T2xxx
Double Mitre Saw

INSTRUCTION HANDBOOK

CE

A+AUTOMATION

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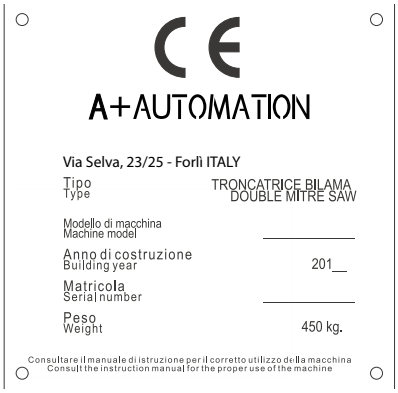
1. GENERAL INFORMATION

1.1 MANUFACTURER AND MACHINE IDENTIFICATION PLATE

The identification plate illustrated is affixed directly on to the machine. The plate contains all identification details and indications necessary for safe operation.

1.2 TECHNICAL SERVICE REQUEST PROCEDURES

For any requirement, please contact the Manufacturer's Customer Service.
For any request for technical service, list the data on the identification plate, the approximate number of hours the machinery has been used and the type of malfunction.



1.3 CERTIFICATION

The machine is produced in conformity to the pertinent European Community Norms in force at the moment of its introduction on the market.

1.4 WARRANTY

The replacement of defective parts is warranted (counting from the date written on the delivery bill) for a period of:

- Mechanical components - 24 months
- Pneumatic parts - 12 months
- Electrical and Electronic parts - 12 months

The warrant does not include sending technical staff. The repair will be performed at A-Plus Automation's facility and the freight of shipment will be entirely charged to the Customer.
The warranty does not cover the damages caused by an inappropriate use of the machine or not corresponding to the instructions described in this handbook.
The warranty decays in case of unauthorized modifications or because of accidental damages or tampering performed by unqualified personnel.
Are excluded from the warranty, damages to the machine caused from:

- Shipping and/or Handling
- Operator errors
- Missing of maintenance described on this handbook (see the paragraph 6.5)
- Failures and/or breakage not imputable to machine malfunctioning
- Interventions or variations on the plants effected by unauthorized personnel

1.5 PRE-ARRANGEMENTS CHARGED TO THE CUSTOMER RESPONSIBILITY

It is the customer's duty, on times agreed with the producer, to execute what is indicated in the following documentation.
Things normally charged to the customer:

- Premises predisposition, included building works
- Pneumatic supply of compressed air (see at the paragraph 4.6.1)
- Machine power supply, observing the current norms of Country where the machine is installed (see at the paragraph 4.6.2)

1.6 PURPOSE OF THE MANUAL

The manual herein, part and parcel with the machinery, has been designed and built by the manufacturer with the purpose to supply the necessary information to the persons authorized to operate the machinery during its useful life.

As well as adopting an appropriate utilization technique, the recipients of the information must read and strictly apply them.
This information is supplied by the manufacturer in its own language (Italian) and may be translated into other languages to satisfy statutory and/or sales needs.
A little time dedicated to the study of this information, will permit the user to avoid health and safety risks to personnel and economic loss.
The translation in the language of the country of use, supplied by the manufacturer, its representative or whoever brings the machine to such linguistic area, must be carried out from the “ORIGINAL INSTRUCTIONS” and must display the phrase “TRANSLATION OF THE ORIGINAL INSTRUCTIONS”.
In the event that the manual herein contains additional information concerning the fittings of the machinery, said information does not interfere with the reading of the manual.
Keep this manual for the entire duration of its useful life in a well known and easy to access place, available for reference any time the need should arise.
The manufacturer reserves the right to make modifications with no obligation to supply a prior notification.

1.7 SYMBOLS

SYMBOL	MEANINGS	
	**DANGER**	It indicates a danger with a mortal risk for the operator.
	**WARNING**	It indicates a warning or a note about key functions or useful information. Pay the maximum attention to the paragraph marked with this symbol.
	**OBSERVATION**	is requested to take a measurement data, to check a signal, etc.
	**INQUIRY**	The user is requested to check the proper positioning of any element of the machine, before operating a certain command.
	**EXAMINATION**	It’s necessary to consult the handbook before effecting a certain operation.
	**ADJUSTMENT**	In specific particular cases of working and/or anomalies, it can be requested a certain mechanical adjustment and/or electrical setting.

2. MACHINE DESCRIPTION

2.1 WORKING PRINCIPLE

The Double Mitre Saw, model T2xxx, is a vertical descent saw with blades at 45 degrees. It has been realized for cutting frames for pictures , furniture, windows and chassis of all kinds.
The blades descent is controlled by a pneumatic system that clamps the mouldings on the working bench by means of 4 clamps.
The machine is equipped with a pneumatic device that allows a quick blades backstroke at low air consumption.
The directions of blades movement and rotation are represented on the picture 2.1 A.

2.2 MAIN COMPONENTS

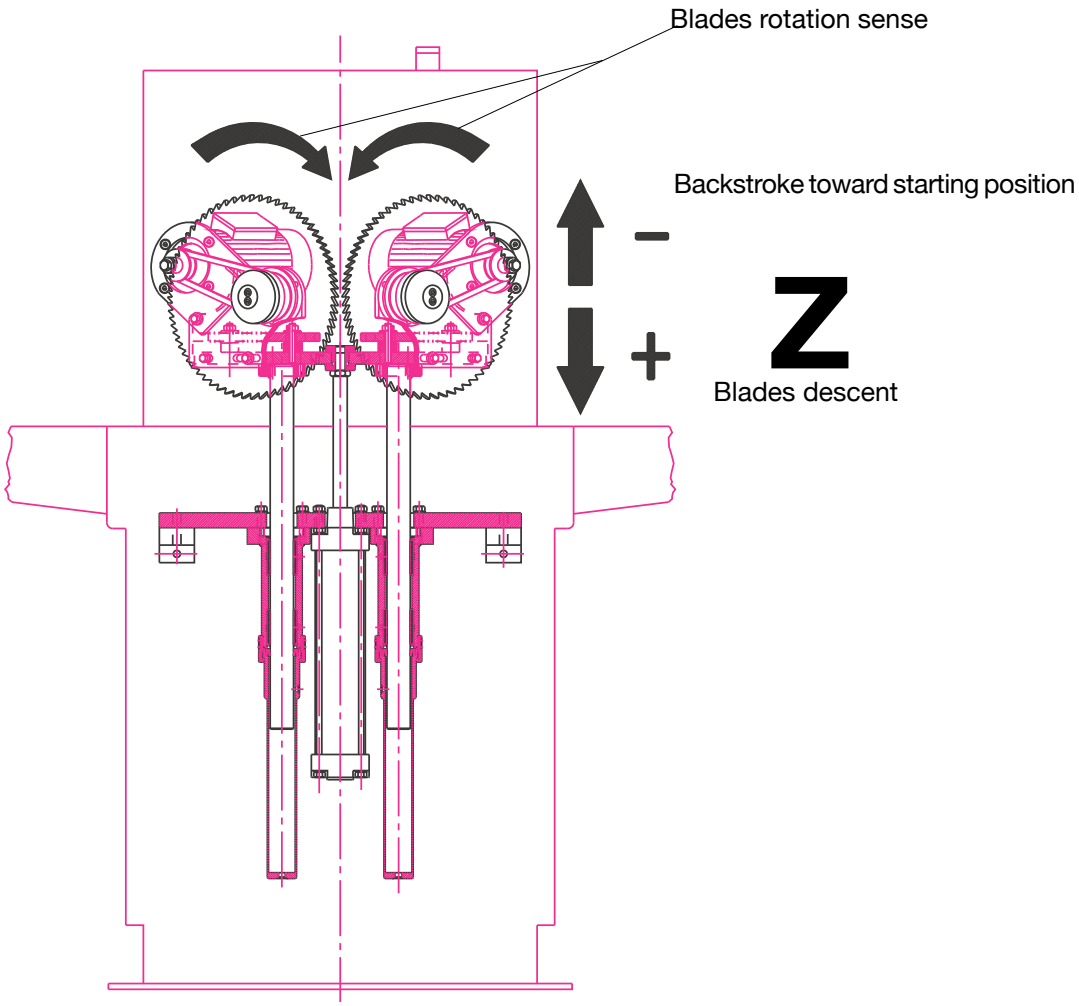
The main components, constituting the machine, are:

- Main frame and working bench group
- Blades set at vertical descent on Z axis
- Padlockable air filter lubricator set
- Pneumatic system
- Electrical equipment

2.3 MACHINE STRUCTURE

The movement directions during machine's running are:
- Z axis
Vertical movement of blades group from upside down

Picture 2.1 A - Movement directions



2.4 DIMENSIONS

The overall dimensions are reported on complete drawing of attachment 10.2-A.

2.5 SURROUNDING CONDITIONS

The machine does not need special surrounding conditions. It has to be installed inside an industrial building, lit, aired and with a compact and flat floor. The admitted temperatures go from 5° to 40° C, with an humidity not higher than 50% at 40° C or 90% at 20° C.

2.6 LIGHTING

Premises lighting must be conformed to the norms in force in that Country where the machine is installed and has to guarantee a clear visibility, do not create dangerous reflections and allow a clear reading of the control panel and the location of emergency button.

2.7 VIBRATIONS

In standard conditions conformed to the indication of machine proper utilization (the machine is anchored to the ground by 4 fastening points), the vibrations do not create dangerous conditions**.**
The average quadratic weighed level, according to the acceleration frequency to which arms are exposed does not exceed 2,5 m/s^2.

2.8 NOISE EMISSIONS

The machine is designed and projected for reducing the noise emission level to its source. Tests have been effected according to the measurement method conformed with Art. 46 D.Lgsl. 277/91.
The T2xxx Double Mitre Saw, when workings on standard and correct conditions of use, produces a sound level per operator lower than 85 bB (A) even if used continuously.
For this survey has been considered the cut of hardwood type Ramin which can be used for manufacturing of picture frames. The use of softer woods (i.e. Obeche) produces sound levels lower of about 2-3 dB (A).
The noise levels indicated are emission levels and are not representing sure operating levels. In spite of existing a relationship among emission levels and exposure ones, this can not be used in a reliable way to define if further cautions are necessary. The factors determining the exposure level to which the working force is subjected, include exposure lasting, working premises characteristics and other noise sources (number of machines, closed proceeds, etc…). Furthermore, also the allowed exposure levels could change according to the several Countries.
At any rate, the information provided, will allow the Machine Operator to achieve a better evaluation of danger and risks he is submitted to.

The indicated noise levels are emission ones measured in standard conditions of use. In case of any machine modification, the above mentioned levels could be changed and should be settled directly on the same machine.

Use the machine only if equipped with special individual protections for hearing (headphones etc…).

2.9 TECHNICAL DATA

Here below are indicated Machine technical data and characteristics to which make reference for any eventual contact with Producer Technical Assistance.

Table 2.9 A - Data and Characteristics

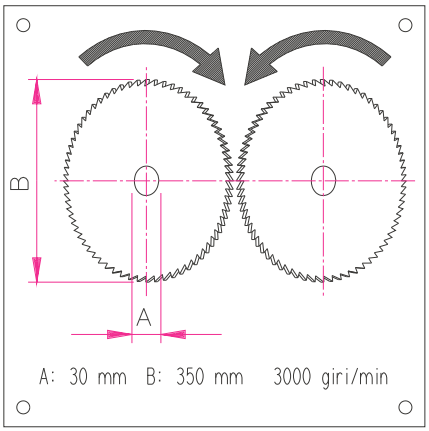
Length of right working bench extension		1200 mm
Length of left working bench extension		1200 mm
Working bench length		800 mm
Working bench height (from the floor)		950 mm
Motors power n.2		1.5 kW
Max revolutions per minute		2800 n/'
Pneumatic feed		5/7 bar
Power Consumption		3 kW
Profiles width (Min/Max)	T2300	15/60
	T2350	15/80
	T2400	15/100
Profiles height (Min/Max)	T2300	10/60
	T2350	10/80
	T2400	10/100
Electric power supplying		400V/230V
Suction holes ∅		2 of 80 mm
Total weight		about 500 Kg

2.10 TOOLS

Attention: Blades must be conformed to the Norm EN 847-1

Blades, conformed to the Norm EN 847-1, have the following dimensions:

- A =30 mm
- B =300 mm (model T2300)
  =350 mm (model T2350)
  =400 mm (model T2400)
  =450 mm (model T2450)
- Thickness =3.5/4.00 mm



CAUTION: The blades can be varied depending on the materials provided to cut (light alloys, wood or plastic)

ATTENTION: For cutting light alloys the machine must be equipped with blades cooling system

2.11 EQUIPEMENT

The following equipment rare applied to machinery produced in series. Possible special supplies could therefore ask different accessories described.

2.11.1 STANDARD EQUIPEMENT

The machine is supplied complete with:

- N.1 Allen wrenches set (3/4/5/6 mm)
- N.1 22mm wrench
- N 1 Flanges set
- N.1 fixed slide stop
- N.1 swing slide stop
- N. 1 left neutral extensions of the working bench
- N. 1 right gauged extensions of the working bench
- N. 4 vertical clamps
- N. 2 suction holes Ø 80mm
- N.1 Padlockable Air filter lubricator
- N.1 pneumatic pedal for vertical clamps activation
- N.1 Instructions Handbook

2.11.2 OPTIONALS ACCESSORIES ON REQUEST

The machine can be supplied with following optionals:

- Mist-Spray Cooling System to cut aluminum profiles
- 3rd working bench extension 1200 mm (right)
- pneumatic horizontal moulding clamp
- adjustment of blades stroke
- blades for wood, aluminum or plastic

Any modification and/or addition of accessories, must be expressly approved and executed by the Manufacturer.

