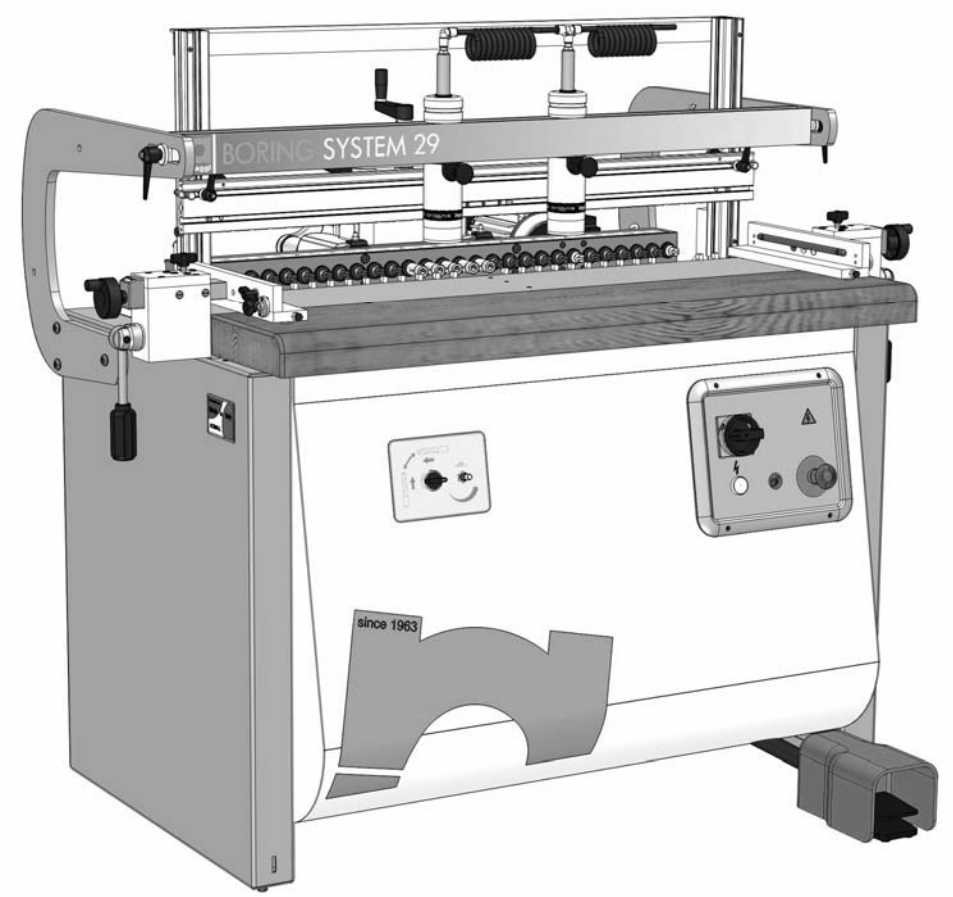
WOODWORKING MACHINERY



EN

MACHINE CODE 16154400
MANUAL CODE 00008215
REV 00

THIS MANUAL SHOULD ALWAYS BE KEPT NEAR THE MACHINE FOR FUTURE REFERENCE

BORING SYSTEM 29

ORIGINAL USE and MAINTENANCE MANUAL

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THANK YOU FOR CHOOSING
ONE OF OUR PRODUCTS

This manual contains all information, tips and warnings necessary to use the machine pro-properly. It also contains the periodical maintenance operations that should be performed in order to keep the machine in proper conditions. We strongly recommend that you read this manual in its entirety before using the machine.

INTRODUCTION

Some information or images in this manual may differ from the machine in your possession as the manual refers to configurations of the machine provided with all its OPTIONAL accessories: please consult only the information regarding the particular configuration of your machine.

This manual was prepared exclusively for use by its customers, ensuring that this is the most up-to-date documentation for the product as of the publishing date.

The use of this manual falls within the user's responsibility.

No further guarantee is therefore given by the manufacturer (in particular for any imperfections, incompleteness and/or operational difficulty) with the express exclusion of any responsibility for direct or indirect damage deriving from the use of said documentation.

Maggi Technology reserves the right to make changes to the product described in this manual at any time and without prior notice.

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CE Declaration of Conformity

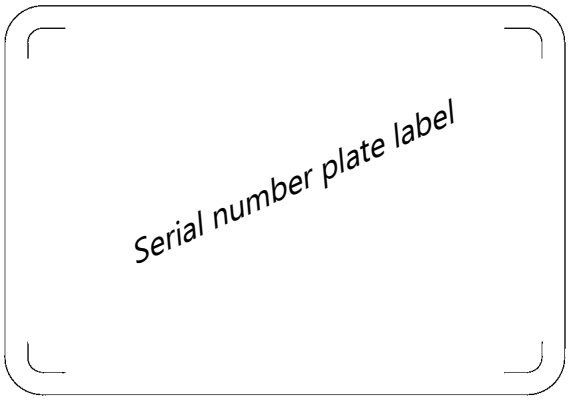
The manufacturer

Maggi Technology S.r.l.

Via delle Regioni, 299 - 50052 Certaldo (FI) ITALIA

Declares that the machine

The machine	*BORING SYSTEM*
Model	*29*



is in compliance with all provisions pursuant the following directives:

2006/42/CE (Machinery Directive)
2004/108/CE (Electromagnetic Compatibility)

and represents the technical file.

-Certaldo - Issues date :

The General Manager
Giacomo Landi

TABLE OF CONTENTS

GENERAL INFORMATION ON THE MANUFACTURER

Manufacturer:	MAGGI TECHNOLOGY S.r.l.
Address:	Via delle Regioni, 299 - 50052
Town:	CERTALDO (FI)
Country:	ITALIA
Tel.	+39 0571 63541
Fax.	+39 0571 664275
E-mail:	service@maggi-technology.com

1. SAFETY AND GENERAL INFORMATION

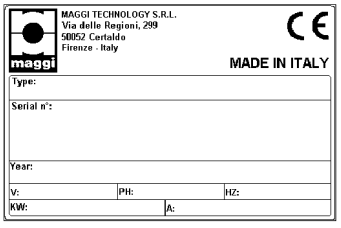
1.1 RECOMMENDATIONS FOR USE AND MAINTENANCE

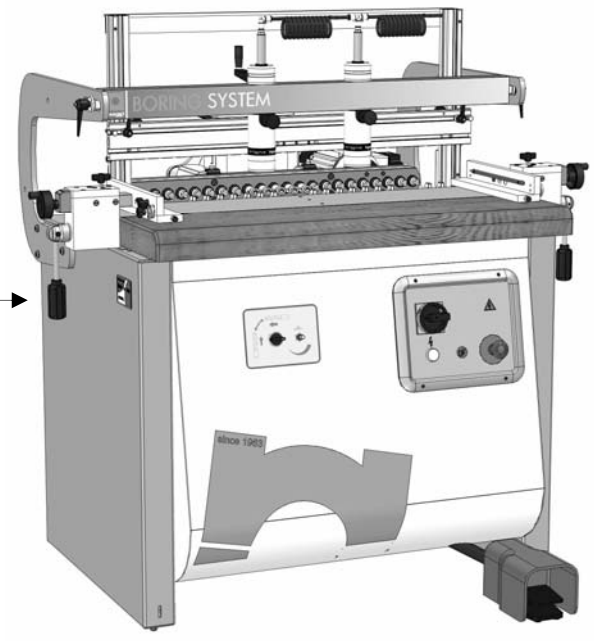
This manual contain-s all operations to be performed for correct use and proper maintenance of the machine.
Please do not perform any other operation, repair or intervention than those mentioned in this manual.
Please keep this manual in a place where it can be easily found and consulted by the operator.

ANY TAMPERING WITH OR REMOVAL OF THE SAFETY ELEMENTS MAY CAUSE SERIOUS ACCIDENTS: THE SAFETY ELEMENTS SHOULD BE CHECKED PERIODICALLY AS TO MAKE SURE THAT THEY ARE IN PERFECT STATE AND THEIR REMOVAL, DISABLEMENT OR MODIFICATION IS STRICTLY FORBIDDEN ANY ENCOUNTERED FAULT OR INCONVENIENCE SHOULD BE ELIMINATED IMMEDIATELY.

1.2 MACHINE IDENTIFICATION

The machine can be identified via the identification plate placed on the left side of the machine, operator's side. Whenever requesting spare parts or information on how to use or maintain the machine, you should always specify the model and serial number on the plate.
It is strictly forbidden to remove this plate or to change the data on it.
On the boring machine described in this manual is placed the plate below:





2. OPERATION NOTES

WOODWORKING MACHINERY CAN BE DANGEROUS

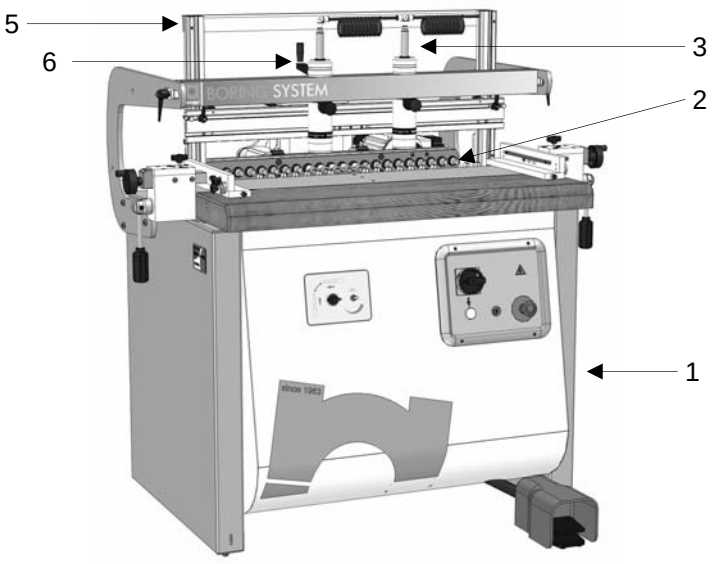
- For a safe and correct use of the machine, please read and follow the instructions in this manual.
- The machine should be used only by adult qualified staff. The safety responsible should make sure that the person assigned to use the machine has properly read and understood the information in this manual.
- The staff performing the maintenance operations (both routine and extraordinary maintenance operations) should have proper mechanical and electrical training.
- Stay away from any moving part of the machine.
  Do not touch the spindles and/or relative moving parts.
- Never overlap the pieces to be processed. Always drill one piece at a time, only after properly adjusting the machine.

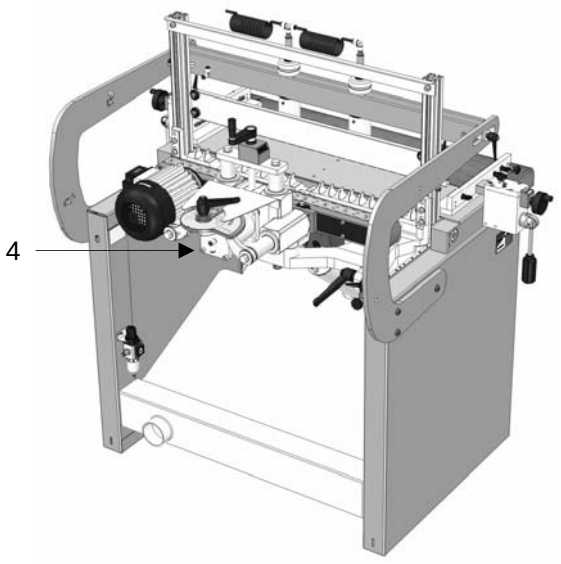
ANY ADULTERATION OR REMOVAL OF SAFETY PROTECTION DEVICES CAN CAUSE SEVERE DAMAGE. ANY REMOVAL, EXCLUSION OR MODIFICATION OF THESE DEVICES IS STRICTLY FORBIDDEN. YOU MUST VERIFY AND GUARANTEE THE PERFECT RUNNING OF SAFETY DEVICES BY MEANS OF PERIODIC CHECKS. ANY DEFECT OR PROBABLE DRAWBACK MUST BE IMMEDIATELY RESOLVED.

3. MACHINE DESCRIPTION

Our boring machines have been manufactured to make holes on wood at a fixed distance of 32 mm (with maximum accuracy) between each centre.
The head has its fulcrum on the machine table and it can be tilted up to a 90-degree angle. The operator place the work piece on the working table, does some adjustments by using the pedal control, block the piece using the clamp units and then start drilling.
The machine consists of:

1. a steel frame structure
2. one head group equipped with its trasmission system
3. clamp group for vertical blocking of the work piece
4. pneumatic system for head positioning and head feed
5. reference stops to obtain the same drilling distance from vertical to horizontal position
6. leaflet for positioning the spindle height, a mechanical counter and the “Spiral System” device ti regulate the hole depth from 0 mm to 65 mm





3.1 APPLICABLE TOOLS

- Bits for quick change spindles ∅ 10 mm. L=20 mm fig. A
- You can use bits up to ∅ 40 mm out of the comb fig. B

Fig. A

Fig. B

4. ACCESSORIES

CODE	DESCRIPTION	
36000061	BUSHES FOR QUICK CHANGE DRILL	See Fig. A
26054810	ALUMINIUM FENCE WITH 4 STOPS (1500 + 1500 mm)	See Fig. B
26054812	ALUMINIUM FENCE RH WITH 2 STOPS (1500 mm)	Without Fig.
26054813	ALUMINIUM FENCE LH WITH 2 STOPS (1500 mm)	Without fig.
29970202	FENCE EXTENSION (1000 mm)	See Fig. C
26050801	EXTRA STOP FOR ALUMINIUM FENCE	See Fig. D
26000059	REFERENCE FENCE FOR QUICK AND EXACT SETUP OF STOPS ON THE LONG FENCE FOR LNE BORING (704 mm)	See Fig. E
29900100	STOP REFERENCE PIN FOR LINE BORING	See Fig. F
26000069	SET OF REFERENCE FENCES FOR MOULDINGS AT 45° AND 90°	See Fig. G
26001070	REFERENCE STOP TO MATCH THE LONG PANEL DURING TRANSVERSE BORING	See Fig. H
26000061	REFERENCE FENCE FOR REAR FENCE PARALLELISM (500 mm)	See Fig. I
29971019	EXTRA CLAMPING PRESSER	See Fig. L

Fig. A

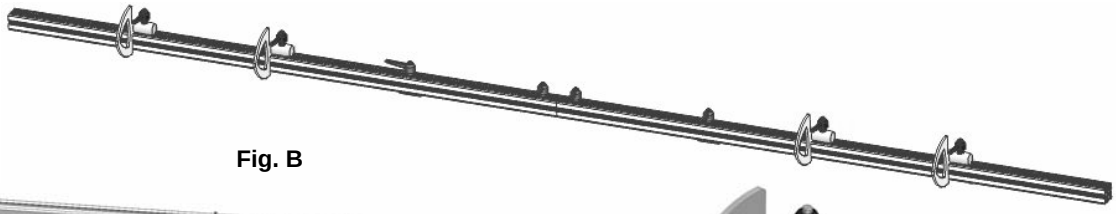


Fig. B

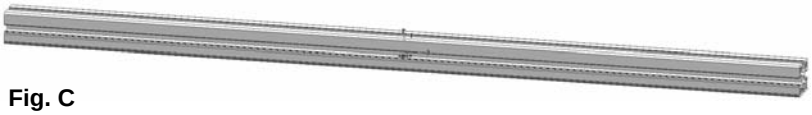


Fig. C

Fig. D

Fig. E

Fig. F

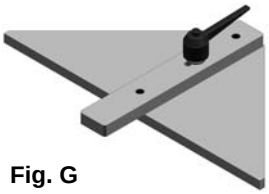


Fig. G

Fig. H

Fig. I

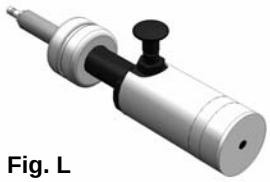


Fig. L

5. SAFETY DEVICES AND WARNING SIGNS

The machine operator should be informed on its proper use and on the suitable use of its safety devices and accessories.

- The boring devices should be correctly fixed and adjusted.
- Follow the routine and extraordinary maintenance operations schedule.
- Before starting the machine, please make sure that the working table is free from any material shavings.
- Before performing any operation, make sure that in the working area there are no persons or other obstacles that could become sources of danger.
- Make sure that the mains connection cable is in perfect condition, properly stretched, unwound.
- You should never access the bits area while the machine is running.
- Do not store flammable substances near the machine, as any spark coming from it may cause an explosion or may start a fire.
- The operator should pay utmost attention when starting-up the machine using the pedal.
- The operator should always keep in mind the possible consequences that may occur when going near the dangerous areas such as: boring area, clamps operation range.
- If you are not using the machine, you should shut it down.

The main risk is represented by the moving bits. To reduce this risk to a minimum, our machines are provided with the following safety devices:

- Emergency button

Inserted on the control panel, on the front side of the machine. When this button is pressed, all movements stop immediately.

- Series of plates

They describe the safety precautions, the proper procedure to be followed and are used to identify each part of the machine. One of the plates contains the serial number and identification data of the machine itself.

- Safety clamps

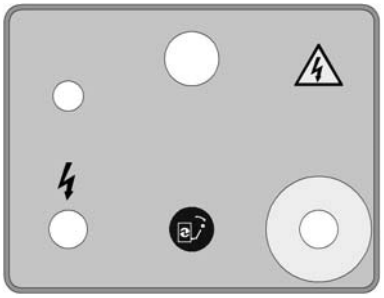
They remain on top of the working table or of the piece being processed, preventing the operator from placing his hands under them.

- Safety device

Electronic system against accidental start-up.

PLATES CEE, ISO, UNI

Cod. 36054016



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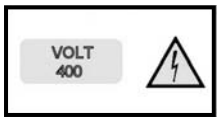
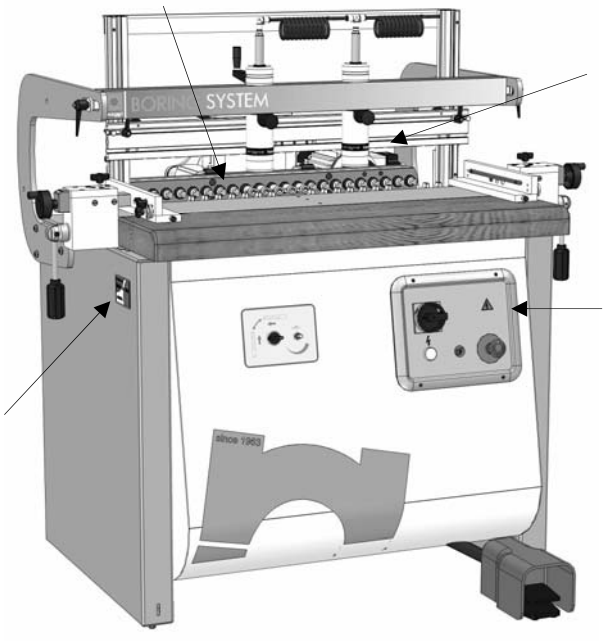
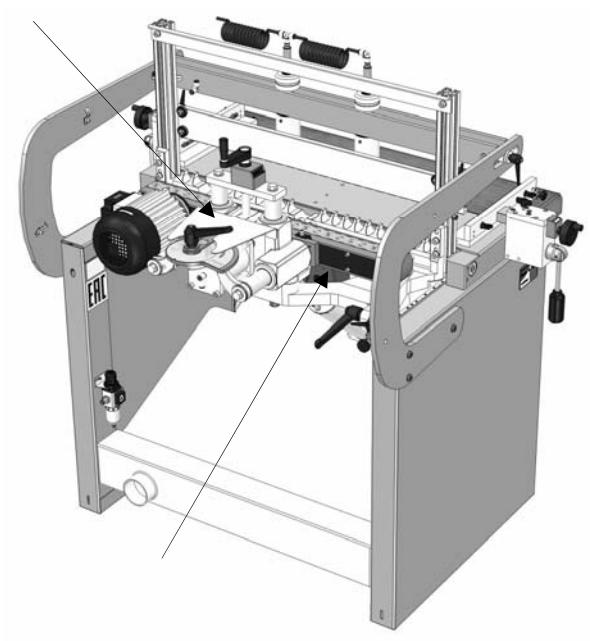


Cod. 36054018

Cod. 36054019

WARNING SYMBOLS: THE OPERATIONS MARKED WITH THESE SYMBOLS ARE DANGEROUS FOR THE OPERATOR THEREFORE THEY SHOULD BE PERFORMED PAYING UTMOST ATTENTION.





U.S.A. PLATES

WARNING SYMBOLS: THE OPERATIONS MARKED WITH THESE SYMBOLS ARE DANGEROUS FOR THE OPERATOR THEREFORE THEY SHOULD BE PERFORMED PAYING UTMOST ATTENTION.

6. PERSONAL PROTECTIVE EQUIPMENT AND RESIDUAL RISKS

Although the manufacturer took all the necessary safety measures, dangerous situations may still arise, being caused by:

- wool splinters fallen or projected during the work cycle
- clothes that get entangled between the machine moving parts
- fire hazard
- electrocution hazard
- damages caused by noise
- hazards caused by dust emission

In order to prevent risks while placing, installing, adjusting, using, performing the routine and extraordinary maintenance operations, please use:

- gloves (to handle the pieces, machine parts and to replace the blade)
- non slip and crush-proof shoes
- protective goggles against splinters or shavings that may be projected during the work cycle or when cleaning the machine
- anti-dust masks

The clothing should also be suitable, in order to avoid dangers such as:

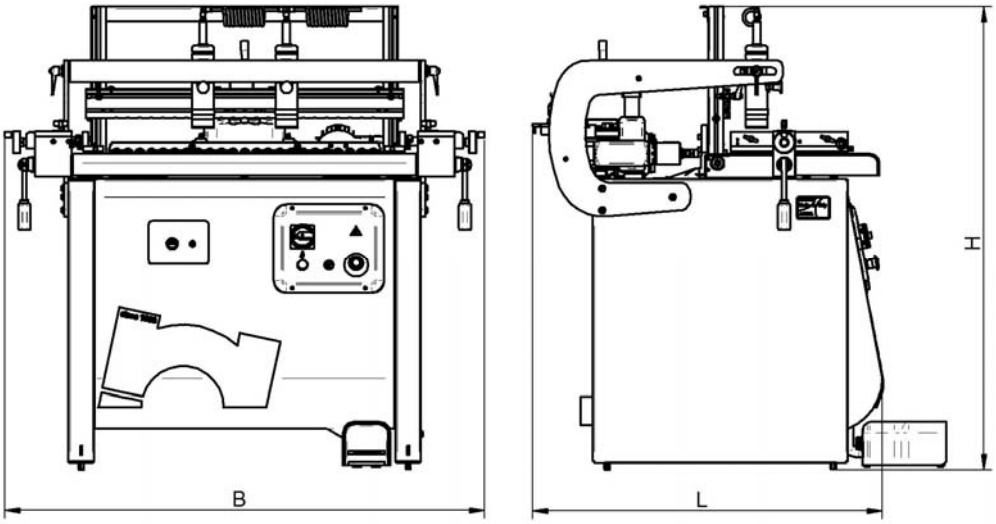
- entanglement
- dragging
- crushing
- slipping
- abrasion

the use of contact lenses is strictly forbidden

NEVER LEAVE THE MACHINE UNATTENDED WHILE CONNECTED TO THE MAINS.

