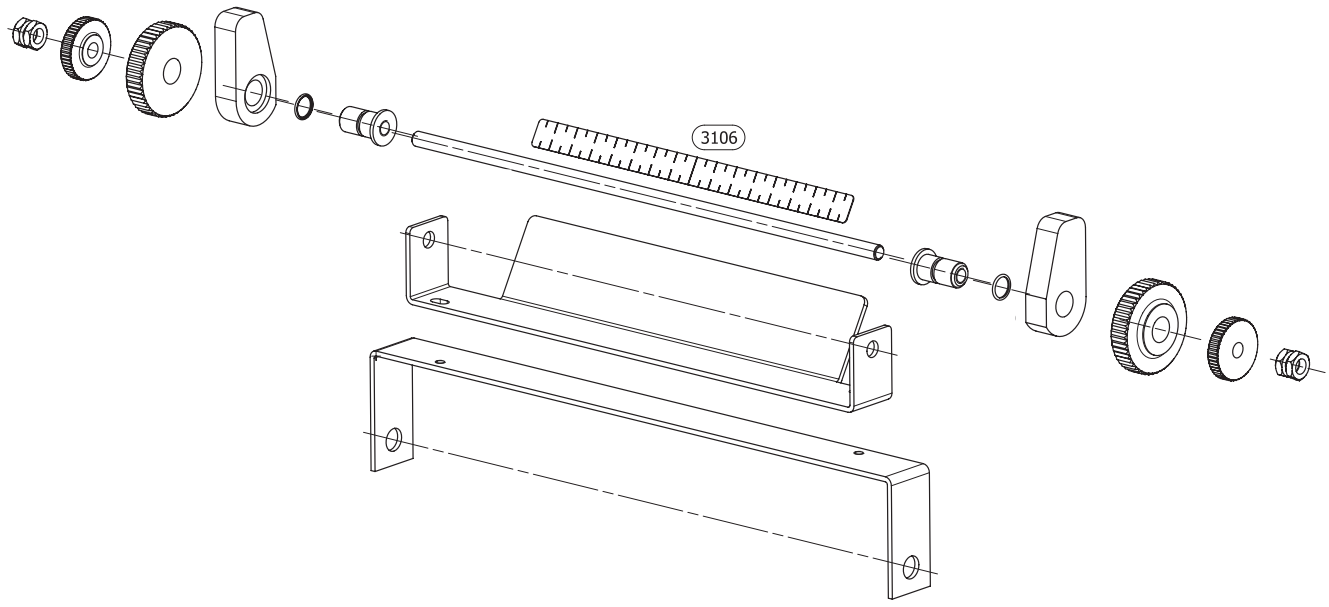




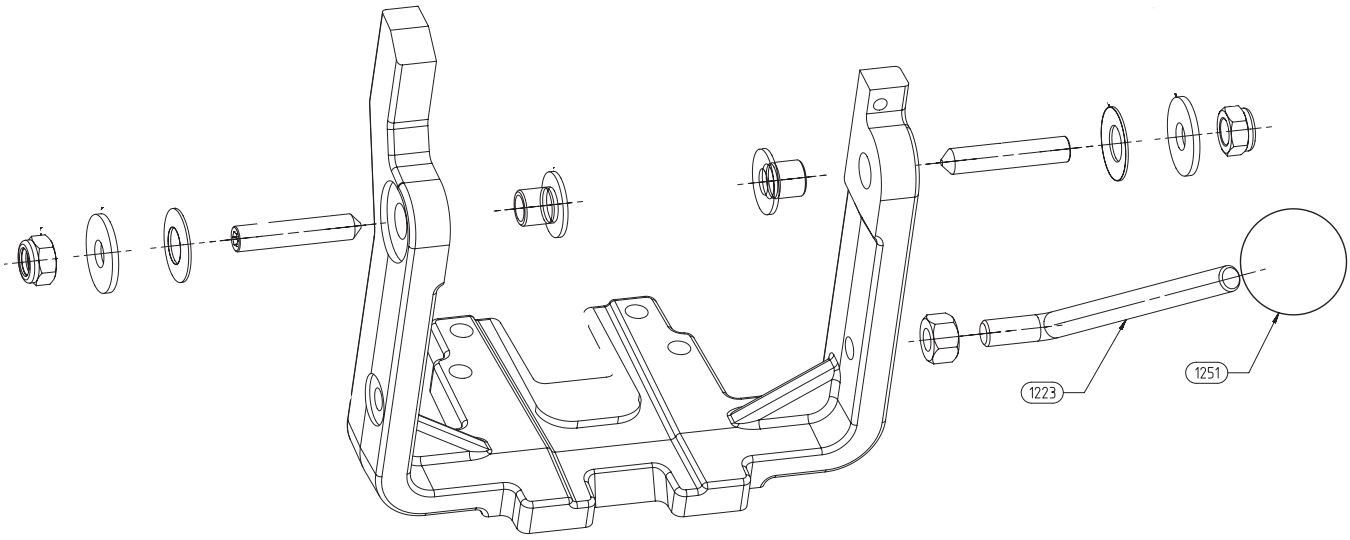
13. Motor with support



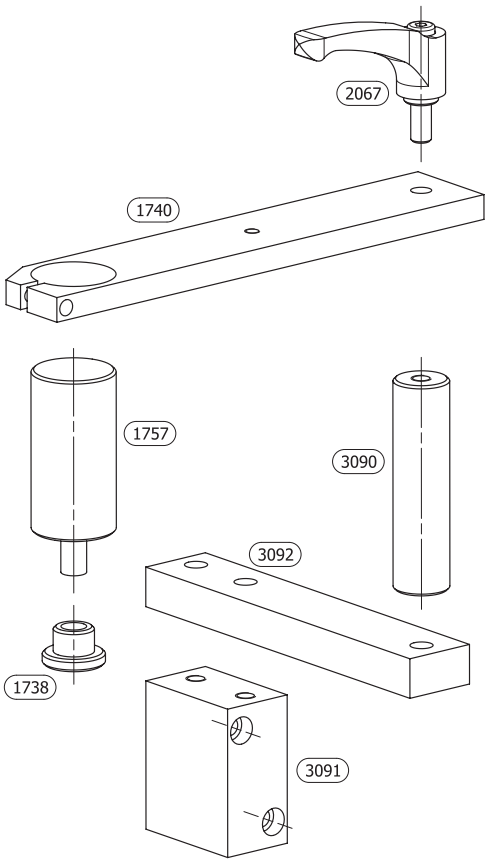
14. Centre stop