2.12 ELECTROMAGNETIC ENVIRONMENT

The Machine is designed to operate properly in an industrial electromagnetic environment, being included in the following Norms about Emission and Immunity:

EN 50081-2 Electromagnetic compatibility-Generic Norm on Emissions-2nd part-Industrial Environment-(1993)

EN 50082-2 Electromagnetic compatibility-Generic Norm on Immunity-2nd part-Industrial Environment-(1995)

3. SAFETY

3.1 GENERAL WARNINGS

- The manufacturer, during the design and manufacturing stages, has paid special attention to the aspects that might jeopardize the safety and health of the personnel that operates the machinery. As well as the compliance with current regulation on the matter, the manufacturer has adopted all the “rules of good craftsmanship”. The purpose of this information is to make the user aware to pay special attention in order to foresee any risk. There is no substitute for carefulness. Safety also lies in the hands of all operators that work on the machinery.
- Carefully read the instructions of the manual supplied with the machinery and the ones directly fitted on the machinery, especially the ones concerning safety. Time dedicated to the study of this manual will prevent unpleasant accidents; it is always too late to remember what should have been done when it has already happened.
- Pay attention to the meaning of the symbols of the plates fitted on the machinery; their shape and colour are important for safety purposes. Keep them readable and comply with their information.
- Do not tamper with, do not dodge, eliminate or bypass the safety devices installed on the machinery. The non-compliance with this requirement may cause serious risks for personnel’s safety and health.
- The personnel that carries out any type of operation during the entire useful life of the machinery must have specific technical competence, special skills and experience acquired and acknowledged in the specific sector. The lack of these requisites may jeopardize the safety and health of personnel.
- During operation only use the personal protection clothes and/or devices listed in the instructions supplied by the manufacturer and the ones provided for by current regulations on safety at work.
- During the normal use or for any intervention, keep the surrounding area in adequate condition, especially the one accessing the controls, in order to avoid jeopardizing the safety and health of personnel.
- The operator, as well as being adequately informed on the use of machinery, must possess skills and competence adequate to the type of working activity to perform.
- The machine must only be used for the applications intended by the manufacturer. Only use the machinery for the purposes intended by the manufacturer. The employment of the machinery for improper uses may cause risks to the safety and the health of personnel and economic loss.
- Provide appropriate containers to stock the pieces you will be working with.
- Disconnect the main air supply and the power supply.
- Keep your foot off of the pedal during machine maintenance

3.2 PROPER USE

The machine is only intended for manual operation (under the direct control of the operator).
The machine has been designed and manufactured for cutting to 45 degrees wooden stick, its derivatives, plastic or light alloys.

For cutting light alloys is necessary:
- **To equip the machine with Mist Spray Cooling System**
- **To use proper blades**

3.3 INADVISABLE USE

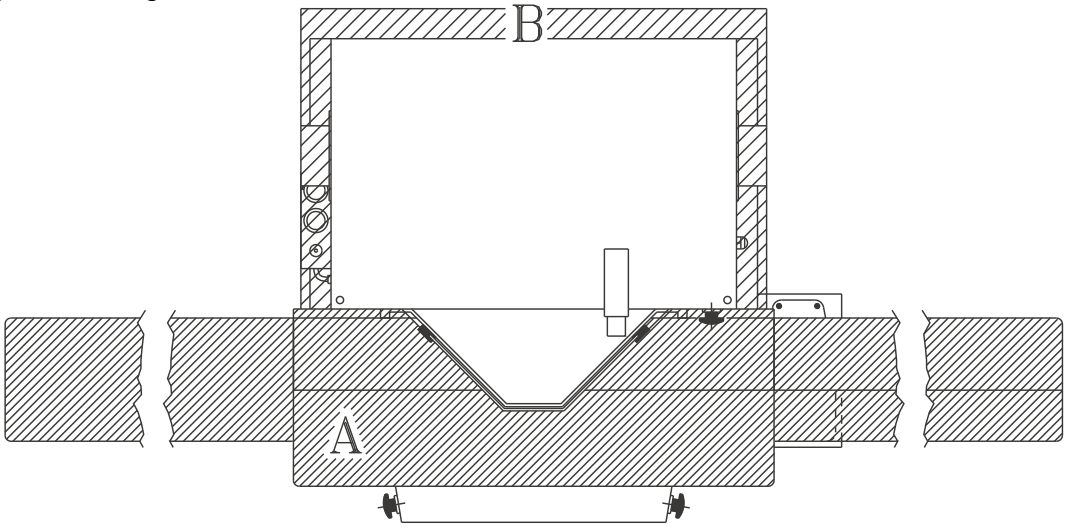
The machine has not to be used:
- For uses different from those listed in 3.2 paragraph
- In explosive or aggressive atmosphere, at high density of dust or oily substances suspended in the air
- In flammable atmosphere
- Outside in all weather severity
- With disconnected electromagnetic interblocks
- With electric bridges and/or mechanical instruments leaving out machine parts or functions
- For working materials not suitable with machine characteristics

It is absolutely forbidden to cut different materials (glass, ceramic. etc..) in particular irony (or similar) materials.

3.4 DANGEROUS AREAS

The area of blades operating, is defined “working area” (A). The dangerous areas of the machine, include the mobile parts and surrounding zones (B)

A: Working Area- B: Dangerous Zones



Picture 3.4.A - Working area and dangerous zones

3.5 PROTECTION DEVICES

The machine is equipped with adequate protections for persons exposed to the risks due to the of mobile elements of transmission (blades, pulleys, belts, etc.…), or mobile members taking part in working (blades) or ejection of wooden pieces, chips, or dust.

3.6 STOP FUNCTIONS

The machine stop functions are the following:

- General Switch (category 0)
- Normal Stop Button (category 1)
- Emergency Button (category 1)

STOP CATEGORY 0

Is obtained taking out power from Machine actuators (uncontrolled stop)

STOP CATEGORY 1

Controlled stop with opening of power supplying for the machine actuators after of such a period allowing the stop of them.

3.7 SAFE WORKING PROCEDURES

The machine is projected and realised with the purpose of eliminating any risk connected with its use.
Owing to the necessity of steering the moulding around blades working area, it is impossible to eliminate the risks related with possible accidental contacts of operator hands with a.m. area.
The other risks related with manual working mode, are:

- **Cut** (due to the contact of the operator hands with the blades)
- **Entanglement** (due to clothes not properly tight)
- **Ejection of worked material chips**

To drop down to the minimum the consequences of above mentioned dangers, it is necessary to follow carefully the following instructions:

- when the hands are working closely to the blades, you have to steer the moulding to be cut using any tool
- avoid the cutting of moulding pieces smaller than 50 mm
- never use hands to take out the short pieces and/or cuttings close to the blades, but instead use a tool, i.e. a piece of moulding still to be cut
- adjust the frontal protection according to the height of cutting pieces and clamp in position

Operate as follows for adjusting the A protection guard of picture 3.7

- unscrew the B knob of picture 3.7
- lift or lower the A guard according to the height of mouldings to be cut
- tighten the guard in the proper position by screwing the B knob (picture 3.7)

Picture 3.7

WARNING: It is absolutely forbidden to cut other materials such as glass, ceramics, ferrous and similaires.s blades. When finished your work, lower completely the protective guard	**ATTENTION: Owing to the residual risks related with the machine, it is necessary that at the beginning the user of the machine should be properly trained and assisted by qualified personnel**

3.8 RESIDUAL RISKS

During the normal working cycle and while maintenance, the operators are exposed to several residual risks that, because of operations own nature, can not be totally eliminated.

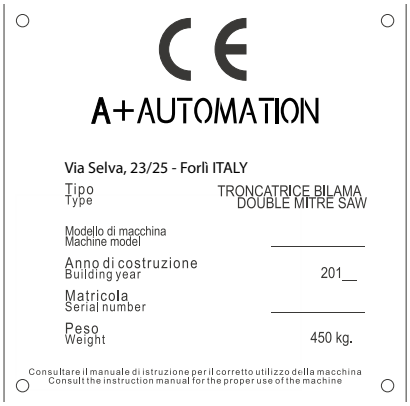
- Risk of being hit by splinters ejected outside of casing
- Risk of being hit by tool used for manual unlocking of the blades
- Risk of cutting because of accidental contact with blades in motion or stop, i.e. during their replacement
- Error of assembly, i.e. because of blades assembly in opposite sense or mistaken electric connection (rotation in the opposite sense)
- Risk due to the presence of power supply on the machine

3.9 PLATES

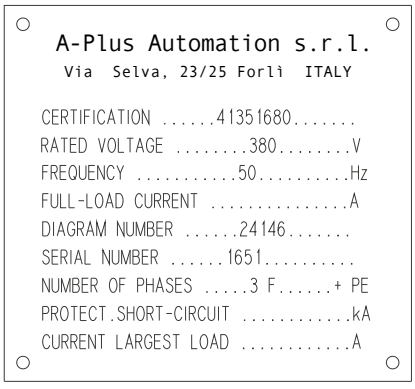
The warning plates carrying out safety functions can not be removed, covered or damaged.
To take vision of plates or adhesive signs location, consult the Fig.10.2-E

Table 3.10 A- Types of plates

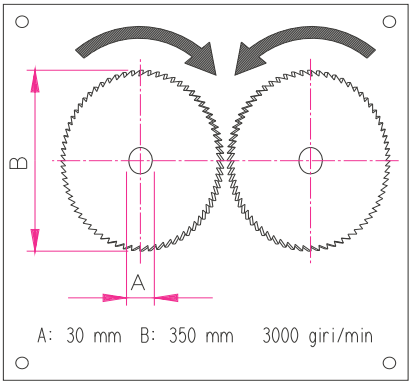
Metal Plate concerning machine characteristics



Metal Plate concerning electrical equipment



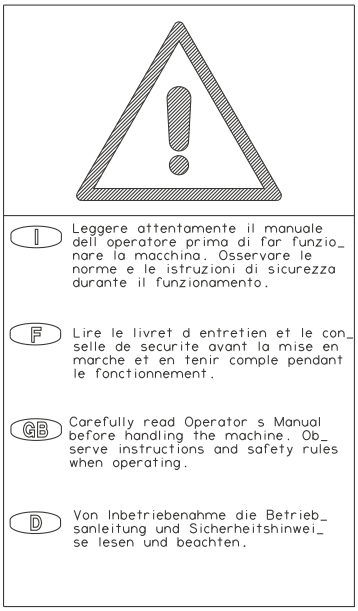
Metal Plate concerning blades rotation



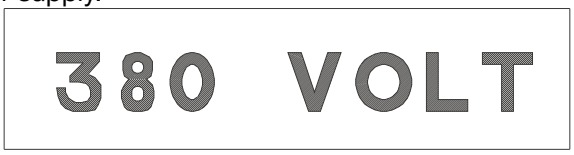
Adhesive sign concerning electric supply

ATTENTION: Only technicians can open the panels and maneuvering and repairs

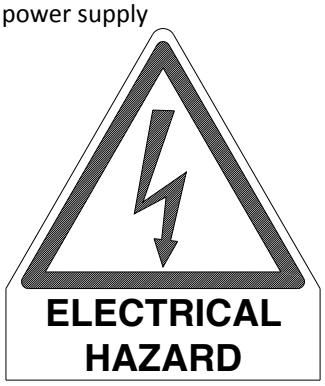
Adhesive sign concerning the instructions observance.



Adhesive sign concerning power supply.

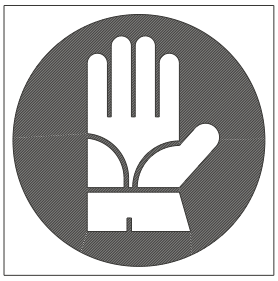


Adhesive sign concerning the entrance area of power supply



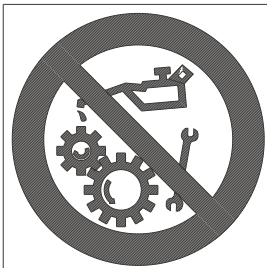
Adhesive sign concerning anti-accidental equipment (headphones use).

Adhesive sign concerning anti-accidental equipment (gloves use).

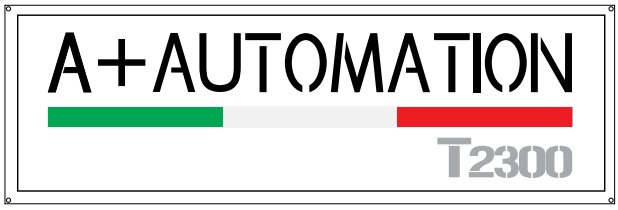


Adhesive sign concerning fingers crushing.

Adhesive sign concerning right behaviour about lubrication.



adhesive sign concerning identification of machine model



Adhesive sign concerning anti-accidental equipment (glasses use).

Adhesive sign concerning right behaviour about loading runway

IT IS PROHIBITED TO INTRODUCE THE HANDS

Adhesive sign concerning main switch

THE MAIN SWITCH DOES NOT INSULATE THE PNEUMATIC SUPPLY

Adhesive sign concerning working pressure

5/7 bar

Adhesive sign concerning the pressure of vertical clamping cylinders

2.5 bar

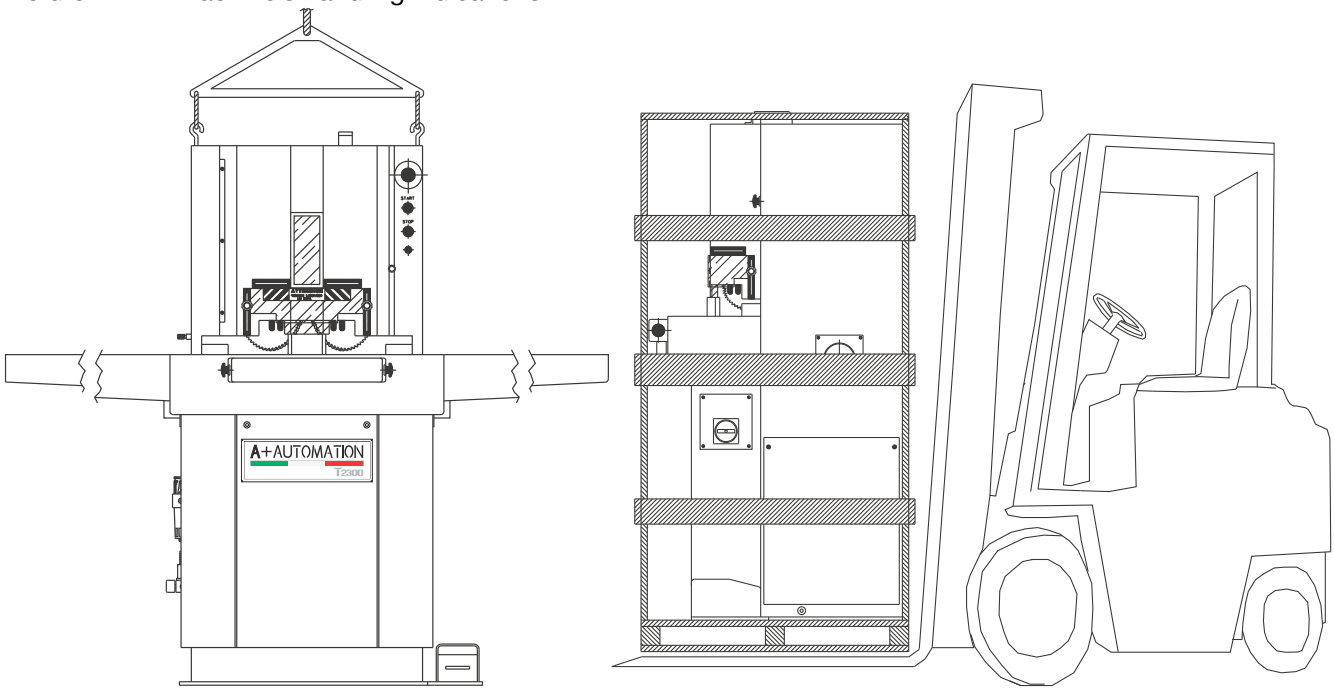
4. INSTALLATION

4.1 SHIPPING AND HANDLING

The shipment must be effected by professionally qualified personnel. The machine has to be shipped in a safe way to avoid any damage to its parts.