7. TECHNICAL DETAILS

NUMBER OF SPINDLES	29
INTERAXIS BETWEEN SPINDLES	32 mm
INTERAXIS BETWEEN FIRST AND LAST SPINDLE	896 mm
MAX. BORING DEPTH	65 mm
MAX. DIMENSIONS OF THE WORKING PIECE	960 x 3000 mm
HEIGHT OF THE WORKING TABLE	860 mm
NUMBER OF CLAMPS	2
NUMBER OF MOTORS	1
MOTOR POWER	2 (1,5) HP(KW)
MOTOR R.P.M.	2800 RPM
MAX. DIMENSIONS OF THE MACHINE (B x L x H)	1507x960x1265 mm
NET WEIGHT	320 Kg



8. USO PREVISTO

8.1 MATERIALS

The Boring machine was designed and intended to process the following materials:

- M.D.F (medium density fiberboard)
- Chipboard, laminated, faced panels, etc.

The maximum thickness of the panel is 60 mm with maximum dimensions described at par. 6.

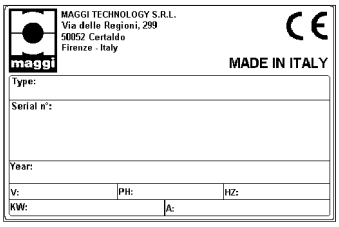
- Any other material than the ones mentioned above, may be processed only after receiving written authorisation from the manufacturer: in particular, you should not process materials that contain toxic substances, that may represent a danger for the safety and health of the operator, metals or substances that may affect the proper operation of the machine or that may cause fire or explosions.
- Any modification performed without receiving written authorisation from the manufacturer, is strictly forbidden.
- Tampering with the safety devices is strictly forbidden.

8.2 IMPROPER USE

Any action performed without following the instructions mentioned in this manual is considered improper.
Additional information:
We do NOT RECOMMEND leaning or placing tools above the machine for any reason during its installa tion, use or maintenance.
We do NOT RECOMMEND you to climb on the machine or on any of its parts.

The machine is identified through the identification plate placed on its frame.
Whenever requesting spare parts or additional information for use or maintenance, you should mention the model and serial number indicated on the plate.
It is strictly forbidden to remove this plate or to change the data on it.

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY DAMAGE TO PERSONS, ANIMALS OR GOODS DUE TO IMPROPER USE OF THE MACHINE.



9. TRANSPORT

La Foratrice arriva imballata in cassa di legno.
La movimentazione è possibile utilizzando:

- muletto
- carro ponte
- transpallet

I dati relativi al peso sono riportati al par. 6 ed i punti di sollevamento sono visibili nel disegno sottostante. Quando la macchina viene spostata occorre assicurarsi che l'area intorno sia libera da ostacoli. In caso di stoccaggio tenere la macchina in luoghi asciutti, al riparo da pioggia, neve o umidità. Durante tutte le fasi di movimentazione raccomandiamo di usare estrema cautela per evitare il pericolo di danni alle persone, alle cose ed alla macchina stessa.

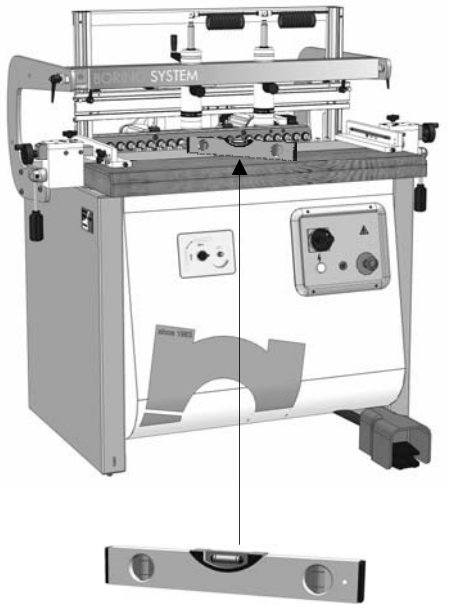
10. INSTALLATION

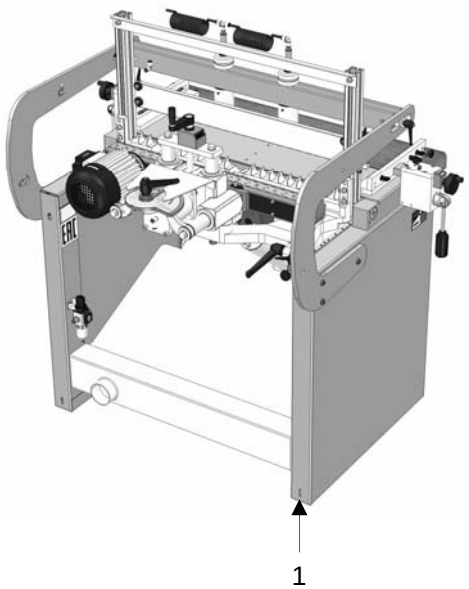
10.1 MACHINE LOCATION

The machine should be placed on a stable surface that can support its weight, any difference in level should comply with the building regulations. If the machine should be placed on a
raised structure, the slab support system should have the capacity to sustain the weight of the machine.
Place the machine in the most suitable position, based on the operational requirements, so that it can be easily connected to the mains and pneumatic power supplies.
The installation location should be provided with suitable lighting, so that every part of the machine can be easily viewed. We also recommend you to place an intake nozzle near the machine, for its periodical cleaning.

10.2 LEVELLING

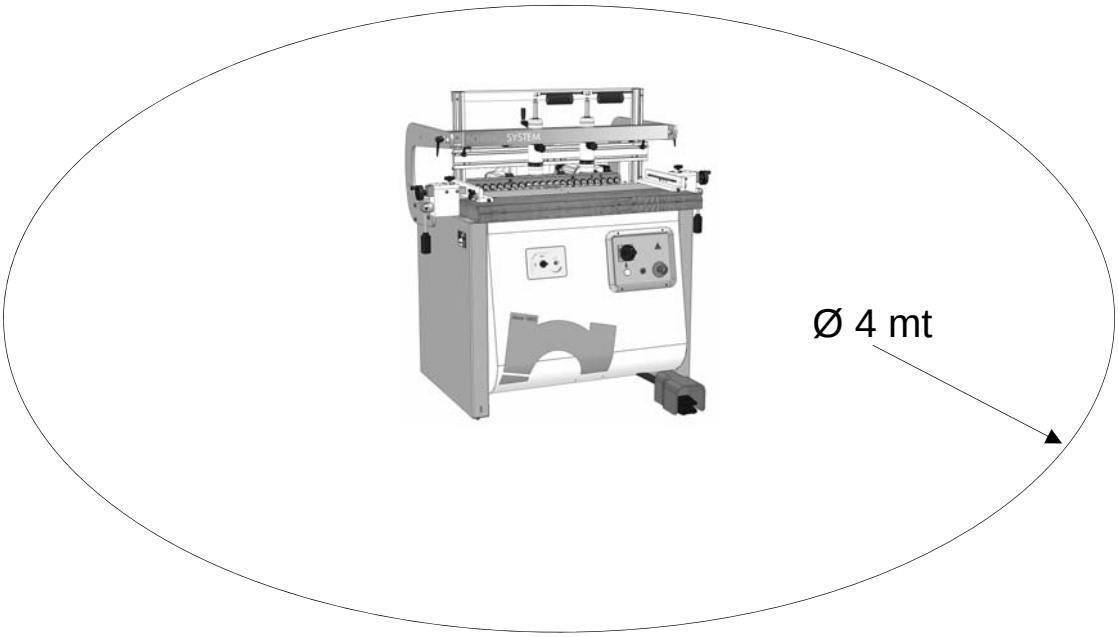
Make sure that the machine is fully resting on the floor, then align the working table via the adjustable foot (1) using an Allen wrench, check the levelling with a spirit level. Before proceeding, remove the layer of protective oil from all unpainted surfaces, using only petroleum or kerosene.
Do not use solvents such as benzene and diesel fuel, that may damage the paint dulling it, or that may oxidise the machine parts.



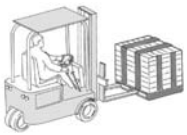


11. OPERATING AREA

In order to use the machine correctly, you must ensure the clearance areas indicated belowi.

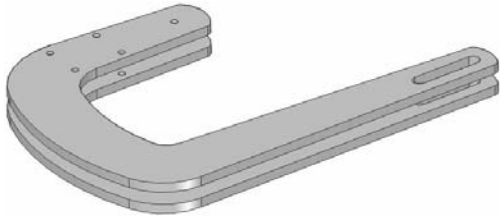


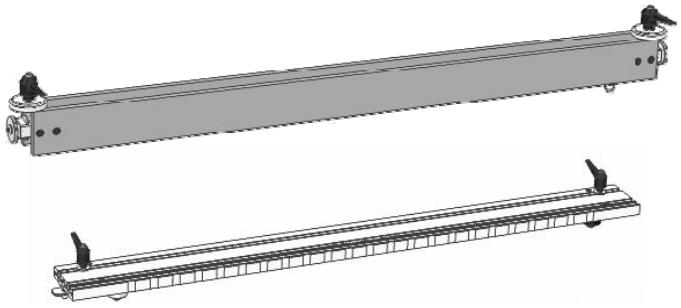
12. MACHINE INSTALLATION AND CHECK PROCEDURE

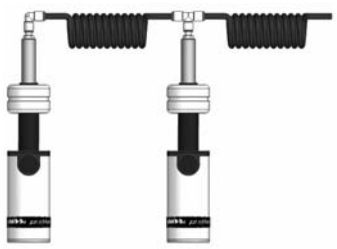


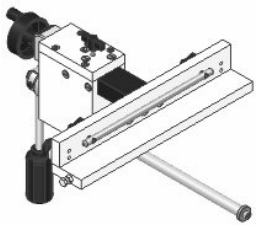
The boring machine is packaged in a wooden crate. Given the size of the package, please handle it correctly, paying utmost attention. After bringing the package next to the area in which you want to place the machine, remove the crate.

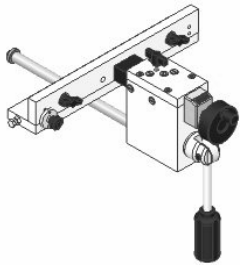
The package contains 2 cutting units, 2 fence units and a box containing different accessories, please see figures below:

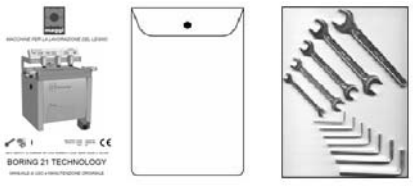




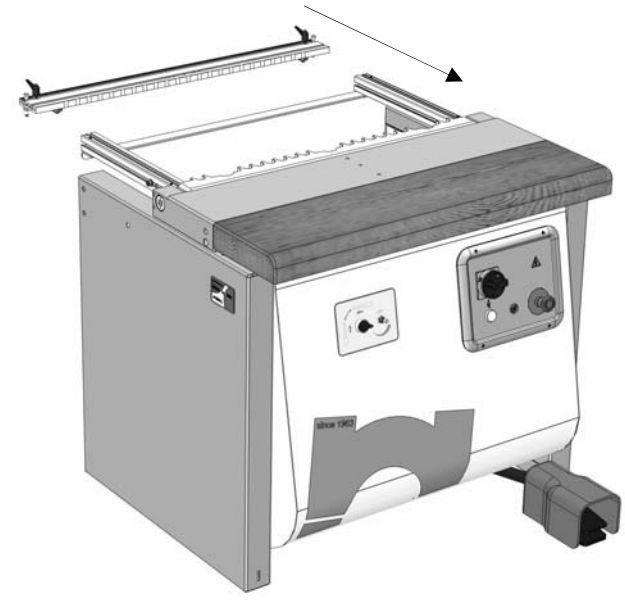




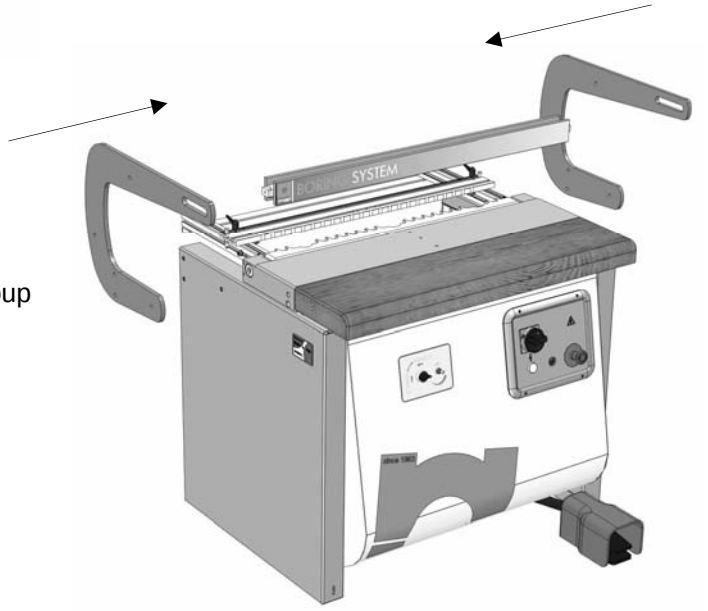




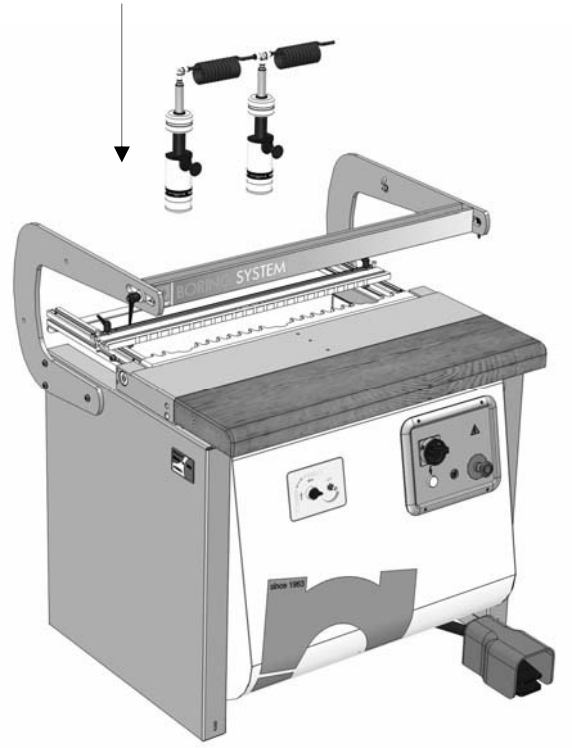
All the assembling operations described above can be performed using the tools purchased together with the machine



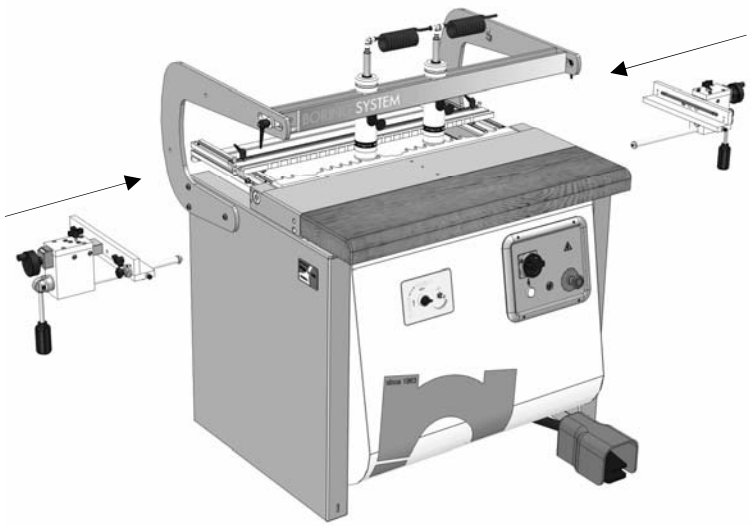
Assemble the back reference stop as depicted in the figure



Then assemble the clamp goup

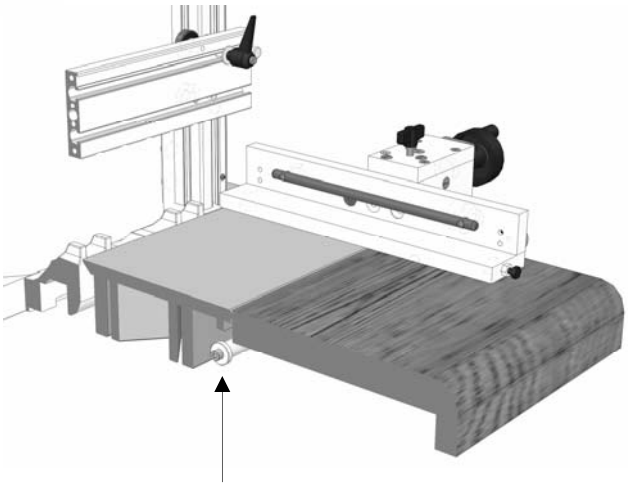


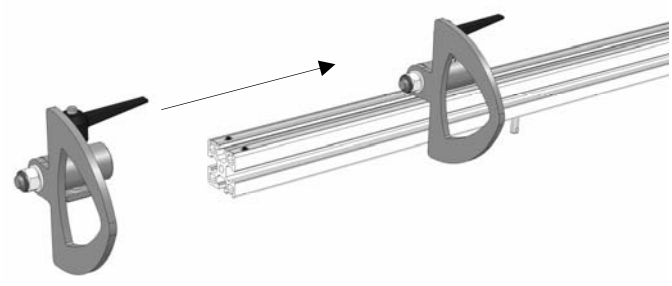
Insert the clamp unit; assemble the clamp group as depicted in the figure



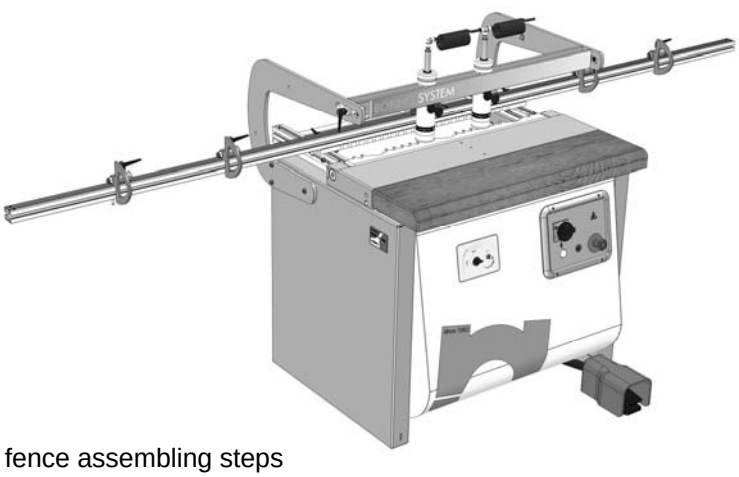
Assemble the squares of the bench on the plane. After the assembling, mount the washer as depicted in the figure

After the assembling, mount the washer as depicted in the figure



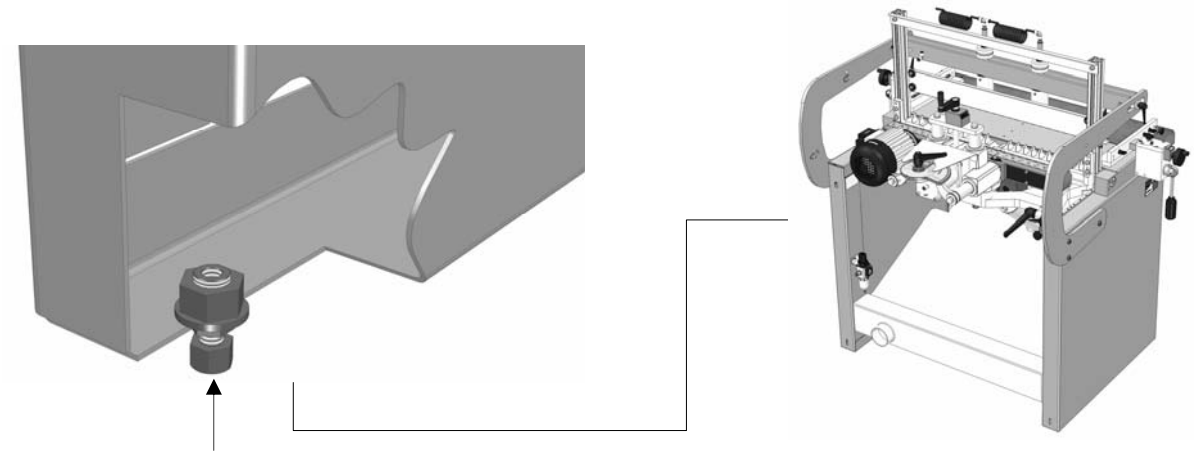


Insert the movable stop group in the fence as depicted in the figure on the left



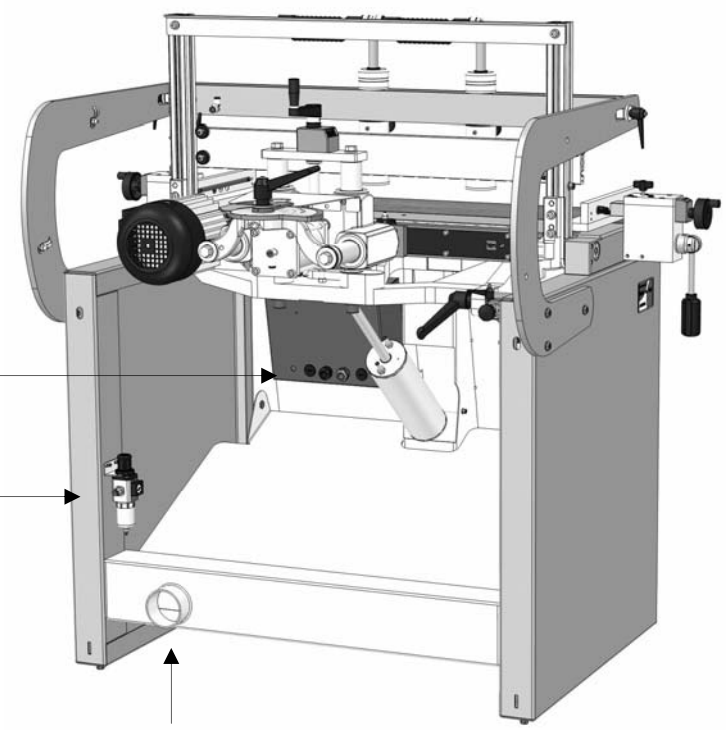
Long fence assembling steps

Place the Boring machine in the pre-chosen location, respecting all the warnings in paragraph 11 - 12 - 13.
Level the machine using the Te screw as indicated in the figure:



The next step consists of machine connection to:

- Electric power supply (see chapter 14.1)
- Pneumatic power supply (see chapter 14.2)
- Dust suction system



Boring preparation *(carefully follow the instructions in chapter 15)*

13. MACHINE INSTALLATION AND PRELIMINARY CHECKS PRIOR TO COMMISSIONING

The machine is delivered partially assembled, therefore you should only install the pieces provided separately due to packaging reasons.
Before proceeding with the installation, the customer should make sure that all machine parts are in perfect condition, without any damages.
Please check in particular, the delicate components, such as the electrical or mechanical parts, the pneumatic tubes or the safety devices.
After the installation, please clean the surfaces removing the protective oil to prevent the pieces from getting dirty during the work cycle.