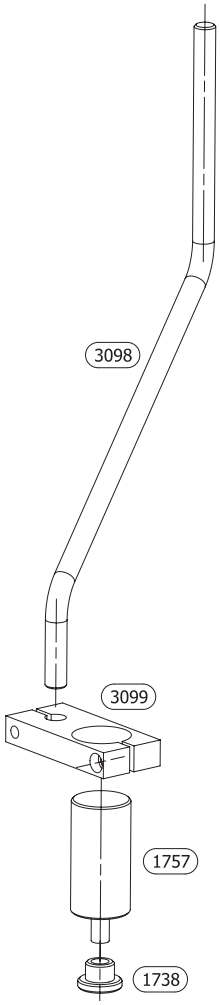
15. For press-in frame



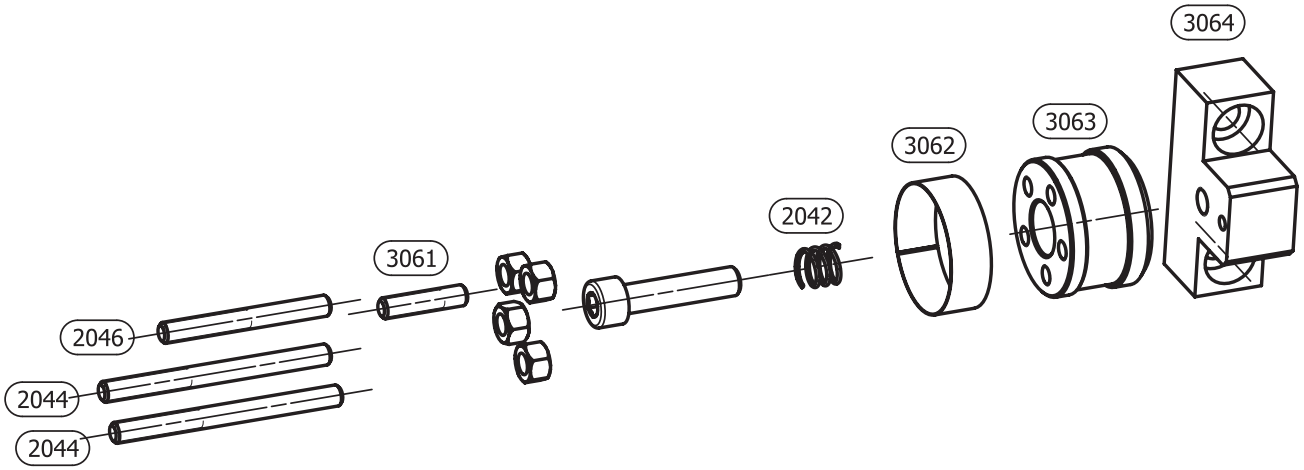
16. Hold-down clamp, rear



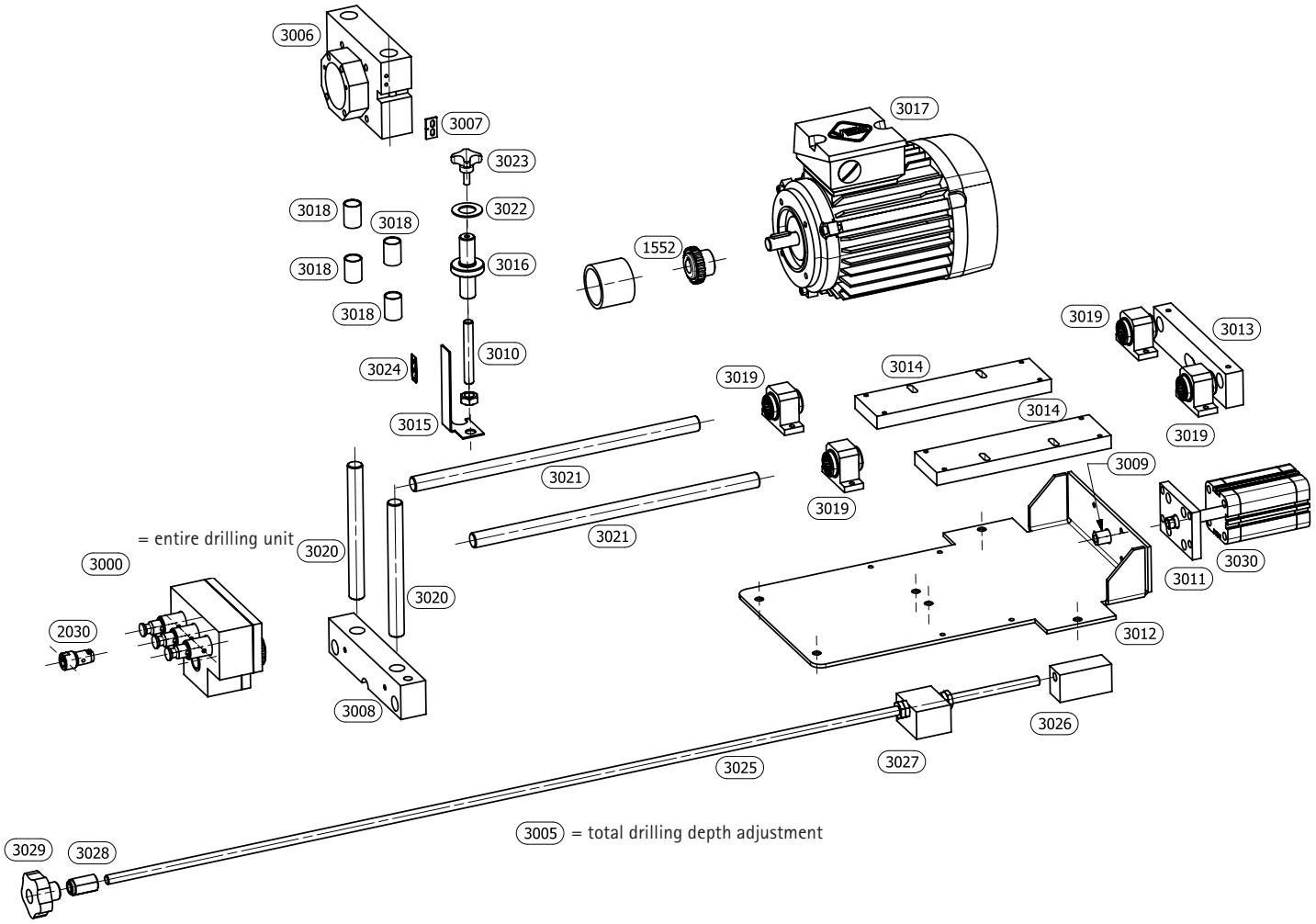