- All the protections, guard devices and wicket-gates must be properly closed and clamped.
- The machine has to be shipped like positioned for its installation.
- Before the shipment, it is necessary to lubricate the not painted parts to avoid their detriment.
- According to the type of shipment, it is necessary to protect the machine from any jarring impact or stress

Picture 4.1A – machine's handling indications



Machine's approx. weight: 380 Kg

Any damage of the machine occurred because of its shipment or handling is not covered from warranty.
Repairs or replacements of damaged parts are charged to the customer.

4.2 STORAGE

In case of long inactivity, the machine must be stored with cautions concerning storage place and times.

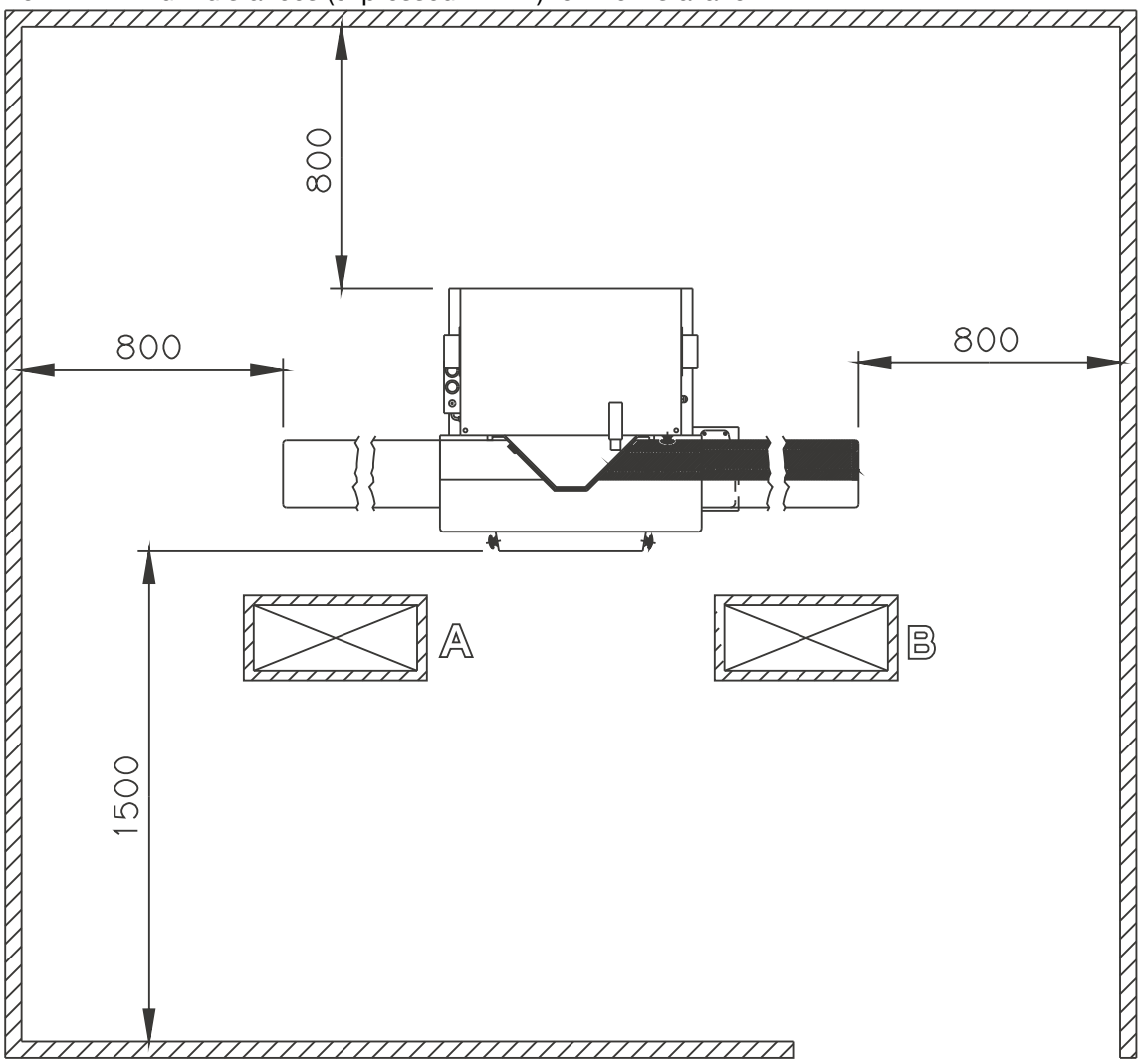
- Store the machine indoor
- Protect the machine from jarring impacts and stresses
- Protect the machine from humidity and high thermic excursion
- Avoid the machine could touch corrosive materials

4.3 PRELIMINARY ARRANGEMENTS

To install the machine it is necessary to arrange a working area adequate to the machine sizes, lifting devices chosen and length of mouldings to be worked.

Lifting must be done by using a specific device.

Picture 4.3 A – minimum distances (expressed in mm) for the installation



A= Container of pieces still to be worked
B= Container of already worked pieces

To answer to the characteristics of accuracy and balance, the double mitre saws must be positioned on a compact concrete foundation in reinforced cement.
The design and arrangement of such a foundation is charged to the customer.
Be sure that a.m. foundation is properly consolidated in order to avoid possible sagging at machine's installation.

4.4 ASSEMBLY

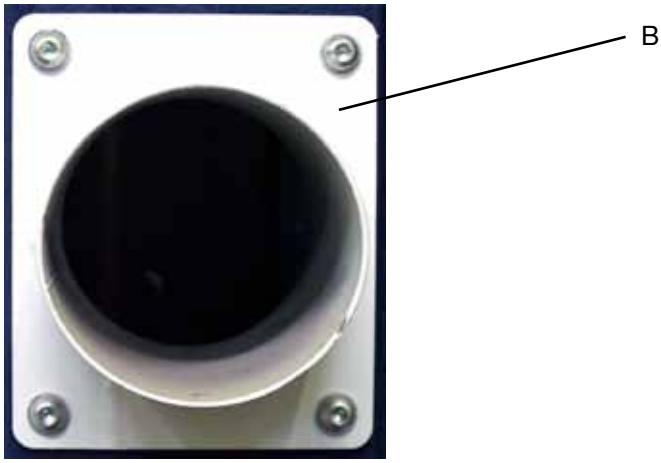
The machine assembly is executed by the customer following the instructions listed here below:

- Remove by using a lever (i.e. a big screwdriver) the nails fastening the crate to the pallet
- Draw out the crate from the upper side.
- Draw out the transparent packaging from the upper side.
- Keep the external packing for a possible future re-utilization
- Screw the eyebolts in the 2 holes M12 located on machine's top side
- Lift the machine using a lift truck and carry it on its spot.

4.5 POSITIONING

The machine must be positioned on the ground on its assigned area.

- Perforate the floor in correspondence of machine base.
- Fasten the machine on the ground using n. 4 screws M8x50.
- Position on the machine the 2 suction holes B of picture 4.5 and fasten them by means of the provided screws.
- Connect the suction holes Ø 80mm with the suction system.



Picture 4.5

- Assembly the working bench extensions "C" using the screws and the taper pins "D" supplied together with working bench extensions isee picture 4.5.A.

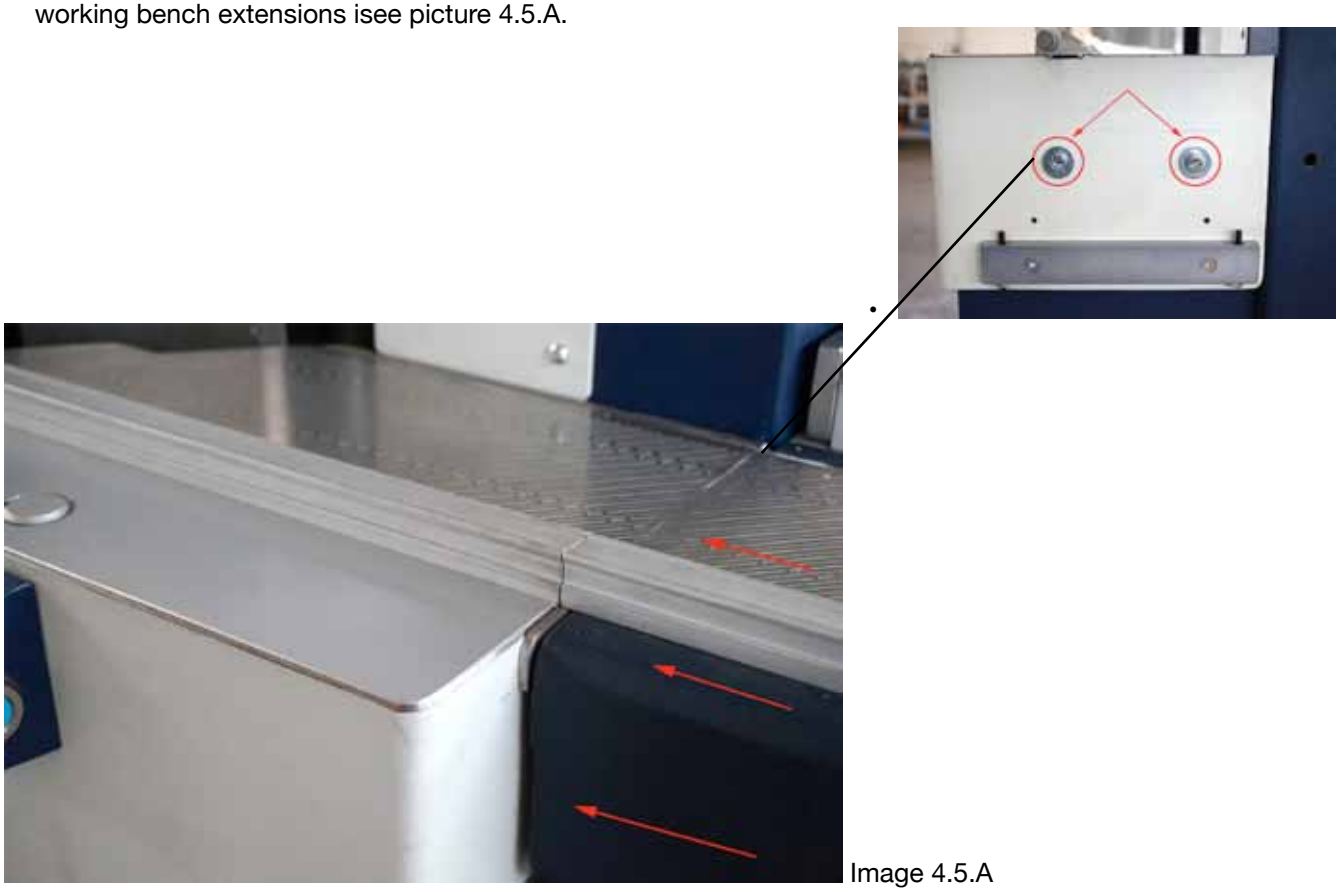


Image 4.5.A

4.6 CONNECTIONS

To avoid any problem during machine starting, it is recommended to follow what is described here below.

4.6.1 PNEUMATIC CONNECTION

On machine left side, are located:

- 1. The padlockable reducer-lubricator filter (B) picture 4.6.1.A
- 2. The pressure regulator of vertical clamps cylinders (C) picture 4.6.1.A
- 3. The flux regulator for increasing or reducing the speed of blades (A) descent or ascent.

Connect the compressed-air pipe with the reducer lubricator filter using the fast clutch fitting supplied (or a similar one suitable to the system).
Draw out from machine back wicket-gate the pneumatic pedal (if provided) and connect the pipes with the connectors following this order:

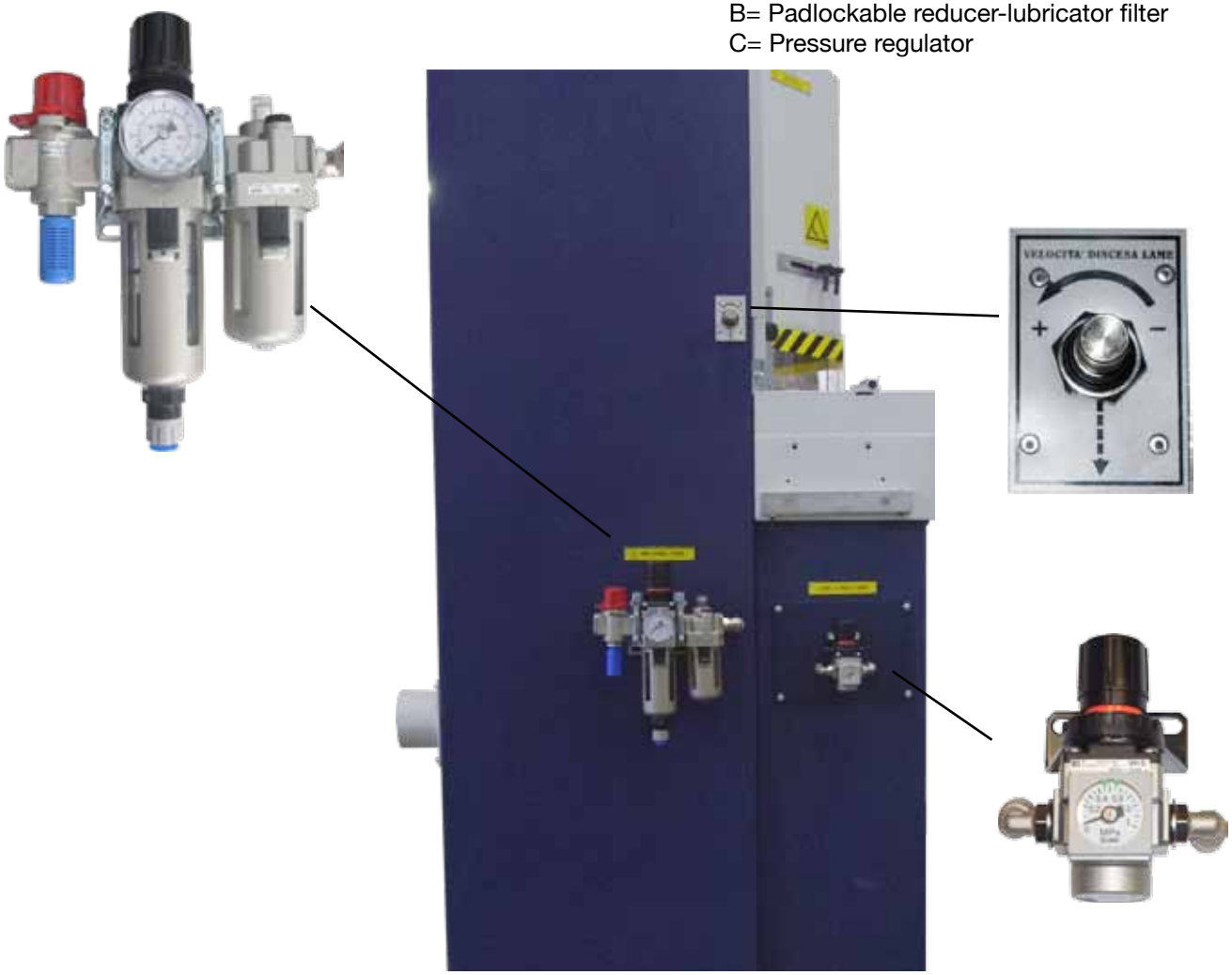
- insert the red pipe into the red marked fitting
- insert the white pipe into the external connector(not marked) operator side.