WOOD SHAVINGS REMOVAL
The wood shavings and waste resulted during the work cycle should be removed in compliance with the standards in force in the Country of Use of the machine.
Please contact the competent bodies in the Country of Use, in order for them to provide you with the relevant standards in force.

Warning: the machine is intended for aspiration, but it is not provided with a vacuum system; the customer should provide this device, based on the processed material and frequency with which the machine is used. Please install a suitable system, able to maintain the dust concentration below the TLV provided in the Country of use.

14. MACHINE CONNECTION TO EXTERNAL POWER SUPPLY

After machine assembling and installation, connect it with:

- Electrical power supply
- Pneumatic power supply
- Dust suction system

14.1 CONNECTION TO ELECTRICAL POWER SUPPLY

To gain access to the machine electric system, open the main board door by loosening the screws on the front of it. We recommend not to connect the machine to the electrical power supply until it is not correctly placed in the right place. Before connecting the machine to the electrical power supply, it is necessary to verify that the electrical system corresponds to the following necessary power and safety requirements:

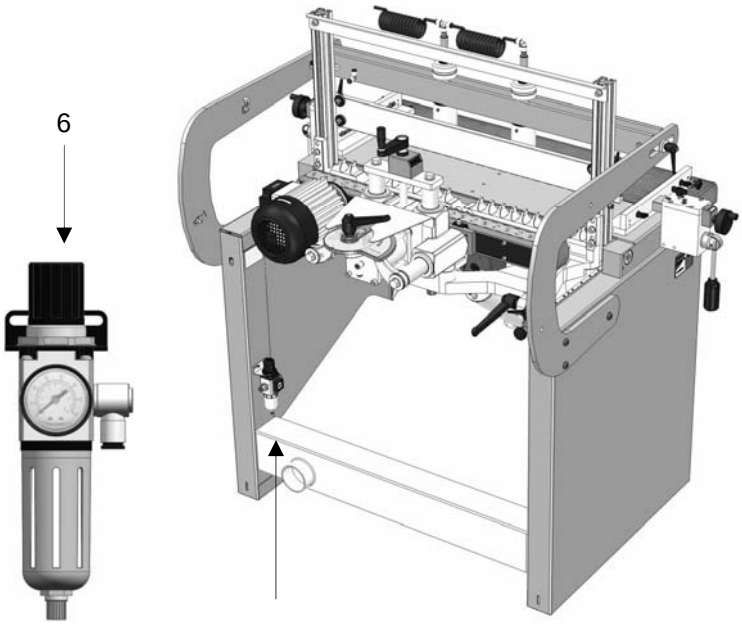
- Grounded equipotential electrical system
- Presence of fuses or protection switches against short circuits on every conducing cable R-S-T, except the grounded one
- The electrical power system must be in conformity with CEI 64.8 (CENELEC HD 384, IEC364-4-41) rules
- Voltage and frequency for the motors are specified on the plates placed on them
- Connect the power supply cable to R-S-T terminals
- Automatic protection devices installed upstream respect to the machine; they have to be coordinated to guarantee the automatic break according to above mentioned rules.

The electrical connection is done by three-phase plug (or single-phase plug, depending on the panel).
The cable for ground connection is yellow-green.
The tolerance of admissible voltage is +/-10%
When voltage is applied to the electrical power supply, check that the spindles rotation direction is the one written in the plate placed on the head (Black=Right; Red=Left).
If the rotation direction does not match the one impressed in the plate, please invert the connection cables to three phase power supply. For any information please see the electrical diagrams included in this manual.

Attention: we strongly recommend that the connection to the electrical power supply is done by technical qualified personnel only.

14.2 PNEUMATIC CONNECTION

Connect the Filter regulator unit with the air line through a rubber or nylon hose with a minimum inside diameter of 8 mm.
If the pipe length exceeds 5/6 metres it is advisable to increase the inside diameter to 10 mm, you are also recommended to install a supply shut-off valve on the machine with manual control complete with air relief.
The Filter purifies the air from dust and humidity protecting the valves or seals in the pneumatic cylinders.



14.3 MACHINE STARTING

The work station and control panel are on the machine electric panel. The operator places the pieces on the work table after adjusting the stops.

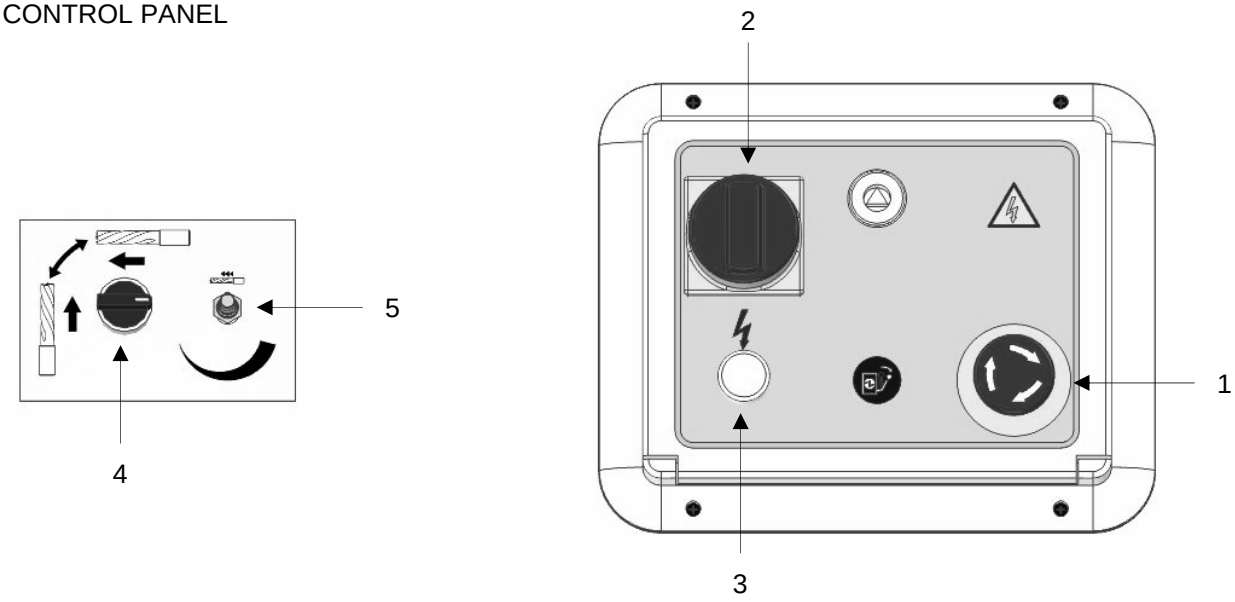
14.4 WORKING CYCLE

After setting the machine, follow the operations described below to start the working cycle:

1) Turn the main switch (2) to ON. The machine is ready to start the working cycle.
2) Operating the pneumatic pedal, the spindles turn and the head starts the working cycle, while the clamps lock the piece in place.
3) If the pedal is released, the head returns to the rest position and the spindles stop.
4) The clamps release the piece when the head returns to the starting position.

Should it be necessary to interrupt the work cycle for any reason, press the emergency button (1).

14.5 CONTROL PANEL



1) EMERGENCY ENGINE STOP BUTTON WITH RETAINER
Pressing this button all the electrical functions of the machine are cut off.
To resume the electrical functions, turn the mushroom button in the direction of the arrows.

2) MAIN SWITCH, ENGINE ENABLE BUTTON
Operating this ensures the presence of electrical energy; it enables the engine for switch on, hence for turning the spindles during the work cycle.

3) ELECTRIC LINE AVAILABILITY WARNING LIGHT ON / OFF
The light on means that current is available; the light off means that electrical current is not available.

4) HEAD POSITIONING AT 0—90°
Pneumatic selector for operating the spindle head rotation mechanism by 0—90°.

5) FEED SPEED ADJUSTMENT
Controls the drill boring feed speed

15 CHECK UP AND ADJUSTMENTS

15.1 ELECTRICAL INSULATION PROCEDURE

Before starting with any maintenance operation on the machine please follow the following procedure:
1. verify that the machine is in the arranged position for the requested operation. Insulate electric and pneumatic system only after having blocked mechanically the machine in this position.
2. be sure that no any other power source is present, and that no residual power source is able to act.

It is extremely important that this procedure is performed by only one operator and he/she has to notify the machine state by putting on it a well visible tag.

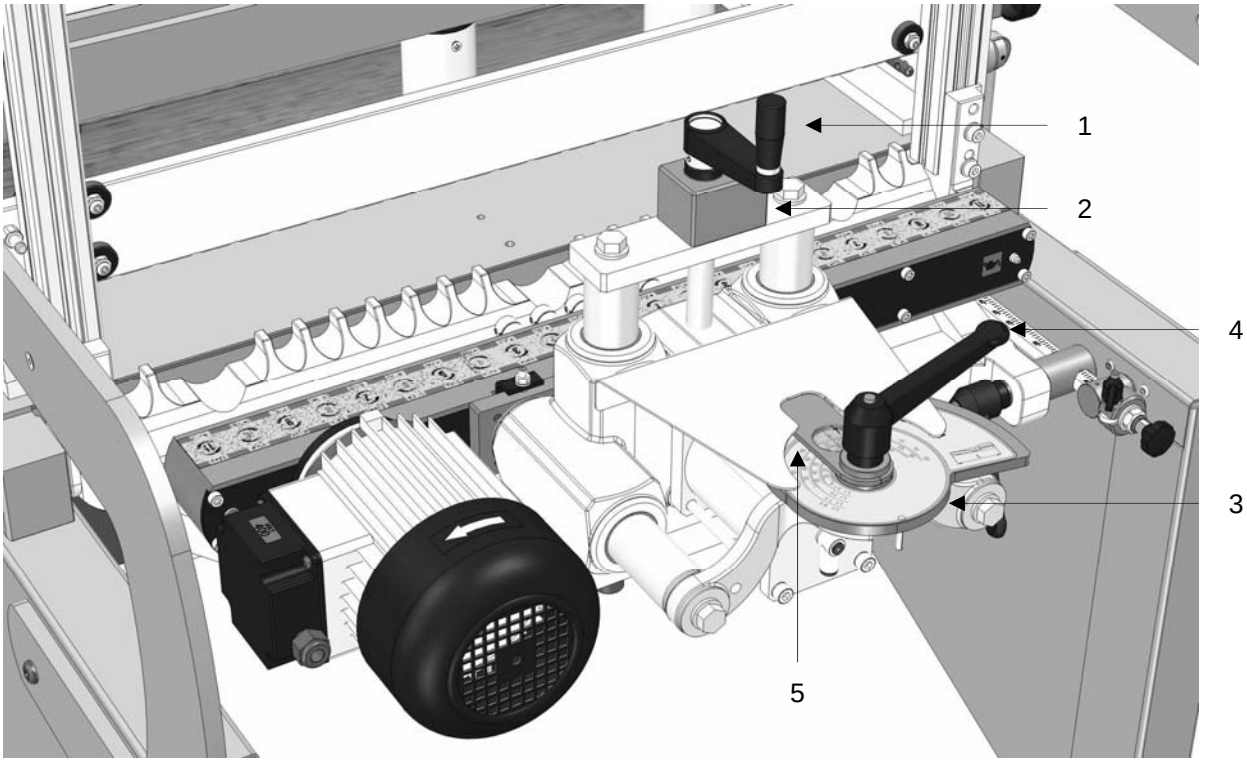
15.2 PRELIMINARY CHECK UP

Check that the working area all around the machine is in order and without any residuals of machined material, as sawdust or wood pieces.
Check that all the safety protection devices are positioned correctly and ready to use.

IT IS RECOMMENDED TO DISCONNECT THE ELECTRICAL AND PNEUMATIC POWER SUPPLY BEFORE TAKING ANY INTERVENTION ON THE MACHINE FOR MAINTENANCE OR FOR REPLACING DAMAGED OR WORN PARTS. FOLLOW ALL THE PROCEDURES DESCRIBED BELOW AND THE ADVICE WRITTEN IN CHAPTER 6 OF THIS MANUAL.

15.3 DRILLING DEPTH AND SPINDLE HEAD ADJUSTMENT

To carry out boring operations, proceed as described below:
1) Insert the suitable drills in the required position on the spindle head
2) Turn the handle (1) to set the required height of the drills from the work table, with the head turned at 90°. The drill height is shown on the digital counter (2) in millimetres. Turn the handle so that the screw is stretched when the required height is reached. The choice of the tool depends on the thickness of the piece to be bored, the position of the hole and the hole diameter.
3) Proceed as follows to adjust the boring depth: once you have found on the depth selection screw (3) the scale referring to the total length of the drill being used, it is possible to set (with no need for calculation) the actual boring depth. Releasing the handle (4) and turning the depth selection screw to the required point, the pointer (5) which also acts as a magnifier, will show the chosen depth. Firmly tighten the handle (4) before starting boring operations.
4) Usually use a scrap piece of wood to test the machine settings before boring a good piece of wood.



WARNING !!!

THE " BACKSTOP SPIRAL " ALLOWS THE DRILLING DEPTH ADJUSTEMENT .
IN CASE OF HORIZONTAL DRILLING (Fig. A), THE ACTUAL WORKING DEPTH CAN BE IMMEDIATLY SET BY REFERRING TO THE READING SCALE.
IN CASE OF VERTICAL DRILLING (Fig. B) ADD 10 mm TO THE READING SCALE OF THE USED DRILL TO OBTAIN THE ACTUAL WORKING DEPTH.
THIS IS CAUSED BY THE PRESENCE OF AN AUTOMATIC DEPTH DIFFERENTIAL.
THIS DIFFERENCE IS USED FOR PANELS AND RACK PINS COMBINING, THE CORRECT VERTICAL DEPTH IS OBTAINED AUTOMATICALLY BY ADJUSTING THE HORIZONTAL MEASURE (Fig. D)

Fig. A HORIZONTAL DRILLING POSITION 0°

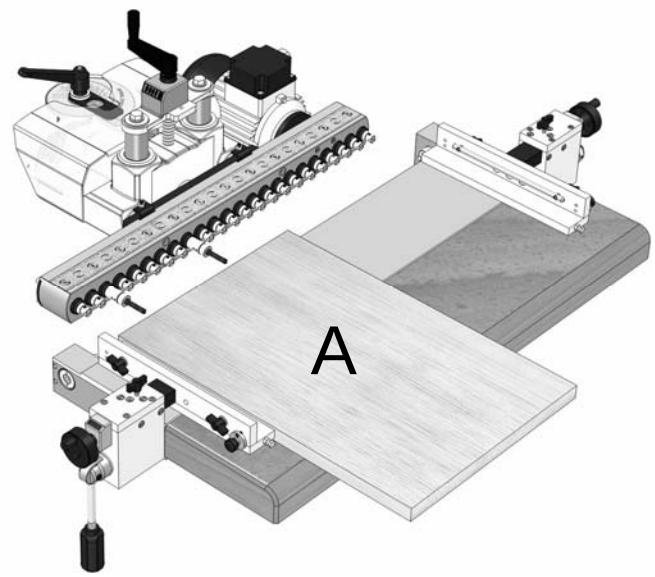
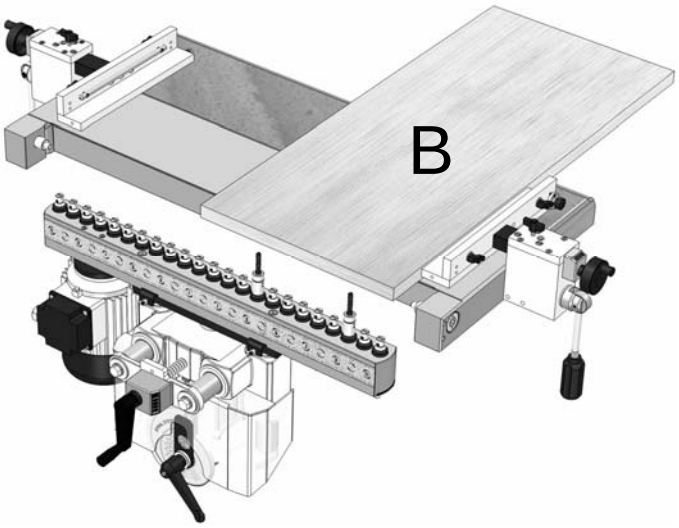
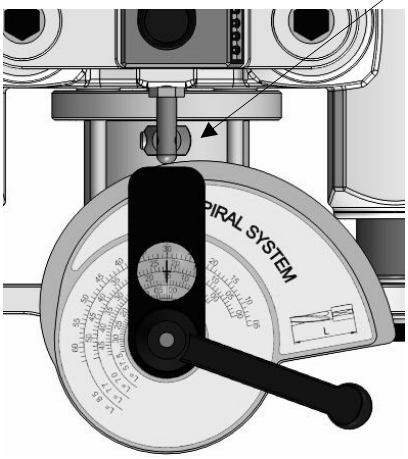
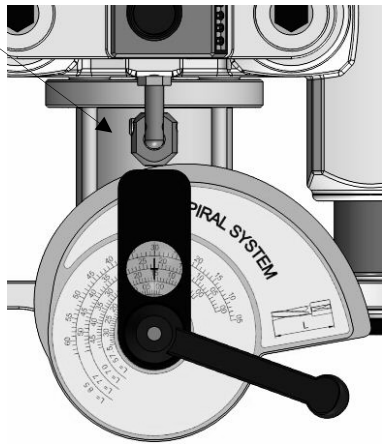


Fig: B VERTICAL DRILLING POSITION 90°



AUTOMATIC DEPTH DIFFERENTIAL





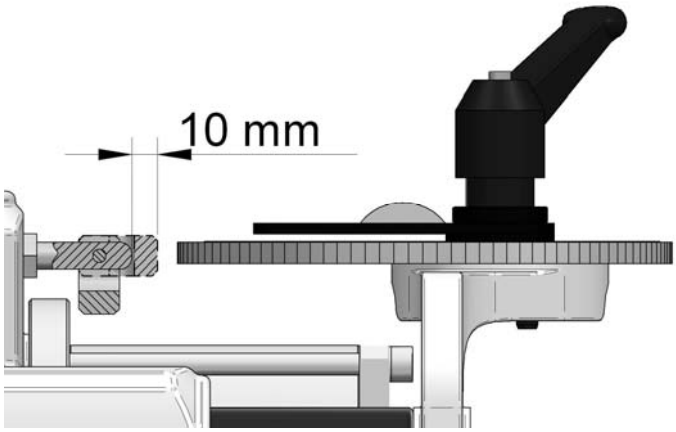
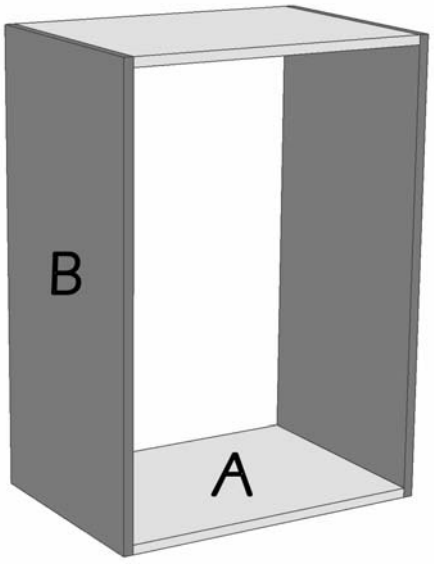
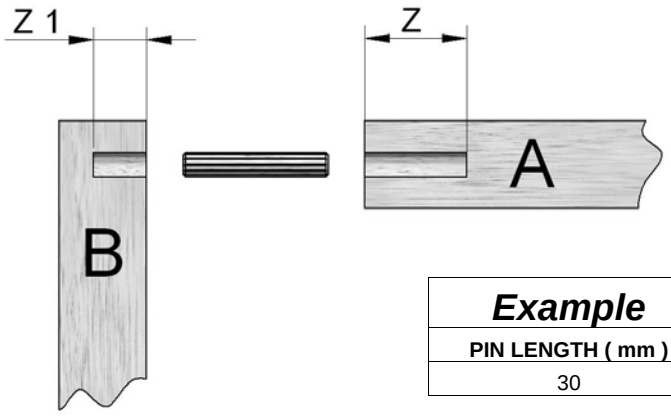