17. Hold-down clamp, front



18. Drum stop

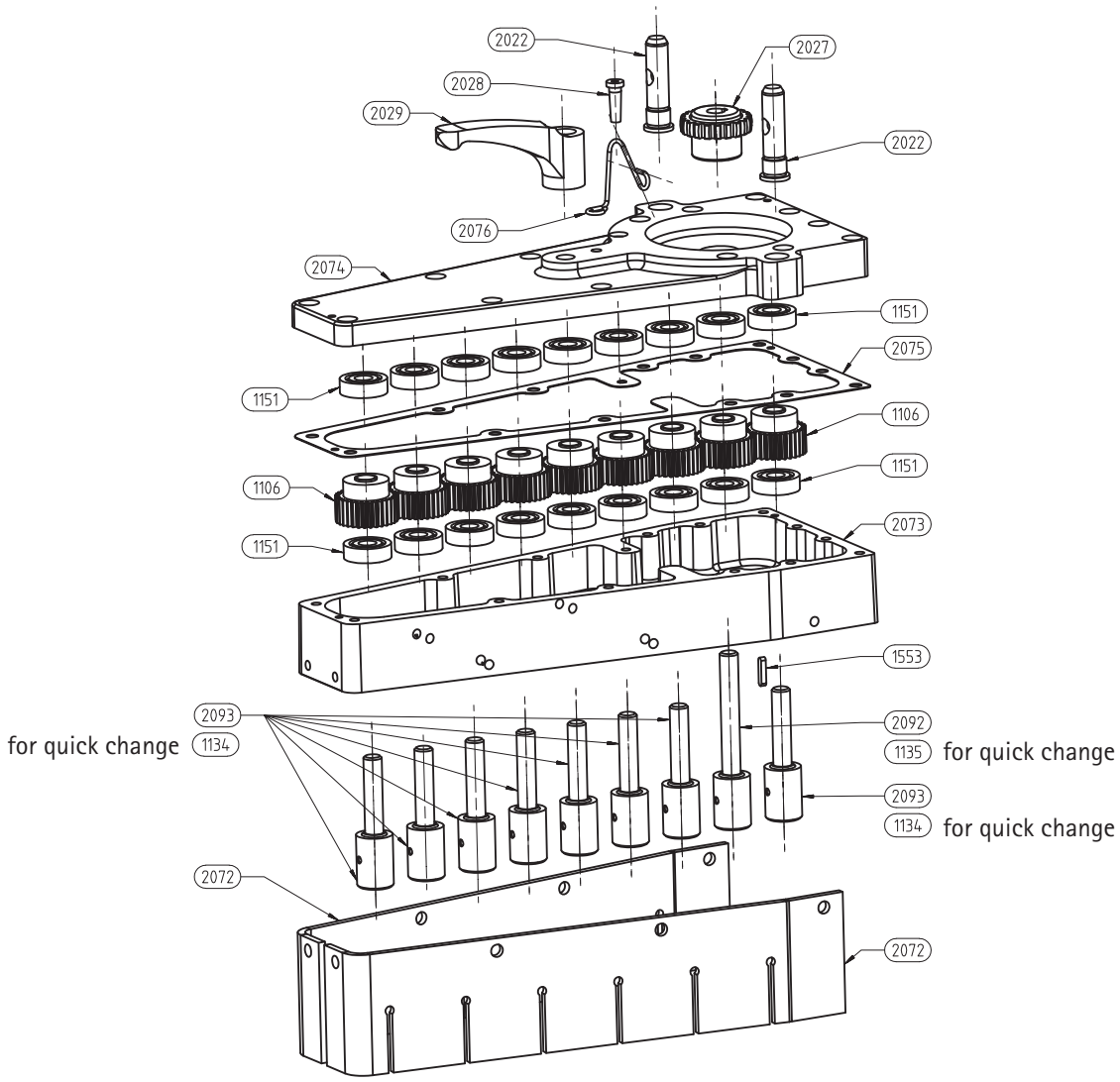


19. Horizontal drilling unit

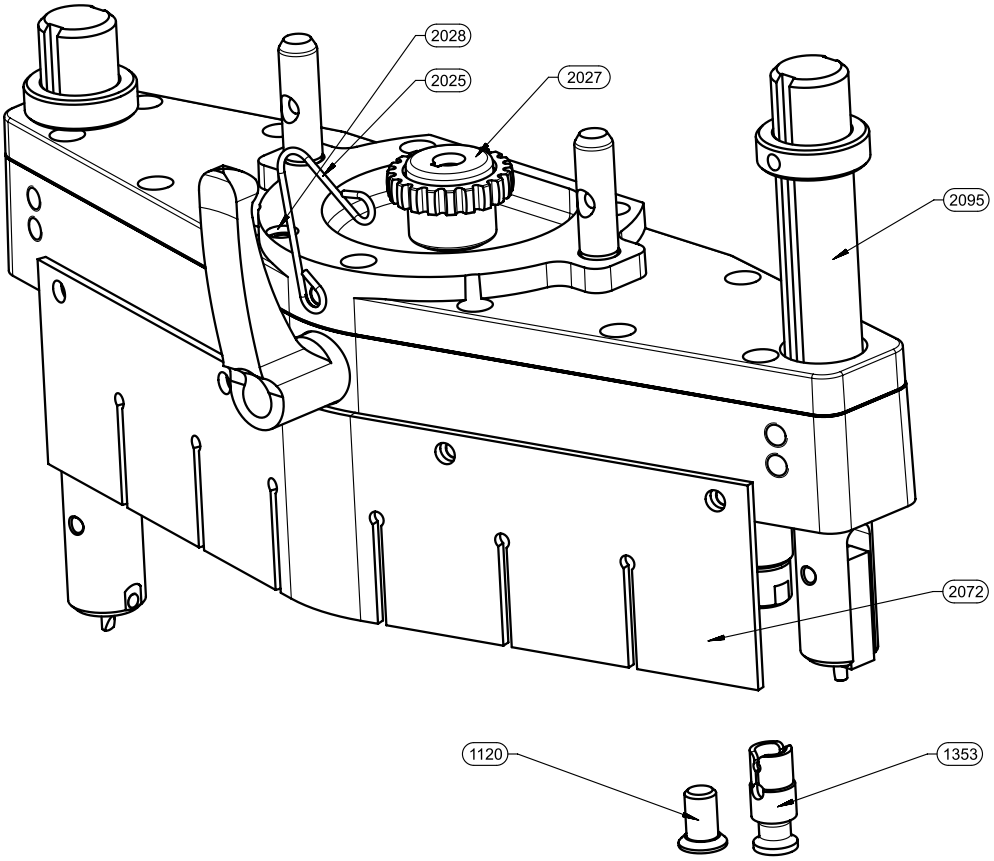


en