	The machine's pneumatic characteristics are: **Working pressure 7 Kg/cm2** **Maximum pressure 8 Kg/cm2** **Minimum pressure 5 bar** **Nominal consumption 15 NL/cycle**

	The feeding pipe must have an internal section at least of 10 mm2 if the compressor is placed closer than 5 meters, and higher than 10 mm2 if the compressor is located at a longer distance.

Picture 4.6.1 A-Pneumatic system disposition

A= Flux regulator
B= Padlockable reducer-lubricator filter
C= Pressure regulator



.6.2 ELECTRIC SYSTEM

The machine electric connection is realized under customer's responsability and care.
To electrically connect the machine to the electrical installation use the cable for this purpose "A" see picture 4.6.2

The machine must be connected to the electric line, considering:

- Laws and the technical norms in force in the Country at the moment of installation.
- Data described on metal plate "B" (see at par. 3.9)
- Connect the machine to the electric network paying attention to the correct use of the ground wire
-
- The power supply must have the following requisites:
- Three-phase Voltage 400 Volt +/- 10%
- Nominal frequency 50 Hz +/- 2%
- The feeding has not to be interrupted or the Voltage has not to be Zero for a time longer than 3 m/s.
- The possible voltage falls have not to be higher than 20% of peak voltage and lasting more than a cycle.
-

Picture 4.6.2 A – Electric Panel Disposition

4.7 PRELIMINARY CONTROLS

The Machine preliminary operations before the 1st starting, must be executed by a technician charged by the customer. Before machine's setting at work, it is necessary to execute certain verifications and checks to prevent mistakes or accidents during setting at works step.
The verifications to be executed are the followings:

- Verify that machine has not been damaged during assembly step
- Verify with extreme care, the integrity of electric boards, control panels, electric cables, wires and pipes
- Check the proper connection of external power sources
- Connect the pedal to the machine

Because of the shipment, both blades and vertical clamps are lowered. To restore the normal position, operate as follows:

- Turn clockwise the main switch (located on machine's right side) on position 1 (see picture 4.7.1).

Picture 4.7.1

Picture 4.7.2

- Turn clockwise the vertical clamp cylinders switch (located under the main switch) on position 1 (see picture 4.7.2)
- Press simultaneously the two "A" push-buttons placed in front of working bench to lift up blades and vertical clamps (see picture 4.7.3).

A

A

Picture 4.7.3

4.8 ADJUSTMENTS

Being the machine tested in manufacturer premises, the user must only execute the following adjustments:

4.8.1 ADJUSTMENT OF BLADES DESCENT SPEED

The user can adjust, according to the material to be cut, the blades descent speed. To operate this adjustment, use the flow governor placed on machine's left side (see picture 4.8)

- Turn it clockwise to reduce the blades descent speed
- Turn it counter-clockwise to increase the blades descent speed.

Picture 4.8

4.8.2 FRONTAL GUARD ADJUSTMENT

Operate as follows for adjusting the height of frontal guard:

- Loosen the "B" knobs (see picture 4.8.1)
- Lift or lower the guard according to the size of the moulding to be worked
- Tighten the knobs

	**Once finished the working, lower completely the frontal guard.**

Picture 4.8.1

To execute the 1st starting it is necessary to operate as follows:

- Press the "C" green button (see at picture 4.8.2) located at top right side of the machine to start the motors running
- Press simultaneously the two "A" push buttons (see picture 4.7.3) to lower the blades

	**When the motors are running it is necessary:** • **Check that right blade rotation sense is counter-clockwise** • **Check that the left blade rotation sense is clockwise**

	**It is strongly imprudent to make a cutting test before checking the blades rotation sense.** **In case of reverse rotation, the operator risks the projection of material on his face and body.**

Once finished above test, operate as follows:
- Press the “D” red emergency button (see picture 4.8.2)-located on machine’s top right side- to stop the motors
- Turn counter clockwise the main switch located on machine’s right side until reaching position 0 (see picture 4.7.1)
- Turn counter clockwise (position 0), the switches of vertical clamping cylinders (see picture 4.7.2).

Picture 4.8.2

4.8.3 VERTICAL CLAMPS ADJUSTMENT

In order to clamp the moulding during the cut, the machine is equipped with 4 vertical clamping cylinders.
- 2 front vertical clamps
- 2 rear vertical clamps

It is possible, according with moulding shape, to activate the front ones only, or both couples
To activate the front couple only, turn in position 0 the switch of picture 4.8.3.A
For activating all 4 clamps turn in position1 the switch of picture 4.8.3.A

Picture 4.8.3.A

The clamping cylinders can be also horizontally adjusted operating as follows:
- Insert the moulding to cut onto the working bench forwarding it from left toward right
- Adjust the working pressure of the vertical clamping cylinders using the pressure regulator of picture 4.8.3.B.

Picture 4.8.3.B

- Loosen the handle (see picture 4.8.3 part. B) of every single clamping cylinder positioning it in the desired spot.
- Tighten the handles (picture 4.8.3 part. B) to fasten the chosen positions

Picture 4.8.3

- Press the foot pedal (picture 4.8.4) to activate the decent of vertical clamps.

Picture 4.8.4

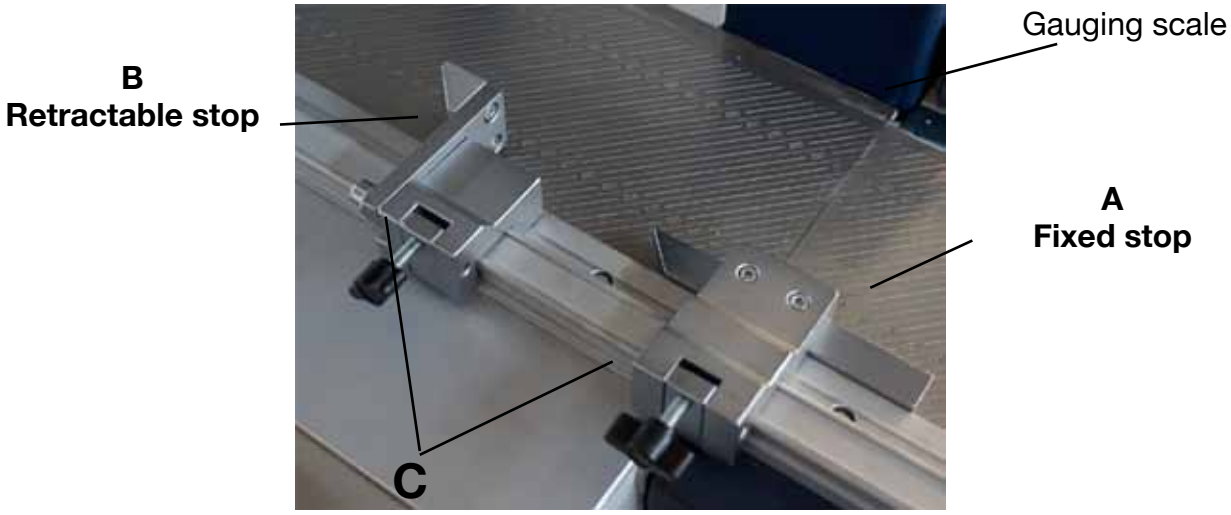
4.8.4 CUTTING STOPS ADJUSTMENT

The machine is equipped with a gauging scale, over which is leaned the moulding to be cut, showing the right gauging of the moulding length.

To get quicker and more accurate the mouldings length are supplied two stops:

- Fixed stop A (see picture 4.8.5), normally used to measure the “long” side of a frame or to execute with accuracy cuts of the same length in a repeating way
- Swing stop B (see picture 4.8.5), normally used to obtain the “short” side of a rectangular frame.
-
- Operate as follows to adjust the stops:
- Loosen the “C” knobs (see picture 4.8.5)
- Shift the “A” stop until reaching the desired distance

	The distances are considered from the point of the straight blade cuts

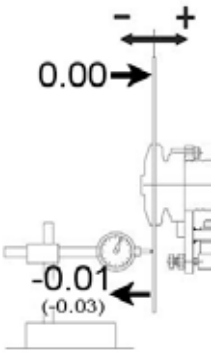


Picture 4.8.4

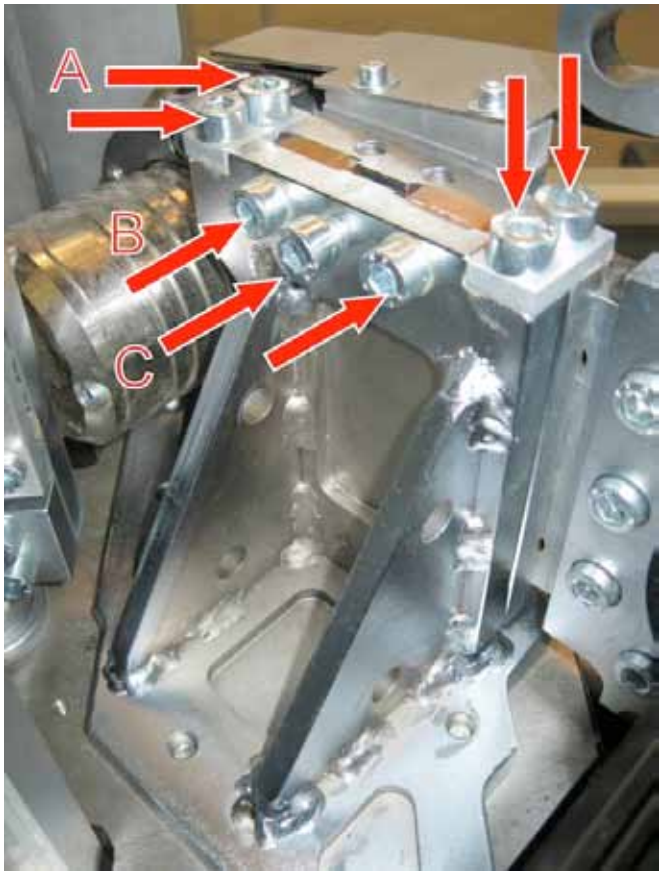
- Shift the “B” stop until reaching the desired distance
- Tighten the “C” knobs once reached the desired spot.

4.8.5 SETTING OF THE BLADES

4.8.5.1 CONTROL OF THE VERTICAL ANGLE OF THE BLADES
To adjust the vertical angle of the blades, proceed as follows:



1. Open the access cover to the blades and place a dial gauge against the side of the blade so that the upper and lower parts can be checked (ensure that at least 200 mm of vertical travel is clear to enable a reading to be made)
2. Turn the dial face of the comparator so that the needle is placed on the “0”;
3. Lower the blade,
4. Check to see that during the scroll the dial does not deviate from the initial value “0”;
5. Slacken with a size 6 Allen key the top two screws (A)
6. Turn the two screws (B) to adjust the vertical angle of the blade:
   a) To increase the angle, tighten the screws (max. 1/8 turn).
   b) To reduce the angle slightly loosen the screws (max. 1/8 turn)

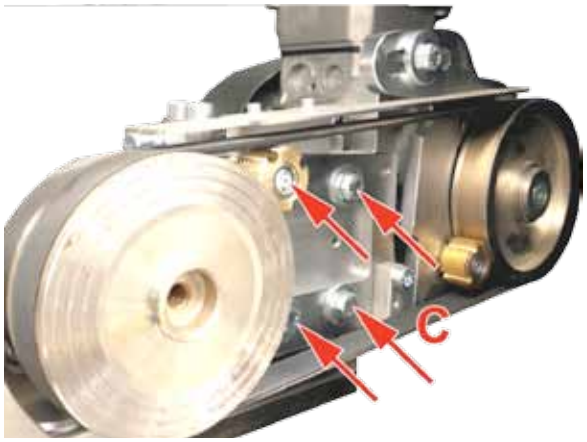


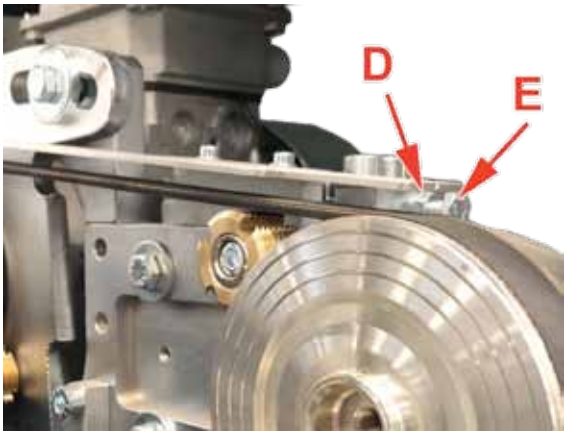
7. Tighten the two top screws that were previously slackened
8. Control the vertical angle (using the dial gauge).

Repeat the operation from point 1 to point 4 until the desired position is obtained
The recommended values are 0 mm at the top and –0.01 mm (maximum –0.03) at the bottom,

4.8.5.2 POSITIONING THE AXIS OF THE BLADES

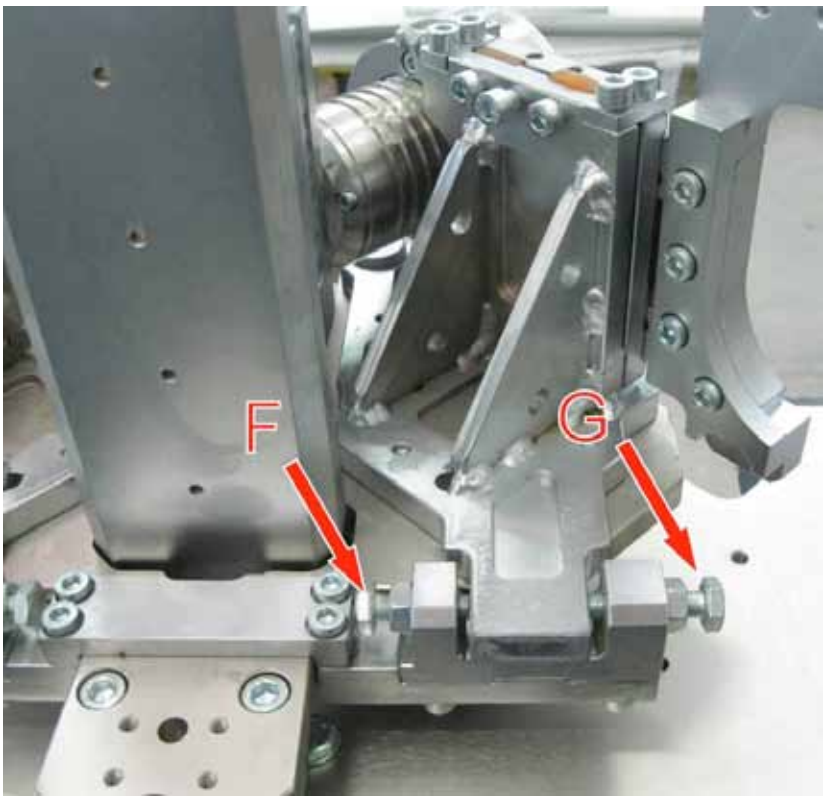
1. Using a 13 mm spanner, loosen the four screws of the hub flange (C). This will make it possible to carry out the setting through the screws “D” and “E”.
2. With a 10 mm spanner loosen the lock nut (D)
3. Act on the adjusting screw (E) to advance the blade shaft until the distance at the summit between the two blades is 1.5 - 2.0 mm.