Fig. C



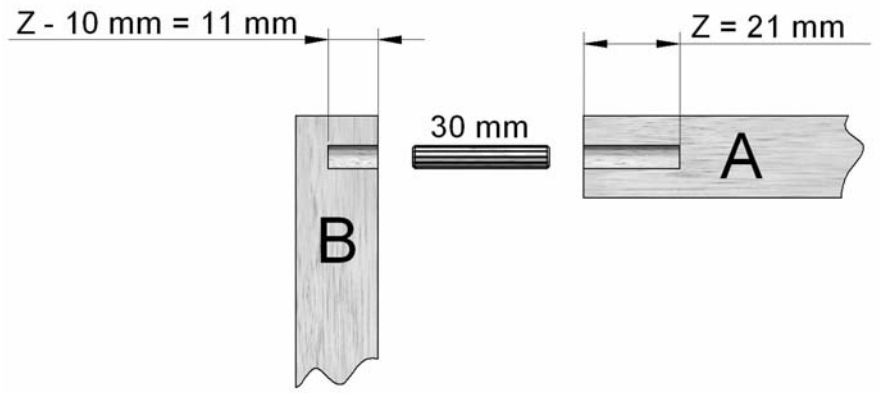
Reference assembling

Fig. D



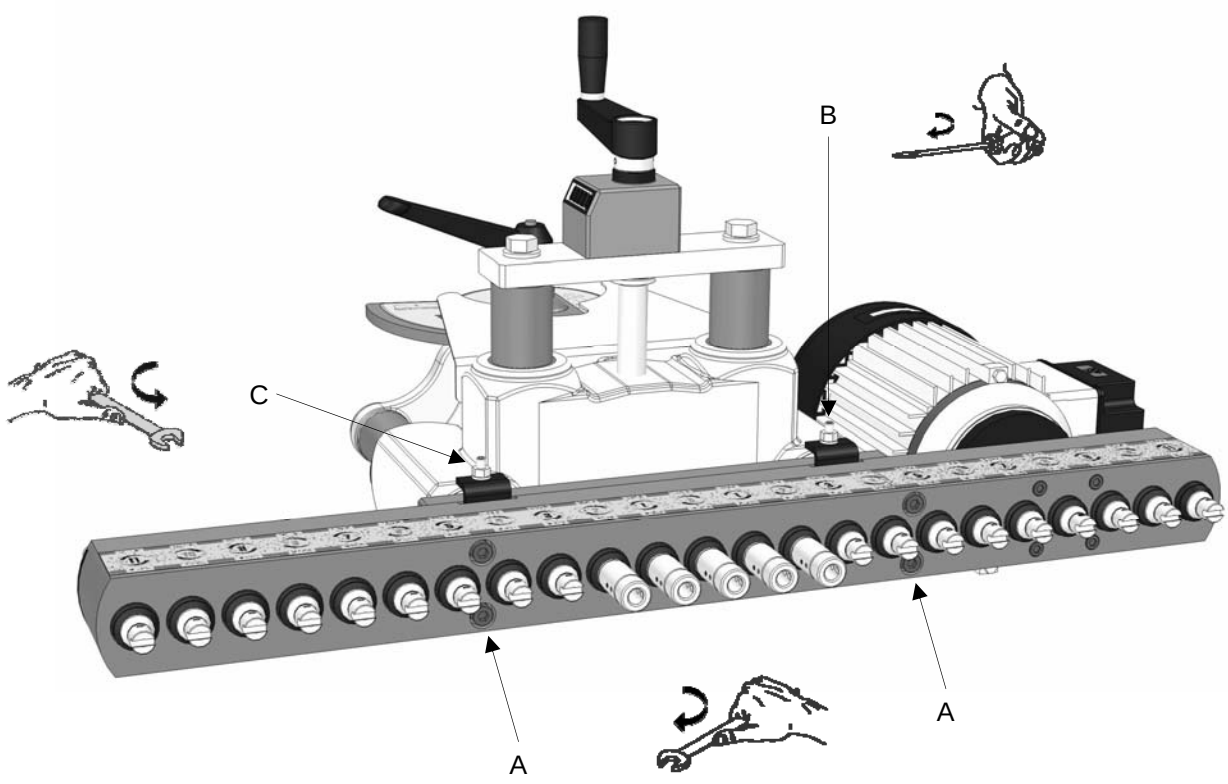
Z1 = Z - 10

Example	**DRILLING DEPTH (mm)**	
PIN LENGTH (mm)	**HOLE Z**	**HOLE Z1**
30	21	11



ADVANTGES
The horizontal / vertical depth change is not necessary, furthermore it eliminates the panel breaking risk during the vertical drilling.

HEAD PARALLELISM ADJUSTMENT
- Partially loosen the screws (A) and work alternately on the screws (B) and nuts (C)
- Set the drills parallel to the work table
- Firmly tighten the screws (A)



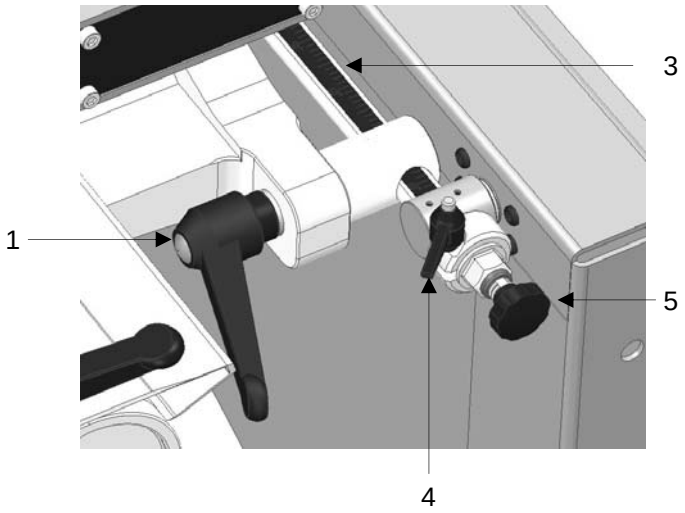
15.4 SPINDLE HEAD HORIZONTAL AND VERTICAL POSITIONING

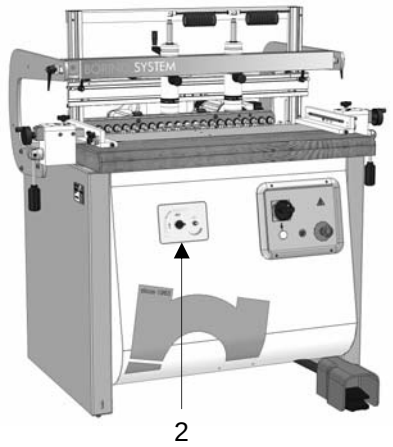
POINT 1 “Caution danger” Carefully follow the whole procedure described below. To position the spindle head at 90° *(POS. A)* starting from 0° as shown in the figure, proceed as follows:

- Release the handle (1)
- Use the selector (2) on the machine front and move it to the vertical position
- Clamp the handle (1) again.

POINT 2 To position the spindle head at 0° starting from 90° *(POS. A)*, proceed as follows:

- Check that the selector (2) on the front is also positioned at 90°
- Release the handle (1) on the left-hand side of the machine
- Use the selector (2) to overturn the head unit taking it to the bottom position
- Clamp the handle (1) again.





SPINDLE HEAD POSITIONING AT AN INTERMEDIATE ANGLE OF 45°

- Take or if already set keep the head unit at 90° as starting position.
- Release the handle (1) to be able to pull out the graduated fence (3)
- Release the handle (4) and position the stop (5) at the required degrees chosen along the graduated fence and then lock into position again.
- Follow the procedure described in *Paragraph 15.4 Point 2* (head positioning at 0°) the unit will stop in the chosen point
- Then clamp the handle (1) again.

15.5 USE OF THE REFERENCE STOP FOR STANDARD 0°-90° MACHINING

STEP 1 - The side squares (A) and back stops (B) are used to position the piece to be machined in the standard working cycle.

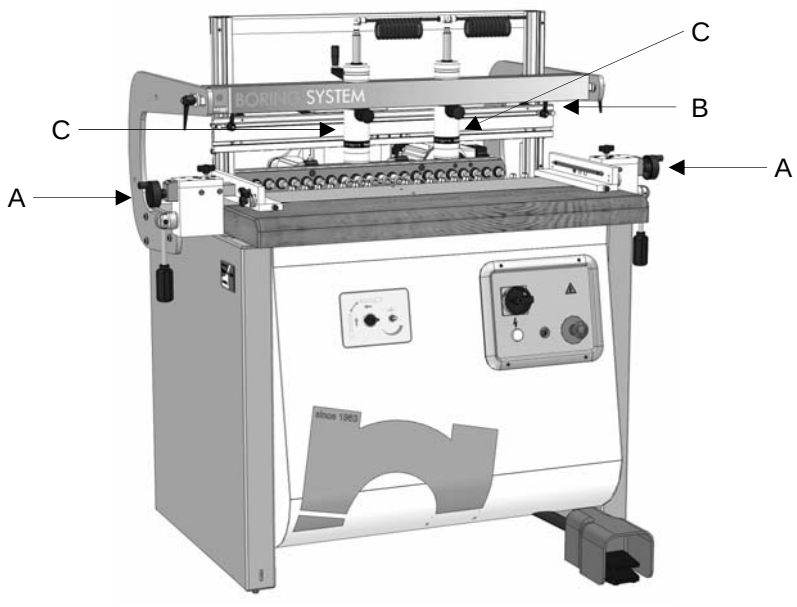
With the spindle head at 90° and the spindle holder unit clamped in place:

- Position and lock the side squares at an appropriate distance from the drills to be used
- Position the clamp cylinder (or cylinders) (C) in the area where the piece will be worked
- Place the piece to be bored against the side squares using them as guides to position the piece under the clamps and against the rack.
- Position the stoppers (B) above the work piece, lower the stopper reference block onto the piece and clamp the stopper itself with the corresponding handles.
- The piece is in the right position and it is now possible to start the working cycle pressing the pneumatic pedal to start drill feed with the engine switched on (make sure that the engine button is on). At the same time the clamps will lock the work piece into position.

STEP 2 **-** When the first step is over, release the pneumatic pedal to release the piece and take the bored piece out of the machine. Release the spindle head unit, operating the overturning lever to re-position the spindle head at 90°. Re-position the head and lock it in place, than you can start the second step:

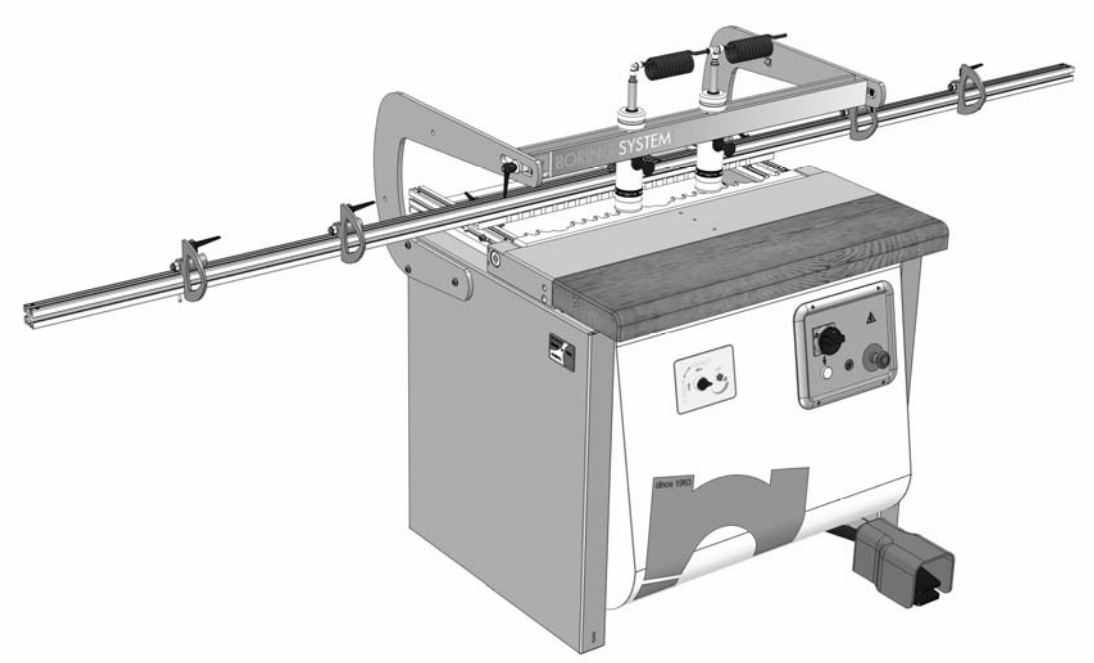
- position the piece, that has to be joined to the one that has just been machined, against the side square under the clamp (or clamps) (C) and against the back stop block.
- Once you are sure the piece has been positioned correctly, press the pedal to lock the clamp, to turn and feed the drills.
- The piece will be released once the pedal is freed, ending the working cycle.

THE TWO PIECES THAT HAVE BEEN OBTAINED ARE NOW READY TO BE JOINED (0°-90°).



15.6 USE OF THE 1,5 + 1,5 MT STANDARD EXTENSION FENCE *(OPTIONAL)*

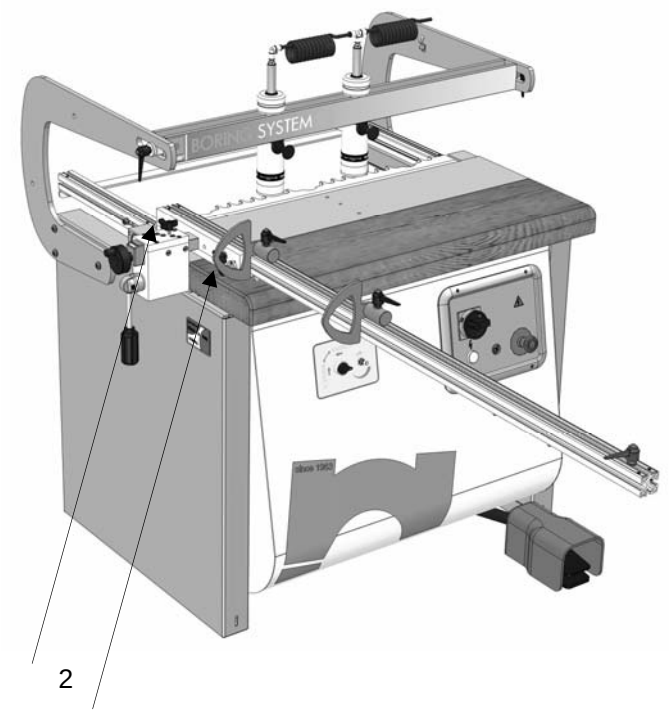
The extension fence is used to make a series of larger holes than the machine can make or to bore large-sized pieces. Use of the extension generally implies complete or partial exclusion of the side squares and positioning the spindle head at 90°. For longitudinal use of the extension, we advise you to exclude the side squares completely, as it is possible to use mobile reference stoppers on the extension itself (the extension is provided with 4 mobile stoppers with positioning screws, stop screw and extension clamping device) for combined positioning of the work piece.

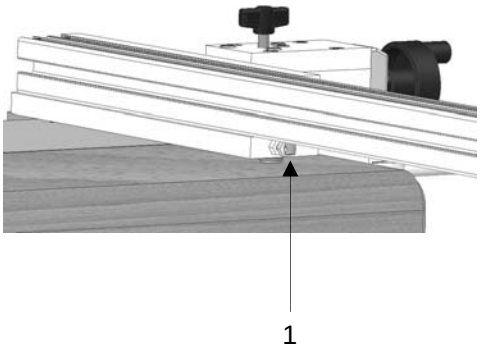


TRANSVERSAL POSITION OF EXTENSION FENCE *(OPTIONAL)*

To use the extension fence transversally you need to fasten it to the side square using the locking knobs provided.
Follow the procedure described below:

- Position the extension on the inner side of the side square, locking it in place with the help of the reference pin (1) on the extension itself.
- Clamp the locking knobs (2) on the side square.
- Once the extension fence has been positioned, it is possible to exclude the other side square if necessary.
- It is now possible to use the mobile stops to co-ordinate the relative positions of the sections to be bored on long pieces.

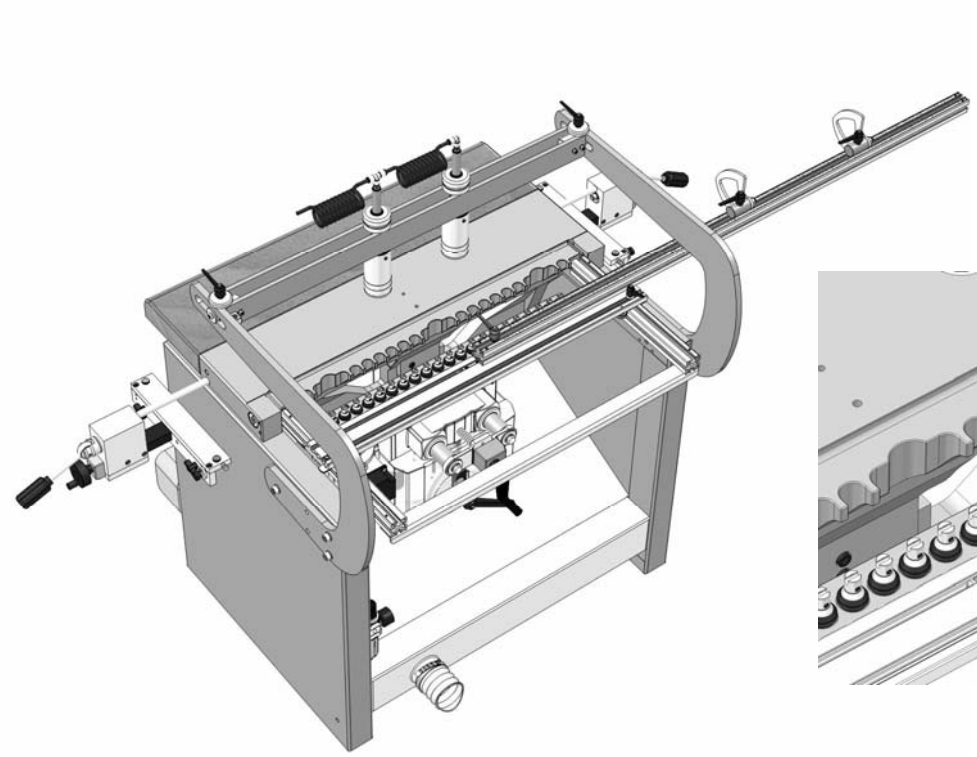


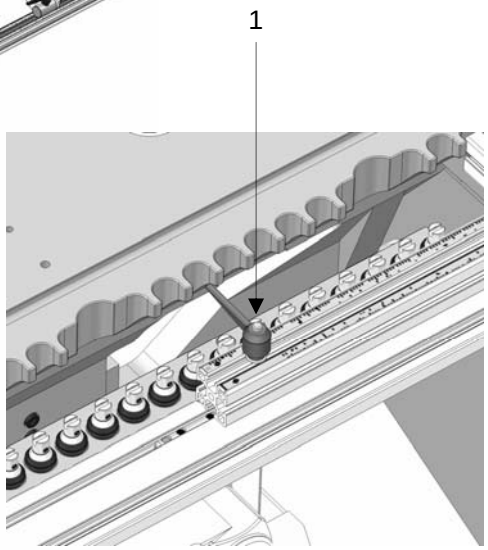


LONGITUDINAL POSITION OF THE EXTENSION FENCE *(OPTIONAL)*

To use the extension fence longitudinally you need to fasten it to the back stop profile using the handles provided.
Follow the procedure described below:

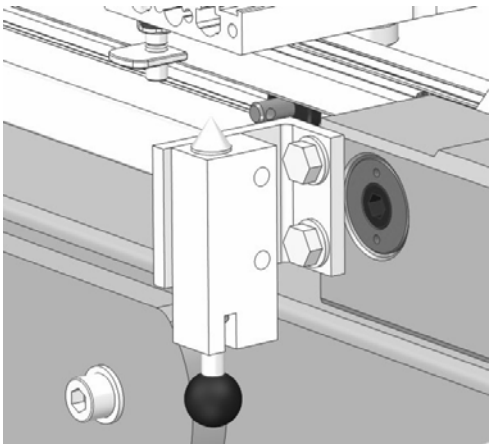
- Turn the side squares over to bring them out of the table, making sure they are under the work table.
- Place the extension fence over the back stop profile as illustrated in the figure below.
- Fasten the extension fence to the back stop profile clamping the handle (1) provided with locating pin.
- It is now possible to use the mobile stops to co-ordinate the relative positions of the sections to be bored on long pieces.