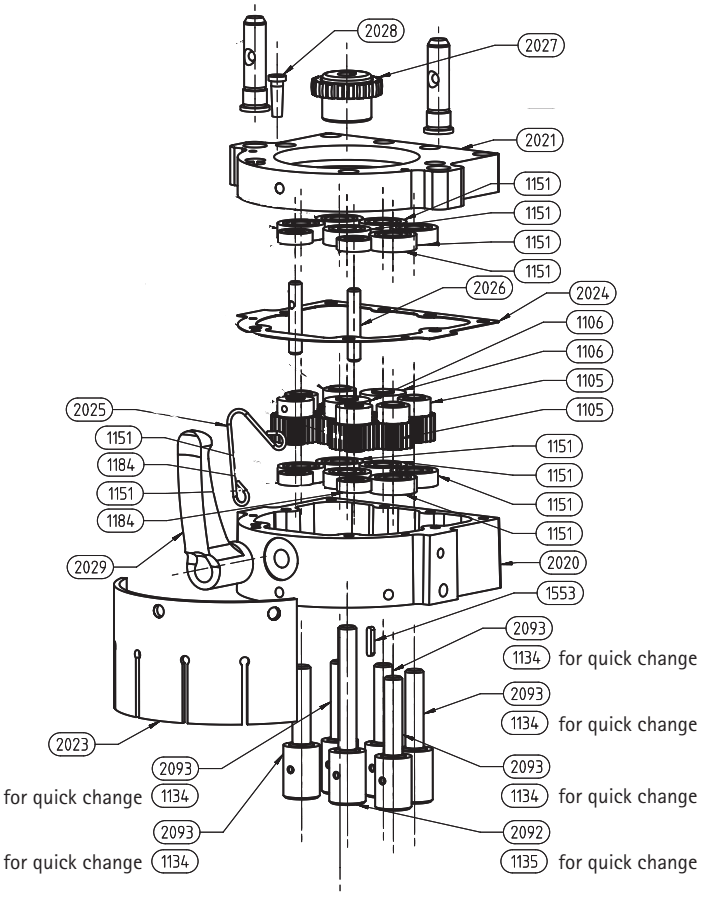
20. Interchangeable drilling unit, 90°, 9 spindles



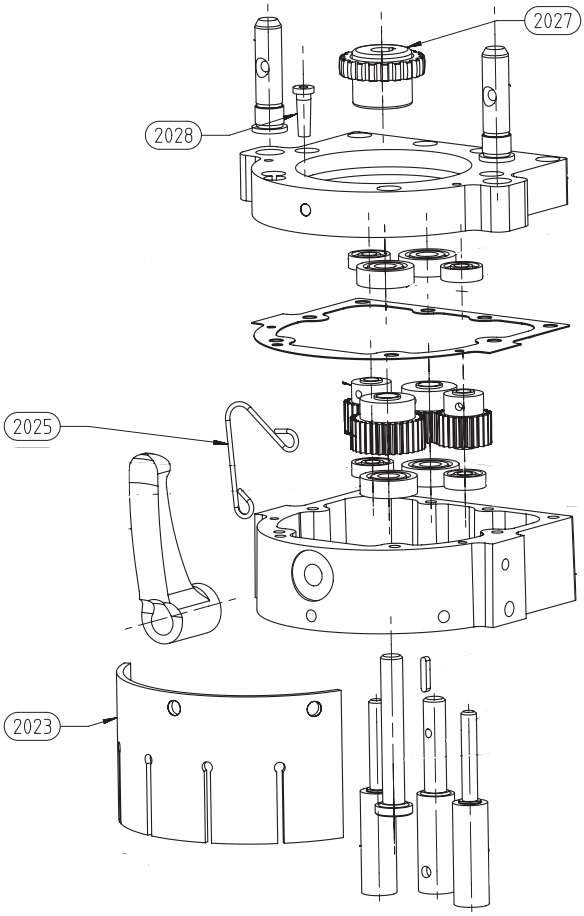
21. Interchangeable drilling unit, 9 spindles