	Before making any adjustments, the machine must be turned off and isolated from all external power sources. **Follow the steps described using only the tools supplied with the machine.** **We recommend the use of protective gloves to avoid being cut when handling the blades**

4.8.5.3 SETTING THE ANGLE OF CUT



- Slacken the locknut of both screws (that of screw “F” and of screw “G”)
- Tighten screw “F” to bring the blades closer to each other, whereas to separate they tighten screw “G”.
- Tighten the locknuts of both screws (“F” and “G”).

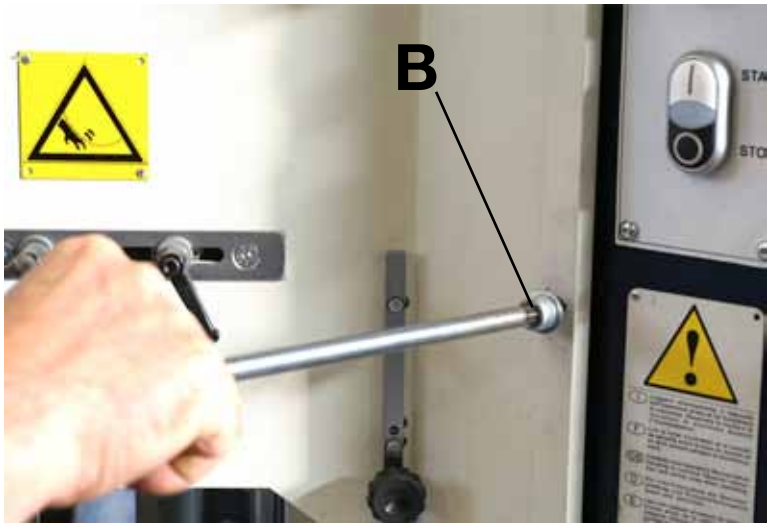
	Avoid setting the cutting angle by acting on the blade on the right. It is advisable to always and solely act on the blade on the left. **Use only new blades to carry out the settings.** **The setting of the blades should only be carried out by specialised personnel who have been previously trained by A-Plus Automation.** **Whilst adjusting the angle of the blades a variation of the space will occur at the apex of the blades. The optimum space between the two blades is 1.5 to 2.0 mm. If the position is not correct, adjust the position of the blades**

4.8.5.4 BLADES REPLACEMENT

	Before effecting the blades replacement, the operator must: -Exclude all supply sources of the machine. -Wear means fitting with individual protection (gloves) (see cap. 5.8)

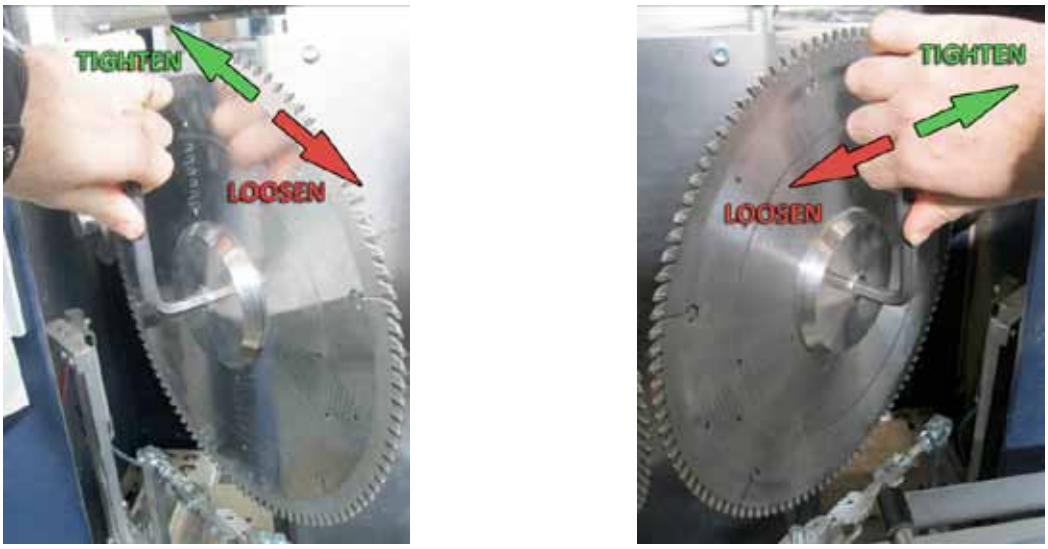
Operate as follows to replace the blades :

- Disconnect the machine from pneumatic and electric systems
- Open the frontal door loosening the special “B” (see picture 4.8.7.1) screw using the supplied hexagonal spanner



Picture 4.8.5.4

- Clean the working area
- Use a 27mm fork spanner to stop the blade rotation (A)
-



Picture 4.8.5.4.A

-

Unscrew using the 6mm hexagonal spanner 6 the two screws M8 that operate the stop flange-blade-pulley shaft (C) –see picture 4.8.5.4.A
Draw our the flange and the 2 M8 screws
Draw out the blade
Position the new blade
Put the flange in its right spot and stop the blade rotation using a 27mm fork spanner (picture 4.8.5.4.A)
Insert and tighten the two M8 fastening screws using the supplied hexagonal spanner (picture 4.8.5.4.A)
Operate in the same way for the other blade

	Pay attention to the screws that attach the blades to the hubs because they are different. There is a right screw to secure the right blade and a left screw to secure the left blade.

Picture 4.8.5.4.B

⚠	**Control the sense of rotation of the blades:** • **anticlockwise for the blade on the right of the operator** • **clockwise for the blade on the left of the operator** **Check that the sense of rotation of the blade coincides with the sense of rotation that is etched on its side.**

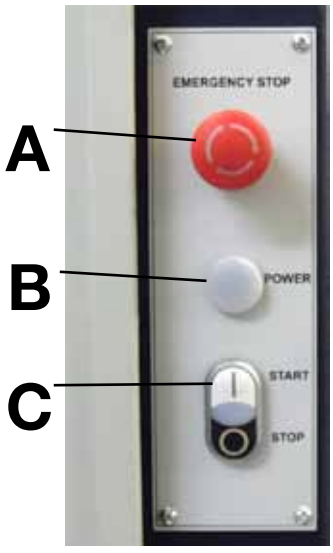
⚠	**The blades should be replaced ALWAYS in accordance with EN 847-1.** **For assembly and disassembly of the blades only use the wrenches of the equipment; Never help of wrench extensions and / or mallets.**

4.9 IDLING TESTS

- Power the machine by turning the main switch (position "1") see figure 4.9. The "B" lamp (see figure 4.9.1) lights.

Picture 4.9

- Release the emergency stop button (see Pos. A on image 4.9.1)
- Start the engine blades by pressing the “I” button (see position C of 4.9.1 image)



Picture 4.9.1

- Press simultaneously the 2 “B” push buttons to operate the cut by lowering the blades and keep them pressed until reaching the end of the stroke

Picture 4.9.2

- Release the buttons to lift up the blades group
- Press the red emergency button and verify that all mobile members are stopped.

5. FUNCTIONING

5.1 USERS

The machine has been projected to be used by only one operator.
The staff assigned to operate with the machine, must be in possession (or acquire through an adequate training) the requirements indicated here below, and, in addition, to have the knowledge of this handbook and of every information concerning safety:

- General and technical culture sufficient to comprehend this handbook contents and understand properly drawings and schemes
- Knowledge of main sanitary, technological and anti-accidental norms
- Overall knowledge of line and plant where is inserted the machine
- Specific experience in cut working technologies
- To know how operate in case of emergency, where to find the individual protection means and how to use them properly.

The Maintenance Men/Service Engineer, in addition to the above mentioned characteristics, must be in possession of an adequate technical education.

5.2 CONTROL PANEL

The machine operating control buttons are (see picture 5.2.A):

A = Run control (green button at user's left)
STOP control (Red button at user's right)
White Pilot Light
B = Main Switch (position 1=machine fed; position 0=machine not fed)
C = Emergency Control

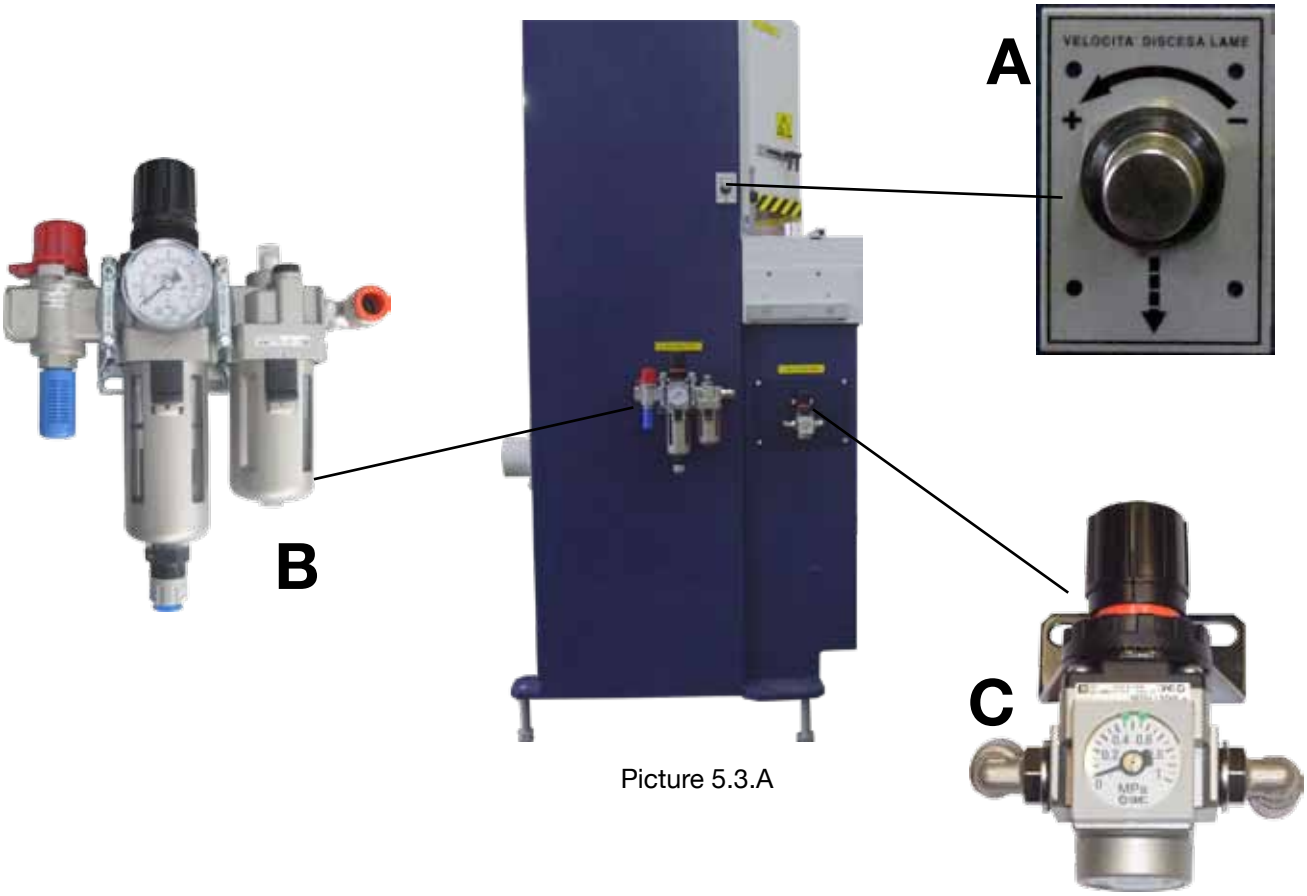
The Run/Stop controls are located frontally below the working bench; the "B" Main Switch is located on machine's right side. Onto the working bench, on the right is placed the red "C" emergency button. The emergency control button operates if pressed impulsively. The restoration is effected by turning it about 30° clockwise.

Picture 5.2 A = Location of controls

5.3 POWER UP

To power up the machine proceed as follows:

- 1- Pneumatic feeding of the machine
  - connect the compressed air pipe with the reducer-lubricator filter, indicated like B in the figure 5.3.A, using the fast clutch supplied or a fast clutch of a different type.
- 2- Electric supplying of the machine
  - Turn the Main Switch (ref. B of picture 5.2.A) on position “1”.
  - Verify that the “C” emergency button (picture 5.2.A) is not activated
  - Press the motors starting button (green colored): at this point will illuminate the white pilot light indicating motors running/power on (ref. A figure 5.2 A).



Picture 5.3.A

5.4 FUNCTIONING MODES

After executing the machine's setting at works is possible to use the machine in the manual mode:

1. Introduce the moulding to cut onto the working bench from left toward right
2. Adjust the position of the vertical clamping cylinders like indicated at step 4.8.1 in order to get a proper clamping of the moulding in position
3. Refer to the step 4.8.3 for the adjustment of mouldings stops.
4. Press the OPTIONAL pneumatic pedal to clamp the moulding)to make a test.
5. Press simultaneously the two control push buttons located frontally and keep them pressed until the complete descent of the blades.
6. Release the buttons for blades group ascent only after that blades have completely lowered.
7. Release the pedal
8. Remove from working bench right side the just cut piece.
9. Forward the moulding from left side toward right until reaching the stop and repeat the above steps from 5 to 9.

5.5 NORMAL STOP

Operate as follows for causing a voluntary Stop:

- Normal stop: press the STOP button (ref. A Figure 5.2A). It causes the stop of the motors
- Interruption of compressed-air flow (interceptable/lockable filter) It causes the stop of blades and vertical clamping cylinders descent or ascent

5.6 EMERGENCY STOP

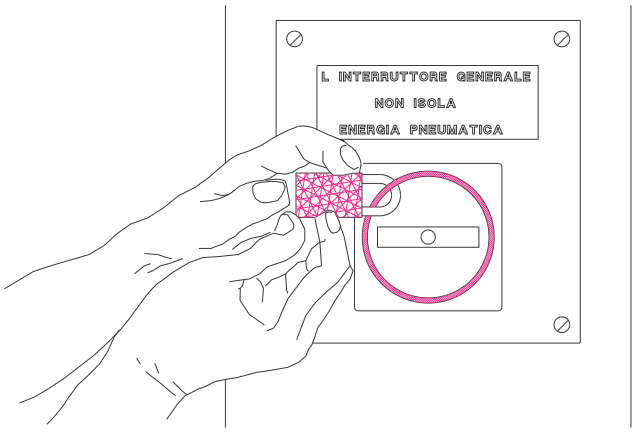
The operation of machine's Emergency Stop, can be executed pressing the red emergency button (ref. C Figure 5.2 A).
This action causes the immediate stop of all mobile parts.