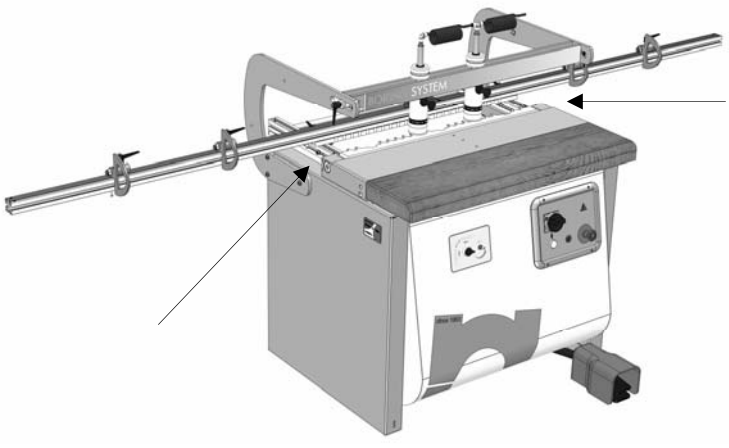




15.7 USE OF THE REFERENCE PIN FOR SETS OF HOLES ON LARGE-SIZED PIECES *(OPTIONAL)*

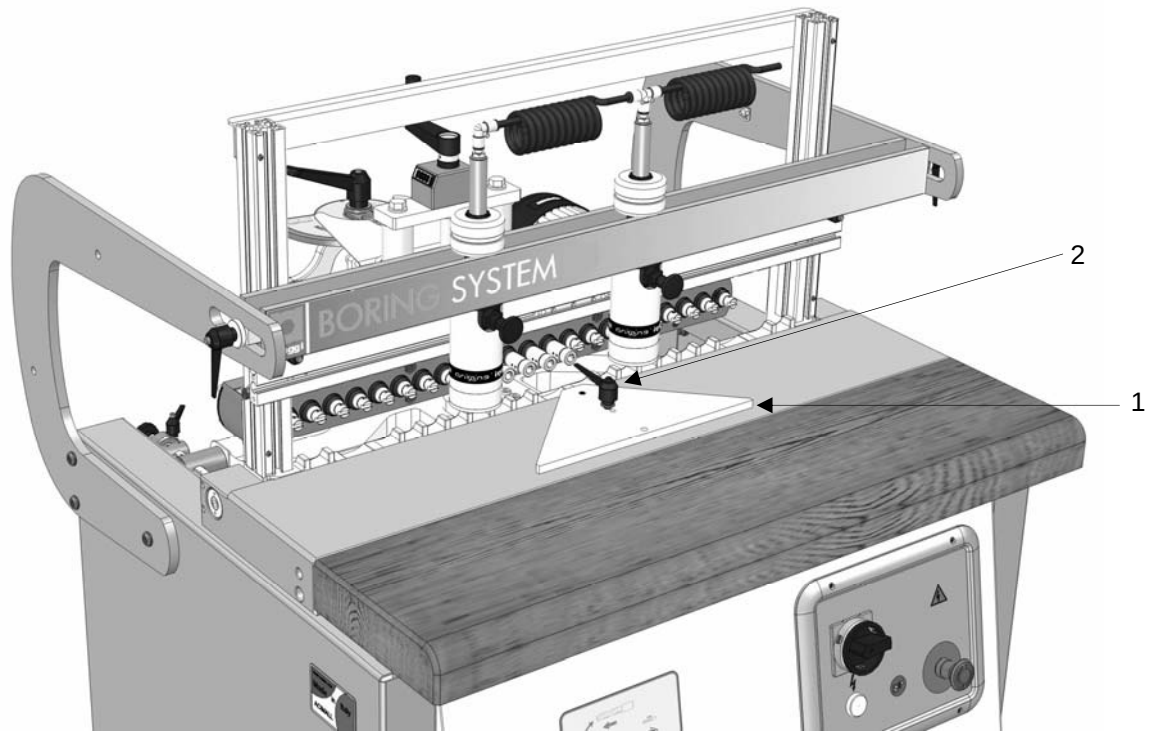
The use of the extension fence for large-sized pieces can be complicated. Our machines are provided with a reference pin that can be used for the repetition of a set of holes on a large-sized piece, in which the axial distance between the first drill and the last is higher than those obtainable with the boring machine used. The reference pin is aligned with the axis of the drills and it fits into a slot under the machine table when the first set of holes has been bored. To go on boring, the reference pin can be used again by turning the knob to release the spring that allows the reference pin to come out. The reference pin must be inserted in one of the holes that have just been bored to allow repetition of the set of holes.





15.8 USE OF THE TRIANGLE FOR 45° FRAMES *(OPTIONAL)*

The 45° triangle is particularly useful for 45°-45° jointing, mainly used for quickly manufacturing frames. Fasten the triangle (1) on the table in the reference holes and clamp it in the centre hole using the lever (2). This way it is possible to rest the pieces cut at 45° to be bored and coupled with the wooden “dowel” peg. The machine spindle head must be set at 0°. When the position is correct, the clamp is over the piece to be worked; proceed as in a standard working cycle, pressing the pneumatic pedal to start machining and releasing it at the end of the work. Repeat the procedure on both sides of the triangle to obtain two mirrored frame pieces ready to be joined.

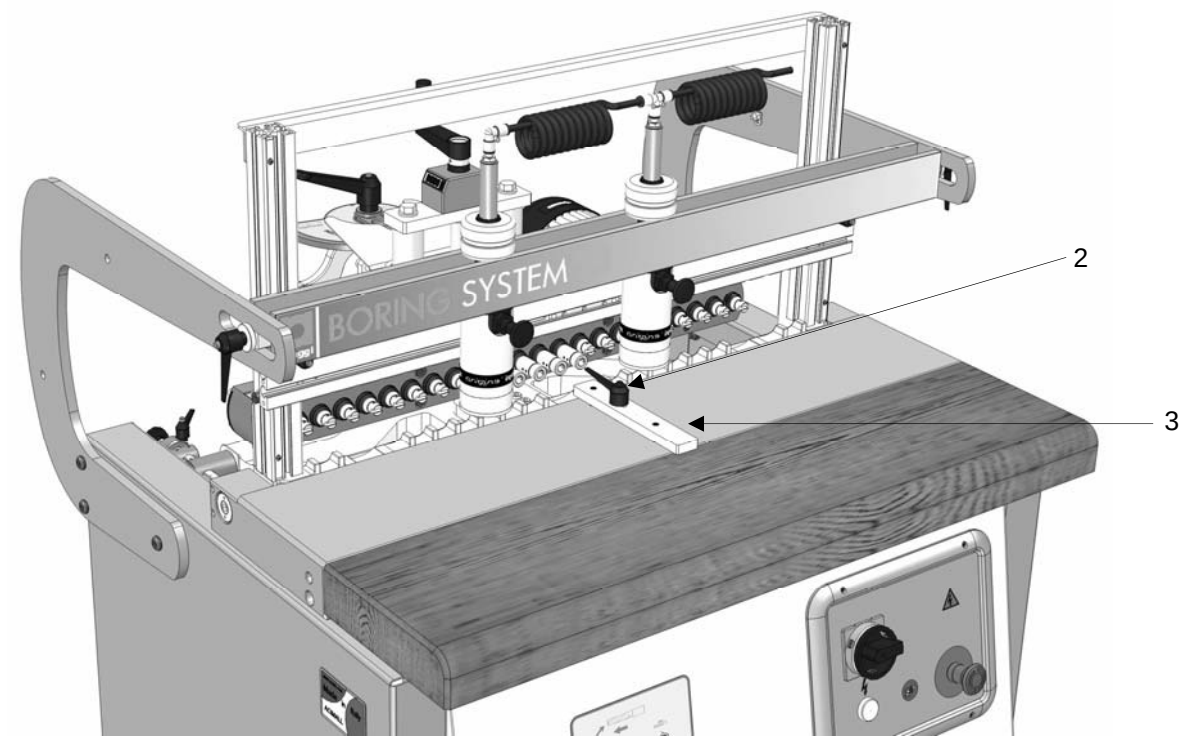


15.9 USE OF THE CENTRAL BAR FOR STRAIGHT 90° FRAMES *(OPTIONAL)*

The central bar is used to join two pieces with sides at a right angle (mainly used for quickly manufacturing straight frames).

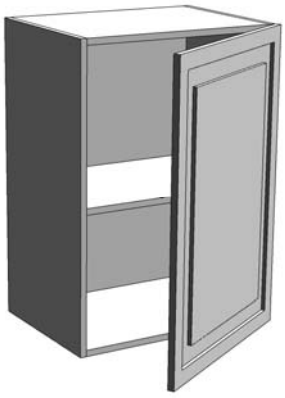
- Fasten the central bar (3) in the special reference holes on the work table and clamp it with the lever (2).
- position the pieces to be worked along the central bar. It is now possible to start boring operations to join frames with wooden “dowel” pegs.

The position is correct when the spindle head is at 0° and the clamp is over the piece to be bored. Proceed as in a standard working cycle, pressing the pneumatic pedal to start machining and releasing it at the end of the work. Repeat the procedure on both sides of the triangle to obtain two mirrored frame pieces ready to be joined.

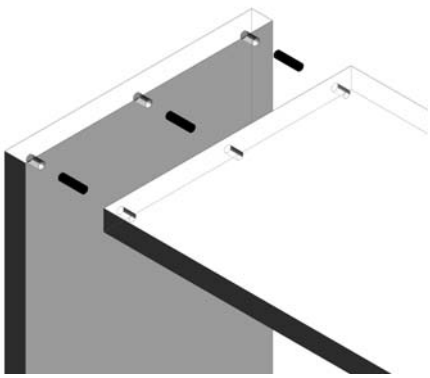


16. WORKING EXAMPLES

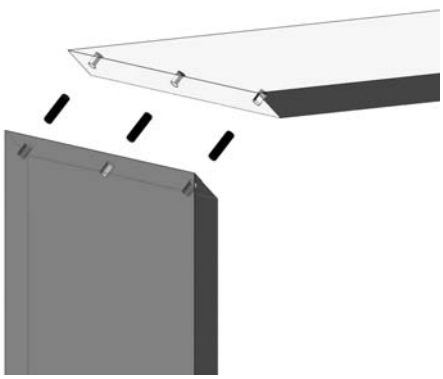
PANEL MATING EXAMPLES



Assembling parts

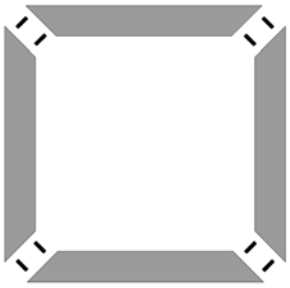


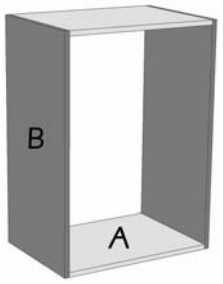
Mating parts (at 0°)



Mating parts (between 0° and 90°)

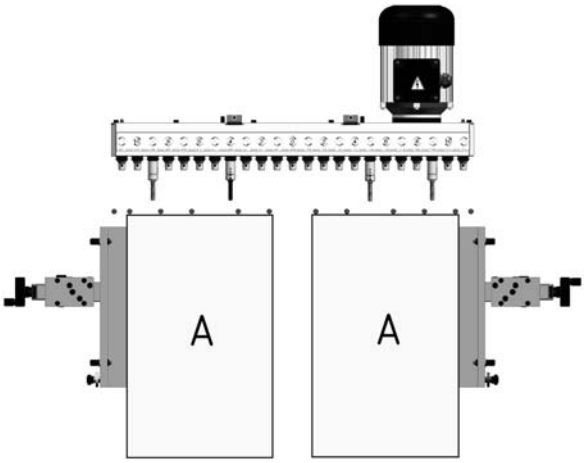
FRAME MATING EXAMPLE AT 0° AND AT 45°





Reference assembling

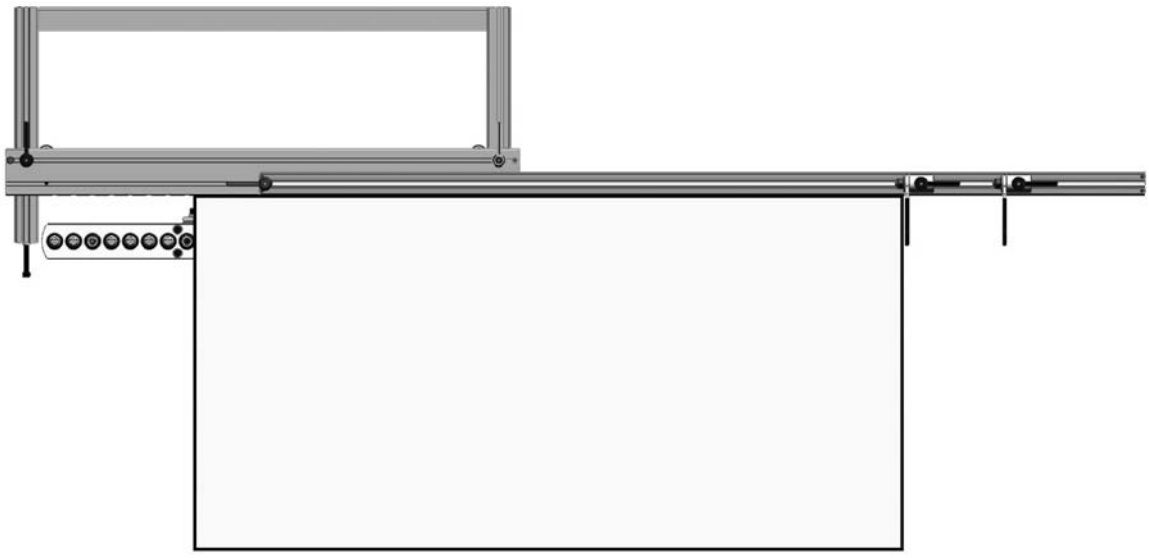
SIMULTANEOUS MIRROR DRILLING EXAMPLES



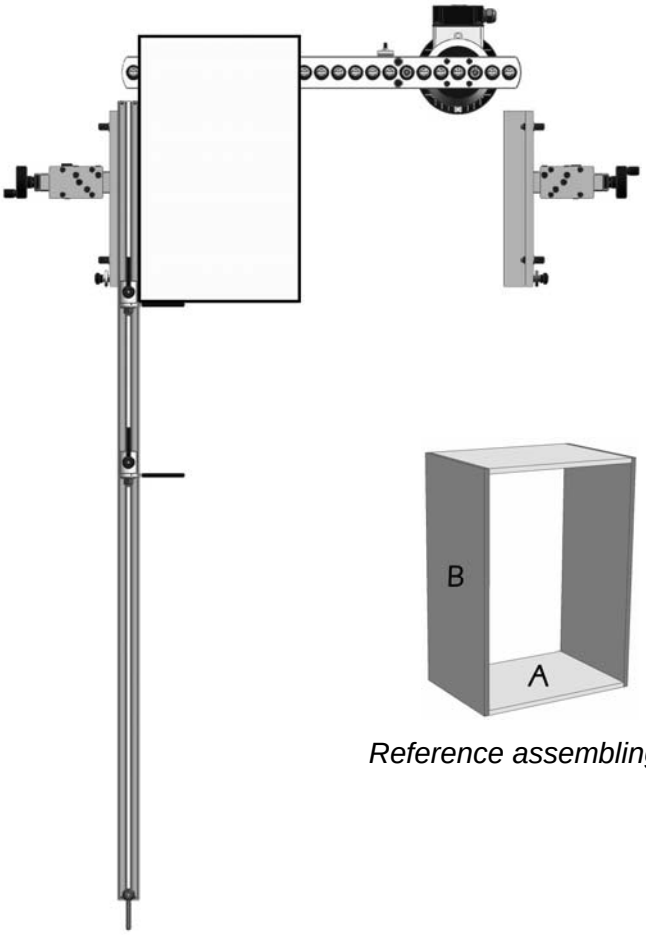
Simultaneous mirror drilling of two panels (drilling head at 0°)

Simultaneous drilling of two side panels (drilling head at 90°)

DRILLING EXAMPLES WITH REFERENCE FENCES

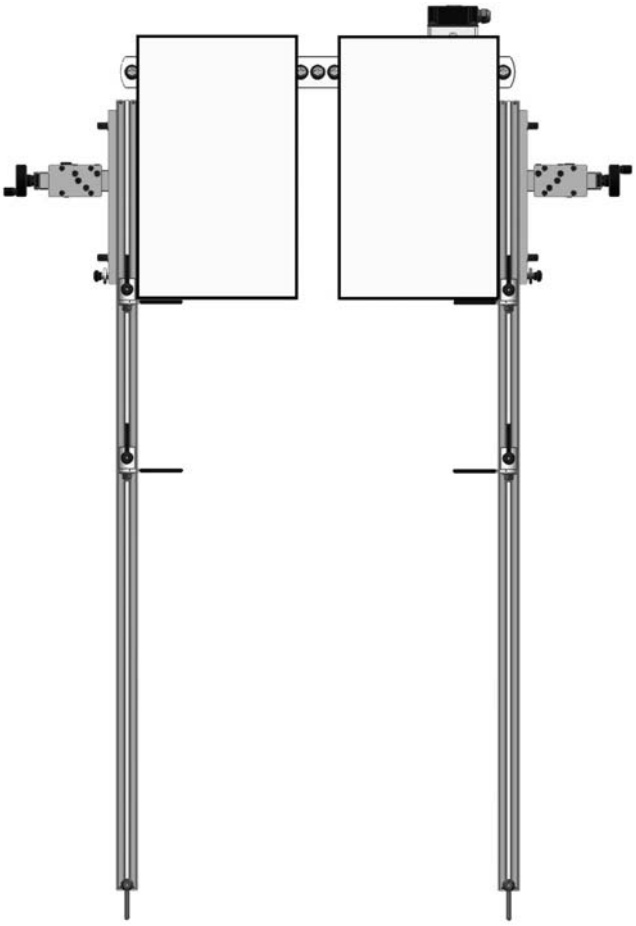


Longitudinal positioning of the 1500mm fence, equipped with two reference stops, to drill line holes on large panels. The long fence can be used both on left and right side with high accuracy. The 3000mm long fence, equipped with four reference stops, is particularly suitable to drill line holes on very large panels: thanks to its dimension, it ensures a fast and complete positioning.



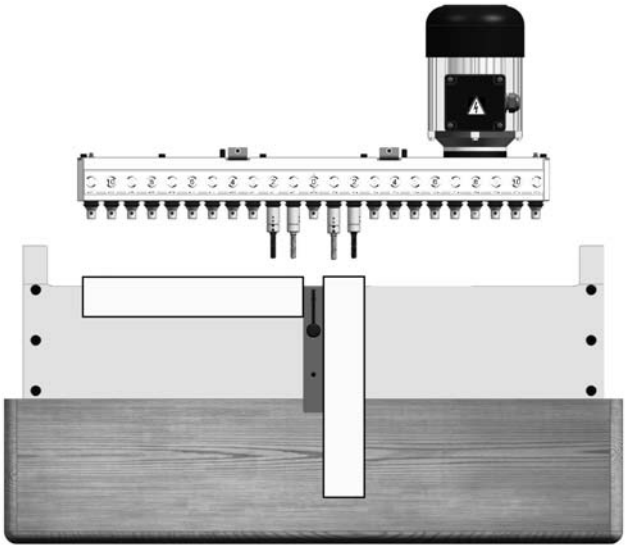
Reference assembling

Transverse positioning of the fence, equipped with reference stops, to drill transverse holes on side panels for the insertion of support panels

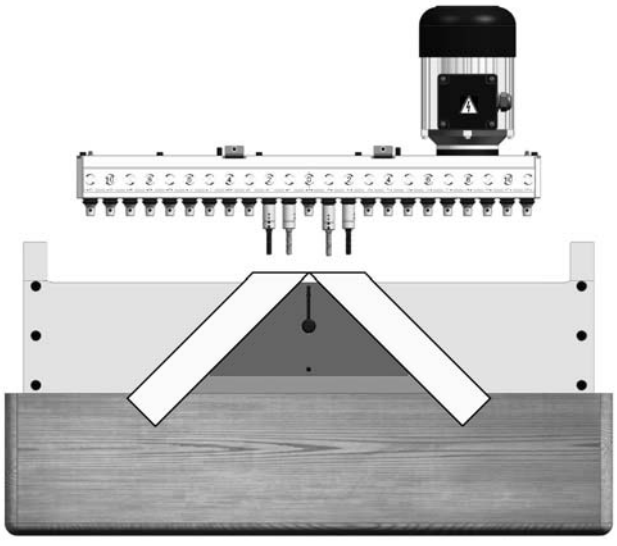


Transverse positioning of two fences, equipped with reference stops, to drill simultaneously transverse holes on side panels for the insertion of support panels

DRILLING EXAMPLES USING FRAME FENCE

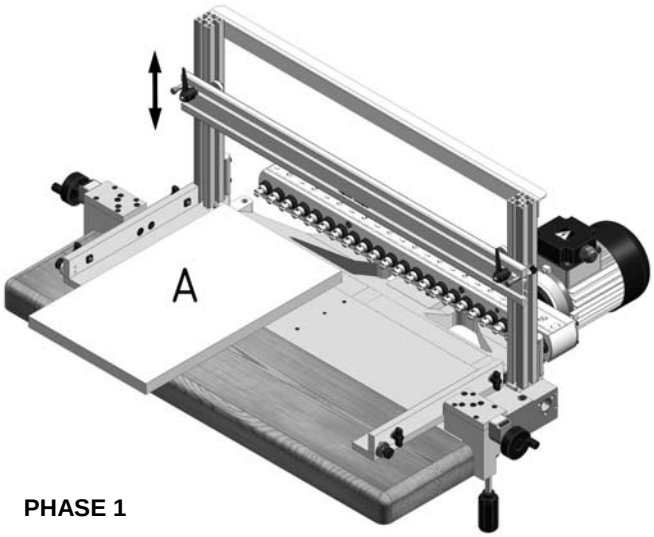


Example of the use of the standard dimension fence to drill simultaneously two frames at 0° - 90°



Example of the use of the triangular fence to drill simultaneously two frames to be joined at 45° - 45°

EXAMPLES OF AUTOMATIC MATING OF VERTICALLY AND HORIZONTALLY DRILLED PANELS



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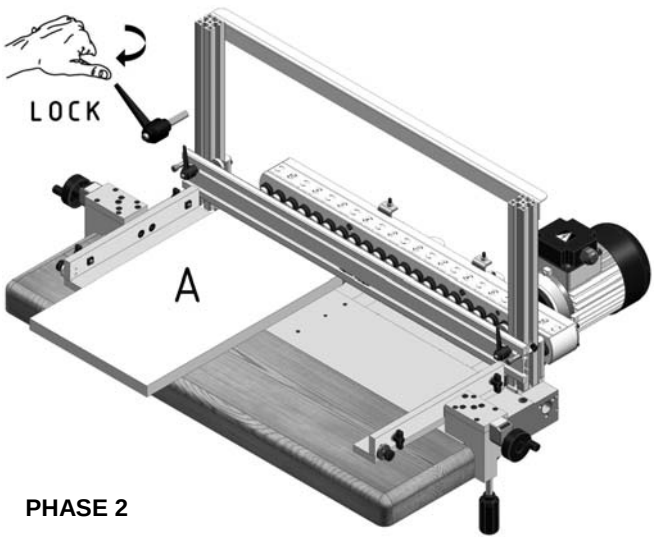

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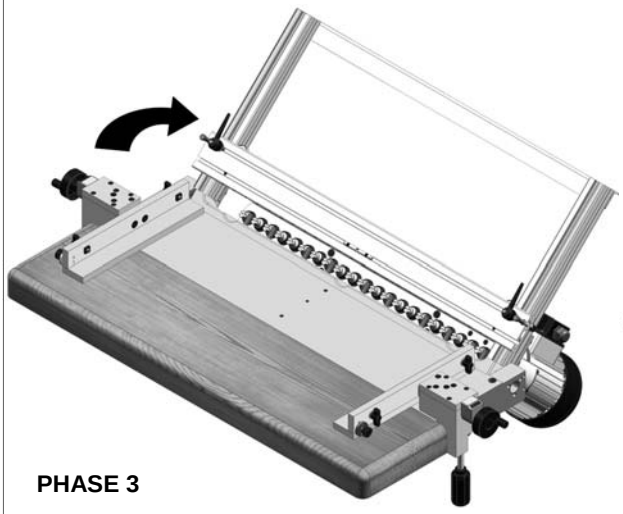