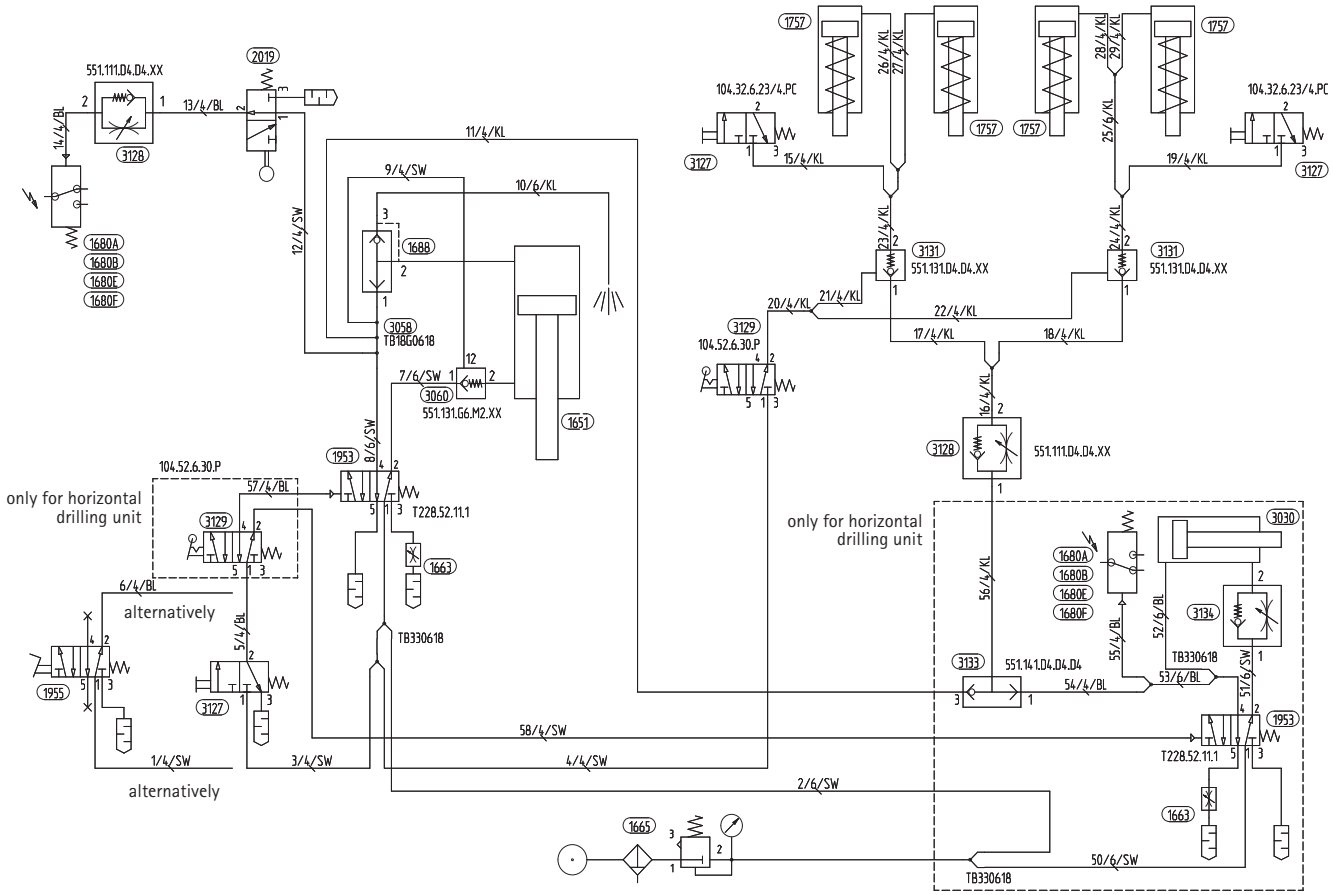
22. Interchangeable drilling unit, 6 spindles



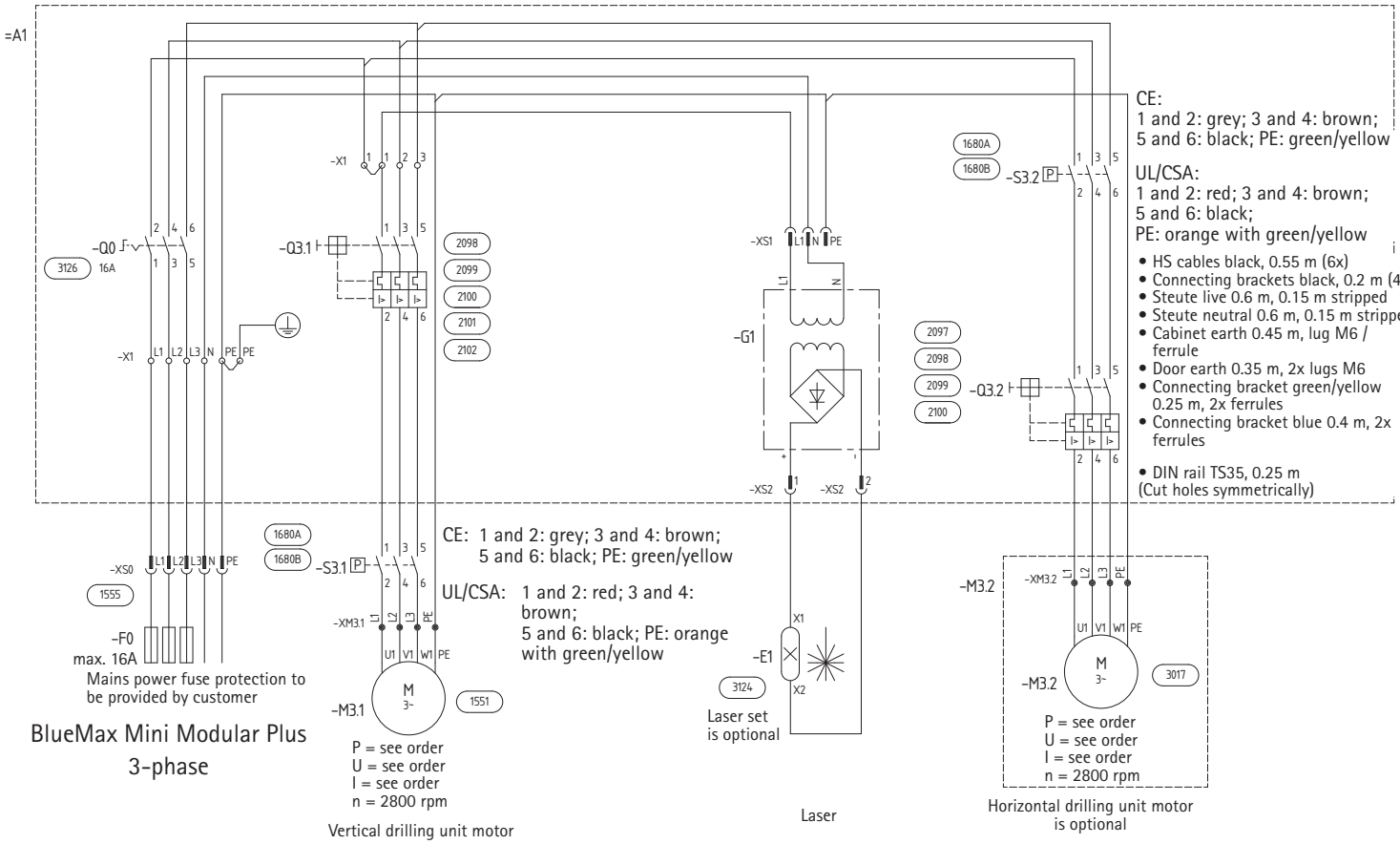
23. Interchangeable drilling unit, 3 spindles, Selekta (22/9)