5.7 RESTORATION

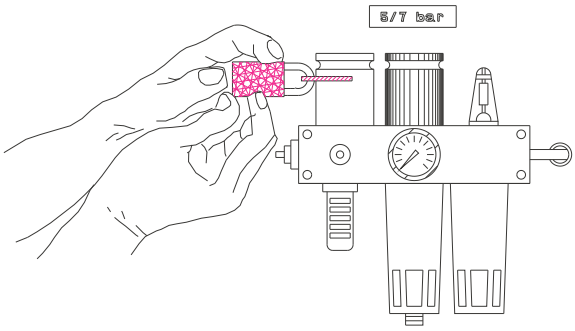
After effecting the manual rearmament of emergency button by turning it clockwise for about 30°, the machine can be normally restarted following the procedure described in the paragraph 5.3.

5.8 PUTTING OUT OF SERVICE

During the inactivity periods, with the machine not fed, it is necessary:
1) Open and padlock the electric cut-out switch (see picture 5.8A)
2) Open and padlock the pneumatic cut-out switch B (see picture 5.8 B)



Picture 5.8 A
Electric putting out of service
padlocked main switch



Picture 5.8 B
Pneumatic putting out of service
padlocked filter

6. MAINTENANCE

6.1 STATE OF MAINTENANCE

Maintenance operations must be made with care to keep the machine in the state of isolation as described in par. 6.2 and 6.3. Actions to take should take into account the requirements described in the "STATE OF THE MACHINE" tables 6.6.A and 6.7.A.

6.2 MACHINE INSULATION

Before effecting any type of maintenance or repair , it is necessary to insulate the machine from supplying sources, making the following operations:

- 1) Open and padlock the electric cut-out switch (see the figure 5.8 A)
- 2) Open and padlock the pneumatic cut-out switch (see the figure 5.8 B)

6.3 SPECIAL CAUTIONS

During the maintenance or repair operations, it is recommended to apply what indicated here below:

- Before starting any operation, expose a sign board “MACHINE IN MAINTENANCE” in a well visible spot
- Do not use solvents and flammable materials
- Pay attention of not dispersing in the environment lubricant/refreshing liquids (in case machine was equipped with)
- To have access to the machine higher parts, use proper means according with the operations to be effected
- Do not step on the machine members, because they have not been projected to sustain the weight of Persons
- At the end of operations, restore and fasten properly all the protections and guards removed or opened.

The repair operations must be executed only by experienced and qualified personnel.

6.4 CLEANING

It is recommended to clean completely the machine every 200 working hours taking special care to the collecting chips duct and to the transparent protective shield.

Isolate the machine from all power sources.
Before performing cleaning, Driver will endorse the various means of individual protection (gloves, glasses, etc.)

6.5 LUBRICATION

The lubrication of mechanical components that contribute to the movement of the machine occurs automatically during operation.
The regular maintenance plan described in § 6.6 must be performed anyway to keep efficient functionality of the machine.

6.6 ORDINARY MAINTENANCE

The operations described here below, must be executed on the indicated times. **The not observance of what requested, relieves the producer from any responsibility concerning the warranty**.
These operations, even if simple, must be executed from qualified personnel.
The scheduled ordinary maintenance, includes inspections, checks and interventions that, to prevent stop or damages, keep under a systematic control:

- The machine’s state of lubrication
- Wear and tear parts state
- The proper functioning of all electric and pneumatic components. (In case of malfunctioning, inform the technicians appointed to the maintenance that will provide the replacement of damaged or malfunctioning parts).

TABLE 6.6 - A

SERVICE	DESCRIPTION	MACHINE STATE
Lubricate the blade descent guide	a) Lubricate columns (up and down slides) with grease Molykote PG21 every 800-1000 hours	a) Isolation of the machine for maintenance
Lubricator (only for machines with cooling system)	a) Check the oil level. Seal with oil type ENERGOL HP 10 or equivalent	a) Isolation of the machine for maintenance
Pneumatic system	a) Cleaning the potion-regulator lubricator every 30 days b) Plugging the oil level in the lubricator filter (*)	a) Isolation of the machine for maintenance b) Isolation of the machine for maintenance
Electrical cabinet	a) Checking and tightening the cables every 12 months b) Checking and tightening the fuses every 12 months)	a) Isolation of the machine for maintenance b) Isolation of the machine for maintenance
Stop engines	a) Checking and adjustment and / or possible replacement of the brake pad all 150/200 hours	a) Isolation of the machine for maintenance
Blades protective housing	a) Monthly control of the presence of process waste cleaning and removing those which are stuck	a) Isolation of the machine for maintenance
Columns protective casing	a) Monthly check presence of scraps and remove them	a) Isolation of the machine for maintenance

(*) Use oil type ENERGOL HP10. Do not use oil for engines, brake fluid, gas oil or other products to avoid irrevocable damages to the gaskets.

6.7 EXTRAORDINARY MAINTENANCE

Here below are listed the operations that need the intervention of A-Plus Automation Qualified Staff authorized from the Manufacturer (see paragraph 1.2)

The extraordinary maintenance, includes interventions effected in case of exceptional events:

- Breakage
- Overhauling

• TABLE 6. 7 - A

SERVICE	DESCRIPTION	MACHINE STATE
Driving belt replacement		a) isolation for maintenance: pneumatic cut-out switch opened main switch on position “0”
Setting up of machine cutting geometry	a) adjustment of motor supports (re-positioning of blades at 45°) b) adjustment of verticality	a) isolation for maintenance: pneumatic cut-out switch opened main switch on position “0”»
Blades replacement	a) blades replacement for re-sharpening	a) isolation for maintenance: pneumatic cut-out switch opened main switch on position “0”

Valves replacement		a) isolation for maintenance: pneumatic cut-out switch opened main switch on position “0”
Motor replacement		a) isolation for maintenance: pneumatic cut-out switch opened main switch on position “0”»

7. DIAGNOSTICS

7.1 SAFETY ADVICE

The interventions must be executed by staff adequately instructed and must be followed any caution to avoid accidental starting and electric fulgurations.

7.2 TROUBLESHOOTING

TABLE 7.2 a

INCONVENIENCE	CAUSE	VERIFICATIONS AND REMEDIES
The control panel is completely off	a) The machine is missing of power supply b) The auxiliary circuits are missing of voltage	a) restore power supply b) check and eventually replace the fuses
Blades stopped at the starting point	c) the machine filter is missing of pneumatic supply	c) restore pneumatic supply

7.3 REQUEST OF SERVICE

For any information regarding Use, Maintenance, Installation, etc.. the Producer remains at disposal of Customer requests. The Customer has to formulate clearly the questions sending by fax a detailed description of troubles met. For eventual explanations we specify to make regard to this handbook and to the instructions listed on the paragraph 1.2.

E_Mail: service@a-plusautomation.com
FAX: +39-0543-480770
Via Selva, 23/25 - 47122 Forlì - Italy

In the USA please contact:

E_Mail: service@a-plusautomationusa.com
FAX: 248-851-8777
31874 Northwestern Highway
Farmington Hills, MI 48334

8. SPARE PARTS

8.1 SPARE PARTS LIST

Even if the machine has been submitted to several tests and functional checks, we list here below the components and relative amounts (in brackets) that we suggest to have a minimum and sufficient set of spare parts to guarantee possible MACHINE STANDSTILL as short as possible.

TABLE 8.1 - A

COMPOSANT

Overload cutout (1)		Warning light (10)	24/30V 2W
Remote control switch (1)		Driving belt (1)	
Fuses (5)	n° 3x10A delayed n° 1x3A fast n° 1x1A delayed	Blades (2)	

8.2 SPARE PARTS ORDERING

Note: Be reminded that only a qualified technician can repair the machine.

We recommend the intervention of Producer's Center of Technical Assistance, which is disposable with qualified staff, proper equipment and tools, and with original spare parts.
To order the above listed spare parts, send by fax/letter/Email (see chapter 7.3) the following data:
- Machine's Model
- Code of mechanic exploded drawing
- Reference number of spare part or group indicated on the mechanic drawing
- Code number of spare part or group

9. DEMOLITION

9.1 DISCHARGE
During the working process, are generated reject parts that should be gathered, recycled or discharged according with current Laws and norms of the Country where the machine is installed.
The substances produced during the working are:
- Raw materials rejects (scraps)

9.2 DEMOLITION
At the act of demolition it is necessary to separate the parts in plastic material from electric components, that must be send to differentiate gatherings respecting the current Norms.
Concerning the machine metallic mass, it is enough the subdivision between the steel parts and those of other metals or alloys, for a proper recycling by smelting.

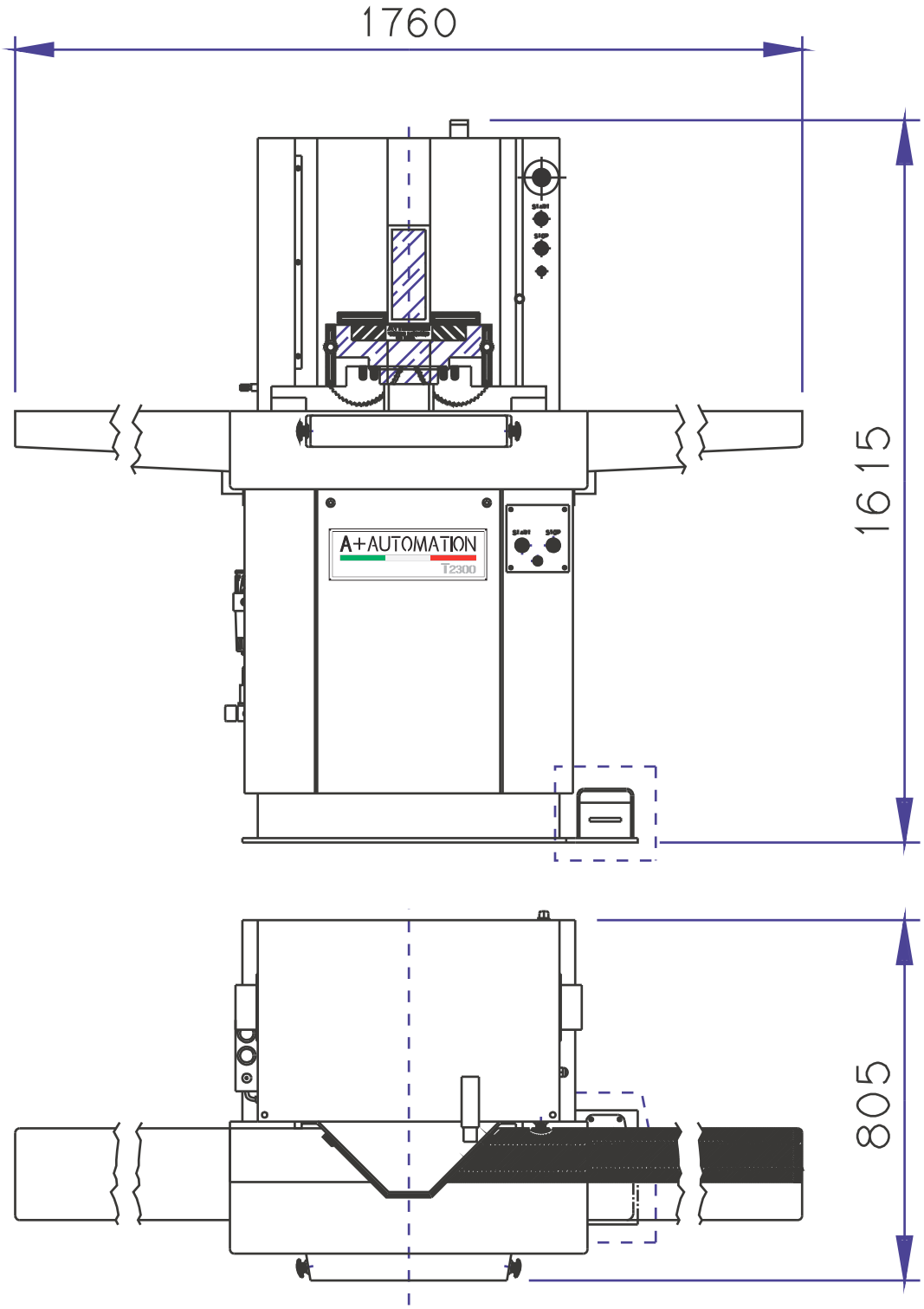
10.ATTACHMENTS

10.1 DECLARATIONS
You can find here attached the following declarations:
- Declaration of conformity to the Norm 89/392/CEE
- Declaration of conformity to the Norm 89/336/CEE