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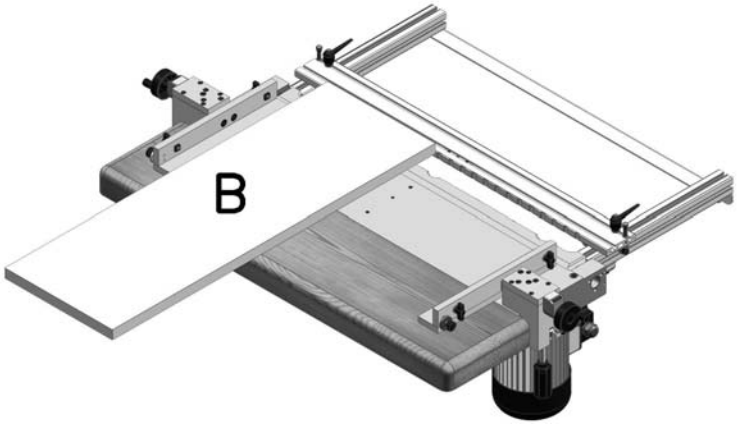

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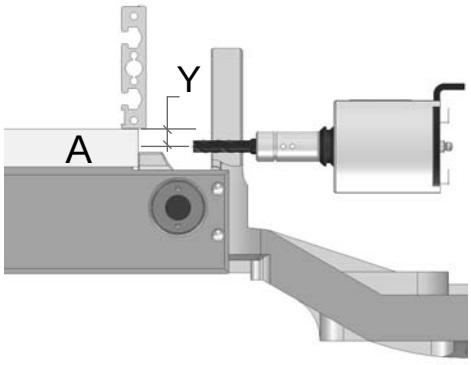
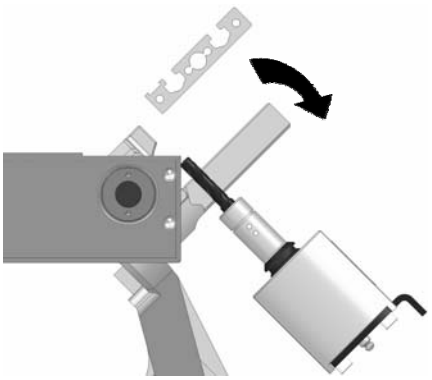
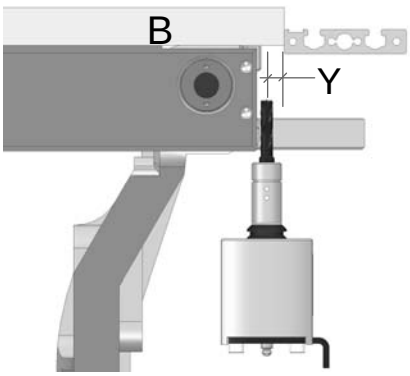
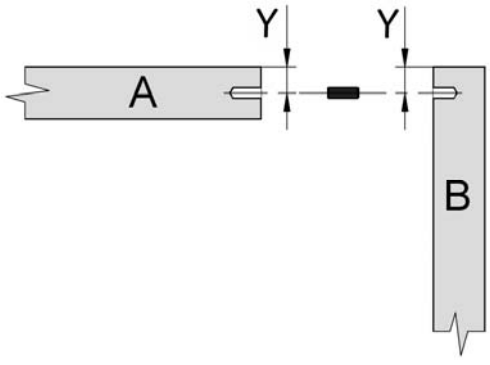
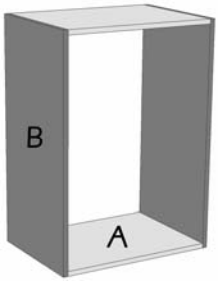






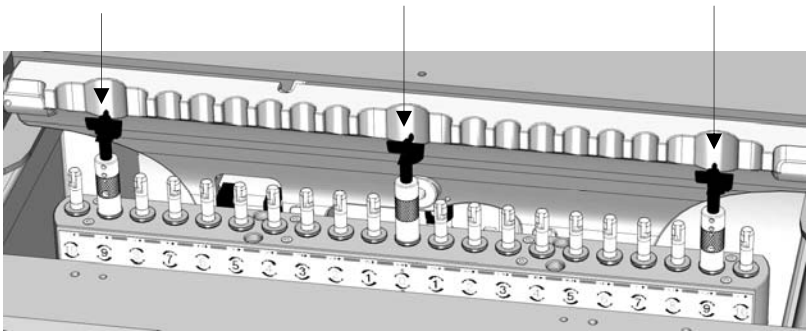


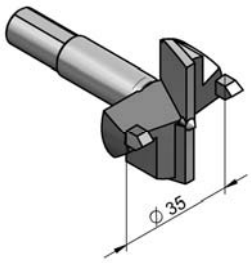


Reference assembling

DRILLING EXAMPLES FOR HINGE SEAT

It is possible to drill holes using 35mm O.D. tools max. *(if you want to use a 40mm O.D. tool you must follow carefully the procedure described below)*
ATTENTION !!! The 35mm O.D. tool has to be mounted only on the spindles corresponding to three right positions of the rack (see the three arrows on the right side of the figure below), besides the head group has to be positioned in the “0 0 0 0,0” vertical position, as depicted in the figure below.





It is possibile to drill holes larger than 40mm O.D. if you position the head from the rack at a distance of the tool O.D. + 10mm. At this distance you can use large tools in any spindle of the head.
ATTENTION !!! You must verify that the tool is above the rack.

17. MAINTENANCE

17.1 ORDINARY MAINTENANCE

AN ADEQUATE MAINTENANCE IS A CRUCIAL FACTOR FOR A LONGER LIFE OF THE MACHINE, AND TO OBTAIN OPTIMAL WORKING CONDITION OF THE MACHINE ITSELF. ALL THE MAINTENANCE OPERATIONS MUST BE DONE WITH THE MACHINE TURNED OFF. WEAR ALWAYS PRO TECTIVE GLOVES AND FACE-SHIELD

WARNING - DANGER OF SLIDING!
During cleaning of working area, be careful to working residuals and liquids left over the floor all around the machine: they can be dangerous for sliding of the operator.

17.2 CLEANING OF THE MACHINE (DAILY)
The machine and working area must be kept clean from working scraps and anything that could hamper the working cycle or access to the machine itself. The machine must be cleaned every day. Make sure that no material not needed by the machine can gather on it preventing safe operation and causing danger to the operator during the normal working cycle .

17.3 CLEANING OF THE GUIDES (WEEKLY)
Sliding guides and bars must be kept clean from working residuals: they can obstacle correct machine movements and damage machine efficiency. Do not use detergents or lubricants.

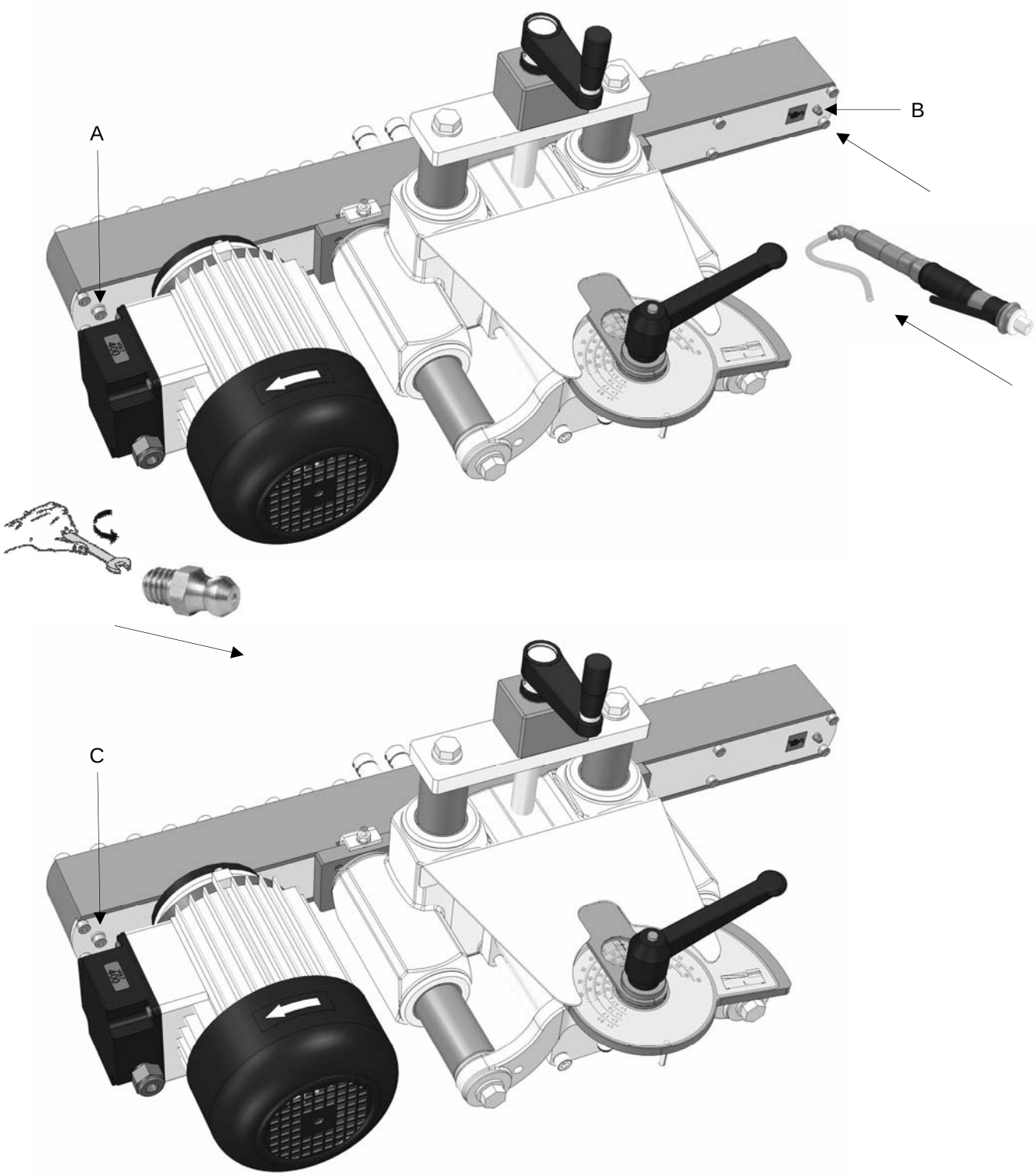
17.4 ELECTRICAL CABLES CHECK

Check the condition of the electric cables. Make sure there are no signs of wear, scrapes, etc.

17.5 EXTRAORDINARY MAINTENANCE
- Check electric system safety
- Check the clamping of the various mechanical components.
- Check the lubricant oil level in the filter unit and top up if necessary.
- Make sure the machine is lubricated regularly.
- Check air pressure value: the pneumatic power supply must give air at a pressure value of 6 bar
- Check sludge: sludge and air impurity deposit into the transparent cup of air treatment group

Lubricate the boring-head until it's hot so that the grease inside the head is more fluid

1. Unscrew the grease-fitting cap (A)
2. Fill the grease gun with grease type EP 2
3. Insert the gun coupler inside the grease-fitting (B) and pump a little amount of grease inside the head
4. Switch on the machine and let the spindles turn so that the grease is homogeneously spread within the head
5. Switch off the machine
6. Verify that some grease has leaked out of the hole (C); if not, please, repeat the whole procedure once again and until the grease is leaking out



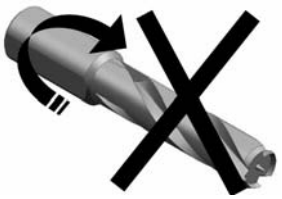
Lubrication of the boring-head unit should be carried out every 5,000 operating hours.

18. COMMON FAILURES: REASONS AND REMEDIES

Some failure causes can be eliminated directly by the operator, other by qualified personnel only.

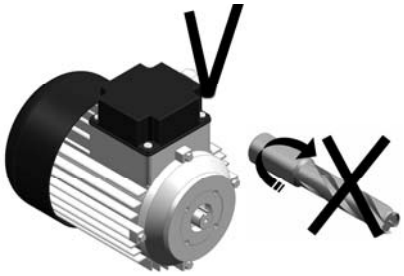
ATTENTION:
BEFORE MAKING ANY INTERVENTION IT IS OBLIGATORY TO FOLLOW CAREFULLY THE INSULATION PROCEDURE

18.1 DRILLS DO NOT WORK



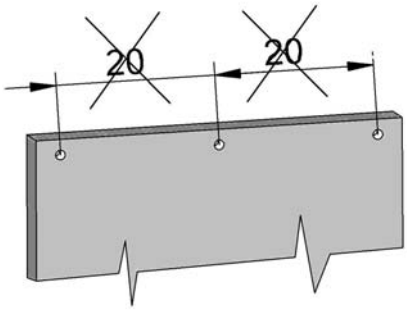
PROBABLE REASON	ACTION
A - the motor does not work B - the motor is out of service	- push the motor start push button - release the emergency push button and/or check fuse - check air pressure value (to turn on the pressure sensor) - replace the motor

18.2 THE MOTOR WORKS BUT THE DRILLS DOES



PROBABLE REASON	ACTION
A - possible failure of: - gears and/ or keys - drive joint	- replace them or call technical service

18.3 THE HOLE IS NOT ACCURATE



PROBABLE REASON
A - unproper drill locking
B - drill wear
C - working piece unproperly blocked

ACTION
- check locking. Call Service if the locking is good
- replace or call Service
- check clamp units, their seals and working air pressure value

19. ANOMALIES DURING ORDINARY WORKING PHASES

19.1 BURN-TRACES DUE TO DRILLS
This problem might appear when the piece is positioned incorrectly or owing to drill wear or if the drills turn in the opposite direction.
19.2 DRILLED PIECES ARE NOT PARALLEL TO THE REFERENCE BAR
This might be due to incorrect parallelism of the drills in relation to the reference stop. Check the heads in relation to the stop and the parallelism of the line of drills of head 1 with head 2.
19.3 DIFFICOLTY IN TURNING THE HEAD
If the boring unit fails to reach or finds it difficult to reach other positions, check the hinge and rod of the overturning piston
19.4 THE WORKING PIECE IS NOT BLOCKED BY THE SAFETY CLAMP
If the clamps are not clamping properly, check the air pressure and connection pipes.
To solve these problems we suggest you contact Maggi Engineering Post-Sale Service, or your local dealer.

20. NOISE EMISSION

Noise emission according to correct working of machine and balancing and grinding of tools, is variable and depends on working material, drill diameter and depth drill. The operator permanence expected time is variable during 8 hours a day. Some other factors may determinate the exposure level; the surroundings and other noise sources, and other close machines.
We suggest to inform the operators about risks caused by a prolonged exposure to noise, providing them with suitable individual protection devices. The acoustic pressure level, collected in the operator place through class 1 integrative noise meter, is 76.1 dB(A).

This measure was done according to ISO3745 rules with usual working values of speed and air pressure, drilling a shaving wood PVC covered panel. The measure was executed at 1.5 m from ground, in front of the machine, in the operator position.
Moreover the following reference measures were collected with the same procedure:
Acoustic pressure level in Atm. dB(A): 78.3
Acoustic pressure power dB(A): 93.3

21. DUST EMISSION

The following results are obtained from the determination of dust emission in 1 hour of continuous work, drilling a fir PVC covered panel 20 mm thick. Dust emission turned out 13,9 mg/N cu.m at 1,5 m from ground in front of the machine in the operator position.

22. PUTTING THE MACHINE OUT OF SERVICE

When machine has to be put out of service, please carefully follow our instructions in order to safeguard the safety of people and of environment. Firstly execute the insulation procedure, then dismantle the drills and put them into a suitable packaging box. Dismantle electric, hydraulic and pneumatic components so that you can re-use them after a check or a revision. Empty out completely from oil the hydraulic power unit, avoiding scrupulously to disperse the oil in the environment. Dismantle metal components grouping them for materials. Call a specialized company to rescue and eliminate solid and liquid materials.

23. WIRING DIAGRAM

For consulting the wiring diagrams, please see attached documents.

24. GUARANTEE

Maggi Technology S.r.l. guarantee the mechanical parts of their machines against faulty construction for a period of 12 (twelve) months after the date of despatch of the machines.
The guarantee is limited to the obligation to repair or replace free of charge any parts that prove to be faulty. The transportation cost is charged by the customer. All motor, electric and electronic equipment are excluded from the guarantee.
It is understood that, in all cases, the guarantee does not entitle the customer, to any refund for damages, interruption of work or any indirect damage caused to person or things.
All parts to be replaced must be sent carriage paid to our works at Certaldo and any parts that have been made faulty due to
Inexpert use of the operators, to deterioration caused by lack of lubrication or to normal wear and tear, will not be replaced.

VOUCHER TO BE SHIPPED TO MANUFACTURER

WARRANTY AND ACKNOWLEDGEMENT OF RECEIPT VOUCHER

Model……Serial number.....……

Name……..

Address……..

ZIP code.....……...City..……

Date of purchase……..Dealer.....……

Owner signature

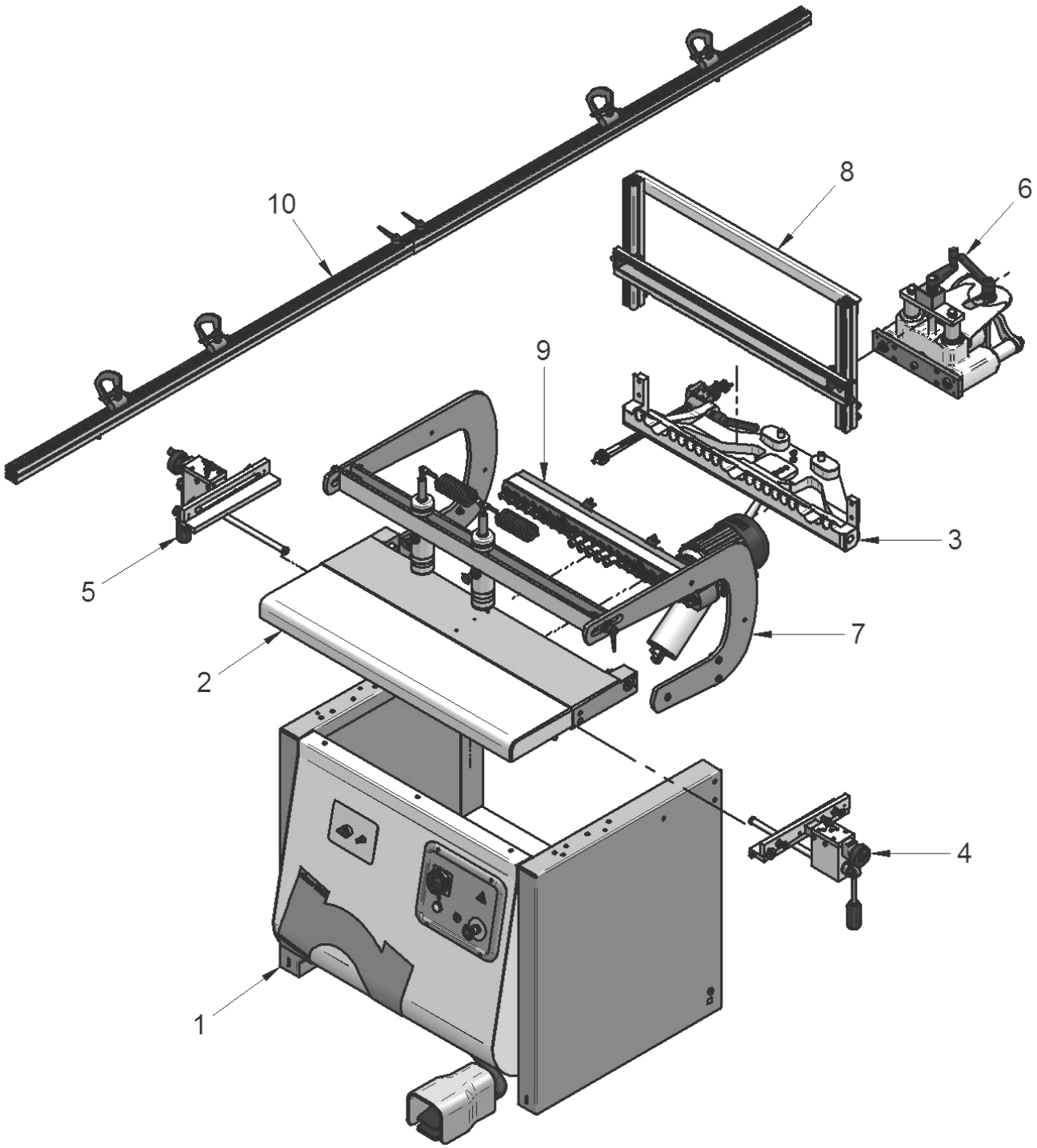
……..