24. Pneumatics diagram



25. Circuit diagram



13. Replacement part numbers

1551	Motor (specifications as per order)
1552	Bowex curved tooth coupler assy 14-10
1560	Sticker, control panel
1680A	Electropneumatic switch 3~ 50 Hz
1680B	Electropneumatic switch 3~ 60 Hz
1680E	Electropneumatic switch 1~ 60 Hz
1680F	Electropneumatic switch 1~ 50 Hz
1738	Pressure plate for hold-down clamp
1740	Clamping plate for hold-down clamp
1757	Small cylinder stroke = 10 mm
2004	Insert for work surface
2005	Slotted nut M8
2008	Valve plate
2010	Tensioning spindle
2011	Waste air pipe
2012	Sliding plate BM9
2013	Cross handle
2016	Wire thread insert M8
2017	Bowex Junior size 19 d14
2019	Pushbutton roller valve
2030	Drill chuck
2042	Compression spring
2044	Stop, 68 long
2046	Stop, 50 long
2050	Wing nut, one sided
2067	Clamping lever
3000	Horizontal drilling unit assy
3005	Setting drilling depth
3007	Zero marker
3009	Pipe sleeve
3017	Motor 0.55 kW (ph, specify voltage on ordering)
3023	Cross grip screw
3028	Guide nut
3029	Star shaped grip
3030	Compact cylinder
3041	Angle
3045	Counterholder, long
3046	Counterholder, short
3049	Limiter
3052	D-handle
3061	Threaded stud
3062	Drum sticker
3063	Drum
3064	Drum retaining block
3065	Stop block, rear
3066	Stop profile bar
3067	Metal pusher
3068	Clamping lever
3073	Spring loaded ball screw
3074	Sliding block, M8
3081	Bearing
3082	Hexagonal bar
3083	Plain bearing
3084	Clamping lever, red
3085	Sliding block, M6
3086	Turning rod
3088	Handle
3090	Hold-down clamp spacer
3091	Hold-down clamp retaining block
3092	Hold-down clamp extension foot
3094	Worktop
3097	Round rubber cord
3098	Hold down bar
3099	Clamping plate for hold-down clamp
3106	Scale, self adhesive
3108	Sticker
3109	Sticker
3110	Sticker
3111	Cable grommet
3112	Travel measurement display
3114	Tube holder
3115	Drag angle
3117	Cable drag chain
3118	Connecting elements
3119	Suction extraction connector
3120	Suction extractor reducer
3121	Pipe clip 63 mm
3122	Flexible hoes
3123	Clip, PG21
3136	Spring loaded ball screw
3139	Laser clamp
3141	Digital display
3004	Eccentric tensioner
2097	Motor protection circuit breaker 1 - 1,6A
2098	Motor protection circuit breaker 4,6 - 2,5A
2099	Motor protection circuit breaker 4 - 6,3A
2100	Motor protection circuit breaker 2,5 - 4A
2101	Motor protection circuit breaker 6,3 - 10A
2102	Motor protection circuit breaker 10 - 16A
2103	Insulated enclosure

Interchangeable drilling unit

1120	Cap for chuck
1353	Cap for quick release chuck
2023	Drill bit guard, 6 spindle unit
2025	Wire spring 6/9R
2027	Bowex Junior coupler, size 19
2028	Cable grommet
2072	Drill bit guard 9R/9W
2076	Wire spring, 9W
2095	Continuation stop assembly

14. Instructions for installing optional accessories

1. Press-in frame

WARNING

Risk of injury

Servicing and maintenance work must only be carried out by instructed, qualified personnel.

Before attempting any servicing and maintenance work or installing the optional accessories, switch the machine off, disconnect the compressed air supply and implement measures to prevent the machine from being switched back on again without authorisation.

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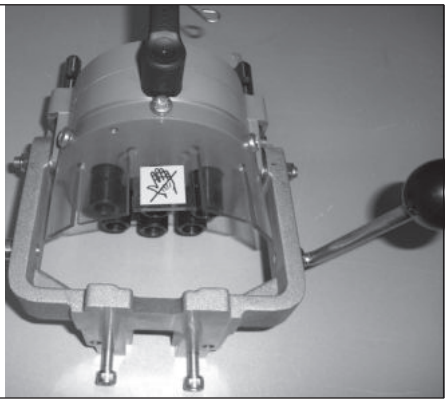
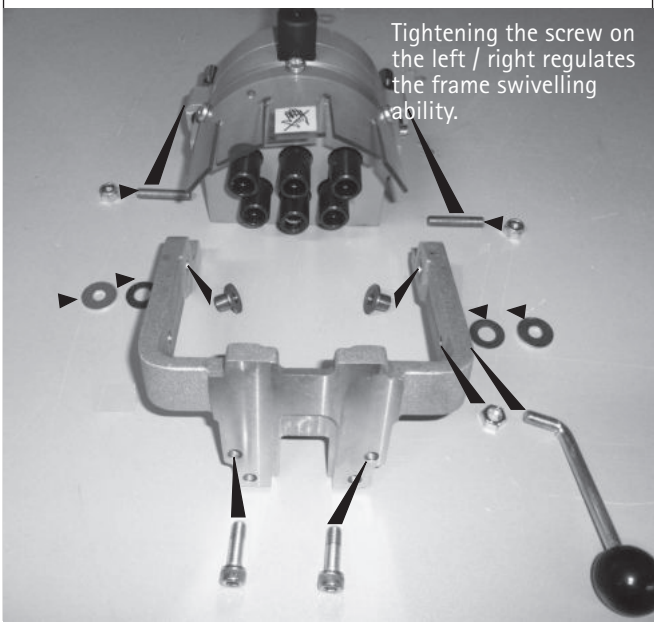
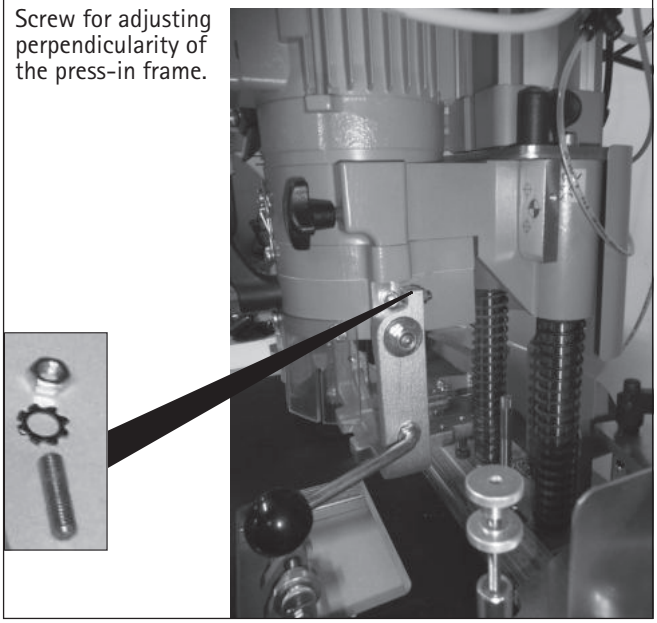


1



2

Screw for adjusting perpendicularity of the press-in frame.