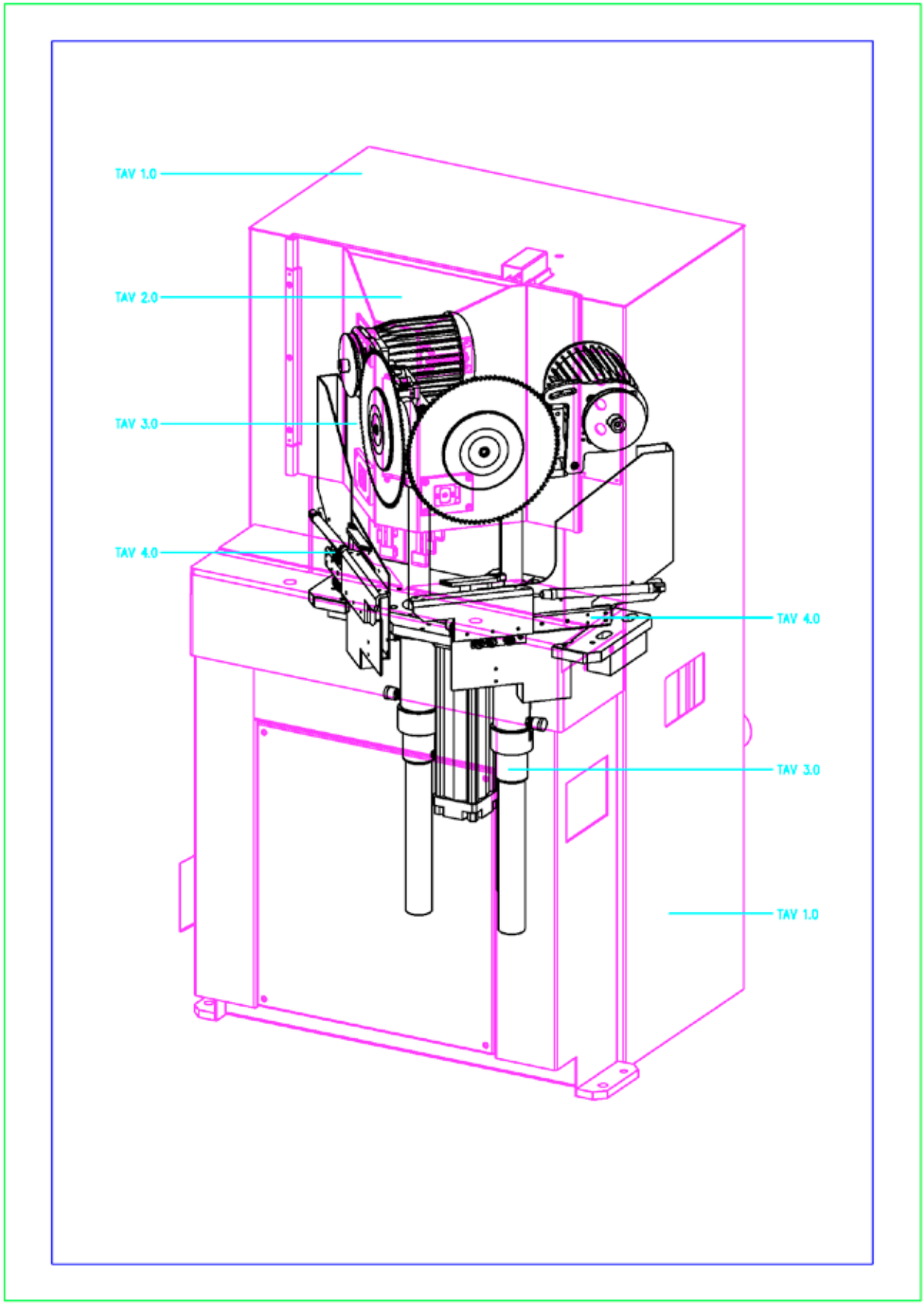
10.2 SCHEMATICS

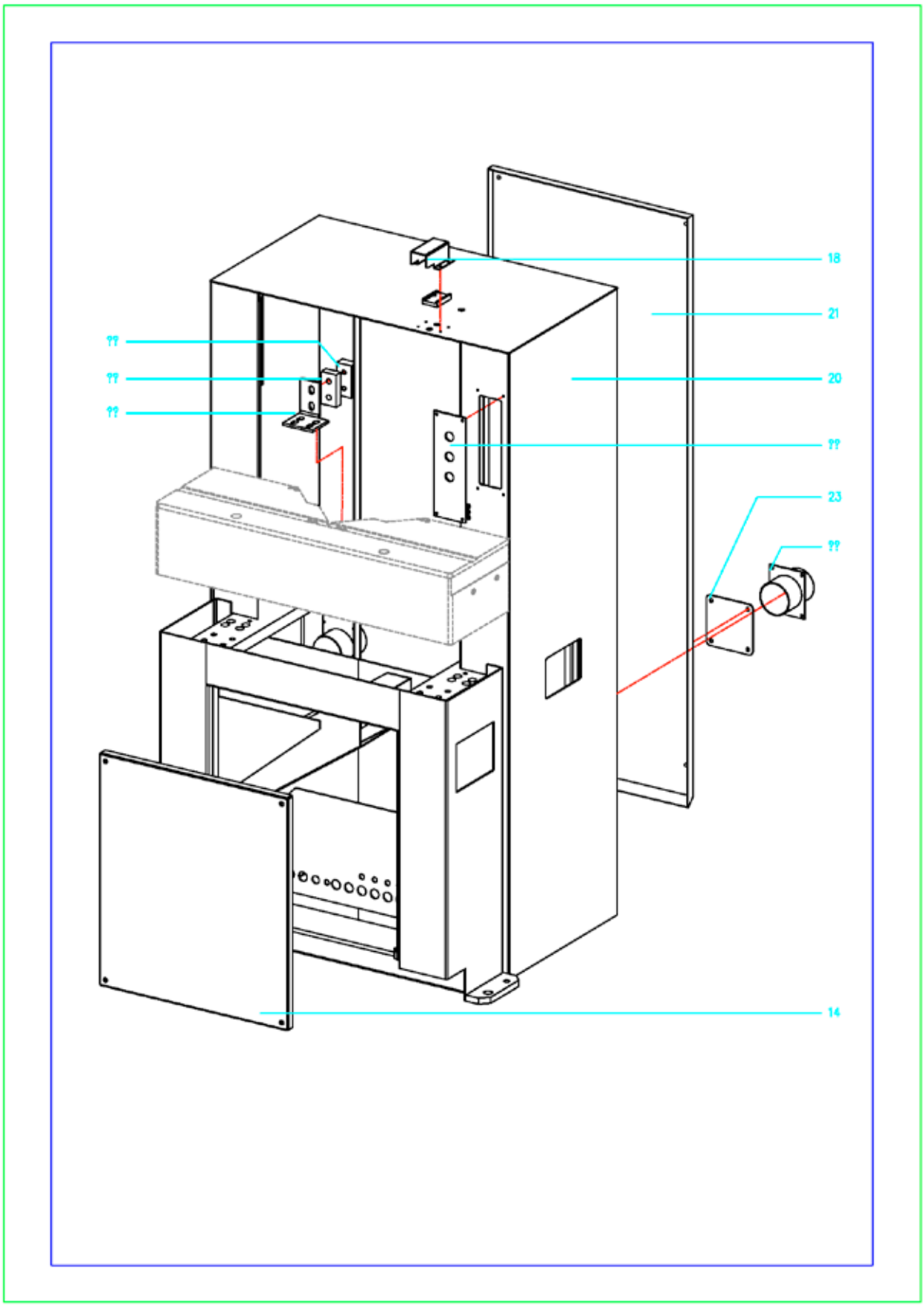
You can find here attached the following schematics:
(B) Mechanic schematics
(C) Pneumatic schematics
(D) Electric schematics
(E) Plates Dislocation
(F) CE Declaration

ATTACHMENT A – MACHINE OVERALL DIMENSIONS



ATTACHMENT B – MECHANIC SCHEMATICS - (PRELIMINARY)

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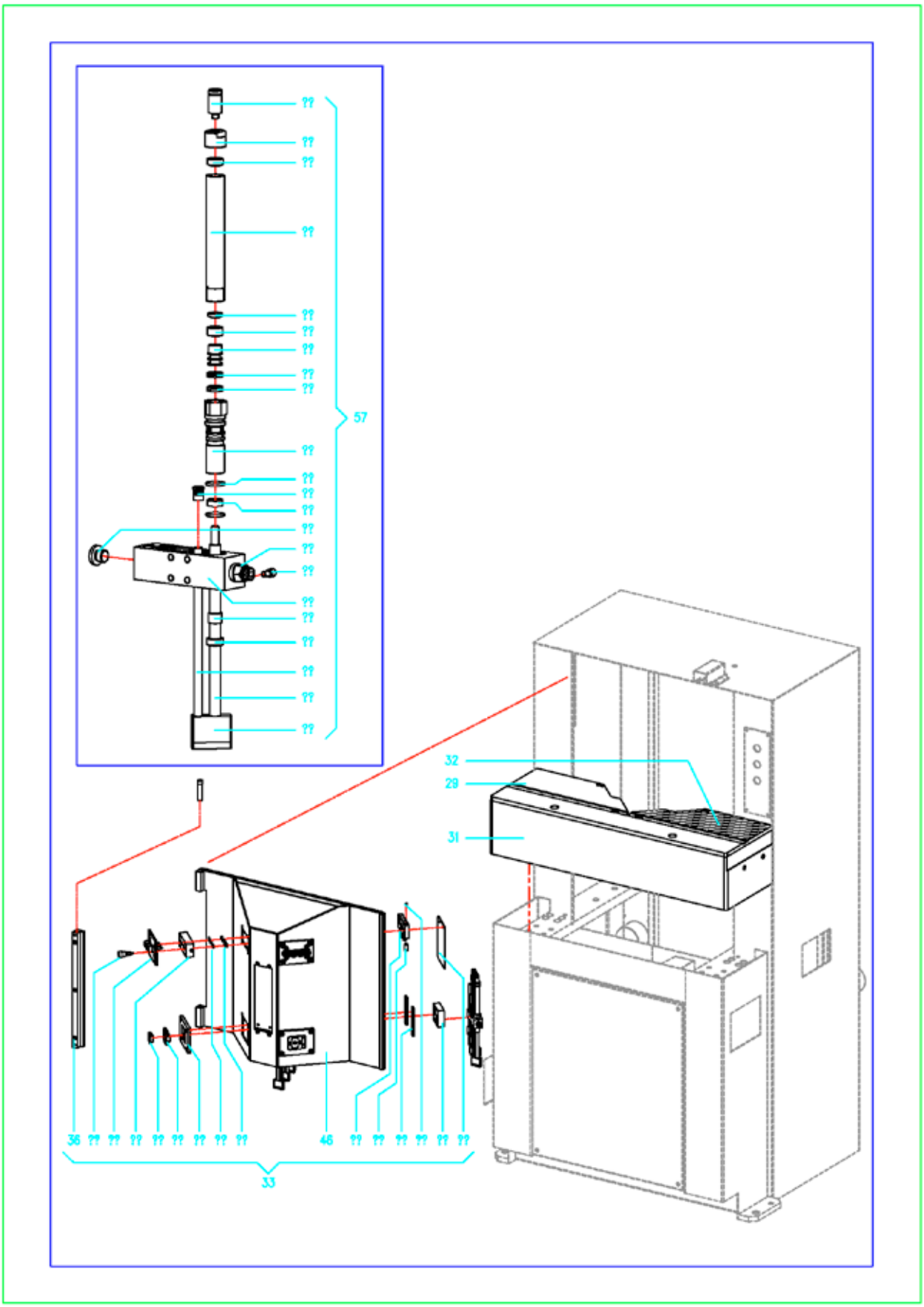
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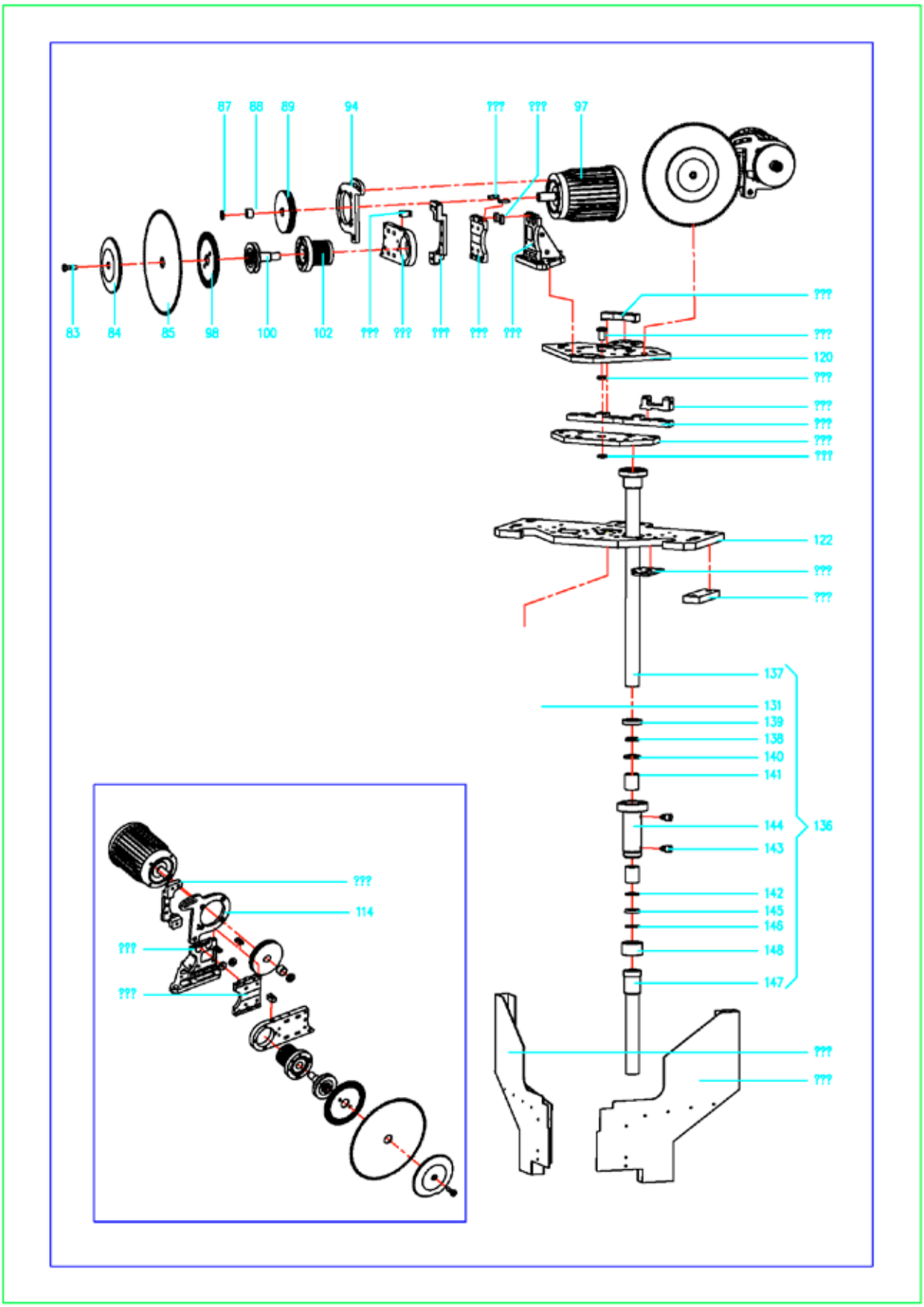
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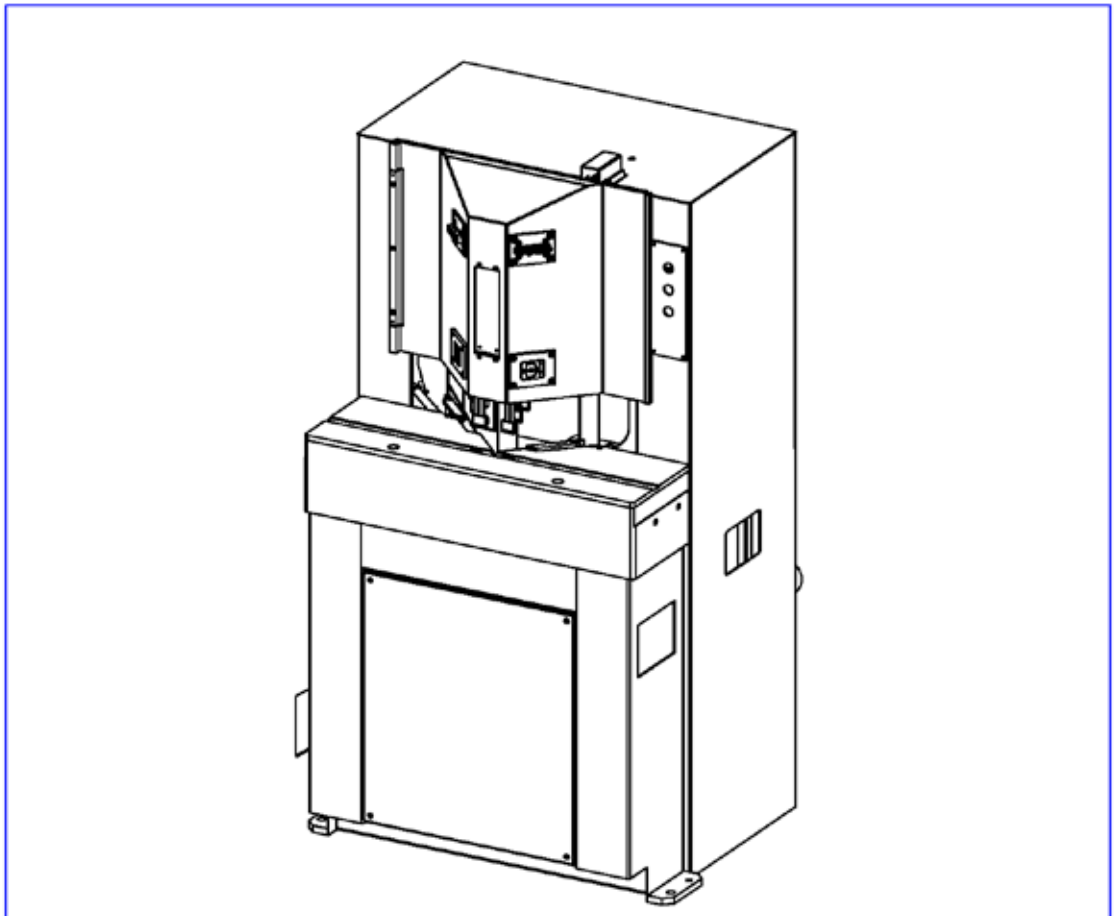