The owner declares that he agrees with the warranty conditions and that he checked the proper functioning of the machine

Ship to:

MAGGI TECHNOLOGY srl
Vendita ed Assistenza Tecnica
Via delle Regioni n°299
50052 CERTALDO (Fi)
ITALIA

25. SPARE PARTS



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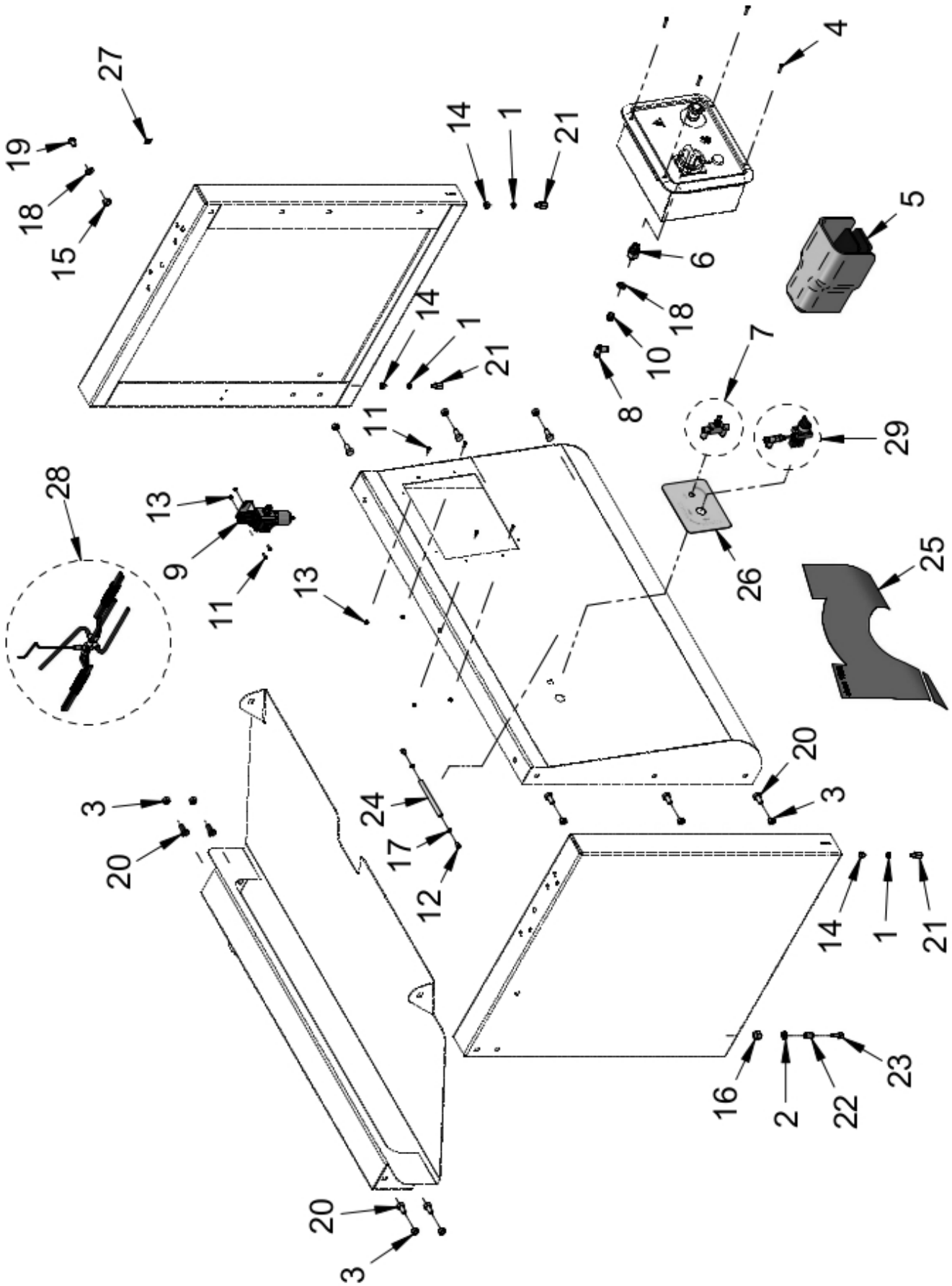
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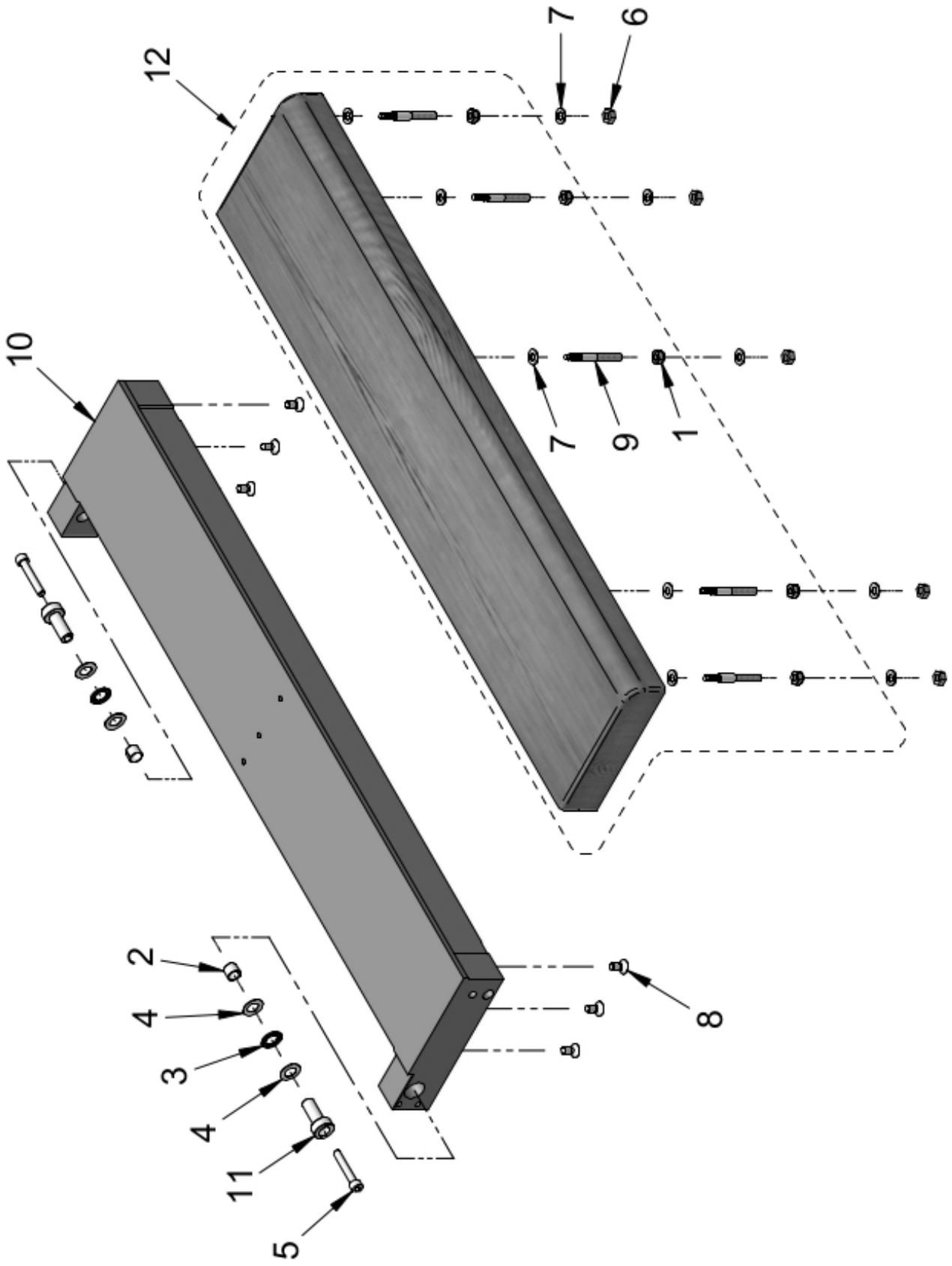

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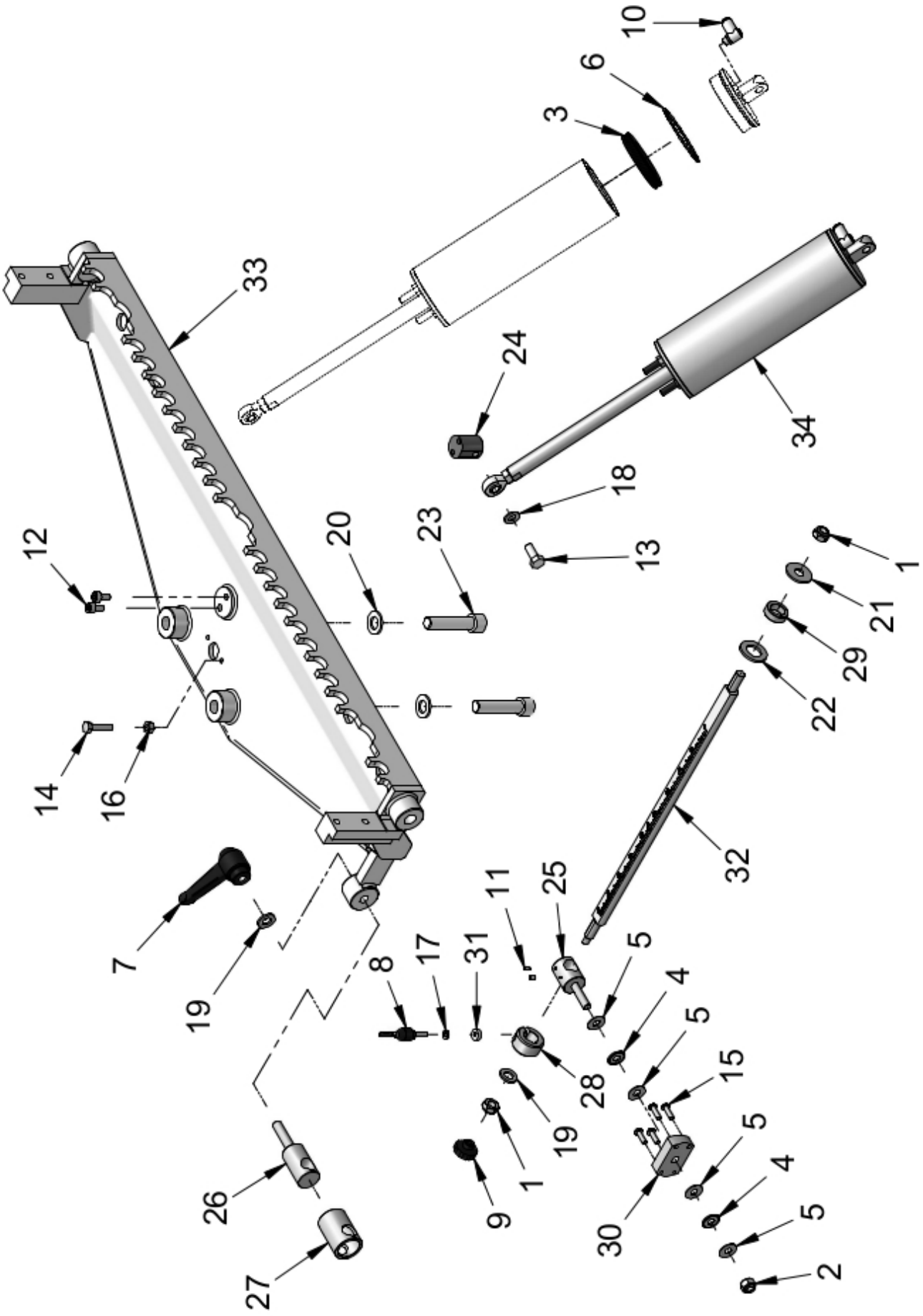
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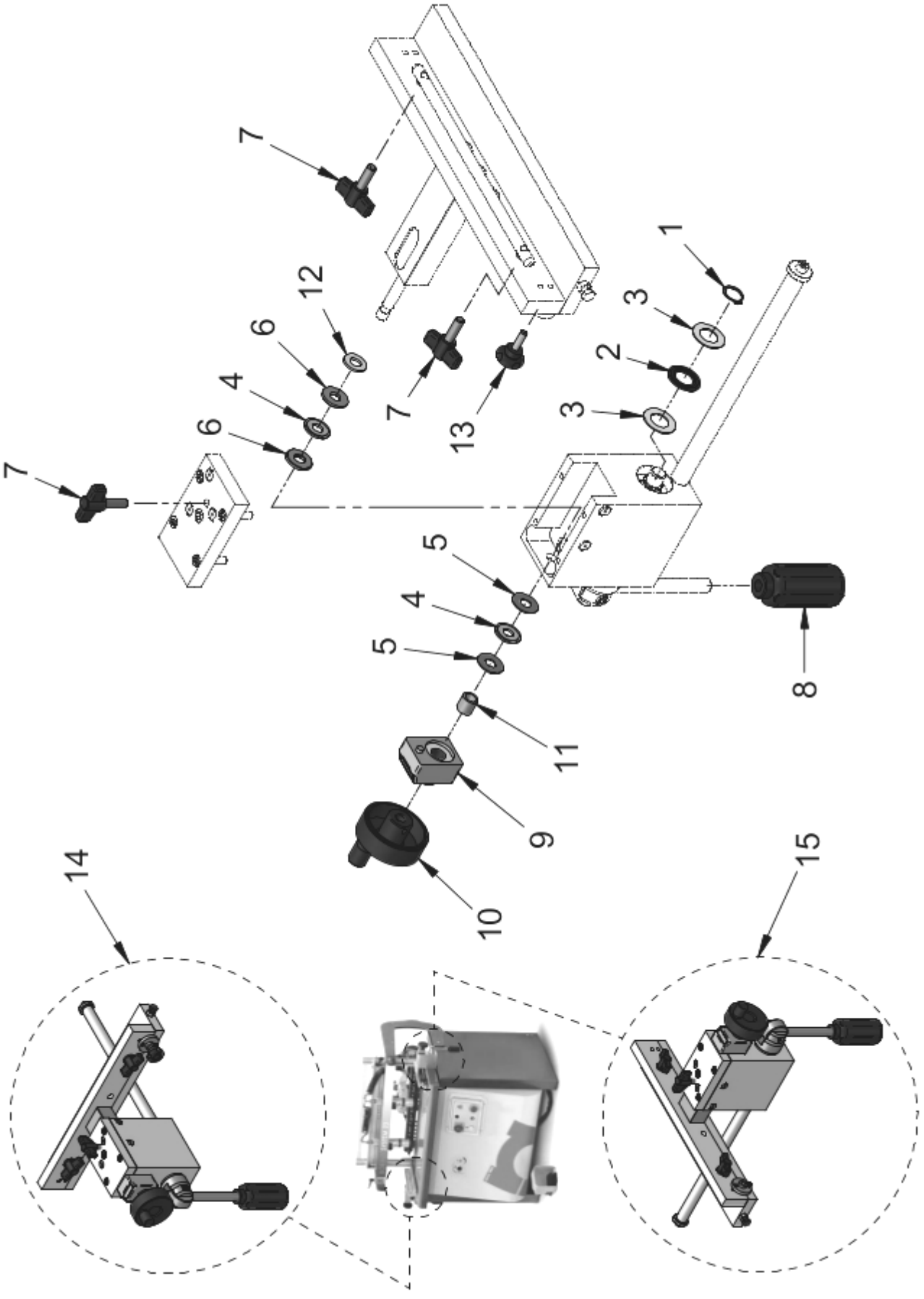

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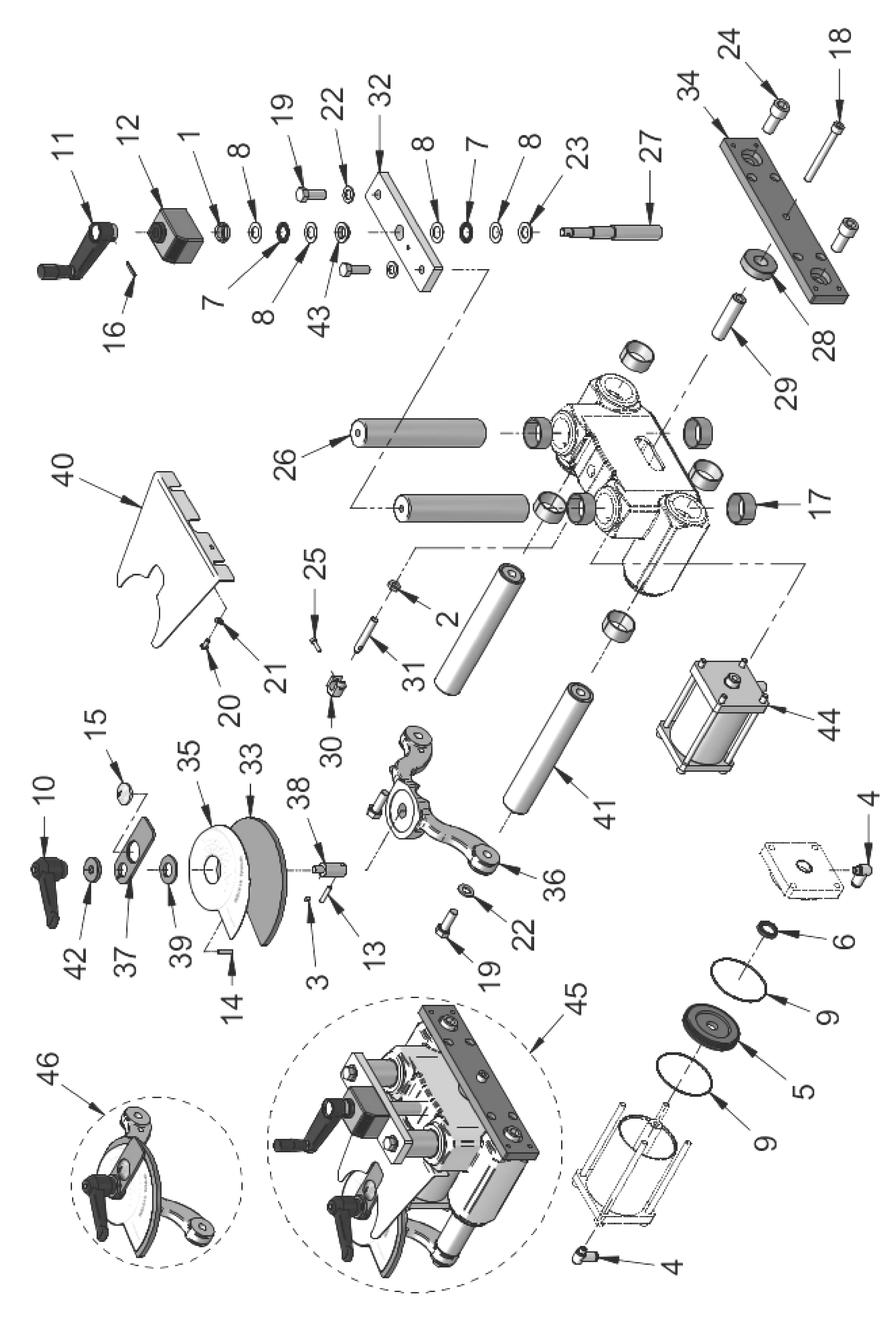