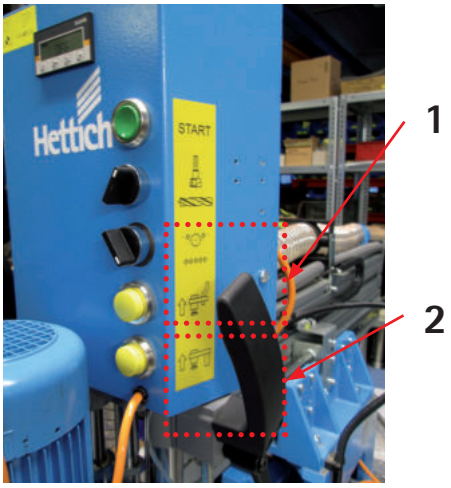


2. Converting from pushbutton to foot switch

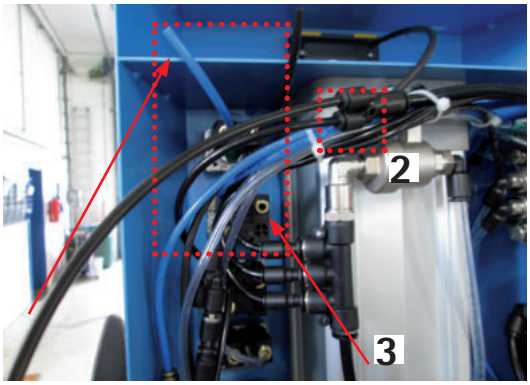
The conversion set contains the foot switch, including two connecting hoses. The foot switch must be placed on the floor where it must not be allowed to slip.

Connecting foot switch for a machine with horizontal drilling unit

View of machine rear (rear side of console)

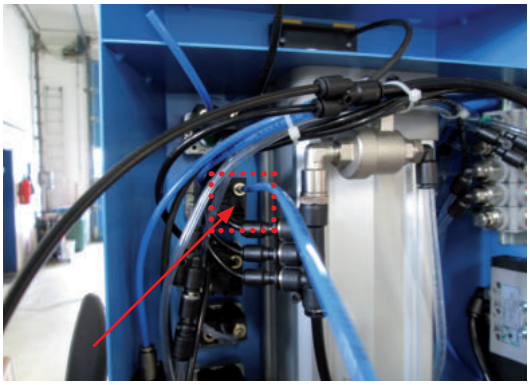


1. Detach black pushbutton hose at Y distribution block through openings in the suction holder **1**.



Connect black foot switch hose to Y distribution block **2**.

Connect blue foot switch hose **3** at the "vertical / horizontal drilling" selector switch.



Connect blue foot switch hose **4** at the "vertical / horizontal drilling" selector switch.

NOTE

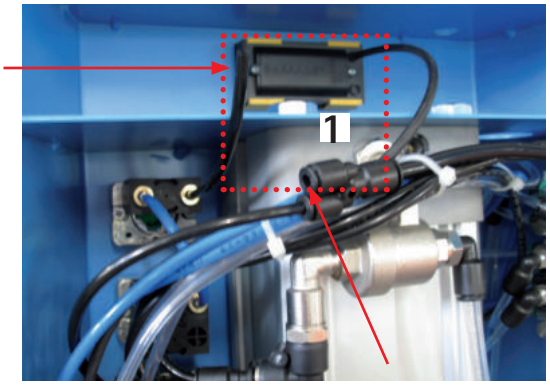
Always carry out a function test after completing this work.

WARNING

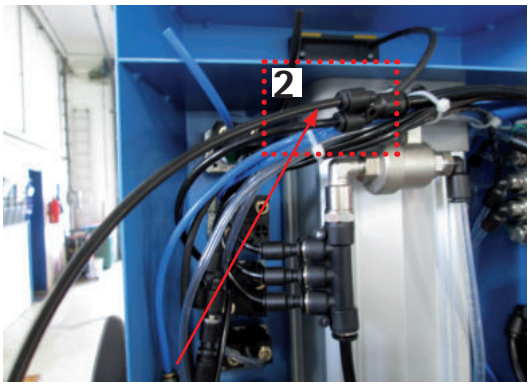
The compressed air hoses must not be damaged or kinked.

Connecting foot switch for a **machine without horizontal drilling unit**

View of machine rear (rear side of console)



1. Detach black pushbutton hose at Y distribution block through openings in the suction holder **1**.



Connect black foot switch hose to Y distribution block **2**.

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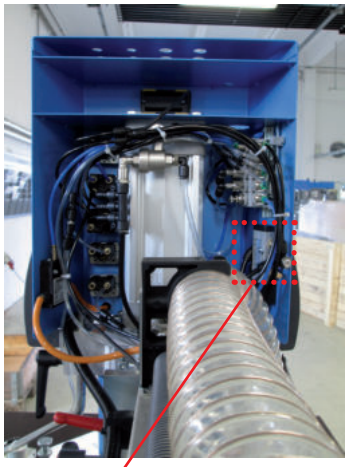
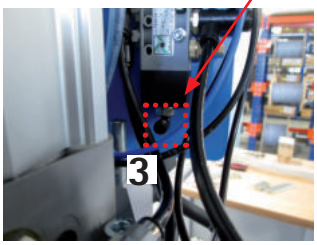
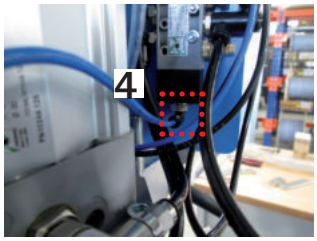






Detach hose **3** and connect hose **4** from the foot switch.

NOTE!

Always carry out a function test after completing this work.

WARNING

The compressed air hoses must not be damaged or kinked.