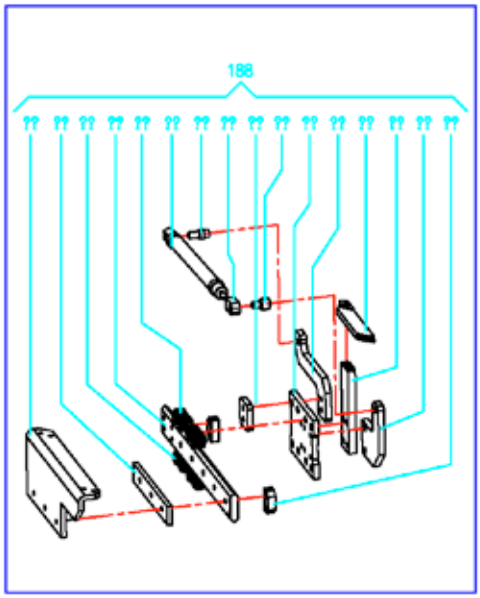
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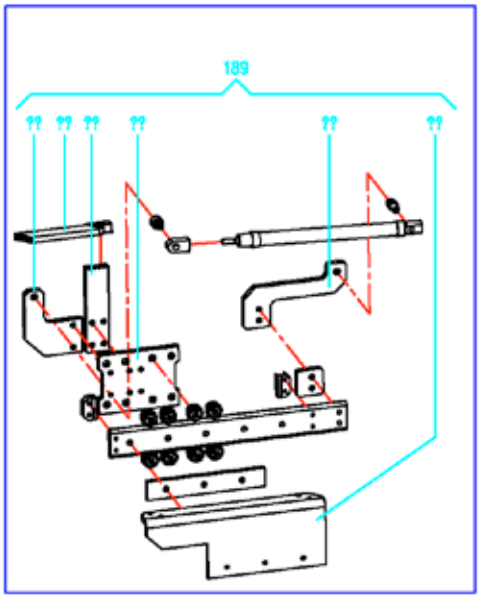
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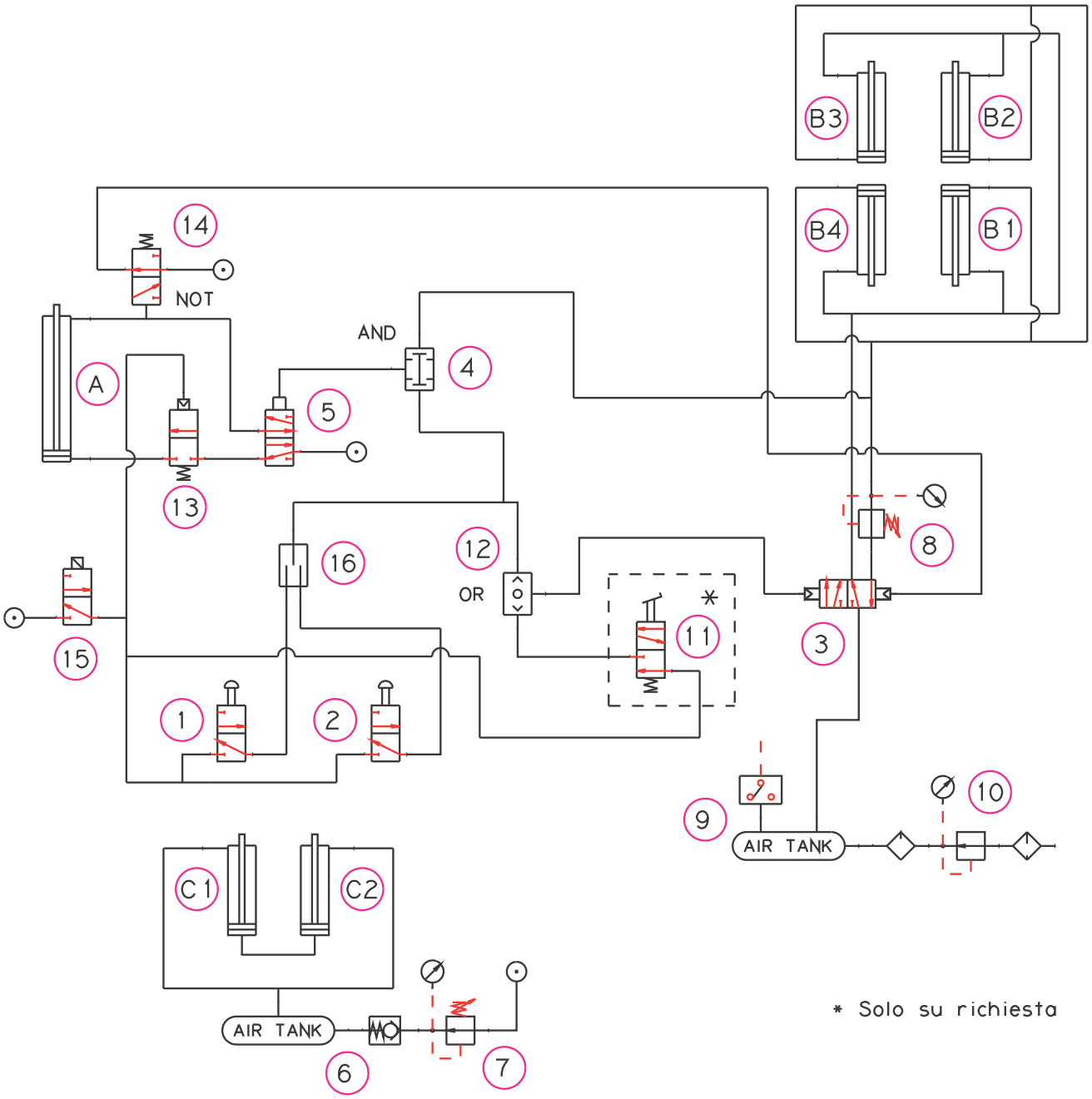
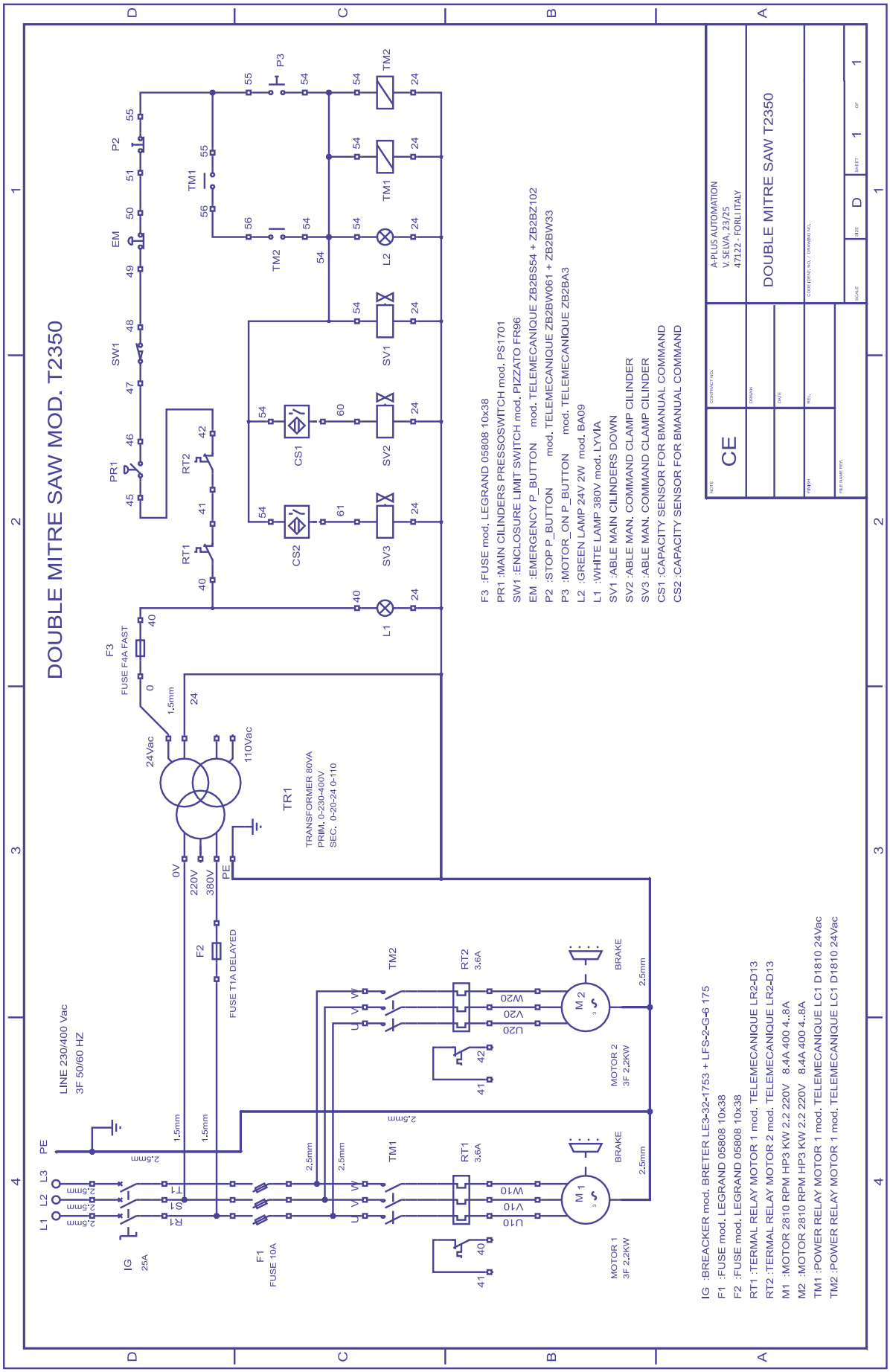
ATTACHMENT C – PNEUMATIC SCHEMATICS



Ref.	Description
A	Main cylinder
B	Vertical clamp cylinder
C	Balance cylinder
1	Button
2	Button
3	Valve
4	Valve “AND”
5	Valve
6	Valve
7	Air pressure regulator
8	Air pressure regulator
9	Pressure switch
10	Air filter lubrificator
11	Foot pedal
12	Valve OR
13	Block valve
14	Valve “NOT”
15	Solenoid valve
16	Bimanual modulus

ATTACHMENT D – ELECTRIC SCHEMATICS



ATTACHMENT E – PLATES DISLOCATION (PRELIMINARY)

A+AUTOMATION

Via Selva, 23/25 - 47122 Forlì - Italy
Tel. +39 0543 481142 / Fax. +39 0543 480770
info@a-plusautomation.com / www.a-plusautomation.com

DICHIARAZIONE CE DI CONFORMITÀ

2006/42/CE (Allegato II parte A)

Il sottoscritto, rappresentante il seguente fabbricante

Costruttore	**A-Plus Automation S.r.l.**
Indirizzo	**Via Selva, 23/25, 47122 Forlì (FC) Italia**

ha incaricato la seguente persona autorizzata a costituire e conservare il fascicolo tecnico

Nome	**A-Plus Automation S.r.l.**
Indirizzo	**Via Selva, 23/25, 47122 Forlì (FC) Italia**

Il fabbricante dichiara qui di seguito che la macchina

Denominazione generica / commerciale	**T2xxxTroncatrice bilama**
Funzione	**Troncatrice Manuale per Taglio a V**
Modello	**445**
Tipo	**T2xxx**
Matricola	**445.17.xxx**
Anno di costruzione	**2017**

risulta in conformità a tutte le diposizioni pertinenti previste dalle seguenti direttive comunitarie (comprese tutte le modifiche applicabili)

2006/42/CE - Direttiva Macchine

2004/108/CE - Direttiva Compatibilità Elettromagnetica

L'elenco delle principali norme seguite per la parte applicabile e secondo quanto documentato nel fascicolo tecnico, è allegato alla presente dichiarazione.

Forlì, 04/12/2017.

L'amministratore, Dennis Zavoli

- LINGUA ORIGINALE -

A+AUTOMATION

Via Selva, 23/25 - 47122 Forlì - Italy
Tel. +39 0543 481142 / Fax. +39 0543 480770
info@a-plusautomation.com / www.a-plusautomation.com

CE DECLARATION OF CONFORMITY

2006/42/CE (ATTACHED II part A)

The undersigned, representing the following manufacturer

Manufacturer	**A-Plus Automation S.r.l.**
Address	**Via Selva, 23/25, 47122 Forlì (FC) Italia**

has instructed the person authorized to compile and retain the technical file

Name	**A-Plus Automation S.r.l.**
Address	**Via Selva, 23/25, 47122 Forlì (FC) Italia**

The manufacturer declares that the under mentioned machine

Generic / Trade name	**T2xxx Double Mitre Saw**
Funzione	**Pneumatic manual miter saw for V cutting**
Model	**445**
Type	**T2xxx**
Serial Number	**445.17.xxx**
Year of manufacture	**2017**

conforms with all provision applicable under the following EU Directives (including all applicable modifications)

2006/42/CE - Machine Directive
2004/108/CE - Electromagnetic Compatibility Directive

The list of main standards followed by the applicable part and as documented in the technical file, is attached to this statement.

Forlì, 04/12/2017.

The managing director, Dennis Zavoli

- TRADUZIONE -

A-Plus Automation s.r.l.
Via Selva, 23/25
47122 - Forlì (FC) Italy

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