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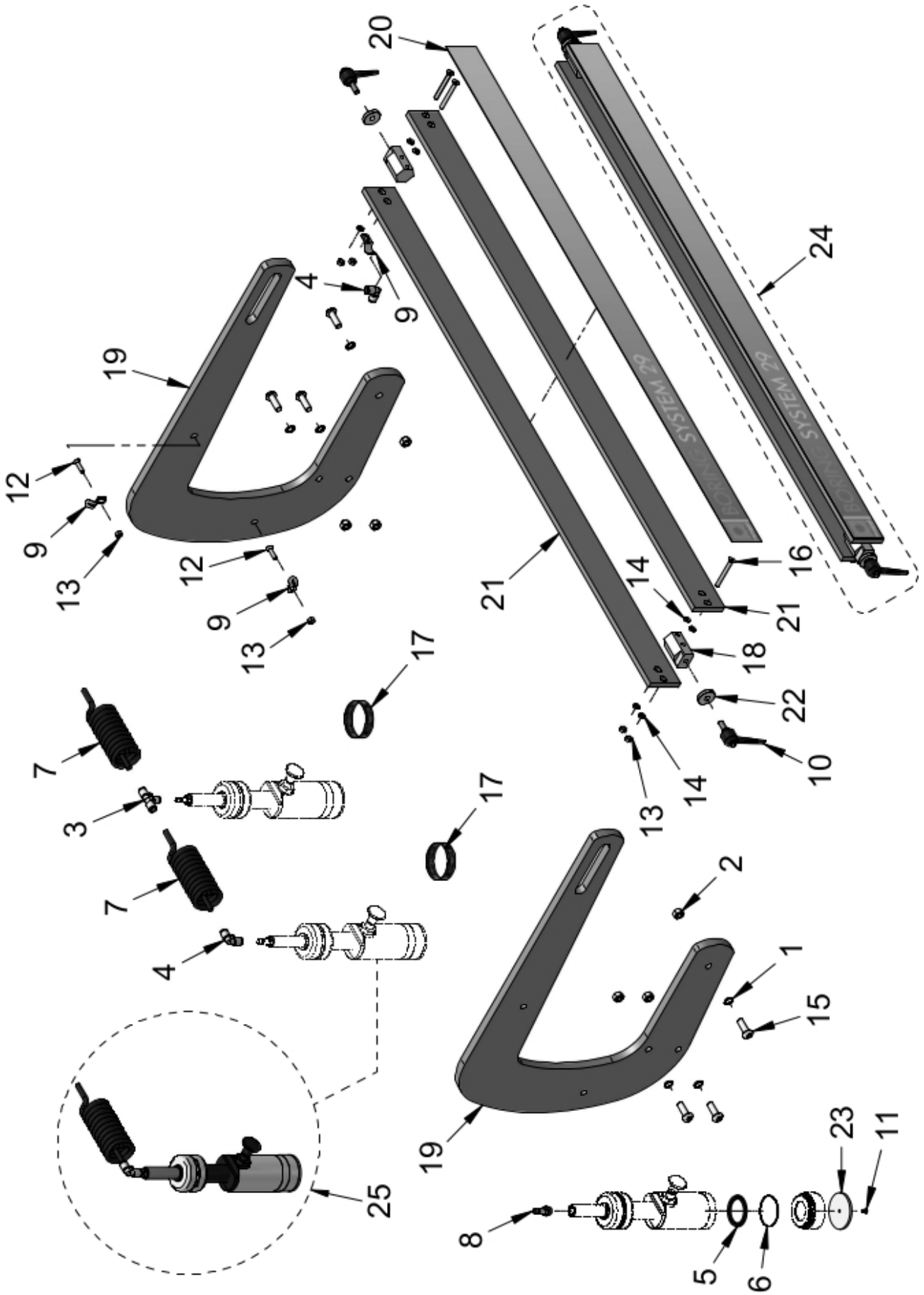
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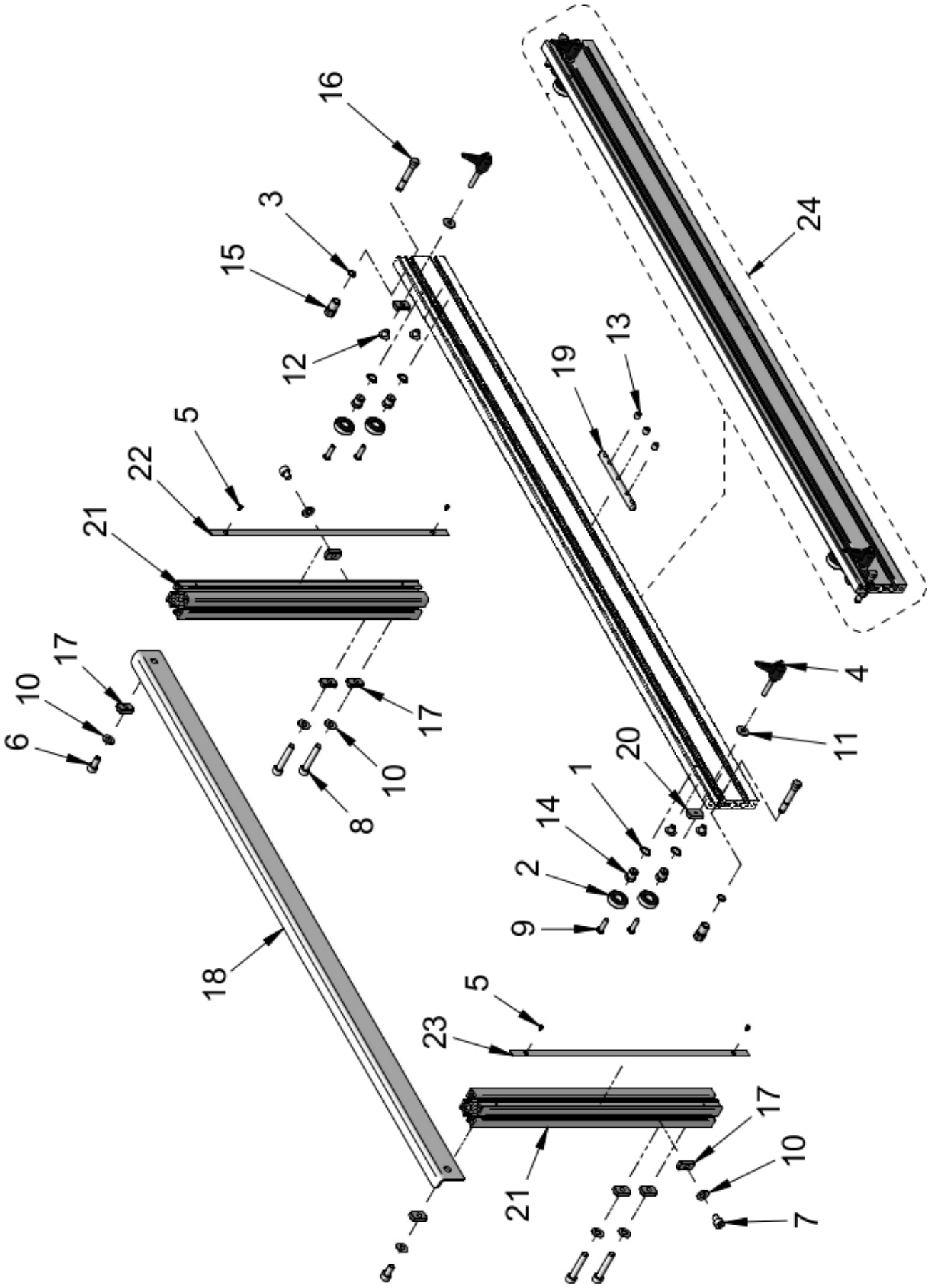
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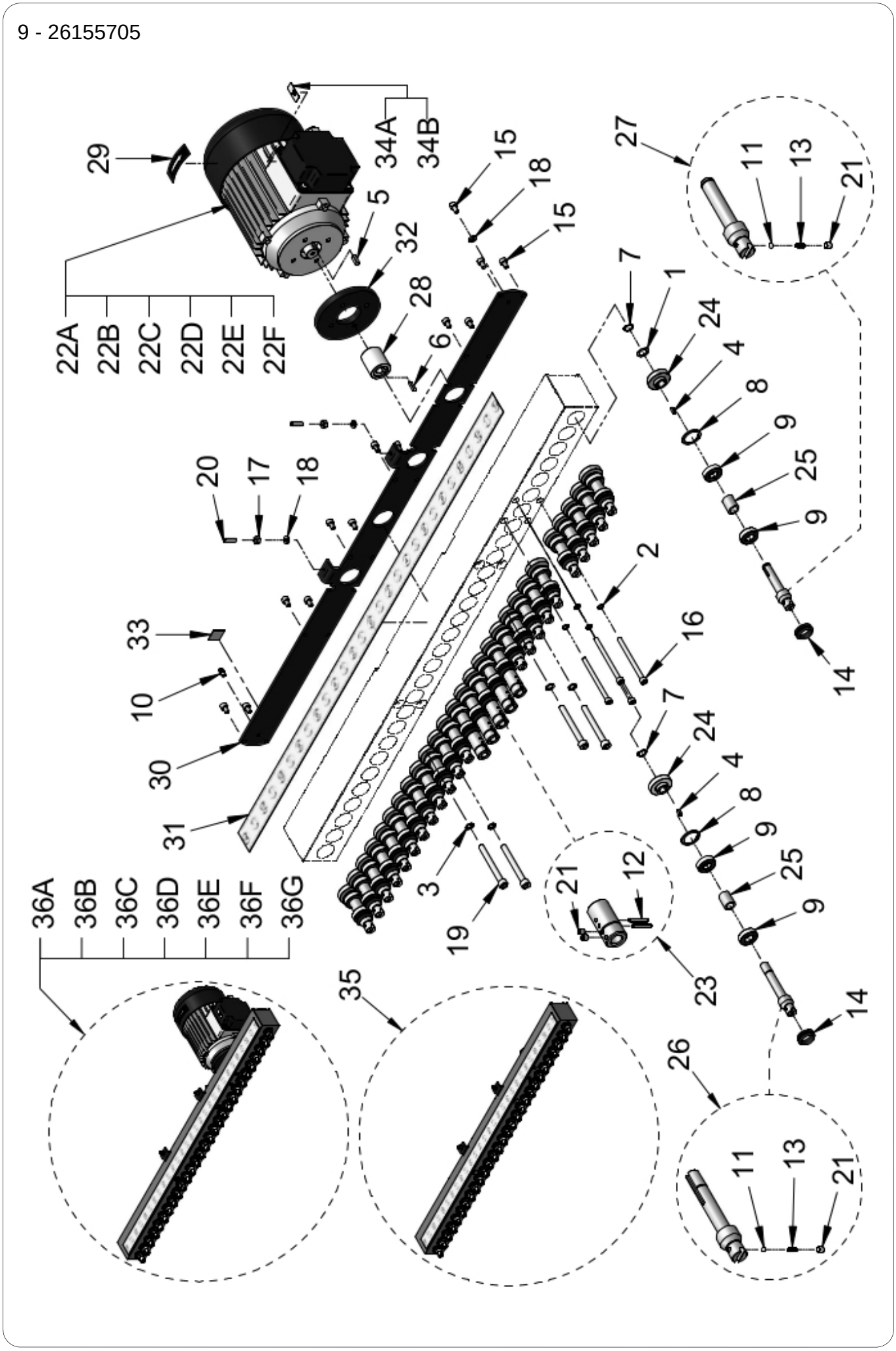
POS.	COD./CODE	Q. TA'/Q. TY
1	00003305	4
2	00003424	4
3	00003520	2
4	00004044	2
5	00005102	4
6	00018307	2
7	00018350	2
8	00018378	4
9	00018431	4
10	00018521	8
11	00018526	2
12	00018552	4
13	00150800	3
14	36050608	4
15	36050609	2
16	36050610	2
17	36050801	8
18	36150607	1
19	36204812	1
20	36800228	2
21	46050602	2
22	46050613	1
23	46050614	1
24	26154603	#

9 - 26155705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34B
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28
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22A
22B
22C
22D
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36A
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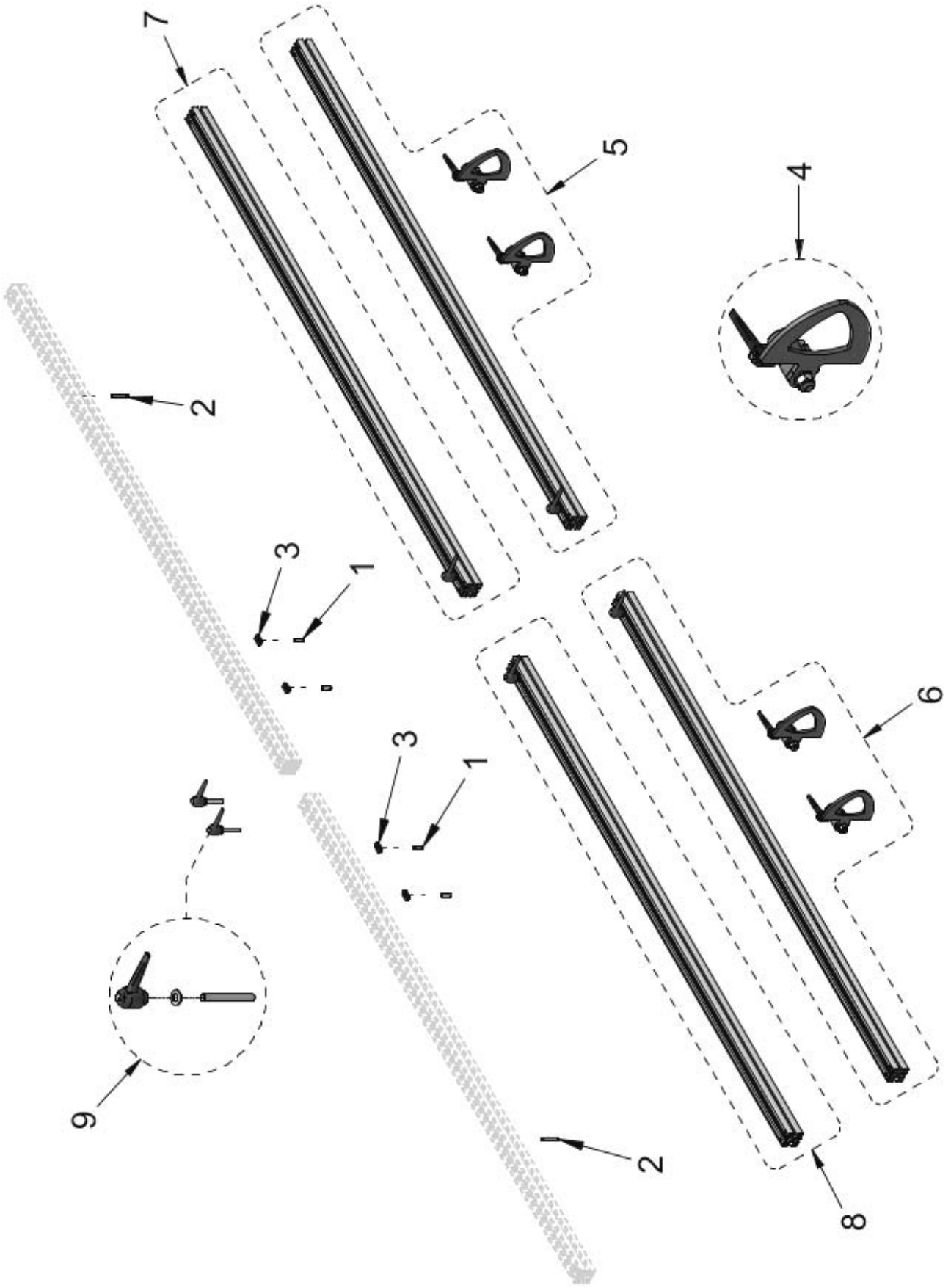
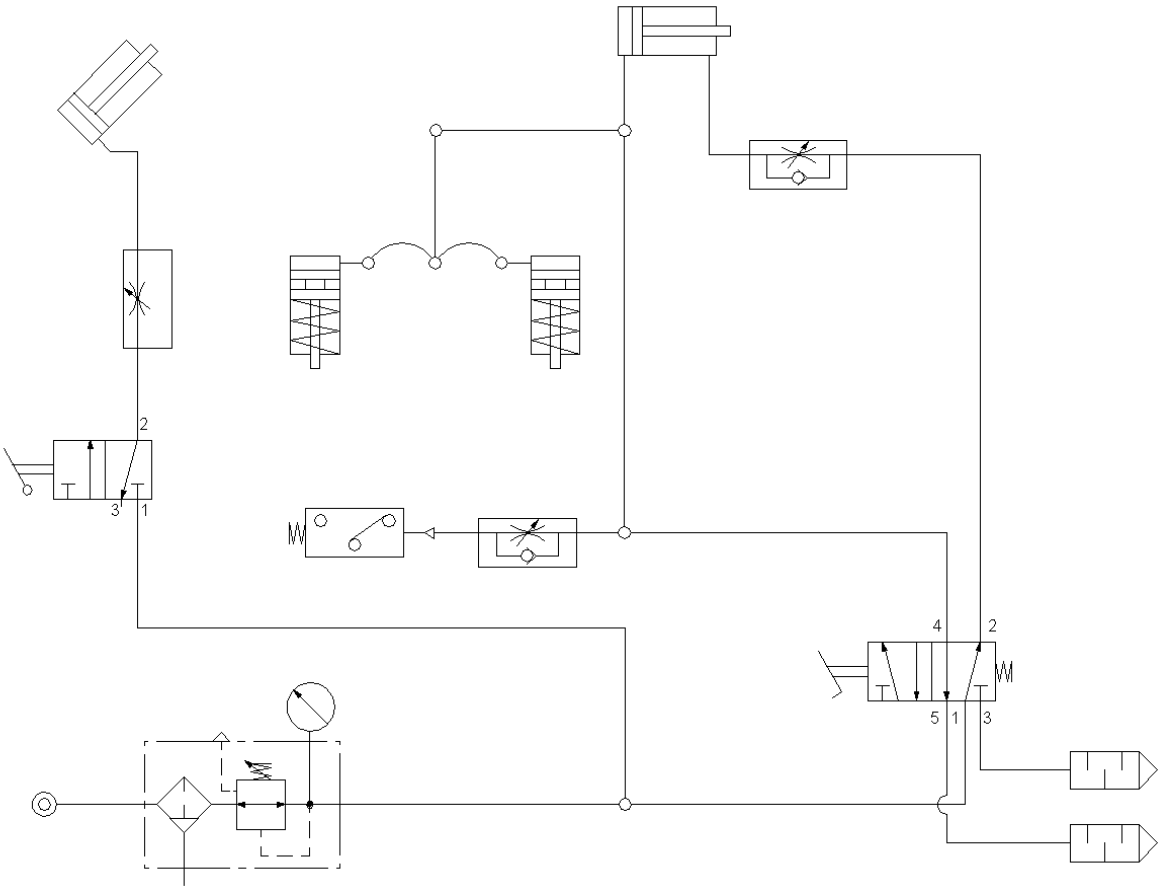
POS.	COD./CODE	Q. TA'/Q. TY
1	00000037	28
2	00000041	4
3	00000042	4
4	00000211	29
5	00000220	1
6	00000250	1
7	00003305	29
8	00003337	29
9	00003424	58
10	00003703	1
11	00004103	29
12	00004289	10
13	00005025	29
14	00005097	29
15	00018302	13
16	00018338	4
17	00018500	2
18	00018520	3
19	00018655	4
20	00100614	2
21	00130501	39
22	26251701	1
23	36000061	5
24	36000062	29
25	36000063	29
26	36001059	1
27	36001060	28
28	36051712	1
29	36054020	1
30	36154701	1
31	36154702	1
32	36250703	1
33	36367710	1
34A	45400082	#
34B	45400092	#
35	26155700	#
36A	26155701	#
36B	26155702	#
36C	26155717	#
36D	26155719	#
36E	26155723	#
36F	26155752	#
36G	26155753	#

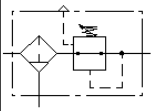
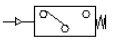
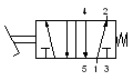
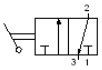
10 - 26054810



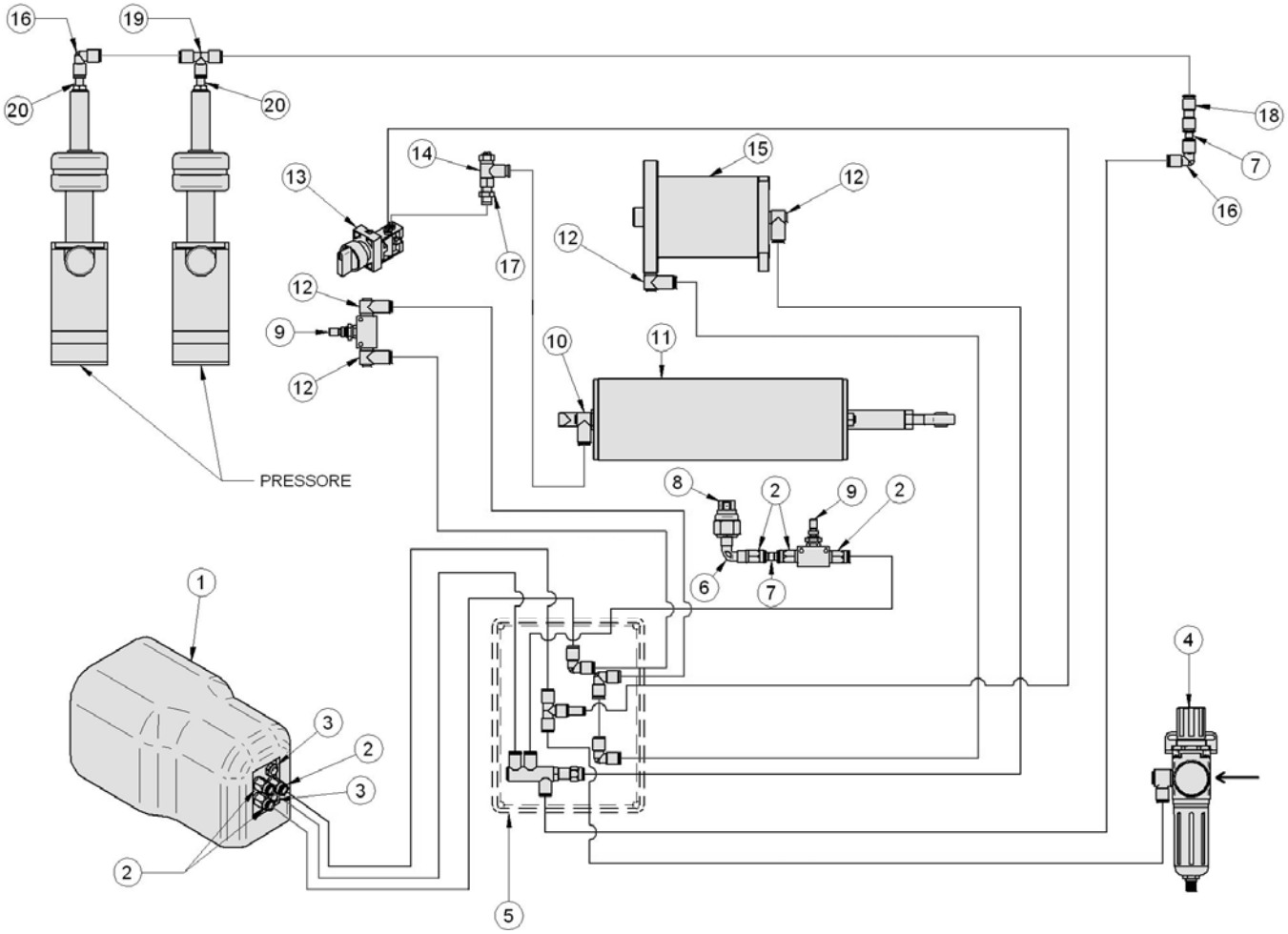
POS.	COD./CODE	Q. TA'/Q. TY
1	36001078	**4**
2	36003078	2
3	36050801	4
4	26050801	#
5	26054812	#
6	26054813	#
7	26054818	#
8	26054819	#
9	26054821	#

PNEUMATIC SYSTEM



SIMBOLO/SIMBOL	DESCRIZIONE/DESCRIPTION
	FILTRO RIDUTTORE FILTER PRESSURE REGULATOR *G1/4 20U 0-8 BAR*
	MANOMETRO PRESSURE GAUGE *G1/8 Ø40*
	PRESSOSTATO 250V PRESSURE SWITCH *PME 10A G1/8 T4 48V*
	PEDALE CON PROTEZIONE MOLLA PEDAL PROTECTION SPRING *G1/8*
	SILENZIATORE *SILENCER* *G1/8*
	REGOLATORE DI FLUSSO UNIDIREZIONALE FLOW CONTROL VALVE UNIDIRECTIONAL *G1/8*
	CILINDRO A DOPPIO EFFETTO STELO SEMPLICE CYLINDER DOUBLE ACTING VERSION, SIMPLE PISTON ROD *G1/8 CODICE/CODE MAGGI ENG. 00015415*
	CILINDRO A SEMPLICE EFFETTO RITORNO A MOLLA CYLINDER SINGLE ACTING VERSION WITH FRONT SPRING *G1/4*
	SELETTORE LEVA CORTA *3 VIE NORMALMENTE CHIUSO* SWITCH SHORT LEVER *3 WAYS NORM. CLOSED* *Ø4*
	CILINDRO A SEMPLICE EFFETTO STELO SEMPLICE CYLINDER SINGLE ACTING VERSION, SIMPLE PISTON ROD *G1/8 CODICE/CODE MAGGI ENG. 00015400*
	REGOLATORE DI FLUSSO BIDIREZIONALE FLOW CONTROL VALVE BIDIRECTIONAL *G1/8*

PNEUMATIC SYSTEM



POS.	COD./CODE	Q. TA'/Q. TY
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3	00001109	2
4	00015825	1
5	26054900	1
6	00015652	1
7	00001104	2
8	00015221	1
9	00015229	2
10	00015815	1
11	00015400	1
12	00001105	4
13	00004013	1
14	00015814	1
15	00015415	1
16	00001110	2
17	00015816	1
18	00004070	1
19	00001102	1
20	00001250	2

26. SPARE PARTS REQUEST

WARNING! FILL IN THIS FORM

Customer

……..

Address

……..

……..

Date ……..

Telephone

……..

Telefax

……..

MACHINE TYPE	SERIAL NUMBER	DELIVERY DATE	
UNIT CODE	**CODE**	**NAME**	**QUANTITY**

NOTES

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N.B.: Attach a copy of each table that contains the requested item

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E mail: service@maggi-technology.com

ACIMALL