3. Installing laser

WARNING

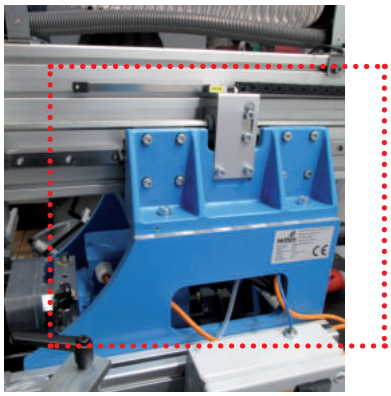
Risk of injury!

Servicing and maintenance work must only be carried out by instructed, qualified personnel.

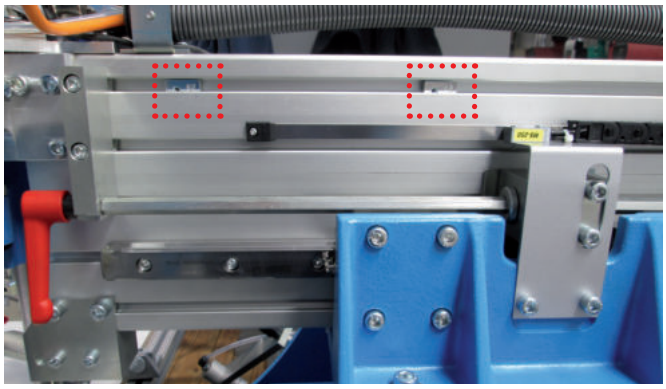
Before attempting any servicing and maintenance work or installing the optional accessories, switch the machine off, disconnect the compressed air supply and implement measures to prevent the machine from being switched back on again without authorisation.

1. Laser upgrade set

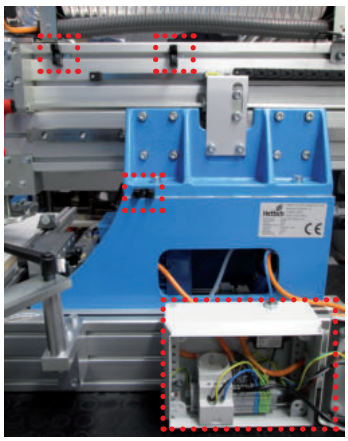
2. Laser is installed on the right hand side of the machine (as viewed by operator)



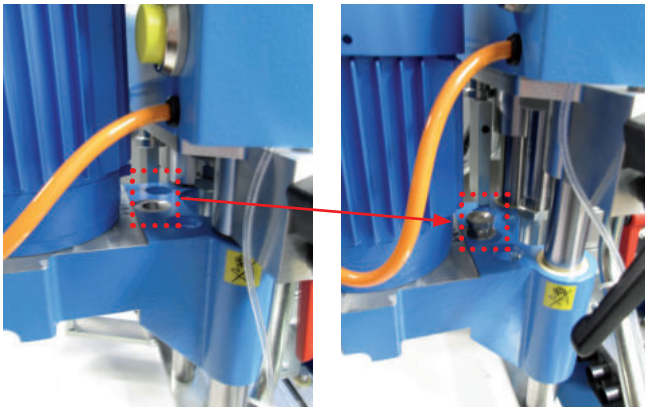
3. Insert the sliding blocks into the top guide channel (positions are marked by a dot)



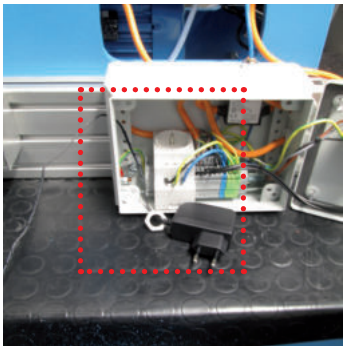
4. Screw mount control console and screw on holders



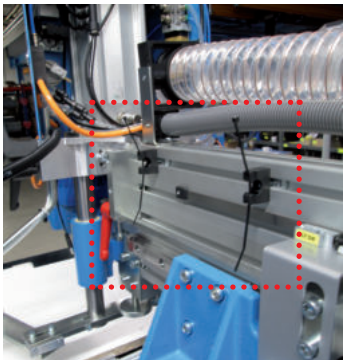
5. Screw laser holder into place



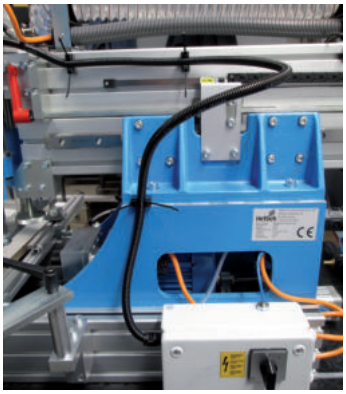
6. Screw on blank in control console and thread in cable



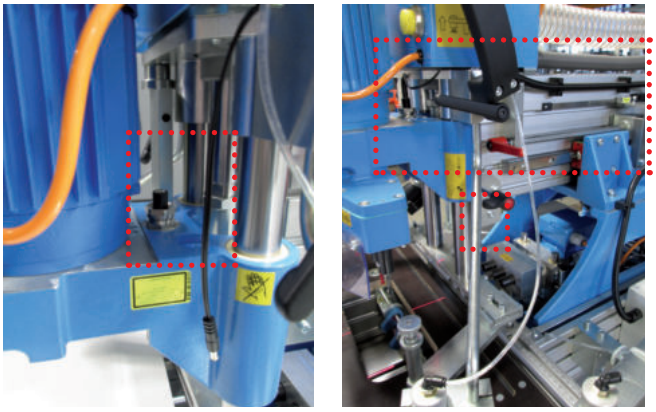
7. Insert cable ties into holders



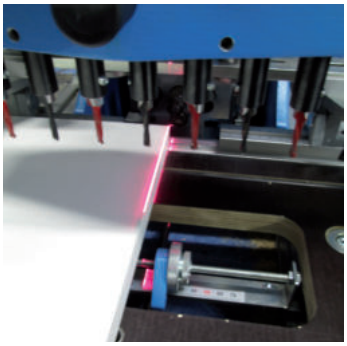
8. Push plastic tubing onto cable, plug in plug in control console, close control console, close cable ties



9. Fit laser and connect cable



10. Connect laser and aim at workpiece edge and scale



4. Installing support block

The support blocks are screwed into the base profile at the left and right side by means of a clamping stone. First insert the sliding block into the profile and move to the required position. Then screw the support block into the sliding block using the hexagon socket screws.